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POSITIONING

AFRICAN TECH STARTUPS

AS ENGINES OF GROWTH & DEVELOPMENT

Comprehensive Analysis of the Start-up Ecosystem in Africa

SUBMITTED BY:

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ACRONYMS & ABBREVIATIONS

AfCFTA	African Continental Free Trade Agreement
AI	Artificial Intelligence
API	Application Programming Interface
AU/AUC	African Union Commission
B2B	Business-to-Business
CEO	Chief Executive Officer
COMESA	Common Market for Eastern and Southern Africa
EAC	East African Community
ECA	Economic Commission for Africa
ECCAS	Economic Community of Central African States
ECOWAS	Economic Community of West African States
ESO	Enterprise Support Organisations
FDI	Foreign Direct Investment
ICT	Information and Communications Technology
IPO	Initial Public Offering
IPR	Intellectual Property Rights
MDA	Ministry, Department & Agencies of government
MSME	Micro, Small and Medium-size Enterprises
MVP	Minimum Viable Product
NGO	Non-Governmental Organisations
P2P	Peer-to-Peer
PE	Private Equity
REC	Regional Economic Community
SME	Small and Medium-size Enterprises
STEM	Science, Technology, Engineering and Mathematics
UMA	Arab Maghreb Union
VC	Venture Capital
VPN	Virtual Private Network

ACKNOWLEDGEMENTS

This study on the ***Positioning African Tech Startups as Engines of Growth & Development: A Comprehensive Analysis of the African Startup Ecosystem*** was carried out by Fola Odufuwa and Muriuki Mureithi, on behalf of Mozilla Corporation in collaboration with the African Union Development Agency (AU-NEPAD). The research team worked with the Mozilla Africa Mradi team led by Alice Munyua and comprising Noémie Hailu, and Patrick Sambao.

The team is grateful to the sectoral experts and key informants who contributed their insights to this research. They also thank Tim Weiss (Imperial College London), Eric Osiakwan (Chanzo Capital Ghana), Tayo Akinyemi (The Trajectory Africa), Mahmadou Alhaji (Universal Service Fund Senegal), and Sola Idowu (HexisLab UK) whose further insights helped to shape the context and conclusions of the study.

STUDY OVERVIEW

Project Objectives

On August 1, 2022, Mozilla Corporation entered into respective Vendor Agreements with Mr Fola Odufuwa and Mr Muriuki Mureithi (the "Consultants") to conduct a **Study of the Start-up Ecosystem in Africa** (the "Study") under an arrangement backed by the African Union Development Agency-NEPAD ("AUDA-NEPAD"). The study seeks to uncover a deeper understanding of the start-up ecosystem in Africa and develop evidence-based, actionable insights that will lead to increased and structured engagement of the startup ecosystem by all participating stakeholders. It also seeks potential spaces for investment and intervention, as well as adoption by the African Union, their respective Regional Economic Communities, and Member States of a regional policy and regulatory framework that could lead to the rise of a vibrant and sustainable startup ecosystem for the African continent in line with the Digital Transformation Strategy for Africa (2020-2030) and the quest for a Digital Single Market under the AfCFTA arrangements.

Methodology

The study seeks to uncover a deeper understanding of the start-up ecosystem in Africa and develop evidence-based, actionable insights that will lead to increased and structured engagement of the startup ecosystem by all participating stakeholders

The project was conducted in four stages: **Desk Research** which entailed a comprehensive review of nascent literature on the Digital Ecosystems of Africa, **Depth Interviews** carried out in-country between January and March 2023 with 82 stakeholders including startups, incubators, accelerators, entrepreneurs, angel investors, venture capital funders, relevant government agencies and key informants in six African countries – Kenya, Zambia, Nigeria, Ghana, Senegal, and South Africa (Appendix); **Benchmarking** which entailed a review of the relevant information of four countries in Asia (India and Malaysia) and South America (Brazil and Colombia) with ecosystem attributes that may inform forward actions of African policymakers; **Analysis** of retrieved materials and datasets, and **Report-writing**.

Structure of the Report

The report has eight chapters. Chapter One profiles the African startup ecosystem, the major economic sectors that startups serve, the challenges they face and the role of hubs and accelerators. It also describes investment flows and how they aid innovation on the continent. Chapter Two compares national startup ecosystems and shows the differences between leading and lagging markets. Chapter Three looks at the impact of the Regional Economic Communities on the African startup ecosystem and illustrates with selected case studies how innovation can occur in the absence of regional regulatory coordination and oversight. Chapter Four examines the startup ecosystems of four countries with similar development and socio-economic characteristics as Africa to identify some good practices that benchmark four countries to identify good practices that could be replicated by African policymakers. Chapter Five discusses the sectors with growth potential, and Chapter Six summarizes the lessons learned from this research and what can be done to expand the sector in Africa's pursuit of a digital single market. Chapter Seven is exclusive to the Africa Mradi Team while Chapter Eight offers our recommendations for governments, development partners, and other ecosystem stakeholders anchored on the findings of the study.

EXECUTIVE SUMMARY

This is a study on the positioning of African tech startups as engines of growth and development. It was conducted by Fola Odufuwa and Muriuki Mureithi on behalf of Mozilla Corporation in collaboration with the African Union Development Agency (AU-NEPAD). This report provides a detailed review of the startup ecosystem in Africa and examines the key features of African tech startups, the regulatory environment, recent trends in the industry including investment flows, the challenges startups face, and the opportunities to further advance the ecosystem.

The report finds that the startup industry in Africa is growing rapidly, and is presently a diverse landscape with many opportunities for entrepreneurship, innovation, and partnerships. Over the past 20 years, national startup ecosystems have emerged across Africa with South Africa, Nigeria, Egypt, and Kenya leading the pace of innovation, talent development, digital entrepreneurship, and investment appeal compared to the rest of the continent. These four countries combined contributed at least 81% of total venture capital (VC) funding of US$3.1b in 2022,[1] and the gulf between them and the rest of the continent is large and widening.

Startup ecosystems of these countries are being driven mostly by a large and growing network of foreign VCs whose profit focus and high-risk tolerance provide African startups with the funding they need to exploit new opportunities within their national markets and across borders. Africans in the diaspora who graduated from leading foreign universities such as Stanford, MIT, etc are returning to join their Africa-based counterparts to create new solutions that are now being commercially exploited and aided by external funding. The establishment of the hugely successful startup accelerator investment model has further opened doors for African founders to access previously unavailable technical and funding resources. The global circulation of the continent's talent and the market-driven approach of their financial backers has resulted in the creation of some of the most successful startups in Africa such as Jumia, Fawry, Wave, Flutterwave, Paystack, etc. As a result of the unrelenting investment appetite, VC funding is presently at a record high.

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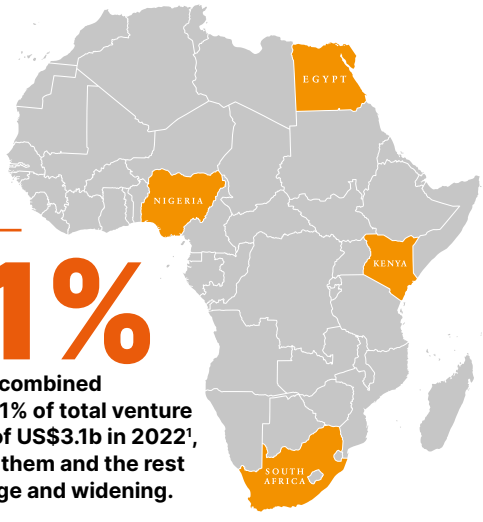
Common to nearly all the advanced startup ecosystems in Africa are progressive reserve banks, supportive government policies and initiatives, a large and growing pool of local developers, and the opening up of digital financial services which Fintech startups take advantage of to develop cross-cutting digital payment and transfer solutions that benefit all startups no matter the economic sector that they transact in. In contrast, the ecosystems of lagging countries are riddled with bureaucracy and high-handed procedures which limit and restrict the ability of young tech people to innovate and 'run loose' with their ideas.

Across Africa, startup ecosystem connections between academia, government, and investors are relatively weak with negligible effects on collaborations that would have been otherwise beneficial. Though the development of the ecosystem is private sector-led, the African public sector generally struggles to create and maintain an enabling environment for sustained growth which prevents many startups from being able to scale even after they are formed. As a result, only 27 of 55 African countries recorded VC-funded startups in 2022,[2] and there is little or no startup activity in over 20 countries, which points to the need for concerted efforts to enable a more even emergence of startups throughout the continent if the African Union (AU) goal of a digital single market by 2030 would be realized.[3]



81%

These four countries combined contributed at least 81% of total venture capital (VC) funding of US$3.1b in 2022[1], and the gulf between them and the rest of the continent is large and widening.

[1]Disrupt Africa (2023), The African Tech Startups Funding Report, Nairobi: Disrupt Africa.

[2]Ibid.

[3]AU (2019), The Digital Transformation Strategy for Africa (2020-2030), Cairo: African Union.

While foreign investors tend to view the continent as a single entity, fragmented markets are a bigger hurdle for African-based investors who must deal with disparate and arcane laws and regulations, higher interest rates on debt, aggressive expected returns on private investment, and the general lack of sophistication of capital markets in Africa.

For African founders, problem-solving has been the principal key to innovation yet there are too many dots within the African startup ecosystem that need to be connected. These dots include the challenges African startups face in accessing capital, especially at the early stages; poor government support; the shortage of skilled talent in Africa, which makes it difficult for startups to hire and retain the people they need to grow especially as the developer talent pool in most geographies does not always have the requisite skills and knowledge to support the tech startup space; the inadequacy of digital infrastructure, such as reliable internet access and electricity; and a complex and time-consuming regulatory environment, to cite a few. Besides, women continue to be underrepresented at every level of the ecosystem. These constraints have produced harsh operating environments inimical to innovation and ecosystem sustainability. Due to these and other factors, though startup innovation is increasing throughout the continent, there is no evidence that governance frameworks are assisting African founders to create inventive tech solutions that fully thrive in themselves or that 'leapfrog' the Global North as frequently touted in flowery public pronouncements.

African startups attract FDIs because they understand how to solve African problems. However, homegrown VC funding is nascent. The funding problem is compounded by the fact that African pension funds and private capital are underinvested in African startups. This must change. Only 1% of the combined assets of US$1.8 trillion held by African pension funds, insurance companies and sovereign-wealth funds flowed into the ecosystem in 7 years from 2014 to 2020.[4] Due to the foreign origins of these investors, most of the US$5.4b raised by African startups in 2022[5] sits outside the continent as Africa is yet to create investment pools to match funding levels and technical resources available to African startups from outside the continent. While foreign investors tend to view the continent as a single entity, fragmented markets are a bigger hurdle for African-based investors who must deal with disparate and arcane laws and regulations, higher interest rates on debt, aggressive expected returns on private investment, and the general lack of sophistication of capital markets in Africa.

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held by African pension funds, insurance companies and sovereign-wealth funds flowed into the ecosystem in 7 years from 2014 to 2020[4].

Furthermore, no public institution in any African country has the exclusive authority and responsibility to regulate and guide startups. The present practice is to have different public agencies running government initiatives or programs that serve startup founders and their businesses in one form or the other. Often, policies lack the necessary funding and collaboration across sectors, and the policymaker in charge is not well-suited for the task in many cases. Furthermore, the regulation of the startup environment in Africa is still evolving and varies widely across different countries and economic sectors. At present, national startup ecosystems are evolving within countries without coordinated linkages or references to other national governments on the continent. As far as could be determined, policies specifically designed to promote the rise and sustainable development of African startups have not yet been developed at the REC or continental levels. The AfCFTA could suffer from this situation if unaddressed.

[4]TBI (2022), "Supercharging Africa's Startups: The Continent's Path to Tech Excellence" (Available at https://www.institute.global/insights/geopolitics-and-security/supercharging-africas-startups-continents-path-tech-excellence. Accessed April 7, 2023.)

[5]AfDB (2023), "African Development Bank and partners invest $618 million in Nigeria's digital and creative industries". (Available at https://www.afdb.org/en/news-and-events/press-releases/african-development-bank-and-partners-invest-618-million-nigerias-digital-and-creative-industries-59766. Accessed April 12, 2023)

The near-sudden influx and relentless growth in the levels of new investments flowing into African startups year-on-year, the improving climate of digital transformation and youth entrepreneurship – inspired by recent big-ticket capital raises – and the growing implementation of sectoral incentives through startup acts offering tax breaks, salary support for new founders, preferential treatment in public tenders, and other government initiatives altogether hold good promise for the future of the African startup ecosystem.

Due to inhospitable operating environments, founders often get so absorbed in resolving the systemic challenges of their local markets that they generally find it difficult (impossible) to 'lift their heads' to focus on opportunities across neighbouring frontiers, let alone globally.

From discussions with stakeholders and the evidence gathered during this study, Africa is not producing enough startups either for its potential or to meet investor appetite, and stakeholders need to look beyond the 'veneer of success' of the record levels of VC funding currently flowing into the continent.

Nevertheless, there is demonstrable evidence that there is massive potential throughout the African startup ecosystem even in markets that are currently straggling. The near-sudden influx and relentless growth in the levels of new investments flowing into African startups year-on-year, the improving climate of digital transformation and youth entrepreneurship – inspired by recent big-ticket capital raises – and the growing implementation of sectoral incentives through startup acts offering tax breaks, salary support for new founders, preferential treatment in public tenders, and other government initiatives altogether hold good promise for the future of the African startup ecosystem.

To summarize, because the many challenges and barriers of the ecosystem (that we list in Section 1.6) hinder the development of startups in Africa, African policymakers need to adopt an ecosystem approach in coordination with industry to immediately lift national startup regulatory systems to address these issues while balancing the interests of various stakeholders.

From discussions with stakeholders and the evidence gathered during this study, Africa is not producing enough startups either for its potential or to meet investor appetite, and stakeholders need to look beyond the 'veneer of success' of the record levels of VC funding currently flowing into the continent.

Call to action

The findings of this report suggest that the startup industry in Africa is poised for significant growth. To support this growth, African policymakers and ecosystem stakeholders need to take action to address the challenges facing startups and to create an environment that is conducive to entrepreneurship. Here are some specific actions that can be taken to enable the proliferation of startups in Africa:

1. **There is an urgent need for vision, clarity of purpose, commitments, and implementation of institutional infrastructure to drive the startup ecosystem**. Political leadership at the highest levels, definitively the presidency, should embrace the challenge of driving the growth of the African startup ecosystem and lead the way by giving policy direction and actively engaging with lower-level governance structures to create an enabling environment for startups in each country.

2. **African countries can take specific steps to improve and expand their startup ecosystems** by increasing the sectors that startups play in, prioritizing Fintech because of its multiplier impacts – 49% of new investments in 2022 were made into fintech startups.[6] They can create active linkages with the more developed ecosystems and economies on the continent and adopt strategies to digitalize Micro, Small and Medium-size Enterprises (MSMEs) and the informal sector to boost the number, business performance, and economic contribution of startups.

3. **Government support for innovation and digital entrepreneurship must be much stronger than it currently is**. African governments can stimulate a culture of entrepreneurship and risk-taking by reducing regulatory barriers, promoting education and mentorship, and celebrating success stories. They can also consider enacting startup legislation in addition to supportive policies and regulations that open the opportunity for startups to serve Africa through the AfCFTA arrangements. However, legislation must enable transnational collaborations and be periodically reviewed.

4. **Governments need to address macroeconomic issues in their respective countries to facilitate digital markets**, give access to foreign exchange and improve the ease of doing business. Stable foreign exchange markets are critical, particularly for venture capitalists who are concerned about how they would exit even before they invest.

5. **African governments, under the coordination of the African Union, can create Pan-African ecosystem-specific policies and financial architecture** to meet the urgent needs of African startups and to enable the emergence and sustainable development of startup ecosystems by harmonizing the current complex regulatory environments as can be found throughout the continent. Ecosystems which are presently highly fragmented need to be interconnected to gain the full benefits of the digital economy. The AfCFTA arrangements should help advance this goal.

6. **Governments should do more to deepen the talent pool available to the startup ecosystem.** Many African founders say that most graduates are "half-baked" and need to be retrained as the disconnect between academia and industry is said to be huge. Stakeholders are unanimous that Africa's educational curriculum needs to be strengthened from high school so the culture of entrepreneurship and innovation can be created and cultivated early on.

7. **Mozilla, AU-NEPAD and other continental bodies can also assist to coordinate startup policy frameworks**, facilitate the penetration of digital infrastructure, and harmonize regulatory systems, among other important activities. Furthermore, the AU can put pressure on governments to make it easier for startups to participate in public tenders.

By taking these actions, governments, development partners, investors and other ecosystem actors can help to create a thriving startup ecosystem in Africa.

[6]Disrupt Africa (2023), The African Tech Startups Funding Report, Nairobi: Disrupt Africa.

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CHAPTER ONE:

UNDERSTANDING THE AFRICAN STARTUP ECOSYSTEM

This section provides a detailed characterization of the African Startup Ecosystem, the challenges African startups face and how investors and other actors within the industry are engaging with them.

1.1 Mapping the African Startup Ecosystem

The African startup ecosystem is a rich and diverse landscape with many opportunities for entrepreneurship, innovation, and partnerships. Though an accurate count is impossible to compute, from all the evidence gathered during this study, the African startup ecosystem consists of tens of thousands of digital entrepreneurs, operators, local and international investors, development partners, and diverse mass bodies working to develop the sector. One report suggests a 42% Compound Annual Growth Rate (CAGR) of the ecosystem since 2018.[7]

Though an accurate count is impossible to compute, from all the evidence gathered during this study, the African startup ecosystem consists of tens of thousands of digital entrepreneurs, operators, local and international investors, development partners, and diverse mass bodies working to develop the sector.

Nonetheless, African startup ecosystems are nascent and are currently developing in a fragmented and uneven fashion. These systems are private sector-led and exist within an underwhelming policy and regulatory environment with negligible coordination between and among government agencies responsible for developing aspects of the ecosystem. Cross-border regulatory collaboration on tech ventures is also muted.

African startup ecosystems can be grouped into three categories based on the levels of publicly-disclosed venture capital (VC) funding since 2015, the number of funded startups year-on-year, and the appreciation and impact of startup funds on the local environment (Table 1). The level of funding is a proxy for measuring how active an African startup ecosystem is. In this, we observe that VC funding is generally opportunistic and the fact a startup is funded by whatever amount is no proof that the ecosystem in which the startup plays is developed, except the startup is operating in the four advanced markets.

Table 1: Categorizing African Startup Ecosystems by VC investment activity since 2015.

High Startup Activity - TIER 1	*Modest Startup Activity* - TIER 2	*Negligible Startup Activity* - TIER 3
Nigeria	Ghana	Rest of Africa (40 countries)
South Africa	Tunisia	
Kenya	Senegal	
Egypt	Morocco	
	Uganda	
	Tanzania	
	Algeria	
	Zambia	
	Cote d'Ivoire	
	DR Congo	
	Rwanda	

Source: Fola Odufuwa & Muriuki Mureithi.

[7]Partech (2023), 2022 Africa Tech Venture Capital, San Francisco: Partech Partners.

It is a fact that the ecosystem is heavily skewed in favour of the more developed Tier 1 markets, Nigeria, South Africa, Kenya and Egypt, who combined contributed at least 81% of total VC funding of US$3.1b in 2022.[8] The gulf between these countries and the rest of the continent (using any index for measuring technology markets[9]) is large and widening. Though there are countries with moderate levels and pace of startup development like Tunisia, Ghana, and Senegal, to name a few (Tier 2), only 27 of 55 African countries recorded VC-funded startups in 2022, which, although a slight improvement on the 2017 figure of 18,[10] points to the need for a more concerted effort to enable a more even emergence of startups throughout the continent if the African Union (AU) goal of a digital single market by 2030 would be realized.[11] As far as we have been able to determine, there is no significant, nationally noticeable ecosystem activity when a country receives startup investment below US$20m annually, and countries need greater support to develop their startup ecosystems with Tier 3 in particular requiring the most attention.

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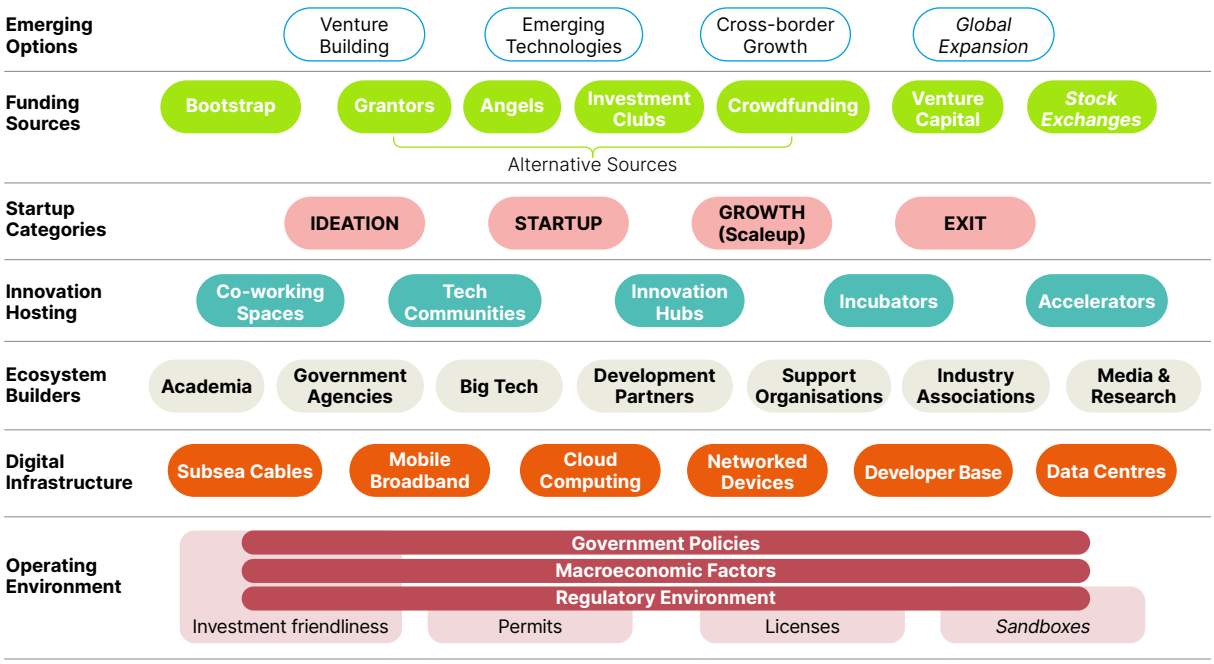
Figure 1 below depicts the layers of participation by actors presently contributing to shaping the African startup ecosystem. It captures all the actors that are responsible for creating a national startup ecosystem in Africa and is illustrative of ecosystem success. Beyond defining industry actors, it also shows how the ecosystem evolves and how actors that participate in innovation, incubation, acceleration, or funding are linked. Though many actors perform multiple roles, nevertheless for the sake of simplicity, the chart reads from bottom to top and from left to right and was developed based on the stakeholder interviews carried out during this study. Boxes in italics reflect ecosystem activities that are presently emergent.

