Adapting African Union -

Science Technology and Innovation Strategy for Africa (STISA-2024)

and MIT stakeholder Framework to Unlock Kenya's Silicon Savannah Dream

White Paper July 2024

Victor Otieno Agolla

Viffa Consult Limited

One Padmore Place, George Padmore Road, Kilimani, Nairobi, Kenya

ABSTRACT

Despite Kenya's innovation ecosystem leading in Africa as evidenced by a myriad of indices such as global innovation index, startup ecosystem index and venture capital funding among others , the sector is yet to reach its full potential based on contribution to Kenya's socio economic development as measured by both Central Bank of Kenya (CBK) and Kenya National Bureau of statistics (KNBS) through the annual economic review reports.

The sub-optional performance is driven by many factors such as; unsupportive regulatory and license regime, incoherent policy, uncoordinated funding by development partners, lack of local corporate involvement in the startup ecosystem and ESO sustainability challenges among others.

Holding all other factors constant , the paper focuses on the overarching challenge of a lack of coherent local based ecosystem building model that brings together all major stakeholders for the greater good of Kenya's entrepreneurship ecosystem through decentralization and focuses on solving challenges at the county level with matching funds.

This approach is opposite to the centralized ecosystem in major cities of Nairobi, Mombasa and Kisumu that doesn't allow for percolation of innovation from all corners of the country thus impeding investors of diverse pipelines and limiting growth of the sector.

By using STISA building blocks needed to support innovation and localization of the MIT stakeholder framework that aims to optimize innovation-driven entrepreneurship and build an innovation ecosystem, Kenya stands to address the systemic challenges plaguing the ecosystem hence unleashing its potential.

The paper proposes a coherent innovation stakeholder collaboration framework based on the building blocks of the African Union's Science Technology and Innovation Strategy for Africa 2024 and the MIT stakeholder Framework.

INTRODUCTION

Africa's Innovation Policy

The African Union's Science, Technology and Innovation Strategy for Africa 2024 (STISA-2024) espouses significant socioeconomic development of AU member states underpinned by science, technology, and innovation to drive critical sectors of agriculture, energy, environment, health, infrastructure development, mining, security, and water, among others.

The strategy has defined key building blocks for successful development of technology and innovation ecosystem being; building and/or upgrading research infrastructures; enhancing professional and technical competencies; promoting entrepreneurship and innovation; and providing an enabling environment for STI development in the African continent.

Table 1 : STISA Building Blocks

Building Block	Program/Activities
Research infrastructures	Develop or upgrade research and innovation facilities e.g. laboratories, teaching hospitals, ICT equipment and infrastructure, Innovation Spaces, Living Labs and National Research and Education Networks (NRENs).
Professional and technical competencies	Expand the availability of quality post-graduate education and curb brain drain
Promoting entrepreneurship and innovation	-A multi-disciplinary and multi-sectoral approach to Collaborative Open Innovation and Entrepreneurship is essential to achieving the Knowledge Economy and sustainable socio-economic development across Africa. -Increasing networking and collaboration between education and research, private and public sector stakeholders will facilitate co-creation, adaptation and commercialisation of research and innovation outputs
Enabling environment	-Developing evidence-based policies and programmes that encourage STI development. Coherent national framework for actions that directly affect the promotion of STI. -National STI programmes developed by governments in consultation with all national and regional research and innovation stakeholders from the public, private, education and research, societal, international development and funding sectors.

Source : Science Technology and Innovation Strategy for Africa 2024

STISA has the goal of ensuring that continental, regional and national programmes are designed, implemented and synchronized to ensure that their strategic orientations and pillars are mutually reinforcing, and achieve the envisaged developmental impact.

The paper focuses on stakeholder collaboration in collectively addressing the building blocks in developing Kenya's decentralized innovation ecosystem

Kenya's Innovation Policy

The Kenyan innovation eco system comprising various stakeholders including but not limited to government, CSOs, multilaterals, corporates, incubators, academia, investors, entrepreneurs and innovators has matured evidenced by; 85th globally and 3rd in Africa in the 2021 Global Innovation Index , top 3 in Africa in the Global Startup Ecosystem Index (GSEI), 4th in attracting venture capital funding in Africa (Partech 2021) and 5th globally on 2021 crypto adoption index.

Kenya lacks a coherent policy and legal framework for recognising and supporting start-up led innovation with redundant government support.

Start-ups in Kenya are captured in five key government domains;

About MIT Stakeholder Framework

Graph 2: MIT's Five Stakeholders in an Innovation Ecosystem
© Budden, P. & Murray, F. (2019)

The MIT Stakeholder Framework (Murray & Budden, 2019) identifies 5 key stakeholders that are critical for the development of an innovation-focused ecosystem in the pursuit of economic growth and prosperity. In essence, the framework centralizes the role of collaboration and integration among the multiple stakeholders – entrepreneurs, universities and centers of scientific research, government, corporations, and risk capital providers.

