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BRIEF

A TRANSFORMATIVE INNOVATION POLICY CONSORTIUM RESEARCH BRIEFING
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THE CASE FOR SCIENCE, TECHNOLOGY AND INNOVATION PARKS IN KENYA

SUMMARY

Science, Technology and Innovation Parks (STIPs) are increasingly recognised as vital instruments for driving knowledge-based economic development. While countries like the United States, China, and several in Asia have leveraged STIPs to foster innovation ecosystems, Africa, including Kenya, continues to face structural, institutional, and policy-related challenges in doing so.

Kenya has made notable efforts to introduce STIPs through national strategies such as Vision 2030 and the Bottom-Up Economic Transformation Agenda. However, progress remains fragmented due to the absence of a coherent policy framework, limited private sector engagement, and insufficient coordination across government, academia, and industry.

This policy brief outlines the case for advancing STIPs in Kenya, highlighting their potential to catalyse entrepreneurship, research commercialisation, and industrial development. It draws on international best practices and local experiences to offer targeted policy recommendations that can support Kenya, and similar economies, in building and leveraging a sustainable science, technolgoy and innovation infrastructure.

KEY MESSAGE 1

- Kenya lacks a policy framework to support the coordinated development of science, technology, and innovation parks (STIPs). The top-down approach to policy development has resulted in disconnect among policy actors, hindering the growth of both STI policies and the STIP ecosystem.

RECOMMENDATION 1

- The Government must collaborate with stakeholders (including industry and academia) to finalise and implement the STI and STIP policies alongside establishing appropriate coordination, governance, evaluation and learning frameworks necessary for ensuring the realisation of outcomes that are transformative (address long-term systems change) and focus on development impacts.

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KEY MESSAGE 2

- STIPs are a fresh approach to making university education and research more relevant by building strong connections between higher education, research institutes, and industry. Although efforts to establish STIPs in Kenya have been made, progress has been slow, and successful initiatives have struggled to grow, limiting opportunities for transformative change.

KEY MESSAGE 3

- Although a few universities have started or set up Science, Technology, and Innovation Parks (STIPs), there are not enough reasons for private companies to get involved in creating, managing, promoting, and funding these STIPs and incubators.

RECOMMENDATION2

- Measures must be put in place by the Government, in collaboration with other key stakeholders, to secure and allocate additional resources for the development of physical, human, and IT infrastructure for STIPs.

RECOMMENDATION 3

- The Government should foster activities and provide incentives and rewards systems that consider contributions to technological generation and knowledge transfer.

- Incentives may include support for R&D linkages between universities and the industry, tax credits, funding or co-location spaces for the industry, in partnership with universities.

SCIENCE, TECHNOLOGY AND INNOVATION PARKS IN AFRICA

The United States has the most Science, Technology and Innovation Parks (STIPs),[i] while China's STIPs are growing the fastest, and African countries are lagging. STIPs, along with incubators, accelerators, and innovation hubs, are crucial parts of the national system of innovation (NSI). They offer practical spaces for experimentation, demonstration, and learning, and can indicate how well the NSI is performing.

In Africa, setting up Science, Technology, and Innovation Parks (STIPs) is seen as a crucial move towards knowledge-based economies, as outlined in frameworks like Agenda 2063[ii], the Science, Technology and Innovation Strategy for Africa (STISA-2024)[iii], and the Continental Education Strategy for Africa (CESA 2016-2025). These parks are becoming essential for building national capacity to meet development goals, aligning with the commitment to the SDGs. However, despite efforts across Africa to use STIPs to drive innovation, create jobs, and boost socio-economic growth, there is widespread disappointment with the results in the innovation outputs, the amount of employment generated, and contributions to socio-economic growth. Some reasons for the suboptimal results include a lack of supportive policies and regulations, weak infrastructure and capabilities, insufficient funding and research and development, poor coordination and governance of the National System of Innovation, and limited public-private partnerships.[iv, v, vi]

In Kenya, the government has developed Vision 2030, a plan implemented through successive five-year Medium-Term Plans (MTPs)[vii]. The current MTP, the Bottom-Up Economic Transformation Agenda (BETA, 2023-2027), prioritises inclusive growth by focusing on agriculture, the micro, small, and medium enterprises (MSME), housing, healthcare, and the digital and

creative economy. These efforts aim to reduce living costs, eliminate hunger, generate jobs and strengthen the country's economic resilience. Science, Technology and Innovation (STI) play a central role in implementing Vision 2030, as shown through the STI Act of 2013 and the Universities Act of 2024[viii], which created a National Innovation Strategy (NIS). STIPs are well positioned to support MSMEs and large companies in their efforts to realise the NIS.