Figure 1: Africa Startup Ecosystem Map



Source: Fola Odufuwa & Muruiki Mureithi

[8]Disrupt Africa (2023), The African Tech Startups Funding Report, Nairobi: Disrupt Africa.

[9]These indices will include digital infrastructure - access to cloud technologies and locally-hosted data centres, high-speed wholesale data and retail broadband penetration, digital entrepreneurship, digital skills, and developer density, quality of the business environment, the pervasiveness of tech incubators and accelerators, FDI policies, political stability, and economic performance, to list a few.

[10]Disrupt Africa (2023), The African Tech Startups Funding Report, Nairobi: Disrupt Africa.

[11]AU (2019), The Digital Transformation Strategy for Africa (2020-2030), Cairo: African Union.

A country needs a critical mass of actors in all the boxes generating many funded startups to have a developed startup ecosystem. The corollary is also true. If a country is lacking in some of the basic layers or groupings shown in the chart, it will probably not have an ecosystem or will have a hard time building one.

- **Operating Environment**: The foundation of an African startup ecosystem is anchored on the creation of an enabling environment by national governments through Policy, Regulatory and Macroeconomic interventions. International capital has been proven to flow in the direction of Investment-friendly countries that are progressively liberalising regulatory frameworks (e.g., Licensing and Permits), and facilitating startup innovation through Sandboxes as the leading nations are presently doing.

- **Digital Infrastructure**: This is the second most important building block. If the right policies are in play, a national startup ecosystem can evolve from the point that a country secures access to Subsea Cables directly or indirectly, whether landlocked or not. These cables drive connectivity which is essential for startups to access online platforms, tools, and resources. When installed, high-speed wholesale bandwidth is moved from the cable landing points to major economic centres over terrestrial networks and Mobile Broadband links are put in place. When a critical mass of connections is formed, startup founders *pop out* from the country's Developer Base to exploit Cloud Computing opportunities presented by these connections and build Networked Devices that deliver digital solutions to end users. As the ecosystem advances, established startups tend to utilise Data Centres for more secure data exchanges.

- **Ecosystem Builders**: Many players in this space work with (a) startups to help them overcome operational challenges, comply with regulations, access markets, and improve performance; and (b) national and provincial governments through policy advocacy and program implementations to facilitate the long-term development of the ecosystem, though their impact is more pronounced in the leading nations. In this group are the Academia – African and international universities, Government Agencies, Tech Corporations, Development Partners, Industry Associations and Media & Research firms. There are also Support Organisations (which may be firms or individual consultants) that provide professional services like mentoring, legal advice, human resources, accounting, marketing, and product research to the ecosystem. Examples of active players include the Harambee Entrepreneur Alliance, European Union, Japan International Cooperation Agency, and The German Agency for International Cooperation (GIZ), to name a few. Through their digitalization initiatives across the continent, Ecosystem Builders are advancing the demand for tech knowledge and helping the upskilling of many startups.

- **Innovation Hosting**: African startups are created by founders who set out on a mission to develop innovative solutions that address some identified problems within their local markets. In the leading ecosystems, there is a great influx of international talent from the United Kingdom, Germany, France, and the United States bringing knowledge and networks to Africa. Innovation typically starts as an idea that occurs "in the head" of a founder but would be nurtured in some form by or at Co-working Spaces, Tech Communities, Innovation Hubs, and Incubators, though Accelerators are providing the biggest backing to African startups in recent years.

- **Startup Categories**: Startups can be found in any of the four listed categories of Ideation, Startup, Growth or *Exit*. While they operate mainly in Africa, they may be headquartered within or outside the continent, founded by Africans or non-Africans, and can adopt any business model they choose. Though there are many estimates for the population of startups from a variety of sources, as far as could be determined, none is reliable and the total number of startups operating in Africa is presently unknown.

- **Funding Sources**: There are many ways that African startups raise money, from Bootstrapping, Grants, Angel Networks, Investment Clubs, and Crowdfunding to *Stock Exchanges*. However, the biggest contribution to the growth of the ecosystem so far has been investors who are part of Venture Capital networks. These funding sources are helping startups scale their businesses, reach new markets, and become financially stable.

- **Emerging Options**: Venture Building is a novel method which involves creating and funding startups and offering them sustained, practical assistance until they exit, thereby lowering the risks for the founder. Examples of players in this space include Cote d'Ivoire's MStudio, touted as the "first mobile startup studio" setup to create startups in French-speaking West Africa,[12] and Kenya's Foctore Venture.[13] This category also includes actors who assist African startups to develop Emerging Technologies or to expand within (*Cross Border Growth*) and across continents (*Global Expansion*) – activities that are not innate for the average African founder.

Many of the categories and ecosystem activity elements described above can be found in Tier 1 countries but are missing in Tier 2 and, to greater degrees, Tier 3 markets. Except many of these gaps are identified and intentionally bridged in Tier 2 & 3 markets, it is unlikely that a robust startup ecosystem (by African yardsticks) will emerge in these countries as they are needed to make startups grow and function optimally.

Furthermore, that a startup ecosystem is "advanced" does not in any way imply that it is fully mature or evenly developed and the ecosystems of even Tier 1 countries need to be strengthened. As a case in point, African high-net-worth individuals, institutional investors, and the African private sector are not currently playing any significant role in the ecosystem. A key informant mentioned the instance of a Nigerian travel startup founder who had to move his business activities to Rwanda to avoid losing his partnership with a global travel agency. PayPal works in many African countries but with restrictions in all but Malawi, Algeria and Egypt,[14] and industry stakeholders wonder why this is the case given the advances and strides being made by the continent's fintech giants. Finally, though Digital Entrepreneurship underpins innovation in the startup ecosystem, we are not aware of organizations dedicated exclusively to its promotion in Africa. While actors within the Ecosystem Building band of the map offer some training programs pertinent to innovation, yet without structured programs to help African youths become digital entrepreneurs, it is unlikely that the pipeline of potential opportunities that can be funded will be sustained going forward.

1.2 Defining the African Startup

Africa does not have a formal definition of what an African startup is or should be. While some respondents classify African startups as consisting of both tech and non-tech businesses, others insist that African startups are strictly 'tech businesses'. As a key informant suggests, "Tech startups are enterprises that tech-enable society for profit". These new enterprises often go beyond the proof-of-concept phase to demonstrate a good rationale for a proposed business venture.

African startups tend to be created by tech founders, though this does not always apply in every case. These founders may be Africans by birth, residence, parentage, or marriage. Key informants who participated in this study say that for a startup to be defined as *African* the founders must be *connected* to the African continent in one way or the other. While they do not need to be born or based on the continent, founders who have lived, studied, or resided in the diaspora tend to secure funding quicker and in greater amounts than those founders who are based in Africa. They are also said to generally "do much more" locally. For example, Zimbabwean founders with a degree from the United Kingdom and entrepreneurial experience in the United States are said to be more likely to receive funding and build stable organizations. In this context, many home-based founders spoken to during this consultative study feel

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[12]Sika (2023), "Mstudio, 'creator of startups', settles in Abidjan to cover French-speaking Africa" (Available at https://www.sikafinance.com/marches/mstudio-createur-de-startups-sinstalle-a-abidjan-pour-couvrir-lafrique-francophone_39602. Accessed April 23, 2023).

[13]GSSN (2023), A highly curated community of independent studios all over the world (Available at https://www.gssn.co/studios. Accessed April 28, 2023).

[14]Tounsi, G. (2021) PayPal 2022: "Africa countries list that do not receive money" (Available at http://www.limko.cm/internet/2021/02/paypal-africa-countries-list-that-do-not-receive-money. Accessed April 23, 2023).

discriminated against as they are unable to access the same funding sources and levels as founders in the diaspora. One queried, "Why are [locally-based] Africans not being funded when their foreign peers are?"

However, there is another school of thought which does not define startups by the *African-ness* of their founders but by the markets they serve. For this group, the African startup may be founded by non-Africans but will have its primary market – measured by operations and/or revenues – in Africa. One respondent said, "When these startups grow and go global, we will still count them as African startups". Another defines an African startup as a company that is solving a specific set of problems with global aspirations while operating locally for the moment. The desire to go global is what many founders believe sets an African startup apart from the classical Micro, Small and Medium-size Enterprises (MSME).

"Ideation can be super but if you don't bootstrap and raise internal resources to register, operate and grow the business, the idea will die in the classroom!".

Though it is difficult to find a thread common to all African startups and how they contribute to the economies of their respective countries, it is generally agreed that the four phases of the business life of a startup are:

Key informants believe that innovation cycles from ideation to commercial enterprise, combined with the challenges of creating a product-market fit, can be quite complex and may take up to 10 years to fully attain. As a result, only a small number of African startups transit beyond the very first phase of ideation. In all the study countries, key informants say that most African startups remain in the ideation–startup phase, a phase that is commonly tagged the **valley of death**. From conversations held with stakeholders during this study, African startups face a particularly higher risk to launch and, due to inadequate regulatory coverage and a harsh operating environment in nearly all the African markets, pre- and post-launch failures are not uncommon.

Some stakeholders also believe that a startup should be defined by revenues and that an African startup would be a locally-registered technology business making less than US$100,000 per annum (Ghana) or US$500,000 (Nigeria).

According to a key informant, "It is never easy for founders to figure out how to make money from their ideas and it is particularly hard for startups to completely understand what people are ready to pay for". Another says, "Ideation can be super but if you don't bootstrap and raise internal resources to register, operate and grow the business, the idea will die in the classroom!". In the words of a Senegalese startup founder, "The opportunities are scarce and we struggle to get finance. If I can find a lucrative job, I'll abandon my startup venture". Perhaps for this reason, there is an argument against defining African startups by the number of years they have been in existence partly because it is difficult to impose a time limit on ideation and, as a Ghanaian founder says, "it simply does not make sense".

Some stakeholders also believe that a startup should be defined by revenues and that an African startup would be a locally-registered technology business making less than US$100,000 per annum (Ghana) or US$500,000 (Nigeria). However, a definition anchored on earnings would be difficult to logically implement or even justify. Others say that African startups should be defined by where their economic value rests.[15] By this, they mean that the location of the economy that benefits the most from jobs created, taxes and capital domiciliation should be the basis for classifying the African startup. If this economic value lies outside the continent, such a venture should not be considered African. Some startups with African founders e.g., US-based Esusu or Africa-based ones like Kenya's AZA Group build the core or portions of their businesses on serving customers outside the continent. Therefore, it is tough to impossible to fully know where the economic value of private businesses is domiciled and classifying every startup operating in Africa using this yardstick may be an impracticable undertaking.[16]

[15]VentureBurn (2019), "Not easy to classify whether a startup is African because of globalisation" (Available at https://ventureburn.com/2019/06/african-startup-classify-globalisation. Accessed April 7, 2023).

[16]DigestAfrica (2019) "When should a startup be regarded as African?" (Available at https://digestafrica.com/startup-african-startups. Accessed April 7, 2023).

200

According to the latest research, there are over 200 African deep tech startups founded between 2000 and 2022 innovating and enabling advanced solutions in health tech, agritech, mobility, fintech and commerce, among others.[19] However, despite the rise of this genre of startups, there are no identified investors exclusively focused on African deep tech.

Finally, another thought train centres around the depth to which a startup engages and utilizes technology that dramatically shapes the future. A founder holds a strong view that African startups should be defined by the extent to which they utilize deep tech and advanced software engineering to create innovative solutions to significant societal challenges that are anchored on artificial intelligence, quantum computing, synthetic human-computer interactions, biotech (including gene editing), and robotics, to name a few.[17] Deep tech innovations often come about through independent scientific research or collaborations between academia and industry.[18] This opinion suggests that while the use of generic technology tools by African startups should continue to be encouraged, the focus of new investments should be more towards higher impact deep tech innovations. "Anything outside this would create a non-tech startup", says a startup founder. According to the latest research, there are over 200 African deep tech startups founded between 2000 and 2022 innovating and enabling advanced solutions in health tech, agritech, mobility, fintech and commerce, among others.[19] However, despite the rise of this genre of startups, there are no identified investors exclusively focused on African deep tech.

In summary, Africa needs to develop a unique definition for its startups. Presently, the broad approaches to definition largely reflect the lens or perceptions of the stakeholder. Governments tend to prefer short intervention frameworks and are likely to define a startup by its years of existence (5 years in South Africa, 7 in Kenya) and mandate local registration. VCs are return-driven and tend to anchor their definition of an African startup on the age of the founder or the newness of the venture. Angels carry the highest risk as they tend to invest in the earliest stages of the startup lifecycle and usually desire any disruptive idea that has the potential to utilize technology for transformative purposes. Hubs are on the hunt for innovation and grantors often turn down applications for capacity reasons however the startup is defined.

In summary, Africa needs to develop a unique definition for its startups. Presently, the broad approaches to definition largely reflect the lens or perceptions of the stakeholder. Governments tend to prefer short intervention frameworks and are likely to define a startup by its years of existence (5 years in South Africa, 7 in Kenya) and mandate local registration.

1.2.1 Defining Startups in Emerging Regulatory Frameworks

Without a definition of a startup, it becomes difficult to identify a startup, how it evolves and at what point it exits in that space. It is also difficult to undertake any meaningful data collection to inform intervention strategies. Presently, there are efforts to define startups in emerging regulatory frameworks. Nigeria and Senegal have enacted Startup Acts which define the space for a startup. Following closely on this are Kenya, South Africa, and early-stage Zambia. The Kenya draft bill is at the time of research in Parliament and undergoing public consultation in its journey to enactment. South African nongovernmental stakeholders have developed a Startup bill currently under public consultation. Zambia has an early draft of the Startup Bill and has already engaged government institutions for input.

The startup bills in Kenya, South Africa, Ethiopia, and benchmark nations, India, and Malaysia, provide some insight on how to define African startups considering Startup Acts already passed in Nigeria, Senegal, and Tunisia.

[17]Cambridge University Press (2023), Cambridge Dictionary (Available at https://dictionary.cambridge.org/dictionary/english/deep-tech. Accessed April 7, 2023).

[18]VivaTech (2023), "A Dive into Deep Tech" (Available at https://vivatechnology.com/news/a-dive-into-deep-tech. Accessed April 7, 2023).

[19]Intel (2022), Evaluating the African Deep-Tech Startup Ecosystem, Santa Clara: Intel Corporation.

Startup is a stage of business growth: It is a time-limited window that is variously called a label (Nigeria, Tunisia), definition (Kenya, South Africa) or recognition (India). Using factors like age from incorporation and the maximum amount of time a firm can be in the window to determine the startup phase is a compromise in all countries. India illustrates the compromise, having adjusted the age features of a startup three times: 5 years in 2016, 7 years in 2017, and 10 years in 2019. In 2017, biotechnology startups received a 10-year special designation, although this was removed two years later.

Benchmark countries target a specific and defined niche: The niche is defined to fulfil distinct national needs, boost competitiveness, and increase exports. Policy initiatives around this objective help expand the ecosystem.

Recognize and capitalize on home market realities: Malaysia's startup products and services have a limited domestic market, but the country has built significant initiatives to promote innovation for the international market, attract talent, and bring in business.

A clear definition is important to develop a framework for startup ecosystems and aid data collection for policymaking. The ongoing efforts around legislation to define startups are critical and are being based on time of incorporation, technology innovation, and in some cases, the domicile of startup founders. They also include discussions of possible interventions.

1.2.2 The Startup Lifecycle

The lifecycle of a startup originates from the time an idea is conceived to the time a venture exits, either through a trade sale leading to an acquisition, an Initial Public Offering (IPO), or liquidation if the venture is not successful.

The lifecycle of a startup originates from the time an idea is conceived to the time a venture exits, either through a trade sale leading to an acquisition, an Initial Public Offering (IPO), or liquidation if the venture is not successful. The starting point refers to the time when a founder has an idea for a new or enhanced service that they hope will gain market traction. Seized by 'inspiration', the African founder typically engages with friends or close associates to build a proof of concept or prototype that can be taken to market. This is the Ideation phase, a phase where the idea is clarified, and fully documented, the implementation process defined and the required resources articulated. While being a shoestring operation, the more proactive founders tend to push to secure Intellectual Property Rights (IPR) which serves as the anchor of a legal framework for the commercial entity.

Once a prototype of service or product proof of concept is developed and appraised in the market, the venture enters the Startup phase having obtained the maximum amount of validated learning from potential users with the least effort in building a Minimum Viable Product (MVP).[20] At this point, service and product features are developed and outreaches are made to engage the target market and other stakeholders. From here on, founders typically elicit commitments from various parties that can contribute the necessary resources. Respondents are unanimous that African startups do not need huge amounts to seed their business concepts. To illustrate, USAID mobilized over US$1b of institutional capital from private investors into Africa by 2019 leveraging just US$2.5m of US government funding.[21] It is universally agreed that the pre-seed and seed stages are the weakest portions of the African startup value chain as founders struggle to find the funds to prove the viability of their ideas. According to one venture capitalist, most startups in Africa would typically need less than US$100,000 in initial funding.

[20]Agile Alliance (2023), "What is a Minimum Viable Product (MVP)?" (Available at https://www.agilealliance.org/glossary/mvp. Accessed 16/05/2023.).

[21]Prosper Africa (2019), U.S., Kenyan, and South African Pension Funds Commit Over $94 Million to African Private Equity & Infrastructure, (Available at https://www.prosperafrica.gov/news/impact-story/u-s-kenyan-and-south-african-pension-funds-commit-over-94-million-to-african-private-equity-infrastructure/. Accessed April 18, 2023).

By this point and depending on the engagement of various parties, including financial, administrative, and regulatory bodies, the MVP is ready for market and the next issue will be how to replicate the proximate market that the product was tested in. The early consumers would often share the early benefits of the product/service. With a demonstrated product-market fit and increasing sales, replicating sales, and scaling up to a wider market realised through the right market channels will take the front stage. Then as the venture Scales up, the founder focuses on the sustainability of the product or service and an expanded market share to achieve enterprise maturity and stability in the market.

This is when Exits may matter as investors with diverse goals contact the founders. For startups funded by investors, the main aim is to cash out from the venture to get back the initial investment plus profit. A successful venture can exit either through a merger or acquisition with another entity or via an IPO – though this route is highly unlikely given the general illiquidity of African stock exchanges. The lifecycle of the African startup involves numerous parties, from the formation to the delivery of an MVP, and finally to the maturity of the venture.

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1.2.3 What Does Scale Mean for an African Startup?

Startup scaling, in the African context, has not yet been defined and thus means different things to different actors in the ecosystem. While many stakeholders that participated in this study consider a startup's ability to rapidly grow and replicate its business model within and across extremely challenging markets sustainably as 'scaling', there is limited research on the subject[22] to form the basis for a consensus.

Scale for startups is measured by several indices mainly revenues, customers or users, or jobs created. ExpressPay, an eCommerce marketplace and payment gateway provider in Ghana, grew from 15 staff at inception in 2012 to 120 full and part-time workers by 2023 and currently claims a mobile money customer base of 25 million. But due to the demands of VC funding, scaling nationally is not usually enough. However, scaling across borders is even more problematic due to outdated and incoherent national regulations which are further accentuated by public sector bureaucracy and red tape in nearly all countries. There is good evidence to suggest that African startups scale in a particularly unique way[23] and a good understanding of the contextual challenges faced, processes employed and the patterns observed as they scale up would be necessary for designing unique regulatory frameworks and support mechanisms to assist startup founders and investors achieve their ambitions.[24]

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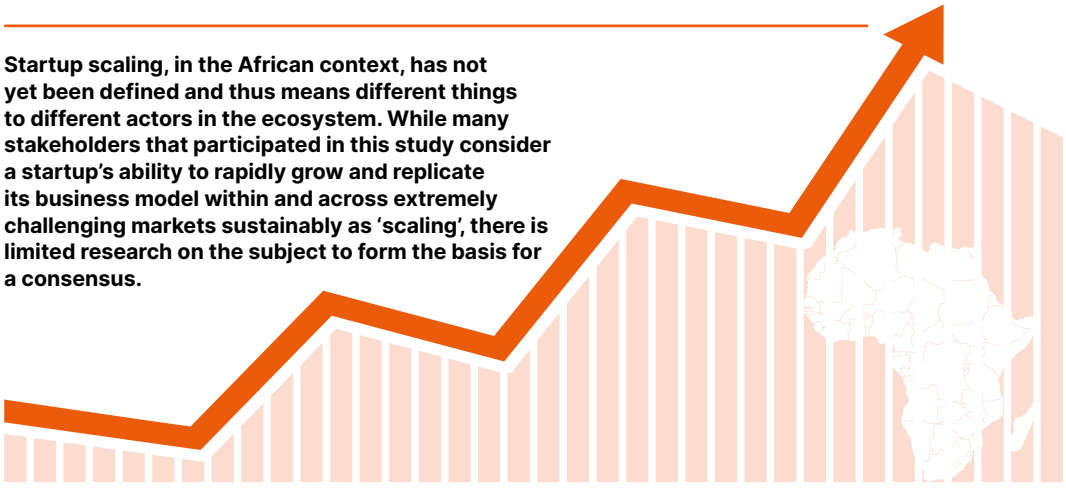

[22]Weiss, T., Perkmann, M., & Phillips, N. (2021), Scaling Technology Ventures in Africa: New Opportunities for Research, Oxford: Taylor & Francis.