One of the key characteristics of this model is its network of connected entities and the strength within and between them. The marked proliferation of networks of exchange and the consequent effects underpins the concept of 'co-location'. Audrestch and Feldman (2004) observed an intriguing aspect of innovation ecosystems, and that is the high-concentrated and self-reinforcing nature of innovation-driven enterprises (IDEs) within these spaces.

Once a region reaches a certain critical mass of stakeholders and successful IDEs, they tend to embark on a self-perpetuating cycle of growth, with significant implications for the region experiencing growth but also for those regions that have yet to reach the threshold for accelerated development.

The continued cycle of progressive development in one region and progressive waning in another creates a gap in economic and technological progress.

The MIT Stakeholder Framework, designed to optimize innovation-driven entrepreneurship and build an innovation ecosystem at the regional level, and augmented with a nuanced understanding of i-cap and e-cap, takes on a broader dimension within the Pan-African context. It provides a valuable blueprint to each stakeholder that allows them to:

1. Recognize and address barriers to collaboration.
2. Align regulations to facilitate connections among entrepreneurs and stakeholders.
3. Actively cultivate clusters of innovation ecosystems.

4. Establish strong networks between stakeholders.
5. Address barriers arising from differential access to resources and power dynamics.
6. Amplify their impact and reach through aligned efforts with other stakeholders.
7. Enhance effectiveness in addressing complex social and economic challenges.
8. Include the essential role of SSOs within the ecosystem Considering the continent's geographic size and immense diversity in terms of demographics, languages, cultures, and resources, the framework becomes a vital and essential tool that can promote cooperation and a sense of shared purpose, provided there is strong connectedness between the ecosystems.

Adapting AU-STISA and MIT stakeholder Framework in Kenya

Despite Kenya's innovation ecosystem leading in Africa as evidenced by a myriad of indices such as global innovation index, startup ecosystem index and venture capital funding among others , the sector is yet to reach its full potential based on contribution to Kenya's socio economic development as measured by both Central Bank of Kenya (CBK) and Kenya National Bureau of statistics (KNBS) through the annual economic review reports.

Factors that impede significant growth of Kenya's innovation ecosystem among others include;

1. Incoherent policy with no recognition of startups
2. Insufficient resource allocation towards innovation by county and national government
3. Lack of support framework by national and county governments for startups to access procurement opportunities
4. ESOs suffer sustainability challenges
5. Redundant and resource waste by development partners
6. Majority of startups operating from the pre-seed to Series A funding rounds
7. Insufficient startup funding with current VC Funding biased toward fintech. Fintech accounted for 63 percent of total equity funding (Partech 2021).
8. Lack of corporate involvement in startup ecosystem

By using STISA building blocks needed to support innovation and localization of the MIT stakeholder framework that aims to optimize innovation-driven entrepreneurship and build an innovation ecosystem, Kenya stands to address the systemic challenges plaguing the ecosystem hence unleashing its potential.

Entrepreneurs-Startup

STISA Building Block	Trend	Proposed Recommendation
Research infrastructures	Lack of operating space	-Consider joining an incubator, co working space who is a member of either Association of Startup and SME Enablers of Kenya (ASSEK), Association of countrywide Innovation Hubs (ACIH) to access office space -Consider joining relevant government support institutions below Kenya Industrial Research and Development Institute (KIRDI) Kenya Industrial Estates (KIE) Kenya Forestry Research Institute (KEFRI) Micro Small Enterprise Authority (MSEA) Kenya Agricultural and Livestock Research Organization (KALRO)
Professional and technical competencies	Lack or insufficient talent	-Consider joining an incubator, co working space who is a member of either Association of Startup and SME Enablers of Kenya (ASSEK), Association of countrywide Innovation Hubs (ACIH) to access capacity building program -Consider joining relevant government support organizations eg KIRDI, KEFRI,KALRO, KIE,MSEA etc
Promoting entrepreneurship and innovation	Sub optimal social capital	-Consider attending county and national innovation expo's and conferences eg Kenya innovation Week, Nairobi Innovation Week, Innovate Nairobi among others
Enabling environment	Suboptimal policy engagement	-Consider joining an incubator, co working space who is a member of either Association of Startup and SME Enablers of Kenya (ASSEK), Association of countrywide Innovation Hubs (ACIH) in order to engage in policy discourse

Risk Capital

To address the challenge of access to finance with a huge bulge of startups operating at pre seed and series A with little scaling there is need for risk capital stakeholders (National and county government, VCs, angel, local and international donors) to work in sync in providing blended financing to startups.