Following independence, Kenya established a research and education program, leveraging the international science base to educate many of its brightest citizens. However, Kenya's infrastructure remains insufficient to support the commercial potential of its talents and knowledge. While Kenyan universities excel in performing research and development, educating highly skilled workers, and nurturing talent, they fall short in providing technical assistance to local firms. They contribute little to the commercial sector through spin-off companies, patenting and licensing inventions, and collaborating with industry[ix]. International experience shows that well-designed and managed science, technology, and innovation policies can create an innovative infrastructure for developing indigenous technology-based economic activities. University-linked STIPs and business incubators are becoming common tools to foster partnerships, stimulate entrepreneurship, nurture innovative businesses, and commercialize academic inventions. This policy brief highlights the landscape of STIPs in Kenya, drawing on existing knowledge and international best practices to inform recommendations for appropriate policy interventions.

THE NEED FOR STIPS IN KENYA

STIPs thrive best when integrated into the National System of Innovation (NSI). However, they can also play a crucial role in strengthening the foundations of the NSI, as seen in Kenya by providing spaces for interactive learning, technology transfer, knowledge exchange and collaborations. Collaborations between government, academia, and industry within the NSI have led to advancements in research, turning university findings into commercial products, as demonstrated by Lenovo in China. In Kenya, both national and county governments benefit from viable STIPs, which create jobs, produce competitive products and services, and promise long-term prosperity. In 2012, public and private sectors invested €4.8 billion and €6.9 billion, respectively, into STIPs, resulting in significant employment and socio-economic benefits.

With Kenya's growing population and transitioning economy from labour-intensive to knowledge-based, STIPs are essential. STIPs in Asian Tigers like Singapore and South Korea highlight their role as catalysts for innovation and economic development. Kenya's 21st-century university will educate and commercialise its research outputs. A fully established STIP offers unique opportunities for collaboration between academia, industry, government, and investors through public-private partnerships (PPPs)[x]. The objectives of STIPs (Figure 1) will enhance the design and effectiveness of R&D and business development policies, aligned with national goals and Kenya's Vision 2030. STIPs in Kenya will facilitate the flow of science, knowledge, and technology among universities, R&D institutions, companies, and markets.

STIPs will help create and grow technology and innovation-led companies by providing incubation and spin-off services, along with high-quality space and facilities for commercialization

THE STRATEGIC OBJECTIVES OF STIPS IN KENYA INCLUDE TO

- stimulate and manage the flow of knowledge, technology and innovation amongst universities, R&D institutions, companies, and markets;
- facilitate the creation and growth of innovation-driven companies through incubation and spin-off processes; and
- provide other value-added services together with high quality space and facilities for STI to flourish.

Figure 1: Strategic objectives of STIPs in Kenya

MOMENTUM TOWARDS ESTABLISHING STIPS IN KENYA

In 2008, the comprehensive business plan for STIPs in Kenya proposed the Regional Innovation Strategy (RIS) to be a series of STIPs. These STIPs aim to create an environment that connects technology supply with its utilization by the productive sector of the economy. They foster a culture of invention and knowledge sharing between commercial enterprises and academic institutions (Figure 2), providing collaborative spaces where governments, universities, and the private sector can combine scientific and business activities[xi].

The momentum to establish STIPs in Kenya grew as policymakers, university leaders, and business community members shared common interests (Table 1).

Besides incubation centres set up by universities and private sector players, fully developed STIPs are still pending in Kenya. Konza Technopolis, the first planned STIP, was approved by the government in 2008. However, its development is ongoing under the Konza Technopolis Development Authority (KoTDA) of the Ministry of Information and Communication Technology (MoICT). Construction began in 2018. The government is also supporting a second National STIP at Dedan Kimathi University of Technology (DeKUT), with groundbreaking in August 2020 for a two-year construction period. In addition to government-supported projects, some public universities with private sector funding have started establishing their own STIPs. These include the University of Nairobi (UoN) STIP, the Masinde Muliro University of Science and Technology (MMUST) STIP, the Jomo Kenyatta University of Agriculture and Technology's (JKUAT's) Nairobi Industrial and Technology Park (NITP), the Egerton University Agro-Industrial Park, the Egerton Agro-Science Park, and the Chuka University Science Park.

SCIENCE PARKS:

- Have formal links to a university or other higher educational and research institution (HEI)
- Are managed by professionals and designed to encourage the formation and growth of knowledge-based businesses and other organizations normally resident on site
- Have management function which is actively engaged in the transfer of technology and business skills to the organization on site.