[23]Adegoke, Y. (2021) "Why the Silicon Valley-style investment approach isn't best for African startups" (Available at https://qz.com/africa/1958541/silicon-valley-style-investment-doesnt-work-for-african-startups#:~:text=African%20markets'%20common%20characteristics%20of,%E2%80%9Cmismatches%E-2%80%9D%20say%20the%20authors. Accessed April 7, 2023)

[24]Kinyugu Ventures (2021), Chasing Outliers: Why Context Matters for Early-Stage Investing in Africa, Nairobi.

For this to happen, key informants call for regulatory coordination and mutual recognition of licenses and permits, a move that the AfCFTA seeks to achieve as it gets implemented. Startup founders desire that the "stranglehold of protectionism" should be "broken once and for all" to create pathways for them to scale across Africa. They point out that African fintech players appear to be finding it difficult to create solutions for remittances due to heavy currency controls and the absence of a continental framework for managing exchange rates and the volatility of African currencies. To add to this complexity, industry stakeholders from Francophone Africa who participated in this study say that banking services in Anglophone Africa are far ahead.

1.2.4 Distinguishing Tech & Non-Tech Startups

Putting the problems of scaling to one side, African startups are increasingly becoming prodigious adopters of emerging technologies such as artificial intelligence, blockchain, robotics, and machine learning to create new solutions or reinvent existing ones. Technology is the key difference between tech and non-tech startups. While the latter uses or leverages technology, the former's business is wholly dependent on, and cannot be conducted without it. For instance, a merchant who sells clothes through Shopify cannot be said to be a tech startup because, in this case, the business uses but does not own the technology platform. A tech startup builds and sells the technology while a non-tech startup will typically not build but use the technology. If the technology fails, the startup cannot function. According to a founder, "Leveraging a tool is different from building a tool. A tech startup builds the tool once and resells thereafter – the path to innovation is fixed." A tech startup develops its technology. It innovates with technology. "Kuda Bank [an innovative digital bank] cannot operate its business without its technology as they do not have physical branches but a traditional financial institution such as Zenith Bank can" – Nigerian startup founder. Another says, "It is when you use tech to automate the workflows that underpin your business model, that is what makes you a tech startup".

Putting the problems of scaling to one side, African startups are increasingly becoming prodigious adopters of emerging technologies such as artificial intelligence, blockchain, robotics, and machine learning to create new solutions or reinvent existing ones.

Though non-tech players are not as reliant on technology as their tech peers, and their risk profile is lower, nevertheless, the distinction between tech and non-tech startups in Africa is thin and tenuous especially as most startups utilise technology to deliver their products and services. Key informants stated that the only way to accurately distinguish between tech and non-tech startups is by reviewing the business model of each enterprise. Nonetheless, startups that are a pure digital play (like those in the fintech sector) tend to face fewer environmental and regulatory obstructions compared to those that need to blend their digital platforms with analogue interfaces (e.g., healthtech, agritech, edtech, etc). Due to anomalous constraints in the operating environment, African founders tend to struggle to master the non-tech part of their digital operations in any last-mile distribution.

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1.2.5 Distinguishing MSMEs from Tech Startups

The stakeholder interviews presented key differences between Micro, Small, and Medium Enterprises (MSMEs) and tech startups at the policymaking and operational levels. MSMEs are the heart and soul of any modern economy but a distinction should be made between African MSMEs and African startups. Government agencies often start off developing a framework and intervention measures targeted at MSMEs. However, the challenge faced by African policymakers is how to make the distinction between MSMEs and early-stage ventures and the choice of policy tools to adopt to fortify the latter's growth trajectory, increase technology innovation, and generally reduce their risk profile. But this can be altogether confusing.

In existing research, the parameters by which African MSMEs are defined are typically sales turnover, the number of employees, and asset size, either solely or in combination,[25] while most startups tend to be zero-employee ventures founded by one or more digital entrepreneurs who work solely or together to develop and bring to market a seemingly unique product or service. "MSMEs are the risk-takers and generals of entrepreneurship in Africa", says a respondent. They are often considered the backbone of African economies as they make up a large portion of the private sector in most countries.

In South Africa, the Startup Act initiative references startups with SMEs and startups spring out from the SME context. In Kenya, the ministry responsible for SMEs is active in leading ongoing conversations on the startup bill. Also, Zambia does not delineate SMEs from startups. An official of the Ministry of SMEs, which plays a pivotal role in the startup sector highlighted that, "There are startups and SMEs under the Ministry of Technology and Science but the difference [between them] is becoming clearer and clearer. We're developing legislation now that speaks solely to startups. So, there is work in the background where we're trying to develop a startup act, separate from SMEs". This coincides with our research. From our conversations, African startup founders do not see themselves as MSMEs even when they fall into MSME categorizations or classifications. For this reason, any policy designed for African startups should be exclusive to that sector and may not be interlinked with national MSME policies.

Most startups tend to have product and service offerings that are new and unique to the local environment where they operate but gradually build a reputation for simplifying previously difficult or seemingly insurmountable problems.

1.3 Features of African Tech Startups

African tech startup founders tend to be highly motivated and dedicated. They are often nimble enough to address the unique needs of the markets that they have creatively identified if they have the financial and technical resources that they require to develop product-market fit. Common to African tech startups is 'experimental innovation' as founders continually test out the viability of any solution they come up with. Most startups tend to have product and service offerings that are new and unique to the local environment where they operate but gradually build a reputation for simplifying previously difficult or seemingly insurmountable problems. "When I say potential entrepreneurs, I say that carefully because we have lots of entrepreneurs in Africa by default, but we're talking about a very specific calibre of entrepreneur who understands the value of building in a very specific way to make for a successful startup or successful tech venture. That's a very specific discipline of the founder. And that's lacking in our ecosystem. It's not the will or the talent or the ability. It takes a unique blend of skills and competencies and experience and grasp of the founder's journey to make for a great founder", said a leading Africa venture builder.

The interviews highlighted certain characteristics that may be said to be common to African startup ecosystems:

- **There is an inconsistent understanding of the range and spread of actors that should be in the ecosystem**. What stands in the way in many countries is how to officially distinguish startups within or outside of any elaborate frameworks for small and medium enterprises which may already be in place.

[25]Fafunwa, T. & Odufuwa, F. (2022), African Micro, Small, and Medium Enterprises Need to Digitally Transform to Benefit from the Africa Continental Free Trade Area (AfCFTA). Oxford: Taylor & Francis.

- **There is a general lack of a governance framework and understanding of how to bring all the actors and stakeholders operating in the ecosystem together**.

- **There is low awareness and positive regulatory treatment of the offline touchpoints that could assist startups in their journey to success**.

- **There is a blurred delineation and gaps in entry points of key stakeholders especially in funding**. While founders have tonnes of ideas and set out to create at least one minimum viable product, they are often lacking in the vital funding necessary to bring these ideas to life.

Our research also shows that governments and development partners hardly go beyond the early stage and that maturity and exits are market driven. Thus, there are critical market gaps in enabling the emergence of a coherent and cohesive ecosystem. Subsequently, due to resource shortages and other bottlenecks in the operating environment, tech startups often get stuck at the embryonic levels of the ecosystem unable to scale nor deal with the difficulty of commercializing the digital solutions that they have developed.

1.4 Dominant Economic Sectors that African Startups Serve

Fintech startups provide access to financial services by creating digital solutions that simplify complex traditional banking services. Additionally, based on our review, it seems that the more advanced startup ecosystems on the continent share a common attribute: Fintech is catalysing the rise of the entire startup sector with ripple effects throughout the national economy.

According to respondents who participated in this study, Fintech is the most dominant and, many say, the most vibrant economic sector in which African startups play in especially as 6 of 11 African unicorns can be found in this space.[26] Unicorns are startups valued at US1b or more. Fintech is also the most active sector by new investments year on year with 1H2022 VC deal volume and value representing 32% and 44% of all startup investments respectively.[27] According to Disrupt Africa, 49% of new investments by the end of 2022 were made into fintech startups (Figure 2), though startups playing in other economic sectors received most of the capital.[28]

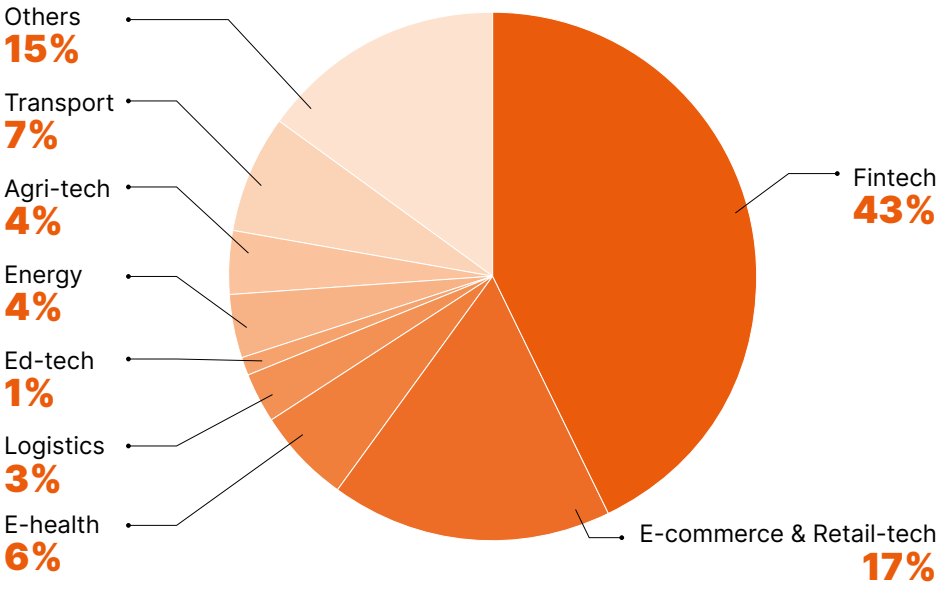

Figure 2: Economic sectors that African startups play in.

Source: Disrupt Africa (2023).

[26]Endeavor (2021), The Inflection Point: Africa's digital economy is poised to take off. Lagos: Endeavor Nigeria.

[27]AVCA (2022) 2022 H1 African Venture Capital Activity Report, African Private Equity and Venture Capital Association, London.

[28]Disrupt Africa (2023), The African Tech Startups Funding Report, Nairobi: Disrupt Africa.

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Fintech startups provide access to financial services by creating digital solutions that simplify complex traditional banking services. Additionally, based on our review, it seems that the more advanced startup ecosystems on the continent share a common attribute: *Fintech is catalysing the rise of the entire startup sector with ripple effects throughout the national economy*. In leading countries, the financial sector has experienced significant reforms around credit, digital lending, and interoperable payment systems in response to the emerging digital economy. This has opened the way for innovation. A government official said, "In Kenya, the only sub-sector that has experienced some reforms is around finances and it is responding to support that kind of setup. That's where we see a lot of innovation happening."

One factor responsible for this observation appears to be the cross-cutting nature of Fintech in enabling digital financial services and digital payments without which startups in other sectors like health tech, edtech, aggrotech, etc may find it impossible to retrieve payments for products and services delivered digitally. According to an angel investor, "It forms a critical foundation of transactions [because] we've never had an online payment system. Today, in Kakamega [Kenya], an old lady who is selling bananas by the roadside uses mPESA. So that becomes the foundation [for everything else] and that's why it makes sense that Fintech is the most dominant sector."

Beyond Fintech, economic sectors that are experiencing rapid digital transformation include agriculture, transportation, education, health -- biotech, logistics, media, and entertainment. Tourism is also enjoying startup activity with lots of outfits building functional platforms or related businesses to explore opportunities within the sector. However, startups playing in other economic sectors e.g., agriculture tend to struggle to roll out services as they typically require much more infrastructure to deliver their offerings to end-users and face greater hurdles due to regulations on the movement of products, equipment, and inputs within and across borders. A Kenyan key informant sees this as "a systemic block" on agritech innovation. Additionally, the age and digital literacy of farmers are barriers to agritech innovation. An agritech founder said that "these farmers are even old and so targeting them with a digital platform is also a challenge. Even as a businessperson, I am wondering, 'Do I develop an app for finance or agriculture?' I would go for finance because I'll do it from the comfort of Nairobi."

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1.5 Startups & Gender Representation

Women are underrepresented in the African startup ecosystem, whether as founders, board members or senior/junior executives. Only 12 (or 14%) of the 86 African startups backed by Y Combinator since 2012 are founded by women.[29] An AfriLabs report suggests that nearly a third of African founders and a quarter of African startup investors are women.[30] In 2022, only 20% of funded startups had at least one woman among the founders.[31] As for developers, only 3 out of every 20 developers in Africa are female.[32]

Gender representation within African startup ecosystems is generally observed by stakeholders as being affected by socio-cultural norms. "It is ingrained in the minds of much of the population that there are roles that are not for women even when this is unwritten anywhere. Sometimes women are limited by a perception that the chances of them succeeding in certain employment categories or business lines is remote" – Nigerian startup executive. From conversations held during this study, women tend to be prone to be judged. "Society has shaped our thinking and made us believe in these limitations. Society says you can't take up certain roles as a woman which is reinforced within you that you shouldn't even try." – Nigerian startup executive. "Women face more mental hurdles that they have to overcome within themselves. Am I good enough? Can I do it? Even when positions or opportunities are reserved for women, you tend not to have enough women to fill them" – Nigerian startup executive. A Kenyan founder says, "How we are raised, how we are conditioned...you will find that when growing up girls know [they have to] get married and raise a family. So, I think this impact how someone comes out and start a business. That also curtails women".

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1.6 Common Obstacles & Challenges African Startups Face

Though there have been relatively modest successes in the advanced ecosystems of Africa, many issues are stifling the growth of startups listed by respondents. We explore these in no particular sequence, as well as some potential solutions given by key informants.

1. **Tough business environment** – Nearly all the respondents in this study cite the harsh operating environments of their respective countries as being inimical to innovation and sustainability. In many countries, there is a shortage of the array of sector-specific support structures and resources that African founders can readily access.

[29]Y-Combinator (2023), Startup Directory (Available at https://www.ycombinator.com/companies?regions=Africa. Accessed April 18, 2023))

[30]AfriLabs (2020), Needs Assessment Report: Trends and Insights from ESOs, Entrepreneurs, and Investors. Abuja: AfriLabs.

[31]Disrupt Africa (2023), The African Tech Startups Funding Report, Nairobi: Disrupt Africa.

[32]Google (2021), Africa Developer Ecosystem 2021: Creating opportunities and building for the future. Mountain View: Google.

2. **Cumbersome regulations** are a big hurdle in several countries and may force a startup to scale back or even fold up altogether. In Senegal, health and pharmaceutical businesses (healthtech inclusive) must obtain a Market Authorization (or MA) from the Department of Pharmacy and Laboratories for each new product at a cost of CFA500,000 (c. US$850) per product, and the process is reported to take up to two years to complete. MAs are valid for only five years but can be renewed. Startup founders desire:

    a. **A liberal, politically stable and (near) open government** that pushes progressive policies and regulations. While it was easy for a company founder to secure USSD short codes for their agritech solutions in Zambia and Nigeria from their Ghana base, it was far more difficult to do so in Benin.

3. **Challenging tax systems** – Many founders are not aware of any tax breaks or benefits on offer to smaller businesses by the tax authorities. A case in point is the Ghana Revenue Authority which reportedly has tax incentives for startups and new businesses that many tech founders are unaware of. A Ghana startup says it was hit with a tax bill of GHS168,000 (c. US$15,512) within the first two years of launch because the business became publicly visible when it embarked on an aggressive sales campaign to pitch its products to its target market. "When you make noise as a startup, the tax man will come for you. This is why most startups [in Ghana] prefer to operate below the radar". Many startups believe that they need legislative protection to shield them from onerous taxes and draconian regulations.

    Startup founders desire to have:

    a. **Improved tax regime**: Many countries have explicit and subliminal factors that work against the growth of startups. In Ghana, the business incorporation and tax laws demand that startups must be well-funded and have a minimum of US$200,000 in equity capital without which the business would not qualify for registration. In Senegal, startups face high customs fees and duties on imports and the tax regulator sends SMS reminders at the end of each month to businesses in default of due taxes and levies.

4. **Inadequate government support:** Founders say they want their governments to create conducive environments for entrepreneurship and innovation through supportive policies and regulations. However, most markets have not seen significant public sector reforms, interventions, or incentives to help African companies overcome their obstacles.

5. **Weak digital infrastructure** is the biggest pain point for startups. Startups depend on fast and reliable internet connectivity, mobile devices, and digital platforms to run their operations and reach their customers. However, the quality of these infrastructures is often poor, especially beyond the major cities, and affordability tends to be weak. This affects the growth and innovation potential of tech startups. Besides, startups are not exempted from the same level of operating costs as other local businesses. Key informants say startups need:

    a. **Access to affordable communications** especially broadband internet services. The leading countries have multiple subsea cable landings and pervasive terrestrial fibre, and startups can emerge even if the cost of wholesale bandwidth may be prohibitive (Ghana, Senegal). "I cannot be hot-spotting my mobile data to my laptop and expect to be productive", laments a Nigerian founder. Some stakeholders believe that the creation of "startup-specific infrastructure" could help in advancing the ecosystem.

    b. **Access to cheap office space.** Tenants are often required by property owners in Ghana to make advance payments on their leases stretching up to 3 years, a scenario that many startups in the ideation stage often cannot afford.

    c. **Stable power supply.**

Startups depend on fast and reliable internet connectivity, mobile devices, and digital platforms to run their operations and reach their customers. However, the quality of these infrastructures is often poor, especially beyond the major cities, and affordability tends to be weak.

d. **Reliable front-end and back-end systems:** A startup's internal and external IT platforms must be robust and reliable for seamless growth, according to respondents, and good provisions made for an exponential rise in data demands. "You cannot compromise or you will fail". However, startups struggle to find the resources to invest in high-grade enterprise infrastructure. During Nigeria's currency redesign crisis of 1Q2023, key informants say that fintech apps like those offered by Kuda Bank, OPay and PalmPay were found to be much more reliable than the digital channels of traditional banks. In addition, there appears to be a link between the number of locally hosted internet exchanges and data centres and how advanced a country's startup ecosystem is.

6. **Insufficient commercial knowledge**: A major factor that has caused the failure of many startups is the prevalence of founders who are lacking in soft commercial skills and business acumen. Many founders struggle to run their businesses and are said to be deficient in finance and management skills.

7. **Poor capitalization** resulting in cashflow shortages appears to be the biggest source of failure. "Good ideas don't always raise capital" – Nigerian tech executive. This issue is worsened by the challenge that potential startup funders have in verifying from any trustworthy third-party data sources if the founding team can carry out their vision as they claim.[33] Founders are unanimous that they need:

Startups rely on self-funding, grants and, sometimes, their technical partners for the hard and soft infrastructure they require for their initial project implementations, though respondents say that what they get in this form is not often sufficient to get the venture to the level of commercial sustainability.

a. **Access to funding** especially during the lead time between production and sales. Many startups struggle to raise capital from local and international sources due to high-interest rates, collateral requirements, perceived riskiness, and limited availability of investors especially in the smaller markets. "Interest rates will kill you because they're as high as 40-50% or 6% per month," according to a Ghanaian founder. Respondents indicate that it is crucial that the startup positions itself to attract investors who are mostly foreign than local. A South African angel investor cites lack of funding as a critical problem and responsible for a 34% failure rate in the sector.

   Startups rely on self-funding, grants and, sometimes, their technical partners for the hard and soft infrastructure they require for their initial project implementations, though respondents say that what they get in this form is not often sufficient to get the venture to the level of commercial sustainability. In most African countries, the banking sector does not typically share risks with startup founders and is generally averse to lending to the sector. In Senegal, "banks will never give you money as an entrepreneur except you have a guarantee and the conditions for an acceptable guarantee are difficult to meet", according to a Senegalese startup investor. Furthermore, the absence of PE and VC laws and alternative financing models such as crowdfunding in most countries is a big gap that has stunted the ability of domestic investors to fund the sector.

8. **Difficulty in scaling** – African startups face various barriers to entering and competing across borders and generally struggle with market research, product development, marketing strategies, distribution channels, and regulatory compliance. Key informants say that many African startups do not believe that they can compete successfully on the global stage and are consequently hamstrung by this mindset. A Nigerian stakeholder says, "The first way to address capacity and scale is for founders to have a *can-do* spirit." The Nigerian government seeks to assist innovators to believe that they can compete globally and through the National Information Technology Development Agency assists in mentoring innovators. It also says it financially supports startups though it is unknown how effective any public sector initiative is. To address this constraint, respondents desire:

[33]TBI (2022), "Supercharging Africa's Startups: The Continent's Path to Tech Excellence" (Available at https://www.institute.global/insights/geopolitics-and-security/supercharging-africas-startups-continents-path-tech-excellence. Accessed April 7, 2023.)

a. **Access to public procurements** – Founders say it is difficult for startups to bid for public tenders because the requirements tend to be onerous and financially intimidating. In Senegal, startup founders older than 25 are prohibited from bidding for certain tenders. Key informants advise that national governments should prioritize and patronize African tech startups. One respondent asked, "If your home government is not using your services, how do you convince other African governments?". Senegalese government projects often require that a bidder should have annual revenues over US$2m which rules out most startups. Besides, African startups are generally unable to find creative ways of overcoming a strong culture of political patronage and tend to give up the hunt for public sector opportunities altogether.

b. **Access to markets** – A major hindrance to business expansion is the market size and historical income of the economic sector that the startup seeks to play in. Founders who run software-based startups say there is a limited African market for good software. One founder with products selling more in America and Europe than in Africa says that "the appreciation of software is quite low" in Africa and that "people don't buy premium software as much." This may be due to economic reasons or the general access to pirated software in many countries.