STISA Building Block	Trend	Proposed Recommendation
Professional and technical competencies	Lack of expertise in designing startup funding in national and county government Lack or few local angel investors	-Capacity building of potential local angel investors -Capacity building of relevant national and county staff involved in innovation funding
Promoting entrepreneurship and innovation	Sub optimal interaction among various risk capital stakeholders	-County government-Venture Capital-Development partner-Civil Society Organizations working group to align startup funding in counties
Enabling environment	Suboptimal policy engagement	-National-County government and risk capital stakeholders policy roundtable

Government

Government must take a proactive posture in supporting the innovation ecosystem underpinned on systemic rather than ad hoc collaboration with all stakeholders.

STISA Building Block	Trend	Proposed Recommendation
Research infrastructures	Sustainability of keeping innovation labs open	-Consider co development of research facilities in partnership with innovation stakeholders and allow them to operate eg private incubators under ASSEK, ACIH etc -Collaboration with national government support centers by KIRDI, KIE,KEFRI, KALRO, MSEA, SEZ, to align with proposed spaces under County aggregation industrial parks (CAIPS)

STISA Building Block	Trend	Proposed Recommendation
Professional and technical competencies	Lack or insufficient talent	-Promote STEM at all levels of education system -Consider collaboration framework with private sector, development partners and TVETs-VTCs in training innovation and tech talent -Collaboration with national government support centers by KIRDI, KIE,KEFRI, KALRO, MSEA to knowledge management -Consider tax incentives for corporates to absorb and train youth -Consider PAYE relief for startups to attract top corporate talent -Consider startup VISA for Kenya to attract global top tech talent
Promoting entrepreneurship and innovation	Sub optimal collaboration with innovation stakeholders	-Consider county innovation stakeholder working group to support both policy and county entrepreneur support programs under County integrated development plans (CIDPs)
Enabling environment	Suboptimal policy engagement	-Develop evidence based policy in collaboration with innovation stakeholders eg KIPRA, ASSEK, ACIH, Development partners -Establish startup policy and support regulations with fiscal and non fiscal incentives for startups and investors -Establish framework for startup access national and county procurement opportunities in digitization of government -Align foreign policy to incorporate economic diplomacy that prioritizes Kenyan innovators and startups -Prioritize Kenyan Innovators and startups in all Economic partnership Agreements (EPAs)

Sector Support Organizations (SSOs)

STISA Building Block	Trend	Proposed Recommendation
Research infrastructures	Unspecialised space	-Consider specialization in order to support startups in diverse sectors
Professional and technical competencies	Lack or insufficient talent	-Consider development of standardized curriculum developed by professional bodies such as Law Society of Kenya (LSK), Institute of certified public accountants (ICPAK), Institute of Human Resource management (IHRM) etc -Consider establishment of peer learning program -Consider collaboration with academia
Promoting entrepreneurship and innovation	Suboptimal stakeholder engagement	-Consider establishing county and national innovation stakeholder network or roundtable bringing together all innovation associations, development partners and academia
Enabling environment	Suboptimal policy engagement	-Consider establishing county and national innovation stakeholder network or roundtable to discuss policy

University

STISA Building Block	Trend	Proposed Recommendation
Professional and technical competencies	Sub optimal knowledge dissemination to local ecosystem	-Consider collaboration framework with private hubs, county hubs in supporting startups with technical support
Promoting entrepreneurship and innovation	Dormant Intellectual Property	-Consider establishment of IP commercial office to enable startups access commercially viable IP
Enabling environment	Suboptimal policy engagement	-Consider joint stakeholder publication of practical innovation policy papers based on systematic research

Corporate

STISA Building Block	Trend	Proposed Recommendation
Research infrastructures	Sub optimal engagement	-Consider establishing innovation hubs in partnership with county government, academia and private hubs
Professional and technical competencies	Sub optimal engagement	-Consider capacity building programs for startups on product development among other functional areas through mentorship, coaching, peer exchange, internship and training programs as part of contribution to Kenya's innovation ecosystem
Promoting entrepreneurship and innovation	Sub optimal collaboration with startups	Consider establishing accelerator program to support startups through access to commercial opportunities, direct investments , capacity building, mentorship etc Consider funding innovation research through academia and government support agencies eg KALRO,KIRDI etc
Enabling environment		-Consider funding academia to conduct systematic policy research

References

Science Technology and Innovation Strategy for Africa 2024

Pan-African Deeptech key to sustainable prosperity- Haitham Khoury, Ph.D.

Successful Kenyan Startup Founder Persona-Viffa Consult Limited

Budden, P. and Murray, F. (2019). MIT's Stakeholder Framework for Building and Accelerating Innovation Ecosystems. Retrieved from: MIT Office of Innovation (working paper).

Viffa Consult
Unlocking Africa's Entrepreneurship Spirit

Viffa Consult Limited
www.viffaconsult.co.ke
One Padmore Place, George Padmore Road
info@viffaconsult.co.ke
Tel: +254 769 713 936