BUSINESS INCUBATOR:

- A facility that supports the formation of start-up companies.
- It offers services such as management assistance, access to finance, legal advice, operational expertise, networking opportunities and access to new markets.

Figure 2: Key definitions

YEAR	CONTRIBUTION	ACTORS
2002	The Vice Chancellors at the Kenya School of Monetary Studies discussed the STIP concept.	Vice Chancellors, British Council
2004	Presentation of a concept paper in the Proceedings of the National Workshop in Commemoration of Scientific Revival Day in Africa. Publication of the paper[xii] Masinde Muliro University of Science and Technology became the first university in Kenya to be registered as a Science and Technology Park by the International Association of Science Parks (IASP).	Kenya National Academy of Sciences Masinde Muliro University of Science and Technology
2005	The University of Nairobi, in its 99th meeting, expressed interest in establishing a science park associated with campus.	University of Nairobi
2006	Policymakers from around the world took part in several UNESCO-organised meetings focused on developing science parks. These events highlighted thriving science parks in Europe, Asia, and the US and were attended by senior government officials and academics[xiii]. Benchmarking emerging parks in Egypt and South Africa	UNESCO, Government of Kenya
2008	Formation of a National Steering Committee on STIPs. Development of a broad-based business plan for STPs in Kenya[xiv]. Training of three technical officers (researchers) on the planning, building, and managing science parks and incubators in China. Re-launching a National Innovation Fund with a grant of 250 million pounds. Rebranding of technical and vocational training, which emphasised their orientation towards technical, industrial, vocational, entrepreneurship, and training (TVET).	Ministry of Science and Technology, Universities, TVET, National Council for Science and Technology (NCST) Ministry of Science and Technology of Kenya, Department of International Cooperation, Ministry of Science and Technology of the People's Republic of China Ministry of Science and Technology, Universities, TVET, National Council for Science and Technology (NCST)
2010	Two technical officers received training on developing science parks in South Korea.	Ministry of Science and Technology, Korean International Cooperation Agency
2012	The Universities Act Draft Policy on Science Parks Draft Policy on Science, Technology, and Innovation (STI)	Ministry of Science and Technology, Universities, Commission for University Education Ministry of Science and Technology
2013	Science, Technology, and Innovation Act, which created: National Commission for STI (NACOSTI), Kenya National Innovation Agency (KENIA). National Research Fund (NRF). Kenya Industrial Research and Development Institute (KIRDI). Kenya Medical Research Institute (KEMRI), Kenya Livestock and Agricultural Research Organisation (KALRO) and Kenya Marine and Fresh Water Research Institute (KMFRI).	Ministries of Education, Health and Agriculture, NCST
2016	Operationalising NRF and KENIA.	Ministry of Education, National Treasury

YEAR	CONTRIBUTION	ACTORS
2018	Construction of the initial phase of infrastructure development.	Konza Technopolis Development Authority (KoTDA), Governments of Kenya and Italy.
2021	The national government and county governments signed a Memorandum of Understanding (MoU). KoTDA received 73,000 acres of land. KoTDA launched its Second Strategic Plan, initiating key projects such as the National Data Centre, Konza Conference Facility and Hotel, the Konza Technopolis Security Command	National Government County government of Kajiado, Makueni, and Machakos
2022	26 new investors joined the project, while key infrastructure developments, such as the Kenya Advanced Institute of Technology (KAIST), National Security Centre, and Konza Complex Phase II, were in progress.	KoTDA, Kenya Government
2023	The establishment of the Open University of Kenya (OUK) at Konza.	Ministry of Education
2024	Review of the Universities Act of 2012. OUK held its first graduation ceremony at Konza Technopolis, awarding postgraduate diplomas to seventy-eight graduates from the School of Business and Economics and the School of Education.	OUK, KoTDA Ministry of Education Commission for University Education
2025	Riara University announced plans to build a Ksh 20 billion main campus at Konza Technopolis. A partnership between OUK and Rift Valley Technical Training Institute (RVTTI) has been initiated.	Ministry of Education KOTDA Riara University Rift Valley Technical Training Institute (RVTTI)

Table 1: Timeline of momentum towards establishing STIPs in Kenya

CHALLENGES

The current STIPs and STIP initiatives in Kenya are designed to drive sustainable economic growth by promoting the application and commercialisation of research, science, technology, and innovation. However, there are no adequate indicators to measure commercialisation progress. Despite increasing investments in establishing viable STIPs, there has been minimal effort to develop a supportive policy framework for STIPs in Kenya. Although a draft STIP policy was initiated in 2012 and subsequently revised in 2020 and 2024, it is still pending Cabinet approval. Similarly, the draft STI policy, first developed in 2012 and updated in 2020, remains unfinalized, despite emphasising the role of STIPs in promoting entrepreneurship, technological capability and innovation within the Kenya National Innovation System (KNIS).