   African markets are challenging to enter and the cost of doing business across borders can be significant. Some founders believe that the smaller a market is, the more unlikely it is for a startup to generally succeed especially as the financial capability of end-users is critical to revenues and overall business success. Also, African startups often tend to deal with unexpected competition from foreign players but cannot play or compete in the foreign market even when they have superior solutions. To compound this, African founders tend to have limited know-how to expand their ventures to other markets on the continent. Respondents desire greater public sector support for the growth of homegrown startups. They also want shipment delays abrogated. They believe that startups would greatly benefit if they are assisted to better distribute their solutions beyond their existing markets. For scaling startups, the lack of physical presence in target markets can be a challenge. One founder said that "for us to conquer the market in Europe and America, we might need other things like a physical presence."

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9. **Scarcity of competent talent** – Startups are dependent on local academic institutions for a continuous supply of highly trained developers and computer engineers. However, there is a shortage of skilled workers in the tech sector, especially in areas like software development, product management, business development, and digital marketing. In most geographies, the developer talent pool does not always have the requisite skills and knowledge to support the tech startup space yet the deepening of the talent pool is a critical factor in building ecosystems. Founders say fresh graduates need post-school capacity development to bring them up to speed with the latest industry skillsets and practices. An executive of a leading West African digital bank says the firm "struggles to find consultants with adequate knowledge to help the business". "Bangalore produces 80,000 new developers every year compared to 700,000 developers for the entire African continent" – Senegalese founder.

Table 2: Developer density for study countries[34]

No. of developers	Country	Rank in Africa	No. of developers by million population	Country	Rank in Africa	No of active country apps on the Google Play store[35]
133,195	South Africa	1	2,234	South Africa	3	193
114,536	Nigeria	3	1,095	Kenya	6	170
58,866	Kenya	4	661	Ghana	7	190
20,551	Ghana	7	565	Senegal	9	178
8,113	Senegal	11	556	Nigeria	10	8

Source: Fola Odufuwa & Muriuki Mureithi.

Startups say they need:

a. **Access to skilled workers** – In many countries, local engineers and developers are at the lower end of digital skills, and computer science and engineering graduates often need to be retrained. A female startup executive says, "Failure starts when you don't have the right people or processes. You can't lead teams with interns". A Senegalese founder says, "From a certain level, you have to rely on expertise from abroad especially India and Eastern Europe [for software development]". Besides this, developers tend to be given tasks that are over and above their technical capacity. "Multi-tasking of developers [in the business environment] is a recipe for failure because no developer has the wherewithal to handle all solutions", said a Nigerian tech head.

Startups, especially those that depend on foreign goods and supplies, generally find it difficult to secure partnerships. While this may not be an issue in some parts of the startup ecosystem, it is said to be a big problem in sectors such as pharmaceuticals and agriculture.

10. **Low marketing capacity** – Respondents say that African markets are virgin and are largely open to solutions that are already stale in the West. For stakeholders, access to the market may not be enough if consumers and end-users are not aware of the startup's product and service offerings. "Startups lose because of poor marketing. They simply do not understand what they need to do to win the market. They build solutions for markets that are not there and find it difficult to build a community of satisfied users who willingly pay for services" – Nigerian founder. Key informants recommend that founders:

    a. **Develop solid partnerships** – Research indicates that having the right relationships and networks in the nascent markets that are yet to build institutional infrastructure for startups is critical for navigating through the startup lifecycle. Startups, especially those that depend on foreign goods and supplies, generally find it difficult to secure partnerships. While this may not be an issue in some parts of the startup ecosystem, it is said to be a big problem in sectors such as pharmaceuticals and agriculture. As a Kenyan hub manager said, "The reason we have been successful in this market is that we have built the right relationships that don't depend on our capacity. I'm providing you with industry expertise. And if you ever become a unicorn, you would have built [solid] relationships."

    b. **Recognise cultural nuances** – For startups that scale across borders, stakeholders point to the need for them to have a good understanding and respect for the local culture.

[34]Tunga (2023), African Software Developers: Best Countries for Sourcing in 2023, (Available at https://tunga.io/african-software-developers. Accessed April 12, 2023).

[35]Source: Google Play country search (Accessed April 24, 2023).

11. **Low public trust in new technologies** which require heavy investment in training and awareness raising such as agritech, healthtech and fintech services. End users of startup solutions often face capacity challenges. As one East African respondent said, "Farmers really need a lot of support to fully understand [technical] information."

    a. **Build user trust** – Product integrity, service reliability and user engagement are central to success. A founder highlights that "once people don't trust your startup, you're not going to succeed".

12. **Market naivety & inexperience** – According to key informants interviewed for this study, African founders do not always have their "homework sufficiently done" and are not often adequately experienced in the solutions that they proffer. To address this challenge, key informants recommend:

    a. **Mentorship** – Startups have been proven to benefit from business mentoring in marketing, negotiations, management, etc. A Nigerian founder says, "You need management skills especially when you say you don't need them! You can't give a Ferrari to a little child. He will crash it".

    b. **Managed expectations** – Respondents who own or manage business incubators are finding that many founders come in with unrealistic expectations. An example is cited of a founder who pulled up after only three months because the projections made for the venture were not being met. A young teenage agritech founder was cited by a key informant as having lost a lucrative deal with Tesco UK because he refused to change the label of his award-winning jam.

    c. **The drive and gusto of the founding team** are key to success, especially post-ideation. According to a key informant, "It is not enough for the founder to focus on the glamour or benefits of the venture otherwise, the main pursuit of the business would be over-shadowed and obliterated. You simply cannot be looking at Paystack or Flutterwave!"

    d. **Knowledge sharing** – The transfer of knowledge between and across African startups is said to be limited and a challenge. "Collaboration between startups should be encouraged. The problem you're trying to fix in Nigeria may have been developed by a startup in Tanzania" – a Nigerian tech executive.

13. **Excessive funding** – Startups with unsustainable business models may be funded due to the rampancy and availability of funding sources. One startup founder points out that some economic sectors like fintech are "awash with free (lazy) money [from foreign investors] but this is adversarial if the fundamentals of the business of the investment target are not sound." A Nigerian stakeholder says, "Funding needs to correlate with the objective. It is better to provide funds to startups in waves or milestone cycles and get feedback through monitoring and evaluation systems".

14. **Dispute resolution** – Key informants say that dispute resolution in the startup space is a "nightmare" in many countries. Founders tend to struggle to get justice "quickly" whenever there is a professional disagreement internally or externally with third parties. Also, infighting among the founders often leads to business failure.

15. **Lingering effects of colonialism** – Many founders say they continue to deal with the legacy of colonialism especially when they look for opportunities to fund or advance their ventures. Moreover, some say that Africa is already facing the spectre of digital colonialism where it has little or no control over digital and capital flows presently occurring on the continent. In rare cases, African startups may also face racism and discrimination when trying to scale globally.

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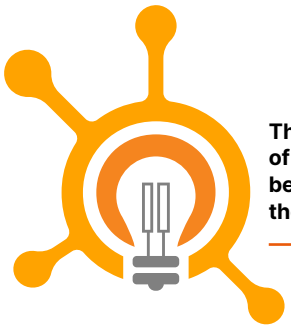
1.7 The Role of Business Hubs, Incubators, and Accelerators

The role of business hubs, incubators, and accelerators in aiding the rise of African startups, particularly in the last decade has been nothing short of phenomenal, according to industry stakeholders who participated in this study. The structured mentorship of startups and the use, in many cases, of a business model canvas by this set of ecosystem actors has been crucial to helping founders properly define and articulate their thoughts and solutions before execution. "The incubator and accelerator systems are the best things to have happened to the startup ecosystem. It would have saved me years and years of learning if they'd started when I founded my first startup 15 years ago" – says an African founder.



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1.7.1 Business Hubs & Incubators

However, there is a big distinction between tech or business hubs and accelerators. Tech hubs are diverse in their types and models. They are typically set up by the private sector, tech communities, development partners, academic institutions or national/regional governments, and are making significant contributions to IT and entrepreneurial development throughout the continent. In the past, hubs founded around 2010 were donor-funded but grant funding has been shrinking in recent years and hubs are expanding their range of offerings to include co-working spaces, space rentals, and partnerships to be sustainable. Sustainability is critical in markets like Zambia where corporately funded, no-fee hubs are operational. To be competitive, hubs are also reviewing the value proposition beyond training and capacity building and have begun to offer incentive-based programs to innovators. "We have managed to flip the model we are running. In most cases, a client is sponsored in the program and through this we guarantee incentives. You need to go beyond capacity, and be very targeted", said a hub director.

In their various presentations, hubs are the physical manifestation of an innovation environment admitting founders at the most fragile ideation phase. What they share is the provisioning of facilities, community spaces and affordable physical and digital infrastructure to support startups in a relatively laid-back manner through the ideation and startup phases. Supportive infrastructure also includes broadband connections, electricity and, in some cases, tools for product development to assist new entrants to develop their business models. They also offer some levels of mentoring, training, consulting, and, in some cases, finance. The busiest cities where the activities of tech hubs can be found are in the more developed ecosystems of Nigeria (Lagos), South Africa (Cape Town), Kenya (Nairobi) and Egypt (Cairo).[36] Notable hubs include iHub (Kenya), JokkoLabs (Senegal), ccHub (Nigeria), RiseUp (Egypt), Innovation Hub and UVU Africa, formerly CiTi (South Africa).

Many founders attribute their commercial successes to the lift they experienced through the seed capital and mentoring of tech hubs and incubators. "I can't imagine starting the business if I was not helped by the incubation hub. I couldn't have survived if the hub we were in had not funded us," says a Ghanaian founder. Presently, according to key informants, there are at least 70 tech hubs in Ghana compared to only 3 in 2010 (MEST, iSpace, and Impact Hub).

[36]African Vibes (2021), "The Top 10 African Tech Hubs" (Available at https://africanvibes.com/the-top-10-african-tech-hubs. Accessed April 23, 2023).

Senfablabs, a Senegalese digital business hub that focuses on the fashion sector, and its sister venture, Linguere Fablab, a learning and incubation space and the first Fablab "created by and for Senegalese girls", say they have jointly trained over 4,000 individuals, (20% women) in digital fabrication and embroidery, robotics, and computer skills, with small grants from foreign donors. Similarly, Ghana's iSpace CODE School is said to have played a role in the development of the startup ecosystem of the country.

In the early years of a national startup ecosystem, actors are typically eager about the potential and prospects of the sector and are open to collaboration and complementary activities. But as the market matures, competition, rivalry and profit-taking tend to dissolve the eagerness to collaborate, and actors often find themselves gradually isolated from each other in ways that negatively affect the overall development of the ecosystem. Tech hubs in Senegal, Nigeria and Ghana are presently bearing the brunt of this new reality. Hubs in these countries, having helped to midwife the success of a few notable startups e.g., Wave (Senegal), and Paystack (Nigeria) are realizing that there has not been a 'commensurate' reward for their role, either by way of an equity stake or some other form of compensation in the ventures they assisted to build. Lately, tech hubs are pivoting into consultancy and partnering with national governments and development partners in making other sectoral interventions such as youth training programs.

Many stakeholders who participated in this study want to see an increase and improvements in the business incubation and innovation systems that assist founders to experience the handholding they need to commercialize their ideas. "If Africa will leapfrog, the first thing it needs in the tech space is to create incubators for ideas. If poverty is killing more people than malaria, why don't you empower a tech hub to create economic impact?"

Despite generally good reviews, some stakeholders say that not all innovation hubs have played a positive role in the development of the sector with instances of founders who believe that their ideas were "stolen" or duplicated under the guise of mentoring. Beyond this, incubation and innovation hubs across the continent appear to have been negatively impacted by the COVID-19 pandemic as remote working and social distancing have reduced the need to physically congregate in community workspaces. In many countries including Senegal and Nigeria, the growth and pace of activity or 'busyness' of hubs is being dramatically curtailed. Due to these factors, it appears that tech hubs are now in decline and many have transformed partially or wholly into digital spaces. In many countries, their usefulness as tech communities is also fast eroding as founders are increasingly either turning to digital/virtual communities or isolating to build their new businesses under the intense watch of their new (typically foreign) investors who are playing a much bigger role under the accelerator model.

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Box 1: Accra Digital Centre

US$10 million

Setup in 2011 as a US$10m Silicon Valley replica of sorts by the Ghanaian government with support from the World Bank and the Rockefeller Foundation, the Accra Digital Centre (ADC), formerly Ghana Multimedia Incubation Centre, is an array of 12 warehouses in Accra redeveloped and fitted with support systems to house 40 tech startups. An innovation hub that promotes youth entrepreneurship and startups working in emerging technologies, the Centre says it has trained over 20,000 youths in ICT and created 5,000 direct jobs since its inception. They attribute whatever successes they have had to government foresight, planning, funding, and broad support for the development of the tech ecosystem, a shift that appears to have begun when the ICT for Accelerated Development (ICT4AD) program was launched in 2003. The Centre is presently under the management of the government-owned Ghana Digital Centre.

1.7.2 Accelerators

Though business hubs and incubators have created good awareness among African youths and have helped many startup businesses to launch successfully, key informants are unified that it is accelerators and acceleration programs that have deepened the ecosystem due to the extra edge they bring to startups in hands-on mentoring, capital raising, and business modelling, services that hubs and incubators are generally limited at.

In contrast to hubs and incubators, accelerators working in or with African startup founders are currently doing much more to the development of the ecosystem. They are distinguished from business incubators and other forms of capacity development services in that they are simplified investment vehicles that generally catalyse growth from the early stages by providing mentorship to small batches of startups who are brought into periodically-organized short-term programs. These cohort programs run for a few weeks, typically 6 to 12, though some last for much longer, and accelerators often take a small portion of equity (5-20%) in exchange for their support.

Though business hubs and incubators have created good awareness among African youths and have helped many startup businesses to launch successfully, key informants are unified that it is accelerators and acceleration programs that have deepened the ecosystem due to the extra edge they bring to startups in *hands-on* mentoring, capital raising, and business modelling, services that hubs and incubators are generally limited at. Founders lever on the technical expertise, knowledge tools, deep support, financial resources, and capital-raising capabilities of accelerators to de-risk the business model. Accelerators also help in facilitating new partnerships and a rapid upgrade and broadening of the skills of founders and their startup teams. "You can learn digital skills at hubs but accelerators are for building real-life businesses", according to a Nigerian startup founder. The consensus of views from key informants is that the amount of extra learning and increase in execution speed which founders gain through accelerators is invaluable. Due to this and unlike two decades ago, a growing number of startups who have scaled their businesses to become enterprises or even unicorns have done so coming out of an accelerator. Over half of the funded startups in 2022 (52.1%) participated in an acceleration program before or during a capital raise.[37]

Presently, the total number of accelerators actively playing on the African continent is unknown. Crunchbase lists 229 accelerators with an average founding date of 2011 as having made investments in African startups in the last decade.[38] However, making an investment or listing in a database as an 'African accelerator' does not equate to operational presence in Africa so this figure does not give the true picture. The country missions to the six study countries carried out by the authors indicate that the overall number of active accelerators is likely a fraction of this. The Aspen Institute estimates 35 accelerators presently active in Africa.[39]

[37]Disrupt Africa (2023), The African Tech Startups Funding Report, Nairobi: Disrupt Africa.

[38]Crunchbase (2023), Accelerators with Investments in Africa (Available at https://www.crunchbase.com/hub/accelerators-investments-in-africa-. Accessed April 13, 2023).

[39]ASPEN (2023), "The Accelerator Landscape" (Available at https://www.galidata.org/accelerators/. Accessed April 23, 2023).

Nonetheless, acceleration on the African continent appears to be a huge endeavour, and each accelerator has a particular set of requirements and criteria for admitting prospects into their programs. The most common of these yardsticks are:

A clear business model highlighting at least one working minimum viable product.

5yrs

Limitation on the age of business – Targets tend to be required to be young businesses incorporated within 5 years with exceptions.

40yrs

Age restriction, typically under 40 years. The younger, the more likely.

Willingness to share a small portion of equity with the accelerator and its co-investors, although some accelerators are lately offering equity-free seeds, grants, and in-kind resources to new cohorts.

Operating in Africa with good potential to scale.

Some concentrate on certain economic segments or the female gender.

Many accelerators think that it is essential to get the startup into their processes at the tender, formative stage otherwise the process may not work.

Key informants who run hubs and accelerators on the continent say their preference is to engage with the startup at the "very start of the business" to take the founders through all the steps necessary to achieving success. Many accelerators think that it is essential to get the startup into their processes at the tender, formative stage otherwise the process may not work. One tech hub manager points out that startups outside the evaluation criteria tend to be harder to manage especially if the founders are older or the business is more established. Currently, due to high demand, many accelerators do not face difficulties in finding and attracting startups with high-value business models to put into their innovation pipeline.

Notable international corporations that have set up acceleration programs targeted at African startups include Y Combinator, Techstars, 500 Startups, Founders Factory Africa, Catalyst Fund, Startupbootcamp, and Launch Africa but the biggest in terms of longevity, investment volumes and reach may be Y Combinator which has backed over 80 African startups since its first deal in 2012. The most prolific are Google and Launch Africa (Table 3).

Table 3: Overview of accelerator deal activity in Africa.

Accelerator	Year of the first African investment	Total number of participating African startups	Startup country of origin (no/list)	Total seed funds granted through accelerator programs[40]
Y Combinator[41]	2012	86	**13** – Benin, Cote D'Ivoire, Ghana, Egypt, Ethiopia, Kenya, Nigeria, Uganda, Senegal, Seychelles, South Africa, Tanzania & Zambia	US$65.5m
Google (Google for Startups Africa,[42] Black Founders Fund[43] & Women Founders Africa[44])	2017	>206	**17** – Algeria, Botswana, Cameroon, Côte D'Ivoire, Egypt, Ethiopia, Ghana, Kenya, Morocco, Nigeria, Rwanda, Senegal, South Africa, Tanzania, Tunisia, Uganda, and Zimbabwe	US$50m[45]
Launch Africa	2019	133[46]	**21** – Angola, Benin, Botswana, DRC, Egypt, Ghana, Kenya, Madagascar, Mauritius, Morocco Nigeria, Rwanda, Senegal, South Africa, Sudan, Tanzania, Togo, Tunisia, Uganda, Zambia, Zimbabwe	US$31m[47]
Techstars[48]	2015	67	**8** – Benin, Ghana, Egypt, Kenya, Nigeria, Uganda, South Africa & Tanzania	US$22.2m
500 Global (formerly 500 Startups)[49]	2010	74	**10** – Algeria, Egypt, Ghana, Kenya, Morocco, Nigeria, Tunisia, Senegal, South Africa, Uganda[50]	US$3.5m
Startupbootcamp AfriTech[51]	2017	11	**5** – Ghana, Kenya, Nigeria, Uganda & Senegal	US$687,000

Source: Fola Odufuwa & Muriuki Mureithi.

[40]TechPoint Africa (2022), "Y Combinator is changing the African startup game" (Available at https://techpoint.africa/2022/05/11/y-combinator-changing-african-startup. Accessed April 11, 2023).

[41]Y-Combinator (2023), Startup Directory (Available at https://www.ycombinator.com/companies?regions=Africa).

[42]Google for Startups (2023), Africa (Available at https://startup.google.com/accelerator/africa. Accessed April 11, 2023).

[43]Google for Startups (2023), Black Founders Fund (Available at https://www.campus.co/africa/black-founders-fund. Accessed April 11, 2023).

[44]Google for Startup (2023), Accelerator Africa: Call for Applications for Women Founders (Available at https://blog.google/intl/en-africa/company-news/outreach-and-initiatives/google-for-startups-accelerator-africa-call-for-applications-for-women-founders. Accessed April 11, 2023).

[45]TechCrunch (2021), "Google sets up $50M fund to invest in African startups" (Available at https://techcrunch.com/2021/10/06/google-sets-up-50m-fund-to-invest-in-african-startups/. Accessed April 12, 2023).

[46]Launch Africa (2023) Portfolio (Available at https://launchafrica.vc/portfolio. Accessed April 26, 2023).

[47]The Big Deal (2023), Spotlight on Africa's most prolific investor" (Available at https://thebigdeal.substack.com. Accessed April 26, 2023).

[48]Techstars (2023) Startup Database (Available at https://www.techstars.com/portfolio?countries=Benin&countries=Egypt&countries=Ghana&countries=Kenya&countries=Nigeria&countries=South+Africa&countries=Tanzania&countries=Uganda&ref=benjamindada.com. Accessed April 11, 2023).

[49]Dieng, M. (2022), "Africa: 500 Global's Next Ecosystem Hub". (Available at https://500.co/theglobalvc/africa-500s-next-ecosystem-hub. Accessed April 11, 2023).

[50]500 Global (2023) Portfolio (Available at https://500.co/companies. Accessed April 26, 2023).

[51]Startupbootcamp (2022), "Ten African startups selected for prestigious acceleration program founded by Telecel Group ASIP and powered by SBC Afritech". (Available at https://www.startupbootcamp.org/blog/2022/04/startupbootcamp-afritech-is-scaling-up-for-africans-by-africans-2/. Accessed April 11, 2023).

US$4million

Google for Startups Black Founders Fund disbursed US$4m in equity-free cash grants to 60 African startups in 2022 with each receiving up to US300,000 in capital and Google Cloud credits.[58]

Successful fundraising as facilitated by accelerators has dynamically changed the startup ecosystem especially as it gives some form of industry "endorsement" to participating startups, many of whom then go on to raise funds within 12 months of graduating from a cohort.[52] As an illustration, African startups seeded by Y Combinator to the tune of US$65.5m have gone on to raise US$1.3b by March 2021,[53] which demonstrates the high impact being unleashed on the sector by accelerators. On a lower scale, Google startup alumni cumulatively raised only US$100m as of October 2021.[54] MEST is active in 9 African countries and has made over 80 principal investments in 60 companies since its inception. Notwithstanding, outside the accelerator system, founders are finding that the finance to sustain and scale a new venture may not always be easy to access post-incubation. Over 70% of startup investments in 2022 were either pre-seed (31%) or seed capital (40%).[55]

However, while accelerators typically make funds available to seed startups either themselves or through other co-investors, 59% of African startups that raised less than US1m in seed funding since 2012 did not utilize accelerators.[56] Startup founders and experts with inside knowledge say that the accelerator business model is quite challenging and that pure Silicon Valley-based models are not sustainable for Africa.[57] Perhaps as a result, there is a rise in recent times in equity-free acceleration models. Google for Startups Black Founders Fund disbursed US$4m in equity-free cash grants to 60 African startups in 2022 with each receiving up to US300,000 in capital and Google Cloud credits.[58]

There is also a demand by some respondents for a different type of acceleration model especially as African startups generally appear to struggle with fast-paced Silicon Valley type-growth models. These stakeholders are insisting that short-term acceleration programs of 1 to 6 months may not be right for African startups because, according to one founder, "they simply do not have the staying power to endure longer gestation periods to success in African markets. You [simply] can't create an enterprise in Africa out of an idea in 6 months".

There is also a demand by some respondents for a different type of acceleration model especially as African startups generally appear to struggle with fast-paced Silicon Valley type-growth models.

[52]Britter Bridges (2021) "The role of tech hubs and accelerators in supporting early-stage startups in Africa". (Available at https://briterbridges.com/stories/2021/5/24/the-role-of-accelerators-in-supporting-early-stage-startups-in-africa. Accessed April 13, 2023).

[53]TechPoint Africa (2022), "Y Combinator is changing the African startup game" (Available at https://techpoint.africa/2022/05/11/y-combinator-changing-african-startup. Accessed April 11, 2023).

[54]TechCrunch (2021), "Google sets up $50M fund to invest in African startups" (Available at https://techcrunch.com/2021/10/06/google-sets-up-50m-fund-to-invest-in-african-startups/. Accessed April 12, 2023).

[55]Disrupt Africa (2023), The African Tech Startups Funding Report, Nairobi: Disrupt Africa

[56]TechPoint Africa (2022), "Y Combinator is changing the African startup game" (Available at https://techpoint.africa/2022/05/11/y-combinator-changing-african-startup. Accessed April 11, 2023).

[57]Kinyugu Ventures (2021), Chasing Outliers: Why Context Matters for Early-Stage Investing in Africa, Nairobi.

[58]Google for Startups (2023), Black Founders Fund (Available at https://www.campus.co/africa/black-founders-fund. Accessed April 11, 2023).

1.8 Investment Flows – Connecting Startups to Financiers/Exit Frameworks

There are strong and growing linkages between the African startup ecosystem and the Global North. Financial and technical resources flow into Africa mainly from Silicon Valley, Europe and China enabling talent development, knowledge sharing, and commercial partnerships at various levels. Over the past decade, the African ecosystem has evolved to attract the sustained interest of major technology corporations, venture capital firms, foreign angel investors and international investment banks. The establishment of the hugely successful startup accelerator investment model has further opened doors for African founders and innovators to access previously unavailable technical and funding resources.

1.8.1 Venture Capital

The funding problem is compounded by the fact that institutional investors in Africa are under-investing in African startups. Only 1% of the combined assets of US$1.8 trillion held by African pension funds, insurance companies and sovereign-wealth funds flowed into the ecosystem in 7 years from 2014 to 2020.

As a result of the unrelenting investment appetite as described, VC funding is presently at a record high. According to one database tracker, there are currently at least 1,600 investors actively participating in the African startup ecosystem, excluding angels.[59] VCs are formal institutions that bring in much more resources at various stages unlike angels, and are presently aggressively funding African startups from as early as the ideation stage. According to Disrupt Africa, nearly half of African startups (43.6%) that received funding in 2022 raised US$1m[60] A startup with an MVP with market traction and generating some revenue is ripe for seed funding. More funding usually comes in 'series' as the venture expands and the need for resources broadens.

African startups attract FDIs because they understand how to solve African problems. However, homegrown VC funding is nascent but gradually increasing. Due to the foreign origins of these investors, most of the US$5.4b raised by African startups in 2022[61] sits outside the continent. There are many reasons for this. First, Africa is yet to create investment pools to match funding levels and technical resources available to African startups from outside the continent, though that is beginning to change. According to a Ghanaian founder, "Africa has not mapped out what its investment systems are or should be. If African investment networks are okay, there would be less of a problem [of startups accessing capital]". Furthermore, banks tend to shrink away from startup investments due to restrictive policies of the financial regulator. When approached for debt transactions, intellectual property is not generally considered a fixed asset, interest rates can be excessive, and hard collateral is often demanded from startups that typically have little or no fixed resources to put forward at the early stages of their businesses.

Startups can be registered in any jurisdiction. However, it is those with either overseas incorporation or, according to one stakeholder, "the most exciting investment documents" that tend to get funded. One respondent believes that 90% of African startups that receive foreign direct investment are (required to be) registered outside the continent while an industry report suggests that 70% of overseas-registered African startups are domiciled in

US$5.4 billion

African startups attract FDIs because they understand how to solve African problems. However, homegrown VC funding is nascent but gradually increasing. Due to the foreign origins of these investors, most of the US$5.4b raised by African startups in 2022[61] sits outside the continent.

[59]Cuvelliar, M & (Bayen, M. (2023) Africa: The Big Deal Startup Deals Database, Kampala: Africa: The Big Deal.

[60]Disrupt Africa (2023), The African Tech Startups Funding Report, Nairobi: Disrupt Africa.

[61]AfDB (2023), "African Development Bank and partners invest $618 million in Nigeria's digital and creative industries". (Available at https://www.afdb.org/en/news-and-events/press-releases/african-development-bank-and-partners-invest-618-million-nigerias-digital-and-creative-industries-59766. Accessed April 12, 2023)

Delaware USA[62]. Other foreign jurisdictions where African startups register their businesses can be found in Germany (Berlin), USA (San Francisco), France (Paris), United Arab Emirates (UAE), the Netherlands (Amsterdam) and the United Kingdom (London). As a pattern, the biggest accelerators working on the African continent tend to mandate startups who are their investment beneficiaries to restructure their African operation under a US-registered mother (or group) company in line with the statutes of their home country.

Secondly, while foreign investors tend to view the continent as a single entity, fragmented markets are a bigger hurdle for African-based investors who must deal with disparate and arcane laws and regulations, higher interest rates on debt, aggressive expected returns on private investment, and the general lack of sophistication of capital markets in Africa. One key informant who has made over US$2.5m equity investments into African startups since the pandemic says "No one wants to deal with 55 different laws in financing an opportunity in Africa". In addition, dealing with a locally registered startup is reportedly a "frustrating" experience for foreign investors in general.

On the downside, some key informants report that financiers sometimes take advantage of the naiveté of African startup founders. Additionally, many founders who participated in this study allude to a sense of "reverse racism" that they say they experience when competing with non-Africans for finance, talent, and markets on the continent. One said, "People in Africa respond to the 'white skin' even when a black man has superior ideas. The colonial mindset is a mental block that hasn't gotten out of people's minds". However, investors we talked to say that it has been impossible so far to "fund every hidden gem". Besides, founders who chase funding are said to be often distracted from the execution of their business plans due to the many documentation requests of prospective financiers.

1.8.2 Angel Investors

Complementing the ecosystem but with feebler structures and a much lower overall impact (compared to accelerators) are African angel investors who seek and fund early-stage opportunities. These individual investors generally provide capital, knowledge, and networks to startups in exchange for equity or debt. The African Business Angel Network (ABAN), a pan-African non-profit association founded to support the development of early-stage investor groups, estimates cumulative angel investments of US$100m since its formation in 2015.[63] Though angel investors can be found in over 40 countries, outside the four advanced startup ecosystems (Tier 1), the rest of Africa (Tier 2 and Tier 3) is yet to develop regulatory coverage for angel investments.

It is a well-known fact that startups need seed capital to develop and take to market their product or service and to rapidly scale up in a period when they are yet to generate revenue. Founders often use resources from friends, friends, family members and acquittances to supplement their bootstrapping efforts due to the high-risk profile of the new venture at this early stage.

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[62]Disrupt Africa (2020), "Why African tech startups are increasingly domiciling overseas" (Available at https://disrupt-africa.com/2020/03/10/why-african-tech-startups-are-increasingly-domiciling-overseas/ Accessed April 7, 2023).
[63]https://abanangels.org/

Angel investment is presently constrained by the absence of regulatory frameworks, lack of awareness, arcane foreign exchange controls, high transaction costs, and limited exit opportunities. The development of a solid stream of potential projects is hampered by weak and undeveloped early-stage funding from angel investors.

Box 2: Senegal Angel Networks

Senegal Angel Networks are groups of investors who provide funding and support to early-stage startups in Senegal and other West African countries. They seek to exploit emerging opportunities in Francophone Africa arising from related national policies and regional digital economy initiatives[64] and are part of the growing network of entrepreneurship and innovation in the region.

The startup ecosystem hosts a handful of angel investor groups, Sustainable Investments Exchange (SIX), Senegal Women Investment Club, Senegal Angels and AfricAngels, but the best known seems to be Dakar Network Angels. These networks help startups scale their businesses to reach new markets and achieve financial sustainability. The Dakar Network Angels (DNA), an assemblage of Francophone Africa angel investors founded in 2018 and based in Dakar, mentors and seeds startups in exchange for equity but not much is known locally about their work beyond investments in four startups, Coliba (cleantech – Cote D'Ivoire) in 2019,[65] Venco (prop-tech – Nigeria, 2022),[66] Kamioun (e-commerce – Tunisia, 2021),[67] and Cauri Money (fintech – Senegal) in 2022.

However, Senegal Angel Networks face many environmental challenges and regulatory barriers such as the lack of adequate infrastructure, the high cost of internet access, weaker levels of entrepreneurship, and the cultural differences that affect the adoption of new technologies. They also must deal with the lack of exit opportunities in addition to the risks and uncertainties that come with investing in early-stage companies, as well as the high failure rate of these new businesses.[68]

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1.8.3 African Institutional Investors

The funding problem is compounded by the fact that institutional investors in Africa are under-investing in African startups. Only 1% of the combined assets of US$1.8 trillion held by African pension funds, insurance companies and sovereign-wealth funds flowed into the ecosystem in 7 years from 2014 to 2020.[69] In contrast, foreign investors (VC/PE) poured US$3.5b into the sector in the first 6 months of 2022 alone making investments into 300 African startups.[70] While the maximum allocation to private equity permitted by national regulators ranges between 5 and 15% of total assets held by pension funds across Africa, actual investments tend to be

[64]VC4A (2020) Dakar Network Angels (Available at https://vc4a.com/dakar-network-angels/ Accessed April 26, 2023).

[65]TechCrunch (2019), "Dakar Network Angels begins startup investments in francophone Africa", (Available at https://techcrunch.com/2019/03/28/dakar-network-angels-begins-startup-investments-in-francophone-africa/. Accessed April 18, 2023).

[66]Tracxn (2023), Dakar Network Angels (Available at https://tracxn.com/d/angel-network/dakar-network-angels/__18jJQWV-nZWMobTSigEY5M-y027TDAwAP6774ORxUjU. Accessed April 18, 2023)

[67]WeeTracker (2021), E-Commerce Startup Kamioun Secures USD 400 K Investment to Expand, (Available at https://weetracker.com/2021/12/10/e-commerce-startup-kamioun-secures-usd-400-k-investment-to-expand/. Accessed April 18, 2023)

[68]LinkedIn (2023), Dakar Network Angels (DNA) (Available at https://sn.linkedin.com/company/dakar-network-angels-dna Accessed April 18, 2023).

[69]TBI (2022), "Supercharging Africa's Startups: The Continent's Path to Tech Excellence" (Available at https://www.institute.global/insights/geopolitics-and-security/supercharging-africas-startups-continents-path-tech-excellence. Accessed April 7, 2023.)

[70]AVCA (2022) 2022 H1 African Venture Capital Activity Report, London: African Private Equity and Venture Capital Association.

a much lower ratio. In many markets, there are also regulations restricting investments into recently formed enterprises as startups often are, and entirely forbidding cross-border fund deployments such as scaling startups in Africa would require.

Nigeria is an example of an opportunity that may be unlocked through an increase in pension fund portfolio caps. In 2021, the Nigerian pension industry committed ₦40.52b (c. US$87m) or 0.4% of the total assets of ₦13.4t (c.US$29b) to private equity (Table 4).[71] However, a 1% increase in total assets will result in a threefold increase in PE funds available for investments which may further advance the startup ecosystem if deployed. The portfolio cap in Nigeria is 5%[72] (or US$1.45b) of which 94% is presently unused. One founder believes that Western funders are "able to create unicorns out of Nigeria every five years but this is difficult for indigenous Nigerians to do [by themselves]". Unicorns are startups with a valuation of US$1b or more. Table 4 shows the current levels of pension funds available for PE investments (the latest available data).

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Table 4: Levels of pension fund deal activity in the study countries.

Country	Total Pension Assets Under Management (US$)	Maximum Allocation to Private Equity (as % of total assets)	Committed PE Funds (as % of total assets)
Ghana[73]	3.3b[74]	10%	0.58%
Kenya	11.8b[75]	10%[76]	
Nigeria[77]	29b	10%	0.4%
Senegal	N/A	N/A	N/A
South Africa	154.7b[78]	15%[79]	0.012%

Source: Fola Odufuwa & Muriuki Mureithi.

[71]NPC (2022), PenCom Annual Report 2021, Abuja: National Pension Commission.

[72]PenOp (2021), Pension Funds and Private Equity in Nigeria, Lagos: Pension Fund Operators Association of Nigeria.

[73]PenOp (2021), Pension Funds and Private Equity in Nigeria, Lagos: Pension Fund Operators Association of Nigeria.

[74]NPRA (2022), 2021 Annual Report. Accra: National Pensions Regulatory Authority.

[75]Kenya Current (2020), "Kenya Pension Industry: Assets up 1.8pc to sh1.3trn" (Available at https://kenyacurrent.com/kenya-pension-assets-up-1-8pc-hit-sh1-3trn/ Accessed on April 26, 2023).

[76]Kenyan Wall Street (2020), Pensions and Retirement Benefits under Siege in Proposed New Laws (Available at https://kenyanwallstreet.com/pensions-and-retirement-benefits-under-siege-in-proposed-new-laws/ Accessed April 26, 2023).

[77]NPC (2022), PenCom Annual Report 2021, Abuja: National Pension Commission.

[78]Statista (2023) Total assets of pension funds in South Africa from 2002 to 2020 (Available at https://www.statista.com/statistics/421641/pension-funds-assets-south-africa/ Accessed April 26, 2023).

[79]PRN Newswire (2023) "The South African Private Equity Industry 2023: Funds Under Management Increase and Pension Funds Act Amendments set to Boost Sector Further" (Available at https://www.prnewswire.com/news-releases/the-south-african-private-equity-industry-2023-funds-under-management-increase-and-pension-funds-act-amendments-set-to-boost-sector-further-301793366.html. Accessed April 26, 2023)

1.8.4 Crowdfunding & Grants

Crowdfunding is emerging as an alternative mechanism for early-stage funding. It is driven by dedicated platforms that securely make investors aware of financing opportunities in a small business. Investors may get equity or convertible debt in the venture or access to early products or services at a preferential rate. A crowdfunding site will collect a fee for its services, and new campaigns will be assessed for validity, viability, and regulatory compliance. GoGetta,[80] a South African-based equity crowdfunding platform that connects worldwide investors with African entrepreneurs, is one such platform.

Grants typically come from development partners, multilateral agencies, global technology corporations, African banks, governments, and other entities who seek to incentivize different aspects of the startup ecosystem. These grants have specific criteria that reflect the funder's objectives. There is currently no central database of grants that African startups can access online and founders often struggle to know what is on offer at any given time.

While grants have been helpful, industry stakeholders do not believe that it puts sufficient pressure on founders to make sure that their business concepts and solutions are commercially profitable. In Senegal (as in many other markets), there is a large pool of tech founders who target the endless supply of annual grants and award prizes through which they draw their existence and who remain stuck at this stage.

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1.9 Startup Innovation & Emerging Business Models

African founders are on the hunt for replicable Western solutions, e.g., the latest *uber*-style offerings, as they seek to 'democratise' services using digital tools. Simultaneously, delivery-based systems are said to be growing 'exponentially'. Examples include healthcare platforms that help people in need find specialists across the country without having to travel. Non-bank cash transfers are increasingly being made possible through startups like Paystack, Stripe, and Flutterwave, to name a few. Demand and competition appear to be the main drivers of innovation. According to respondents, the latest trend in startup business modelling is Anything-as-a-Service (XaaS), a term that describes a wide range of services delivered by startups to their customers over a network as an alternative to providing them locally or on-site.[82] Under this would fall the following variants:

Box 3: Emerging Business Models

- Platform-as-a-service
- Solutions-as-a-service
- Service-as-a-service
- Payment on demand
- Subscription
- Lease-to-own

[80]StartupAfricaNews (2022), "GoGetta, a new crowdfunding solution for African Startups". (Available at https://startupafrica.news/gogetta/. Accessed April 26, 2023).

[81]Digilogic (2021), Map of the ecosystem, video narration and brief on levers for change, Brussels: Digilogic Africa.

[82]TechTarget (2023), "What is XaaS (Anything as a Service)?" (Available at. https://www.techtarget.com/searchcloudcomputing/definition/XaaS-anything-as-a-service. Accessed April 12, 2023).

New business models being adopted by African startups are increasingly being anchored on technologies dependent on advanced data analytics and artificial intelligence. "The tourism package to Zanzibar offered by some Tanzanian startups is loaded with data and analytics", says a tech executive. Payment transfer platforms for diaspora remittances are also new business models. Peer-to-Peer (P2P) apps in this genre are said to be growing exponentially. Furthermore, the Nigerian entertainment industry is said to be driving new business models for startups that are building music and video-sharing platforms. Other emerging models include those around renewable energy especially those that run as a service, e-commerce, hailing applications, shopping, etc. Another trending business model is Edtech particularly admission facilitation between Africa and overseas.

New models also emerge when startups pivot from one business focus to another as they adjust to the commercial realities that they typically face post-launch. Ghana's Farmerline commenced its agribusiness by selling seeds to farmers but quickly changed focus to the distribution of fertilizers. Recently, the operator launched an investment business which offers farmers access to needed capital in competition with traditional banks. Business model combinations of this sort are said to be on the rise.

Venture builder is another emerging model. It shifts the risk burden away from the innovator. In this model, the venture builder either develops ideas from its expansive market experience or intervenes at the idea stage and engages with founders to work together towards commercialization. Cases have been noted in the South African market. Venture builders typically support founders through all the key stages in a closer and more efficient manner.

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1.9.1 How Founders Assess Unmet Needs

The assessment by African founders of the unmet socio-economic needs of their societies comes in a variety of ways though. According to key informants, the most common appears to be what is termed the founder's LIVED EXPERIENCE. Founders of African startups often "see" solutions to problems that most are not able to see and the businesses they create are, in many cases, a spark of inspiration drawn out of the experiences they have gone through. Advantage Health, a Nigerian healthcare platform, was said to have been conceived when a founder struggled to get the right diagnosis and treatment for an ailing relative. A Senegalese tech executive started his pharmaceutical enterprise due to the access he had to a manufacturer's database of in-demand drugs popular within the local market. The idea for LawPavilion, a digital network for Nigerian lawyers, sprang from the tech founder's interactions with local attorneys.

However, not all startups are created out of the "lived experience". For many founders, needs assessment is said to be largely based on assumptions which are then fine-tuned over time. "Our thought processes are not often robust enough. Most times, founders make a lot of assumptions because of their inability to properly articulate and define the solution in the first place. [They then find that] ad-hoc solutions don't work. We don't often analyse properly before running with an idea and we end up with a business in crisis or that utterly fails in the end. Successful startups tend to keep things simple" – Nigerian tech executive. But when a founder is not grounded in domestic realities, the hypotheses and reasoning underpinning their business concept tend to be flawed. A South African venture builder said, "Fine, the business model looks good, but does this problem even exist? If it exists, to what extent? What is there for the market opportunity? What is the market size of this problem? Are you solving a problem in this country only for one year, then after one year, it is gone?"

Funders also look for founders who can paint a graphic and passionate picture of the real problem they have experienced. An angel syndicate leader said, "What you're looking for as an investor is execution so give me an idea. Paint me a picture of a future that you want to build by solving this problem." According to several respondents who contributed to this study, it is founders that have some direct contact with the needs that get to be able to 'see' and analyse the inherent opportunity. A key informant said, "What appears as problems get to be shown as not really problems after the business is launched". Theoretically, while it is possible to solve problems in another market without being there – one key informant says, "You can be based in Abeokuta [in South West Nigeria] and be solving problems in New York" – however, majority

of respondents believe that it is difficult to commercially solve a problem in Africa realistically without being "on the ground".