However, despite the government's many pronouncements on the need to establish STIPs, the top-down approach to developing and implementing a policy framework has been unsuccessful. This approach does not promote inclusiveness and generates conflicts among stakeholders instead of consensus. Therefore, there is a need for actors to experiment with new governance and coordination approaches that combine bottom-up and top-down interventions, promoting inclusiveness, consensus, grassroots innovation, and learning and reflexivity.

Kenya is a regional hub for major international companies and university education, offering access to world-class technology and practices that support local business incubation. However, most of these international companies rely on research and development (R&D) elsewhere, limiting the development of local STI industries and sustained R&D efforts within Kenya. Universities also face institutional constraints that limit their ability to develop relevant research programs and connect with industry (Figure 3). The establishment of STIPs can help address these challenges.

- Absence of a policy framework to support the development of STIPs
- Poor collaboration between Academia and Industry in the current Quadruple Helix model
- Weak commercialisation/lack of an entrepreneurship culture in most universities
- Lack of seed and venture capital to support STIPs
- Limited and shrinking resources from the Government for university education
- Low of interest in science, technology, engineering, and mathematics (STEM)-based courses
- Weak harmonisation of curricula to priority thematic areas and skills
- Weak capacity to train scientists and retains research talent
- Inadequate alignment between research produced from academic and industry needs

Figure 3: Constraints facing Science, Technology and Innovation Parks in Kenya

PROPOSED STRATEGIC INTERVENTIONS

While STIPs in Kenya have a defined strategic direction, their effective implementation requires targeted capacity-building for managers, particularly in areas such as change management. This is due to the limited prevalence of STIPs in Kenya and their difference from conventional business parks. Strengthening management competencies will enhance the ability to utilise research for innovation and opportunities in the business environment, manage technologies, and engage in interactive learning. To increase STIP effectiveness, Kenya should implement an innovation policy mix that includes instruments suitable for the interventions outlined in Figure 4 below.

- Provide visibility and attraction for high-tech industries.
- Work with other stakeholders to develop a policy framework to support investment in STIPs
- Harness entrepreneurial activity and research to support innovation and development.
- Provide a platform and infrastructure for leapfrogging research-intensive enterprises.
- In collaboration with key stakeholders, establish infrastructure to support STIPs
- Provide complementary services and support to local firms for effective realisation of spin-offs and creation of start-ups and MSMEs.
- Enhance greater interactions among NSI actors and foster management, technology brokering and Intellectual Property Rights (IPRs).
- Promote strong networks for social and fiscal capital flows, including heterogeneous networks of knowledge producers, users, and disseminators
- Facilitate exchange of tacit knowledge, the formation of 'communities of practice', and the greater access to advanced human resources.
- Harness and exploit local research capabilities and opportunities.
- Model the growth of New Technology-Based companies (NTBFs).
- Establish human resource requirements for the STIPs
- In collaboration with key stakeholders, establish a fund to support STIPs structure and operations
- Harness foreign direct investment (FDI) for the STIPs in Kenya

Figure 4: Proposed strategic intervention for STI Parks in Kenya

RESEARCH METHOD

The research drew on various sources, including universities with STIPs and incubators. International case studies served as a basis for establishing a theoretical foundation to examine the Kenyan context. Additional data was obtained through systematic reviews of government reports, online resources and interviews with key informants to gather first-hand insights.

CONCLUSION

In general, science, technology, and innovation parks (STIPs) are new to Kenya. Institutions develop STIPs based on two main tracks. The first involves plans to build large infrastructures, such as those at DeKUT, Chuka University, and Konza Technopolis. The second model sees institutions like MMUST, JKUAT, and UoN starting with incubators and gradually progressing towards viable STIPs. Konza Technopolis is generating interest in creating and supporting university-related STIPs and incubators in Kenya. However, efforts to establish STIPs face challenges due to weak national coordination and governance, a lack of a policy framework, and inadequate funding. These issues inform the recommendations for promoting STIPs in Kenya. Implementing these recommendations will help establish STIPs that contribute to transformative change and foster inclusive and sustainable development in Kenya.

AUTHORS

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ENDNOTES

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