Possibly arising out of the personal nature of the inspiration behind the founding of their startups, only a few African founders carry out in-depth market research and business consultations before developing the solutions they have in mind. "Few startup founders use consultants. This may be one reason for high business failure. Many also don't have the resources to procure market intelligence. Those who are funded are the ones who can afford to carry out basic or even advanced market research" – Nigerian startup founder.

This situation is set against two underlying problems related to data availability. One, there is no reliable source of comparable official information on African startups, whether registered on the continent or overseas. Secondly, tech founders in most countries often have negligible access to market data that can help them better design, structure and distribute their solutions to capture their target market from the get-go. Data scarcity is a common challenge for both founders and investors, who need reliable information to build and fund startups.

In Africa, startups must use their limited resources to create data for their solutions, because data is scarce and hard to find in most parts of the ecosystem. Access to non-aggregated low-level data is even more difficult and where data can be found, its maintenance is not often treated with importance and, consequently, collected data becomes obsolete quickly.

The Tony Blair Institute notes that the absence of official datasets undesirably affects the frequency and pace of direct investments into African startups[83] and hampers the formulation of optimal sectoral policies. "There is no data in Africa for the most part. Data is available to only a select few", says one key informant. An example was cited of how the UK government subsidizes data by giving free access to startups through an online service that displays government subsidies given to businesses,[84] and a database of over 1,500 public and private funding sources for startups.[85]

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In Africa, startups must use their limited resources to create data for their solutions, because data is scarce and hard to find in most parts of the ecosystem. Access to non-aggregated low-level data is even more difficult and where data can be found, its maintenance is not often treated with importance and, consequently, collected data becomes obsolete quickly. Ghana's startup ecosystem portal,[86] developed by Ghana Tech Lab with the backing of the World Bank and Mastercard Foundation, which lists 347 startups is a work-in-progress, plain vanilla version of the kind of central database that Africa needs. The proposed framework for startup registration and data publication in Kenya should provide useful data on activity within the ecosystem but this data is currently unavailable, making it difficult to develop relevant policies.

Due to this, most startups turn to creative ways to assess market needs though they often start their businesses "blindly" not fully knowing what the market wants or can support. A great startup idea can come from anywhere, and may not even seem like it has big potential at first until it is proven in the marketplace. Market research often involves participation at local and international events (conferences, exhibitions, etc) from which some founders draw inspiration to come up with innovative solutions for African markets. In recent years, founders who have sold their businesses successfully have joined the innovation pipeline either with new inventions themselves or by helping other inventors as angels. The interests of founders and their funders must be aligned for a commercial venture to succeed.

[83]TBI (2022), "Supercharging Africa's Startups: The Continent's Path to Tech Excellence" (Available at https://www.institute.global/insights/geopolitics-and-security/supercharging-africas-startups-continents-path-tech-excellence. Accessed April 7, 2023.)

[84]UK Gov (2021), View subsidies awarded by UK government (Available at https://www.gov.uk/guidance/view-subsidies-awarded-by-uk-government. Accessed April 7, 2023).

[85]UK Startups (2021), "How much funding does your business need?" (Available at https://www.ukstartups.org/funding-database/ Accessed April 7, 2023).

[86]https://ghanaecosystem.com/

In summary, founders are always seeking knowledge and new ways of solving socioeconomic problems, and many believe that they are putting "a lot of sweat equity" into their businesses which they say "cannot be taken out". Through asking questions (e.g., how can we reduce road accidents in this country using digital technologies?) ideas which may be commercially exploited in ways that improve lives and benefit society are being generated. Key informants advise founders struggling with their business concepts to "not sit around on an armchair. Go and get your first customer!" "Analysis paralysis is a recipe for failure", says another founder, better to do something small and do it well than plan to do something big which never materializes".

1.10 Regulatory Environment

The regulatory environment in which African startups operate is largely under-developed (even in the leading countries) with significant impacts on innovation, growth potential and the local operations of startups, as well as their ability to compete in the continental or global markets. As far as could be determined, startup innovation is at the boundaries of legacy regulatory frameworks in Africa and frequently puts policymakers in a dilemma as to what they need to do to provide regulatory coverage for new services or to even take the steps necessary for improving the ecosystem. When applicable policy exists, the execution capabilities of the African public sector are generally underwhelming and policymakers with responsibility for the sector may be said to be even 'terrified' of technology and the pace of technological change. "Tech business is so hard especially because of the rapid obsolescence of technology, the prolific nature of new ideas and the speed at which they spread" – Nigerian startup founder.

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On one side, the continent's advanced ecosystems are well-integrated and highly connected to Western funding sources which gives an impression of good progress to an outsider but masks structural defects in the regulatory systems. While structures like the West African Economic and Monetary Union (WAEMU) may be linking neighbouring countries, regional digital economy interchanges are weak and as a result, in-country or cross-border benefits to startups are insignificant, according to several key informants who took part in this study.

In the absence of supportive policies, deliberately-crafted long-term strategies, and the proactive coordination of government bodies responsible for the sector, there is an increase in undesirable regulatory actions that hinder innovation. As a result, African founders often feel targeted by what they say are "silly regulations". Nigeria's Gokada raised US$12.4m in funding[87] but had to pivot from bike-hailing to logistics and food delivery three years after it launched when the Lagos State Government banned commercial motorcycles on major routes in 2020, a move which affected all motorcycle ride-hailing companies operating in the state including Uganda's SafeBoda.[88] In another instance, many African countries, Angola, Ethiopia, Zimbabwe and Nigeria to name a few, currently operate stringent short- or long-term capital controls which make it difficult for foreign investors to move money out. To work around this sort of problem, founders are (re)designing their business models to ensure that their ventures cannot be negatively impacted by a single regulatory action. "You want to build a business that is not within the absolute control of a single regulator" – Nigerian founder. Due to these and other factors, though startup innovation is increasing throughout the continent, there is no evidence that governance frameworks are assisting African founders to create inventive tech solutions that fully thrive in themselves or that 'leapfrog' the Global North as frequently touted in flowery public pronouncements. As a result, there is negligible startup activity in over 20 countries.

Additionally, no public institution in any African country has the exclusive authority and responsibility to regulate and guide startups. The present practice is to have different public agencies running government initiatives or programs that serve startup founders and their businesses in one form or the other (Table 5). Often, policies lack the necessary funding and collaboration across sectors, and the policymaker in charge is not well-suited for the task in many cases. Furthermore, there is limited monitoring and evaluation of applicable policies to which one founder said, "If policies don't change quickly, they're also not helpful". It is doubtful if any African country has accurate data on the number and profile of startups operating locally.

[87]Crunchbase (2020), "Gokada" (Available at https://www.crunchbase.com/organization/gokada/company_financials Accessed April 23, 2023)

[88]AllAfrica (2020), "Lagos Bans Commercial Motorcycles - Will It Last?" (Available at https://allafrica.com/view/group/main/main/id/00071836.html Accessed April 23, 2023)

Table 5: Relevant policies & institutional coverage of startups in study countries.

Country	Relevant Policie	Institutional Coverage
Ghana	• National Digital Economy Policy and Strategy • National Cyber Security Policy & Strategy • e-Commerce Policy • Data Protection Act • e-Government Interoperability Framework • MDA policies on IT such as health, education & agriculture	• Ministry of Communications • Ministry of Science & Technology • Ghana Enterprises Agency • National Information Technology Authority • National Communications Authority • Bank of Ghana • Ghana Digital Centre • Securities & Exchange Commission
Kenya	• National ICT Policy Guidelines 2020 • Kenya National Digital Master Plan 2022-2032 • Digital Economy Blueprint • National Broadband Strategy 2018.2023 • National Cybersecurity Strategy 2022-2025 • Data Protection Policy • Emerging Technologies Regulatory Sandbox • Capital Markets Regulatory Sandbox • Insurance Regulatory Sandbox • National Innovation System -Science, Technology Innovation • Registration of Venture Capital and Private Equity Companies -The Finance Act 2020	• Ministry of Information Technology and Digital Economy • Communication Authority of Kenya • Capital Markets Authority • Nairobi Stock Exchange • Kenya National Innovation Agency • Data Protection Commissioner • Insurance Regulatory Authority • Ministry of Finance • Ministry of Education
Nigeria	• Nigeria Startup Act 2022 • National Digital Economy Policy and Strategy • Nigeria Digital Innovation, Entrepreneurship and Startup Policy • National Broadband Plan 2020 – 2025 • Data Protection Regulation 2019 • Cybercrimes Act 2015	• National Council for Digital Innovation and Entrepreneurship • Nigeria Startup Act Secretariat • Ministry of Communications & Digital Economy • Nigerian Communications Commission • National Information Technology Development Agency • Central Bank of Nigeria • Securities & Exchange Commission • National Office for Technology Acquisition and Promotion • Nigeria Data Protection Bureau
Senegal	• Digital Senegal Strategy 2025 • Code on Electronic Communications 2018 • Startup Act of 2019 • National Cybersecurity Strategy for Senegal	• Ministry of Communications and the Digital Economy • Ministry of Entrepreneurship & SMEs • Telecommunication & Posts Regulatory Authority • Commission for Personal Data Protection • General Delegation for Rapid Entrepreneurship • Bureau de Misse a Niveau • Agency for the Development and Supervision of Small and Medium-Sized Enterprises • Central Bank of West African States • Universal Service Fund • Senegal Numerique
South Africa	• Startup Act framework • Regulatory Sandbox • Township and Rural Entrepreneurship Programme • National System of Innovation- White Paper 1996 • Mobile Broadband Regulations 2021 • South Africa Broadband Policy and Strategy (South Africa Connect) • Protection of Personal Information Act 2013 • National Digital & Future Skills Strategy • National Cybersecurity Policy Framework	• Startup Steering Committee • Intergovernmental Fintech Working Group • Department of Small Business Development • Department of Science and Innovation • Technology Innovation Agency • Independent Communications Authority of South Africa • Information Regulator South Africa • Financial Sector Conduct Authority • South African Reserve Bank
Zambia	• National ICT Policy 2018 • Capital Markets Regulatory Sandbox • Youth Development Fund • Data Protection • Cybersecurity and cybercrime • National broadband strategy • National Innovation Initiative	• Securities Exchange Commission • Ministry of Science and Technology • Ministry of Youth and Sports • Data Protection Commissioner • National Technology Business Centre • Zambia Information & Community Technology Authority • Bank of Zambia • Competition & Consumer Protection Authority

Source: Fola Odufuwa & Muriuki Mureithi.

One key problem affecting digital policymaking is the high turnover in policymakers and government officials with responsibility for the sector. "Every new government makes wholesale personnel changes which are not helpful for continuity and policy stability" – Senegalese key informant. Due to this situation, tenure security is not often guaranteed as staff appointments and postings are largely political. Despite this situation, many stakeholders are convinced that the "potential [for market growth] is there". New legislative frameworks are being developed to handle the higher risk profile of startups, boost their growth potential, and ensure they have significant economic effects going forward.

1.10.1 Startup Legislation

Omnibus startup acts are the latest trend in policy innovation being developed to bring about the wholesale restructuring of the startup sector and stimulate a more conducive environment for digital entrepreneurship and innovation in Africa.[89] To date, only four African countries have enacted startup acts (Table 6), though about 30 others are in various stages of passing a law to foster a more conducive environment for entrepreneurship and innovation.[90] These laws stipulate a body of incentives for startups, such as tax breaks, access to funding opportunities, simplified registration procedures, intellectual property protection, and preferential access to public services, among others.

Table 6: Implementation status & main features of African startup acts.

Countries that have passed startup acts (*Year*)	Status of Implementation	Common Features of African Startup Acts	Selection of countries currently developing startup acts[91]
Tunisia (*2018*)	High	• Official definition of startups • Startup Label or Certification • Tax benefits or exemptions • Structured support & access to funding • Easy access to public tenders (with reference margins or quotas in some cases e.g., Senegal) • Favourable customs procedures on imports • Facilitation of IP registration • Institutional coverage & governance	• Benin • Burkina Faso • Cameroon • Côte d'Ivoire • Ethiopia • Ghana • Kenya • Mali • Morocco • Rwanda • South Africa • Tanzania • Togo • Uganda • Zambia
Senegal (*2020*)	Very Low		
Nigeria (*2022*)	Moderate		
DR Congo (*2022*)	N/A		

Source: Fola Odufuwa & Muriuki Mureithi.

In African startup laws, local incorporation takes precedence (nationalisation) and sometimes determines who owns and benefits from incentives under the startup label. The legal framework also includes preferential procurement of government services among other incentives. The laws are useful in acknowledging the challenges and risks of startups and the sector does need help. However, it is important to not restrict startup ownership to nationals only. This way, startups can be made to serve the local market and draw talent from across the region. Laws should address ideation and startup phases, which are entirely local, and assist startups to take their discoveries to market. The startup laws of the benchmark countries are open and

[89]Atlantic Council (2020), Startup Acts are the next form of policy innovation in Africa. (Available at https://www.atlanticcouncil.org/blogs/africasource/startup-acts-are-the-next-form-of-policy-innovation-in-africa/ Accessed April 18, 2023).

[90]TBI (2022), "Supercharging Africa's Startups: The Continent's Path to Tech Excellence" (Available at https://www.institute.global/insights/geopolitics-and-security/supercharging-africas-startups-continents-path-tech-excellence. Accessed April 7, 2023.)

[91]ICRF (2021), An Emerging Instrument to Foster the Development of Innovative High-Growth Firms. Brussels: Investment Climate Reform Facility.

While most stakeholders interviewed for this study are in general agreement as to the importance and necessity of a startup law, the consensus of views is that legislation cannot exist in isolation of other critical factors upon which the ecosystem relies such as digital literacy and STEM education.

attract talent and investments – as we discuss in Chapter Four. In these countries, the law aims to recognize the high-risk profile of startup ventures, especially at the early stage, and safeguard the quality of the pipeline with defined roles for all stakeholders and the government.

A critical mass of startups in a country would end up creating a compelling basis for the enactment of a startup law. However, none of the four leading countries other than Nigeria has passed a startup act or any sector-specific legislation but they still maintain their high pace of startup formation and external investments regardless. While most stakeholders interviewed for this study are in general agreement as to the importance and necessity of a startup law, the consensus of views is that legislation cannot exist in isolation of other critical factors upon which the ecosystem relies such as digital literacy and STEM education. The production of competent tech graduates must also continue with or without startup legislation.

Beyond startup acts, stakeholders insist that the "problem in Africa is the absence of an enabling environment" for a thriving startup sector. A Nigerian founder says, "One law cannot fix all the problems affecting the sector".

In nearly all the countries with startup legislation, the development of the law was done consultatively with the tech industry, civil society advocates and other interests. In South Africa and Kenya, stakeholder groups are bringing together all actors in formalizing definitions, interventions, agreeing on contributions, and unique positioning of startups. These efforts are built around Startup Act initiatives in South Africa and the Association of Startups and SME Enablers of Kenya (ASSEK). Through this process, stakeholders aim to define and build cohesive ecosystems.

However, stakeholders in Ghana and Senegal express their dissatisfaction and frustration with the inability of their governments to pass the bill into law in the former or to get its implementation going in the latter. Senegal's startup act was passed into law in 2019 but has not been implemented four years on. "I can't understand why the startup act and other [related] policies are not being implemented. It is complicated because you don't know the reason. Come back in 6 months, I can assure you that the act would still not have been implemented", says a Senegalese founder. Many countries working on a startup act have been at it for upwards of four years in many cases (Mali, Ghana, and Kenya, to name a few).

Beyond startup acts, stakeholders insist that the "problem in Africa is the absence of an enabling environment" for a thriving startup sector. A Nigerian founder says, "One law cannot fix all the problems affecting the sector". The attractiveness of a country to ecosystem players is key to the emergence of startups and startup acts may not be enough to address the structural issues that encumber entrepreneurship and innovation in Africa as laid out in Section 1.6 of this report.

1.10.2 Impact of National Policies, Regulations and Startup Initiatives

Opinions are divided among key informants as to the impact of national policies affecting tech startups in Africa. While some cannot point to any positive contributions of their national governments to the development of the tech ecosystem, others believe that relevant initiatives and policies like national entrepreneurship programs and startup acts are contributing to the increase of successful startups. Some stakeholders even argue that any government initiative that has impacted the sector only came after the ecosystem had emerged. Nearly all the Nigerian respondents that contributed to this study say they do not know of a definitive government program or initiative that has had penetrative or permeative effects on the startup ecosystem. Besides Tunisia, according to key informants, legislation has not necessarily brought about any dramatic changes to the innovation ecosystems. Many founders who participated in this study say they have received no help from their national governments. A Senegalese founder advises, "Don't worry about the ministry. Don't wait for the government".

In our research, various government policy initiatives are helping startups to better participate in the local economy, though key informants cite the fact that startup-focused interventions in many countries tend to be hijacked by politicians with detrimental effects. Ghana's National Entrepreneurship Innovation Program which was launched in 2017 is said to have been a major contributor to the rise of the country's tech startup ecosystem. The program gave grants to over 45,000 individuals[92] which created jobs and delivered business development services and funding to young businesses. "It grew the number of tech hubs tenfold", according to a key informant. Through the General Delegation for Rapid Entrepreneurship of Women and Youth (DER/F) and, to a lesser degree, Numerique Senegal, the Senegalese government works with startups to raise the profile of innovation in the country. Respondents believe that any government program that sets goals to train a set number of youth-led startups over a short period on a massive scale will be a game-changer in aiding the development of a country's tech startup landscape. Even where there is no startup legislation in place, the fact that one is being proposed and considered is said by key informants to give hope that the ecosystem would be further strengthened.

The Nigerian government has created an environment that has aided the emergence of startups. In December 2022, the Nigeria Startup Act was signed into law. Four months on, the government inaugurated the National Council for Digital Innovation and Entrepreneurship under the leadership of then-President Muhammadu Buhari to coordinate the implementation of the act[93]. The government says it promotes the "triple helix model of policymaking" involving the public sector, academia, and the tech industry. It also facilitates the participation of startup founders at relevant international forums through the Nigerian Communications Commission (NCC) and the National Information Technology Development Agency (NITDA).

In our research, various government policy initiatives are helping startups to better participate in the local economy, though key informants cite the fact that startup-focused interventions in many countries tend to be hijacked by politicians with detrimental effects.

African startups also benefit from national broadband policies and the quality and spread of a nation's communications infrastructure. The availability of wholesale (and retail) data is a factor that aids the growth of startups even though many respondents in the 6 study countries say they still contend with data affordability. For startups who play in the telecoms space, there are simple procedures outlined by industry regulators for startups to obtain necessary licenses to provide value-added or internet services, though current regulations in many countries tend to be ambiguous as to what content services are covered. Moreover, the process for obtaining licenses or permits and the conditions attached to them are often not transparent. In Ghana, the national government encourages private sector participation in infrastructure provisioning and has tasked the National Information Technology Authority to ensure that unconnected localities are served with telecoms infrastructure (especially those that link regional capitals and villages along highway corridors on the western and eastern parts of the country). IT industry regulators such as NITA say they periodically carry out system audits to ensure that startups are compliant with standards and best practices.

For startups who play in the telecoms space, there are simple procedures outlined by industry regulators for startups to obtain necessary licenses to provide value-added or internet services, though current regulations in many countries tend to be ambiguous as to what content services are covered.

However, while there is good work going on in policy development in some countries, there appears to be a disconnect between public pronouncements and policy implementation. Furthermore, many startups operate in unregulated (or under-regulated) segments of the national economy. While liberal policies and progressive regulations can benefit the sector, several key informants caution against interference and excessive control. They want national governments to promote the free flow of technology before trying to regulate it.

[92]https://neip.gov.gh/

[93]The Guardian (2023), (Available at https://guardian.ng/news/buhari-inaugurates-council-to-implement-startup-law. Accessed April 13, 2023)

On the downside, many stakeholders cite the lack of urgency of government in ensuring the rapid development of the tech startup sector. "Governments should have a plan, a strong focus, and be intentional as to what needs to be done to meet set goals. They should bring in angel investors with the right policies. There must be a strong national direction if the tech startup sector will be developed" – says a Nigerian tech executive. "It is not enough to be stable politically. The IT sector must be developed. But there are too many policy inhibitors that are competing against innovation which must be identified and removed." – Ghana tech respondent.

1.10.3 Startup Regulations Across Borders

The regulation of the startup environment in Africa is still evolving and varies widely across different countries and economic sectors. As far as could be determined, policies specifically designed to promote the rise and sustainable development of African startups have not yet been developed at the REC or continental levels. The AfCFTA could suffer from this situation if unaddressed. At present, national startup ecosystems are evolving within countries without coordinated linkages or references to other national governments on the continent.

The regulation of the startup environment in Africa is still evolving and varies widely across different countries and economic sectors. As far as could be determined, policies specifically designed to promote the rise and sustainable development of African startups have not yet been developed at the REC or continental levels.

Positively, some continental and regional initiatives are being undertaken to address the legal, ethical, and social implications of digital technologies for human rights, development, and innovation. In one instance, the African Union High-Level Panel on Emerging Technologies (APET), was set up in 2016 to advise governments on how to harness emerging technologies for socio-economic development. These technologies, artificial intelligence, synthetic biology, blockchain, microgrids, drones, and 3D printing, among others, are currently being utilised by many African startups. Since APET published reports on the first set of three technologies in 2018 with recommendations to national governments on their application and use,[94] not much is known about any national or regional implementations.

Startup founders are eagerly looking forward to the full implementation of the AfCFTA. A Senegalese founder believes that he will no longer pay import duties twice for the equipment he brings into Senegal for projects executed in neighbouring countries, Gambia, or Mali, as he currently does. "Chinese companies are supported by Chinese banks and the Chinese government. Why can't Africa copy what China is doing?", asks a Senegalese founder. "Why do international tenders or tenders by private corporations recognise your license and permits when the African government you're trying to transact with requires that you obtain local licenses first to be able to participate in a tender?", queries another founder. A key informant says he has had to put over 20 pan-African projects on hold due to double taxation and the absence of regulatory harmonization, among other factors.

To summarize, the many challenges and barriers of the ecosystem (that we list in Section 1.6) hinder the development of startups in Africa. Therefore, African policymakers need to adopt an ecosystem approach in coordination with industry to immediately lift national startup regulatory systems to address these issues while balancing the interests of various stakeholders.

[94]AU (2018), The African Union High Level Panel on Emerging Technologies, (Available at https://www.nepad.org/news/african-union-high-level-panel-emerging-technologies. Accessed April 19, 2023).

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CHAPTER TWO:

REVIEWING NATIONAL STARTUP ECOSYSTEMS

In this section, we examine the startup ecosystems of the study countries to identify gaps that should be fixed, as well as what lagging countries may do to advance their national startup ecosystems.

We carried out in-country research in six countries, three in Tier 1 – Nigeria, Kenya and South Africa, two in Tier 2 – Ghana and Senegal, and one in Tier 3 – Zambia, and found a huge and widening gulf between the ecosystem of countries in Tier 1 and those in Tiers 2 and 3.

2.1 Comparing Leading & Lagging Ecosystems

Over the past 20 years, national startup ecosystems have emerged across Africa with South Africa, Nigeria, Egypt, and Kenya leading the pace of technology innovation, talent development, digital entrepreneurship, and investment appeal compared to the rest of the continent.

Over the past 20 years, national startup ecosystems have emerged across Africa with South Africa, Nigeria, Egypt, and Kenya leading the pace of technology innovation, talent development, digital entrepreneurship, and investment appeal compared to the rest of the continent. Startup ecosystems of these more developed countries are being driven mostly by a large and growing network of foreign PE and VC firms whose profit focus and high-risk tolerance provide startups with the funding they need to exploit new opportunities within their national markets and across borders (Table 7), with little help from the public sector. Africans in the diaspora who graduated from leading foreign universities such as Stanford, MIT, etc are also returning to join their Africa-based counterparts to create new solutions that are being commercially exploited and aided by external funding. The global circulation of the continent's talent and the market-driven approach of their financial backers has resulted in the creation of some of the most successful startups in Africa such as Jumia, Fawry, Wave, Flutterwave, Paystack, etc. A new study of 200 African startups suggests that early-stage startups in these leading countries (Kenya, Nigeria, South Africa, and Egypt) attract higher valuations than startups in other African countries.[95]

Table 7: Total startup funding by country in 2022.[96]

Rank	Country	2022		Cumulative Funding since 2015
		Funded startups	Total Funding (US$)	
1	Nigeria	180	945,266,000.00	US$2.06b[97]
2	Egypt	131	749,300,000.00	US$800m[98]
3	Kenya	91	554,459,000.00	US$1.29b[99]
4	South Africa	78	309,482,000.00	US$993.6m[100]

[95]Medium (2023), "What I learned from collecting and analyzing 200 African start-up valuations" (Available at https://medium.com/@temirk/what-i-learned-from-collecting-and-analyzing-200-african-start-up-valuations-65b7fef2bfc1. Accessed April 25, 2023).

[96]Disrupt Africa (2023), The African Tech Startups Funding Report, Nairobi: Disrupt Africa.

[97]Disrupt Africa (2022), "Nigerian tech startups raised over $2bn between 2015 and 2022" (Available at https://disrupt-africa.com/2022/10/14/nigerian-tech-startups-raised-over-2bn-between-2015-and-2022. Accessed April 23, 2023).

[98]Disrupt Africa (2021), "More than half of Egyptian tech startup funding since 2015 has been raised in 2021" (Available at https://disrupt-africa.com/2021/11/04/more-than-half-of-egyptian-tech-startup-funding-since-2015-has-been-raised-in-2021. Accessed April 23, 2023).

[99]Disrupt Africa (2022), "Kenyan startup ecosystem ranks highly for acceleration, diversity; shatters funding records" (Available at https://disrupt-africa.com/2022/12/07/kenyan-startup-ecosystem-ranks-highly-for-acceleration-diversity-shatters-funding-records. Accessed April 23, 2023).

[100]Disrupt Africa (2022), "South Africa is a startup powerhouse that leads the continent for exits, finds new report" (Available at https://disrupt-africa.com/2022/06/08/south-africa-is-a-startup-powerhouse-that-leads-the-continent-for-exits-finds-new-report. Accessed April 23, 2023).

Rank	Country	2022		Cumulative Funding since 2015
		Funded startups	Total Funding (US$)	
5	Algeria	2	150,000,000.00	
6	Ghana	23	144,222,000.00	
7	Tunisia	28	118,936,000.00	
8	Uganda	15	59,814,000.00	
9	Tanzania	8	42,317,000.00	
10	Namibia	2	18,271,000.00	
11	Cote d'Ivoire	9	14,528,000.00	
12	Zambia	3	14,025,000.00	
13	Senegal	9	7,663,000.00	
14	DRC	2	7,500,000.00	
15	Sudan	2	6,500,000.00	
16	Morocco	27	6,238,000.00	
17	Mali	2	6,000,000.00	
18	Sierra Leone	1	5,000,000.00	
19	Cameroun	2	3,200,000.00	
20	Rwanda	4	1,925,000.00	
21	Madagascar	2	750,000.00	
22	Ethiopia	2	550,000.00	
23	Mozambique	1	125,000.00	
24	Mauritius	3	120,000.00	
25	Benin	2	0.00	
26	Togo	2	0.00	
27	Zimbabwe	2	0.00	
Total		**633**	**US$3,166,191,000.00**	

Source: Disrupt Africa.

Across Africa, and in varying degrees from one country to another, startup ecosystem connections between academia, government, and startup investors are relatively weak with negligible effects on collaborations that would have been otherwise beneficial.

Common to all the advanced startup ecosystems in Africa are progressive central banks, supportive government policies and initiatives (even if they are not earth-shaking), a rich and growing pool of local developers, and the opening up of digital financial services which Fintech startups take advantage of to develop cross-cutting digital payment and transfer solutions that benefit all startups no matter the economic sector that they transact in. Apart from Egypt, the other mature ecosystems – South Africa, Nigeria, and Kenya – are also growing more connected to each other through transborder investments, partnerships, and knowledge sharing. However, regulatory obstacles, competition, and cultural and trust issues limit efforts to create deeper market linkages.

In contrast, the ecosystems of lagging countries are riddled with bureaucracy and high-handed procedures which limit and restrict the ability of young tech people to innovate and 'run loose' with their ideas. Lagging ecosystems are siloed arising from the limited skills, and capabilities of stakeholders. They are also not interlinked. Across Africa, and in varying degrees from one country to another, startup ecosystem connections between academia, government, and startup investors are relatively weak with negligible effects on collaborations that would have been otherwise beneficial. Lack of awareness is also a major challenge for all the various actors as startups are yet to gain traction, unlike other segments of the digital economy. Though the development of the ecosystem is private sector-led, the African public sector generally struggles to create and maintain an enabling environment for sustained

growth which prevents many startups from being able to scale even after they are formed. Due to inhospitable operating environments, founders often get so absorbed in resolving the systemic challenges of their local markets that they generally find it difficult (impossible) to 'lift their heads' to focus on opportunities across neighbouring frontiers, let alone globally.

Nevertheless, there is demonstrable evidence that there is massive potential throughout the African startup ecosystem even in markets that are currently straggling. The near-sudden influx and relentless growth in the levels of new investments flowing into African startups year-on-year, the improving climate of digital transformation and youth entrepreneurship – inspired by recent big-ticket capital raises – and the growing implementation of sectoral reform through startup acts offering tax breaks, salary support for new founders, preferential treatment in public tenders, and other government initiatives altogether hold good promise for the future of the African startup ecosystem.

The impact of these relatively modest achievements should be long-lasting and, ordinarily, translate into an increase in local and foreign investments, going forward. However, a more holistic approach needs to be adopted by African policymakers at the most senior levels to create a Pan-African framework of policies led by ecosystem champions that can sustain growth, address observed gaps and deficiencies, and ensure a more even development of the sector across the entire region.

The Nigeria startup ecosystem which dates to about 20 years ago is arguably the most vibrant and dynamic in Africa. The ecosystem has grown remarkably in the last 15 years and is wholly run and powered by the private sector.

2.2 Tier 1 Startup Ecosystems

2.2.1 Nigeria

The Nigeria startup ecosystem which dates to about 20 years ago is arguably the most vibrant and dynamic in Africa. The ecosystem has grown remarkably in the last 15 years and is wholly run and powered by the private sector. Nigeria ranks 61st globally in startup ecosystem strength, the highest in Africa,[101] and Nigerian startups raised a combined US$2.06b in funding between 2015 and 2022, more than any other African country in the same period (Table 7). Nigerian startups are also making waves in terms of deal sizes and exits. Some of the prominent exits include Paystack's acquisition by Stripe for US$200m in 2020,[102] OPay's[103] and Flutterwave's[104] unicorn valuations after raising US$400m and US$250m in 2021 and 2022 respectively, and Kuda Bank's US$500m valuation after raising US$55m in 2021.[105]

61st

Nigeria ranks 61st globally in startup ecosystem strength, the highest in Africa,[101] and Nigerian startups raised a combined US$2.06b in funding between 2015 and 2022, more than any other African country in the same period.

[101] StartupBlink (2023), The Startup Ecosystem of Nigeria (Available at https://www.startupblink.com/startups/nigeria. Accessed April 18, 2023).

[102] TechCrunch (2020) "Stripe acquires Nigeria's Paystack for $200M+ to expand into the African continent" Available at https://techcrunch.com/2020/10/15/stripe-acquires-nigerias-paystack-for-200m-to-expand-into-the-african-continent. Accessed April 18, 2023).

[103] TechCabal (2022) "Will 2022 be another "buzzing" year for African startups?" (Available at https://techcabal.com/2022/01/14/year-2022-african-startups. April 18, 2023).

[104] Business Insider Africa (2022) 12 African startups that have announced the largest funding rounds so .... (Available at https://africa.businessinsider.com/local/markets/12-african-startups-that-have-announced-the-largest-funding-rounds-so-far-in-2022/qexm5gg. Accessed April 18, 2023).

[105] TechCrunch (2021) "Kuda, the African challenger bank, raises $55M at a $500M valuation" (Available at https://techcrunch.com/2021/08/02/kuda-the-african-challenger-bank-raises-55m-at-a-500m-valuation. Accessed April 18, 2023).

Fintech is the most populated sector, with more than one-third of the country's tech startups active in that vertical. Other popular sectors include e-commerce, healthtech, agritech, edtech and logistics. Across the continent, many respondents see Nigerian startups as progressively dominant in most economic sectors largely due to their aggressiveness in seeking opportunities across borders, a phenomenon one industry report labels as the "feverish entrepreneurial energy" of Nigerians.[106]

Recent successes have been achieved through the collaboration of industry with responsible government agencies to raise the profile of the ecosystem. The newly enacted Startup Act of 2022 has accorded official recognition to the sector and should help to further deepen the

industry. It is widely considered a great achievement. However, as there is a gestation period to implement the new law, several stakeholders who participated in this study believe that the potent effects and associated benefits of the act may only kick in from around 2030.

Notwithstanding these achievements, the sector struggles with many of the same challenges common to other African ecosystems such as poor power supply which forces businesses to rely on generators incurring high operational costs in the process, limited access to funding for new ventures, insecurity in parts of the country, and the lack of basic amenities and affordable broadband internet. Despite the government's efforts at liberalising markets by putting in place a growing number of important digital policies, many stakeholders claim they have not yet benefited from the percolative effects of any of these initiatives. Furthermore, while graduates from many of Nigeria's 198 universities[107] have gone on to create successful tech startups, there are no dedicated academia-linked innovation hubs, incubators, or accelerators specifically targeted at the startup ecosystem.

South Africa also has a well-established sector of venture capital, private equity and corporations that supports innovation demonstrated by the highest number of startup exits in Africa so far.

2.2.2 South Africa

South Africa undoubtedly has the most mature startup ecosystem in the region. The country has the oldest hub in Africa, Bandwidth Barn founded in 1999,[108] and an ecosystem inspired by the continent's first startup exit – Mark Shuttleworth in a US$575m deal,[109] and a distinctive innovation space driven by partnerships between government, the private sector, and universities. South Africa also has a well-established sector of venture capital, private equity and corporations that supports innovation demonstrated by the highest number of startup exits in Africa so far. Over the years, the country has built the necessary institutional infrastructure to aid the long-term growth of startups. However, South Africa has not yet produced a unicorn despite the huge growth of startups, possibly because of its domestic market focus.

The South African startup ecosystem spans a good distribution of cities but is concentrated in Cape Town and Johannesburg. According to Disrupt Africa, these two cities contribute 87% of startups while the rest can be found in other promising cities like Pretoria, Durban, Soweto, and Port Elizabeth. The startup scene has been growing fast and continues to attract venture capital. By 2022, 357 startups had raised US$998,684,600 in venture capital since 2015 (Table 7), making South Africa one of the top 4 countries in Africa for venture capital flows along with Nigeria, Kenya, and Egypt. South Africa also had the most successful exits at 35 since 2015, the highest in Africa, showing the strong corporate sector as an off-taker in startup exits. Moreover, there is a wide distribution of startups across various verticals and, like the rest of Africa, Fintech leads with 30%, followed by others – e-commerce/retail tech, e-health, and ed-tech with 10.2%, 9%, and 8.6% respectively.[110]

[106]Startup Genome (2017), Global Startup Ecosystem Report 2017 (Available at https://startupgenome.com/reports/global-startup-ecosystem-report-2017. Accessed April 28, 2023).
[107]Nigeria Universities Commission (2021), Monday Bulletin, Vol 16 No. 38 (Available at https://www.nuc.edu.ng/wp-content/uploads/2021/10/18th-MB-Oct-2021.pdf. Accessed April 18, 2023).

[108]https://uvuafrica.com/about-us/

[109]Internet News (1999), VeriSign Buys South Africa's Thawte for $575 Million (Available at https://www.internetnews.com/it-management/verisign-buys-south-africas-thawte-for-575-million. Accessed March 15, 2023).

[110]Disrupt Africa (2023), The African Tech Startups Funding Report, Nairobi: Disrupt Africa.

South Africa ranks high in the Global Startup Ecosystem Index 2022 at number 49 and is the only African country in the Global 50. South Africa also has the largest number of cities in the top 1000 in Africa: Cape Town (147), Johannesburg (156), Durban (577), and Pretoria (660).[111] The development of South Africa's startup ecosystem demonstrates how the corporate sector contributes to venture capital formation locally, actively supports grassroots innovation in partnership with institutions, and advocates for startup legislation.

The government has been instrumental in spurring early-stage funding. In 2009, the government enacted Section 12J as a tool to de-risk early-stage funding. Though this initiative expired in 2021, while it lasted it set the pace in early-stage startup investments with significant contributions by members of the Southern Africa Venture Capital and Private Equity Association (SAVCA). SAVCA actively invests in the ecosystem. Its 2021 investments reached ZAR1.31b (c. USD68b) made into 129 entities in 186 rounds, demonstrating the strength and contribution of its 108 members to the startup ecosystem. Overall first-time investment into new deals increased by 67.2% with a 68.0% increase in early-stage preference.[112] South Africa's active private VC markets provide lessons for Africa on how to get local financial institutions to fund national startup ecosystems.[113]

Another corporate sector initiative is the SA SME Fund,[114] a fund created by members of the CEO Initiative which is a collaboration between government, labour, and business that addresses some of the most pressing challenges affecting South Africa's economic growth. The fund supports the SME sector by allocating resources to accredited fund managers, venture capital or growth-oriented equity funds who invest directly in scalable small enterprises.

Besides, the government is equally focused on the innovation journey through multiple paths. One such government agency is the Technology Innovation Agency (TIA), which is mandated under the Technology Innovation Agency Act (Act 26 of 2008) and the Science and Technology Laws Amendment Act (Act 7 of 2014) to promote the development and exploitation of discoveries, inventions, innovations, and improvements in the public interest (Box 4).

Another example is the Innovation Hub in Pretoria, a Gauteng provincial government project that complements the TIA at the provincial level by onboarding innovators at ideation and mentoring them to MVP.

Another example is the Innovation Hub in Pretoria,[115] a Gauteng provincial government project that complements the TIA at the provincial level by onboarding innovators at ideation and mentoring them to MVP. The hub also leases space to innovators who want to commercialise their ideas. As part of this research, The Innovation Hub showcased the startups it is presently hosting including those developing solutions in drone applications, education, transportation, and locomotives. The hub's product development wing provides equipment for the fabrication of physical products and its township satellites extends its reach to the grassroots.

49

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[111]StartupBlink (2023). Global Startup Ecosystem Index 2022 (Available at https://lp.startupblink.com/report. Accessed March 15, 2023).

[112]The meaning of exits varies widely in the ecosystem, so SAVCA and Disrupt Africa may have different definitions. The purpose of using it here is to show the activity at the end of the ecosystem pipeline.

[113]SAVCA (2022), Venture Capital Industry Survey Covering the 2009-2021 Calendar Years. Johannesburg: South Africa Venture Capital and Private Equity Association.

[114]https://sasmefund.co.za/our-investments/

[115]https://theinnovationhub.org/

Box 4: South Africa's Technology Innovation Agency (TIA)

The Technology Innovation Agency leverages the existing knowledge at universities and public research institutions to create technology-based industries. The agency acts as an "innovation hub"[116] and has established a framework for innovators at the grassroots level across the country, and guides them through various Technology Readiness Levels[117] until they reach commercialization.

TIA is unique in its commitment to government-driven support at the early stages through its grassroots innovation program. This program works with universities via the Technology Stations Program (TSP). TSP is a network of Technology Stations hosted at higher education institutions in South Africa through which universities offer technology development services to SMEs. Each station is hosted by a selected university and focuses on a unique technology space that is accessible to those who want to innovate. When an innovator reaches the end of the program, TIA introduces the new venture to other parties for the next growth phase. A startup founder shared how their journey has been helped through this process by TIA. From a rural area, the founder is presently on a path to fulfilment and is providing services to society and creating employment.

By providing grant funding to beneficiaries, the agency has a significant economic impact in South Africa. According to several studies, TIA's spending of R2.2b (US$114.3m) had generated R7.5b (US$389.6m) in GDP and created 18,536 jobs. Thus, for every R1 (US$0.052) that the agency invested in innovation, the economy gained R3.10 (US$0.16) or 3 times the principal investment. Moreover, TIA's investees have earned R2.5b (US$129.9m) in revenue from their innovative products and services.[118]

Despite its successes, South Africa's startup ecosystem is not growing at the pace of its earlier years and is presently struggling with various challenges that hinder further growth.

1. The definition of a startup has not yet been formally established, and while the TIA focuses on innovations, ministries instead emphasize MSMEs. Without a common definition of startups, there is a lack of shared focus.

2. To improve and strengthen the enabling environment, stakeholders are working towards a Startup Act and have developed a position paper and draft bill in this respect. The draft act aims to create high-growth enterprises in South Africa. It defines startups as ventures that are no more than 5 years old with a turnover of less than ZAR100m (US$5.2m) and they must have a clear technological component in the development, production and commercialization of their products or services. The act proposes a set of incentives including tax breaks, access to skilled talent, removal of regulatory barriers, and exemption from procurement limitations. The goal is to speed up the success and contribution of start-ups and high-growth firms to the national economy. However, a distinctive contrasting feature from other startups in Africa is that local ownership is not necessary but the startup must be operational in South Africa.[119]

3. Funding is insufficient at the ideation stage level and with the lapse of Section 12J, early-stage funding will be limited. A stakeholder emphasized that the government should increase funding at this level. "In developed economies, it is the state's job to work with ideas and concepts because it is an expensive exercise with a high failure rate. Private companies and investors do not want to carry the risk of dealing with ideas and concepts", said a South African hub manager. Funding for these ideas and concepts typically comes from developmental agencies and government programs. However, there is a funding gap for prototypes that cannot be self-financed by startups that do not have access to government programs or financing agencies.

Kenya is one of the top four startup ecosystems in Africa and is presently on the cusp of explosive long-term growth with significant impacts on the social economy.

[116]TIA. (2021), Technology Stations Programme: A Network of Technology Stations hosted at Higher Education Institutions in South Africa. Pretoria: Technology Innovation Agency.

[117]TIA (2021), Description of Technology Readiness Levels, Pretoria: Technology Innovation Agency.

[118]TIA (2020), Strategic Plan 2020-2025. Pretoria: Technology Innovation Agency. (Available at https://www.tia.org.za/core/uploads/2021/11/TIA-Strategic-Plan-2020-2025-combined.pdf. Accessed March 15, 2023)

[119]DCA (2021), South Africa Startup Act: Position Paper - Update September 2021 (Draft). Digital Collective Africa. (Available at https://www.digitalcollective.africa/_files/ugd/cdd60c_f580203dc4b746f0ac5acd03f6f7587f.pdf Accessed February 20, 2023).

2.2.3 Kenya

Kenya is one of the top four startup ecosystems in Africa and is presently on the cusp of explosive long-term growth with significant impacts on the social economy. The ecosystem lays up a clear path for founders to follow from idea to exit. With strong fundamentals in place, addressing policy, regulatory, and technical risks and strengthening local early-stage funding will ensure rapid and sustained long-term growth. Having built its startup ecosystem on the back of development partners with a high-level measure of success, the future calls for the empowering of local systems to leverage this success.

The Kenyan startup ecosystem shows strength and resilience through various measures, even without a reliable system for gathering data. An industry report which tracked 308 startups in 2022 highlights a broad distribution and increasing diversity of startups across numerous economic sectors. As of November 2022, the ecosystem had attracted US$1.2b in cumulative venture capital and has had ten exits. The growth of the sector has had a significant impact on the social economy by enhancing the efficiency of value chains, promoting financial inclusion, and creating jobs.

The drivers of Kenya's rise are the success of mobile money triggered by MPESA's launch in 2007, a business-friendly environment, the promotion of innovation by the national government, and the historical contributions of development partners. However, there is a concentration of activities in Fintech with 30.2% of startups - equal to the combined total of startups in agritech, e-health and e-commerce.[120]

Nonetheless, as elsewhere on the continent, the Kenyan startup ecosystem faces several challenges. There is a low contribution of women in the ecosystem with only 17.9% of startups having at least a woman founder.

Nonetheless, as elsewhere on the continent, the Kenyan startup ecosystem faces several challenges. There is a low contribution of women in the ecosystem with only 17.9% of startups having at least a woman founder. Venture capital tends to favour expatriate founders over local founders. According to Viktoria Ventures, only 6% of local founders raised international venture capital funding in 2019. Additionally, only 45.5% of startups passed through an accelerator. This contrasts sharply with other top startup nations like Nigeria and South Africa, where startups raised 55% and 56% in VC funding respectively.[121]

Also, interviews with stakeholders suggest a weaker early-stage funding capacity in Kenya. Respondents believe that encouraging early-stage funding from local capital sources will strengthen the startup ecosystem. "[Kenya] is unlike Nigeria or South Africa. In South Africa, funding comes more from [private] corporations. But in Kenya, it is the Development Finance Institutions (DFIs). So, you will get a lot of impact companies, health tech companies, and social businesses. [It would have been better] if more money is from local players, or if banks decided to invest in startups. Or if an insurance company sets aside some money to invest in insurtech. So, I think having more local funds is going to just take us a long way", opined a Kenyan expert.

The Kenyan government has consistently implemented policy, legislative, sector-specific strategies, and market interventions to create an enabling environment for startups. In 2013, the government enacted the Science, Technology, and Innovation Act which defined the

6%

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[120]Disrupt Africa (2023), The African Tech Startups Funding Report, Nairobi: Disrupt Africa.

[121]VC4A (2020) Bridging the gap between local and expat founder funding (Available at https://vc4a.com/viktoria-business-angel-network/blog/bridging-the-gap-between-local-and-expat-founder-funding. Accessed February 10, 2023).

Presently, the government and stakeholders are developing a startup bill to further lift the sector. The bill, which was first presented to Parliament in 2020 and the Senate in 2022, defines the contribution of startups to the economy and sets out a governance structure along with various incentives.

National System of Innovation as an institutional framework to aid innovation. Earlier, in 2006, the government reviewed the ICT sector policy setting the foundation for growth in broadband applications. In the financial sector, through the Capital Market Authority, the government set out a framework for the establishment of venture capital companies in 2007. Through these broad-based efforts, Kenya currently ranks 62nd globally in the Global Startup Ecosystem Index and third in Africa after Nigeria and South Africa.[122] It is also in the top five in Africa on the Global Innovation Index in 2021.[123]

The government's commitment to nurturing innovation and the commercial success of startups is further demonstrated by regulatory sandboxes. Regulatory sandboxes address a broader scope of innovation and present a supportive environment for startups. Separate sandboxes have been developed by the Capital Markets and Insurance Regulatory bodies to allow for the live testing of innovative solutions before their release to the market. In 1H2023, the Communications Authority of Kenya also launched a regulatory sandbox to test innovations that wish to apply emerging technologies.

The government's commitment to nurturing innovation and the commercial success of startups is further demonstrated by regulatory sandboxes. Regulatory sandboxes address a broader scope of innovation and present a supportive environment for startups.

There is a whole-of-government effort in developing the startup ecosystem, However, a coherent framework critical to the next phase of growth is presently lacking. Also, the ecosystem is affected by issues like data privacy laws that limit data transfer across borders, barriers to talent mobility and environmental conditions that affect economic development and foreign exchange stability. These have a significant bearing on startup maturity and exit. Nonetheless, startups are having a significant effect on the social economy in terms of how they shape value chains, promote inclusivity, improve access to services and food, and address climate change.

Presently, the government and stakeholders are developing a startup bill to further lift the sector. The bill, which was first presented to Parliament in 2020 and the Senate in 2022, defines the contribution of startups to the economy and sets out a governance structure along with various incentives. These incentives include fast-track registration of the venture and its intellectual properties plus financial commitments. The startup bill defines a startup as an innovation-driven company less than 3 years old, incorporated in Kenya and wholly owned by Kenyans. To qualify, a new company needs to have a patent or software and spend at least 15% of its resources on research and development. The bill also acknowledges the importance of innovation hubs to the innovation process and sets out a basic framework that requires knowledge links to academic or research institutions. The Kenya National Innovation Agency (KENIA) is responsible for creating a national database of registered startups at both the national and county levels.[124] The bill has been passed by the Senate but still needs to be approved by the National Assembly.

Stakeholders applaud the official recognition of the contribution of startups to the economy. "We currently do not have any initiatives that are targeting startups. There are initiatives around the digital economy, information technology, innovation, and IT hubs but not startups," stated a government official. Stakeholders also recognize the high-risk profile of startups and the need for helpful interventions. Nonetheless, the overall feeling among key informants is that formalizing innovation through the startup law should not hamper spontaneity.

[122]StartupBlink (2023). Global Startup Ecosystem Index 2022 (Available at https://lp.startupblink.com/report. Accessed February 10, 2023).

[123]WIPO. (2021). Global Innovation Index 2021: Tracking Innovation through the COVID-19 Crisis. Geneva: (Available at https://www.wipo.int/global_innovation_index/en. Accessed February 10, 2023).

[124]Republic of Kenya (2022), The Startup Bill, 2022. Nairobi: The Government Printer.

The startup bill confers startup oversight on KENIA, however, lessons from benchmark countries suggest the need to create a dedicated institution at the helm of the ecosystem. India has set up Startup India.[125] There is a similar body in Malaysia.[126] Doing this would make it possible to concentrate more on solving the challenges and opportunities faced by startups, a regulatory path that calls for a careful balance between innovation and entrepreneurship.

A major catalyst of the Kenya ecosystem is the role of incubators and hubs. Innovation hubs can be traced back to when the first was established in 2010 by iHub through development finance. Today, the number of innovation hubs has increased driven by the private sector, development partners, non-governmental organizations, universities, and government agencies. According to a UNDP report, there are currently over 101 hubs widely distributed across the country with a majority in Nairobi.[127] Most hubs are formally registered with 70% being public entities and non-governmental organisations (NGOs). The majority are sector-agnostic but a few specialize in either verticals or horizontals.

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Kenyan hubs churn out startups consistently over time but what is lacking is the capacity to follow up and determine the impact of the startups in the market. 'We have churned out over 600 startups since we started operations, I will say we have all that in our database, but we have not gone out to the market to assess the impact", stated an innovation hub manager. The value proposition and socio-economic impact of hubs have not yet been evaluated. The national government has committed to building 300 innovation hubs, one in each constituency across the country.[128] Concurrently, the Nairobi County Government has launched an initiative to make Nairobi the startup capital of the country and plans to establish 85 hubs by 2027, distributed across all its lowest administrative centres. "We want to position Nairobi as the place [for startups to] launch. We want to expose our local entrepreneurs to global startups, spaces, your London Tech Week, your slush in Helsinki, etc,' said an official.

300

The national government has committed to building 300 innovation hubs, one in each constituency across the country. Concurrently, the Nairobi County Government has launched an initiative to make Nairobi the startup capital of the country and plans to establish 85 hubs by 2027, distributed across all its lowest administrative centres.

Despite recent growth, the market continues to struggle to reach its full potential. Stakeholders pointed out several areas that need to be addressed. A multi-stakeholder approach is needed to overcome existing challenges and expand the startup ecosystem. Smoothening the startup lifecycle journey by encouraging entrepreneurship and innovation and strengthening the connection between academic institutions in STEM fields. A foundation of innovation, creativity and entrepreneurship will aid the production of ideas that address societal needs.

Addressing structural issues that entrench the diversity divide is also important. Stakeholders reaffirm the unique challenges of the low uptake of STEM courses and a patriarchal society which they want to be treated by incorporating innovation, creativity, and entrepreneurship in STEM programs. They also want the contribution of women in the startup ecosystem to be encouraged. A leading hub has entrenched affirmative action to address this problem and has committed to gender equity for the teams they run.

[125]DPIIT (2020). Evolution of Startup India: Capturing the 5-year Journey. Department of Promotion of Industry and Internal Trade, Ministry of Commerce and Industry. (Available at https://www.startupindia.gov.in. Accessed March 15, 2023).

[126]MOSTI (2021), "Malaysia Startup Ecosystem Roadmap 2021-2030: Supercharging the Way to our Shared Future (Available at https://www.mosti.gov.my/wp-content/uploads/repository/penerbitan/2021/(SUPER)%20Malaysia%20Startup%20Ecosystem%20Roadmap%202021-2030.pdf. Accessed April 10, 2023)

[127]UNDP Accelerator Lab (2022), Mapping the Innovation Ecosystem in Kenya. New York: UNDP.

[128] Kenya MICT (2019) "300 Technology Centers Set up by Government" (Available at https://ict.go.ke/300-technology-centers-set-up-by-government. Accessed Feb 10, 2023).

Finally, digital infrastructure growth is increasingly concentrated in one player on which startups anchor their products and services: Safaricom with MPESA dominating financial transactions appears to limit the options available to startups. A venture builder noted that it is risky for a startup to have only MPESA as the platform of choice and says he has often advised startups on this systemic risk.

There is another problem: a proliferation of programs and events that often do not incorporate all stakeholders. These are pull-driven towards the end of the pipeline and are rarely triple helix - a meeting place for government, private sector, academia, and development partners. "What has been happening is that different players have been operating in silos. Angel investors would operate on their own as would other groups. Startups would try to figure out how to be able to grow. These events have tried to bring different actors into one place for information sharing. But this has not been efficient and cannot be sustainable because it is donor-driven", stated an official interviewed for the study. It is important to create a structured national framework from grassroots to apex across all verticals. This should be organized along county and national lines, complemented by verticals or issues of unique national interest.

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Ghana has a moderate and rising level of startup activity and is a Tier 2 startup ecosystem. The private sector leads the Ghana startup ecosystem with some support from the public sector. Ghana is one of the most mature ecosystems outside the Top 4.

2.3 Tier 2 Startup Ecosystems

2.3.1 Ghana

Ghana has a moderate and rising level of startup activity and is a Tier 2 startup ecosystem. The private sector leads the Ghana startup ecosystem with some support from the public sector. Ghana is one of the most mature ecosystems outside the Top 4. Its growth is driven by its attractiveness as an investment destination, significant consumer and business markets, sophisticated entrepreneurial talent, and a strong corporate sector. The startup landscape hosts a large variety of players including incubation hubs, support organisations, startup-focused tertiary institutions, and accelerators. There is also a sprinkling of investor communities and angel networks that bring financing to startups through alternative investment mechanisms.

Respondents situate the origins of the tech ecosystem to the launch of BusyInternet, a large privately-owned, pioneer ICT centre, in 2001. An incubator program funded by InfoDev in 2007, 'Google Begin Become', which trained early-stage entrepreneurs is also said to have spurred the sector's growth. Over the past two decades, several policy initiatives of the national government have made positive impacts on the ecosystem, the most notable of which are:

1. Policies driving broadband adoption, especially the private implementations of subsea cable connectivity;

2. The setup of the Ghana Venture Capital Trust Fund, a government-backed fund-of-funds that provides financing to smaller businesses, and various funding initiatives such as local counterparty matching opportunities for selected foreign investments;

3. The establishment of the Ghana Multimedia Centre, which later transformed into the Ghana Digital Centre in Accra, a hub for startups; and

4. The encouragement of the academic community in innovation and tech incubation, among others.

The most popular sectors for Ghanaian startups are fintech, agribusiness, logistics, healthtech and e-commerce, and some of the well-known Ghanaian startups include mPharma, Farmerline, Zeepay, Trotro Tractors and ExpressPay. In recent years, a draft startup policy has been developed by the government which is undergoing deliberation to pass it as law shortly.

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Based on observations during the country missions and conversations with industry stakeholders, the startup sector looks stagnant and there does not appear to be any real signs of major ecosystem development at present. Many indicators are demonstrating this. Between 2019 and 2021, total startup funding hovered around the US$20m mark.[129] Though the 2022 numbers show a huge 652% leap to US144m from the previous year it was mainly driven by three landmark investments of US$32.8m (Dash), US$30m (Fido Credit) and US$17m (Float).[130] Key informants are not convinced that 'flash growth' of this nature can be sustained without significant systemic and structural changes to the regulatory and operating environment. Almost all the industry stakeholders who took part in this study are in favour of the enactment and execution of the startup act.

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[129]Disrupt Africa (2023), The African Tech Startups Funding Report, Nairobi: Disrupt Africa

[130]Ibid.

2.3.2 Senegal

Senegal is a Tier 2 startup ecosystem. As in other geographies, the fintech sector dominates the startup landscape. The biggest story to date is the capitalization and success of the Senegalese startup, Wave, the first Francophone Africa unicorn and the country's sole digital venture on Africa's 100 most funded tech startups list.[131] Though well-formed with many active players, the ecosystem may be said to be in a parlous, underdeveloped state at present, and the biggest constraint appears to be the inability of Senegalese startups to scale due to a restrictive business and regulatory environment. A reflection of this situation is the fact that only 9 Senegalese startups received new investments with total funding of only US$7,983,000 in 2022.[132]

Most startups remain in the conception stage constrained by numerous environmental factors and there are presently only a handful of successful startups operating in the upper portions of the ecosystem. A 2019 diagnostic analysis of the Senegalese tech startup space carried out by the national government highlights a 'Missing Middle' within the ecosystem.[133] According to a Senegalese stakeholder, "Startups that are big are very big and those that are small remain very small".

While digital policies appear to be adequate, the country has been struggling to implement the startup act four years after it was signed into law. The law is not yet operational because the government has not set up the governing structures and regulations to specify how startups are to be defined and organized under a new dispensation. The weak execution capacities of the government[134] which is demonstrated by the prolonged delay in implementing the Startup Act, has stifled ecosystem growth and reduced direct investment in the sector. Key informants say that political changes in government policymaking organs and the socio-economic effects of the COVID pandemic have also influenced the sluggish implementation of the startup law.

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Presently, bureaucracy, red tape and corruption is slowing down the growth of the startup ecosystem. Key informants say the slow pace of the public sector is hampering the private sector from taking steps to further advance the startup ecosystem. "African policymakers not only don't understand technology, but they struggle to trust it. Do they know that if they move right now people won't wait [anymore] for them?" – Senegalese tech veteran. Industry stakeholders are unanimous on the need for policymakers and regulators to work with tech communities and their leaders to develop the startup ecosystem.

[131]Digest Africa (2022), Digest Africa Research: The 100 Most Funded African Startups (Available at https://docs.google.com/spreadsheets/d/1X4fc92cjFWTTNKTdeahZHkwszt3QsSNN0aj3RB5qjXI/edit#gid=1569639990). It should be pointed out that this list does not capture all the funded startups as it tracks only those investments made by PE and VCs as may have been publicly announced. Private investments and bootstrapping (i.e., startups that use their own resources to scale their businesses such as Ghana's ExpressPay) are not captured by this database.

[132]Disrupt Africa (2023), The African Tech Startups Funding Report, Nairobi: Disrupt Africa.

[133]World Bank (2019), Country Diagnostic of Senegal. Washington: World Bank Group.

[134]Reuters (2020) "Senegal's start-up act to boost female-led business in first for West Africa" (Available at https://www.reuters.com/article/us-senegal-entrepreneurs-law-trfn-idUSKBN20F1UZ Accessed April 18, 2023).

The current environment stifles innovation and there is broad consensus within the industry that the national government should urgently resolve constraining factors. Policies to ameliorate and improve the situation should be implemented to assist Senegalese startups to grow internally and across borders.

Due to limitations in the business and regulatory environment, Senegal has no recognized global accelerator operating within the country though there are a handful of VCs, investment funds and accelerators including Haske Ventures, Startup Bootcamp and Kinaya Ventures. It appears that rules for market organization do not appear clear to foreign investors. With insufficient funding, the sector is in limbo and many Senegalese startups appear stuck in the axiomatic "valley of death" – the period between when an idea or solution is conceived and when it hits commercial success. "In Senegal, there is no safe space for startups to be until when an accelerator picks them up. But there are no accelerators here!" – Senegalese startup investor.

There is also a generally weaker culture of innovation, entrepreneurship and startup development compared to the leading ecosystems. Most entrepreneurs are reported to be subsistent or 'survivalists'. Due to what is said to be 'hard' socio-economic conditions, most families do not encourage their members to become entrepreneurs. "They believe that their entrepreneurs should go and get lucrative jobs instead" – Senegalese tech founder. Arising from this and other factors, most startups take off with inadequate capital and have minimal knowledge or understanding of what they need to do to scale.

Another problem cited by stakeholders is the size of the Senegalese market. While the country's market size may be sufficient for some levels of startup businesses, based on conversations with industry stakeholders, it does not appear capable of supporting startups that seek to scale. "Startups not only need access to markets, but they also need a bigger market size. Small-sized markets cannot [fully] support the complete potential of the solutions that scaling startups seek to create", said a veteran of the Senegalese startup ecosystem. However, other respondents differ. "The market is small but its size is not the reason why startups struggle to scale", according to a startup investor.

To summarize, based on the observation and findings of this study, the startup ecosystem of Senegal requires political leadership to drive the next wave of growth. The current environment stifles innovation and there is broad consensus within the industry that the national government should urgently resolve constraining factors. Policies to ameliorate and improve the situation should be implemented to assist Senegalese startups to grow internally and across borders. Efforts are said to be underway to create an inter-ministerial committee to speed up the execution of existing policies holding back the growth of the sector but this may not be enough.

2.4 Tier 3 Startup Ecosystems

2.4.1 Zambia

Zambia is an emerging Tier 3 startup ecosystem that is presently developing the basic foundations, infrastructure, and connections for its startups. The country is working on creating a legal framework to support startups and the government has been consulting with stakeholders to draft a startup bill though the process has been slow. Available data on deals and investment show a small but growing market. In 2021, only three companies received a total of US$3m in funding, which is a negligible amount compared to the US$2b raised in Africa in the same year.[135] VC funding in 2022 increased to US$30m[136] but it is still far behind the more established markets.

US$2b

In 2021, only three companies received a total of US$3m in funding, which is a negligible amount compared to the US$2b raised in Africa in the same year. VC funding in 2022 increased to US$30m but it is still far behind the more established markets.

[135]Disrupt Africa (2023), The African Tech Startups Funding Report, Nairobi: Disrupt Africa.

[136]Partech (2023), 2022 Africa Tech Venture Report, San Francisco: Partech Partners.

Zambia's startup ecosystem has been evolving for at least a decade and its dawn is attributed to BongoHive Technology and Innovation Hub which was founded in 2011, the first in the country. BongoHive has played a key role in shaping the startup ecosystem and is currently involved in efforts to create a policy and regulatory framework for startups. Today, the ecosystem has essential elements such as hubs that foster innovation, incubation and acceleration programs, and various sources of funding for startups. Despite the increase in ecosystem activities, Zambia has relatively few innovation hubs and they are all based in Lusaka: BongoHive, Jacaranda Hub, Zanaco Innovation Lab, Anakazi Centre, and Asikana Network. They all face the difficulty of being reliant on the private sector for funding so they typically charge a fee which deters innovators. University hubs supplement private-sector innovation hubs.

The Global Startup Ecosystem Index 2022 ranks Zambia's startup ecosystem at 109 and Lusaka at 734, which is a significant improvement for the capital city of 143 places from 2021.[137] The index is built on three parameters – the quantity score that measures the number of startups, co-working spaces, and accelerators; the quality score that reflects the market traction, research and development, and private sector investment in startups; and the business environment score that considers the infrastructure, business environment and ability to operate as a startup. The rise by 143 places in one year shows that Lusaka and the country are moving in the right direction. In 2021, Zambia ranked 121 on the Global Innovation Index which is in line with its status as a lower middle-income group country.[138] These indicators suggest an opportunity to review the Zambia startup ecosystem for growth.

The rise by 143 places in one year shows that Lusaka and the country are moving in the right direction. In 2021, Zambia ranked 121 on the Global Innovation Index which is in line with its status as a lower middle-income group country.

14.3%

In 2021, though mobile networks cover 92% of the population and 53.5% had access to cellular phones, internet penetration is low at 14.3%, and only 29.6% of the adult population own smartphones, according to the telecom regulator.

The ecosystem has no reporting framework and therefore limited data exists for the actors. StartupBlink reports that Zambia has no accelerator, no exits, and no unicorns.[139] However, there are startups in fintech, agritech, edtech, e-commerce and retail that offer services to the business and consumer segments. In fintech, PremierCredit[140] and Lupiya[141] are growing fast. PremierCredit is an online microlending and investment platform that operates in Zambia and Zimbabwe. The startup is exploring opportunities in Southern Africa. Lupiya provides financial services to individuals, small businesses, and female micro-entrepreneurs. Both startups have raised VC funding to scale up their operations but say that this is not enough for rapid growth.

The ecosystem faces many challenges that hinder its growth and there is a general lack of inspiration for innovation which affects the startup pipeline. Zambia does not have many trailblazers – successful role models and success stories that can motivate and guide innovators. Potential users are also not often convinced of the real benefits of digital finance services and there is little effort to change their mindsets. Moreover, digital infrastructure is generally poor and limits scaleup. While urban areas have connectivity infrastructure (access to terminals, usage, etc), rural areas have poor infrastructure that makes P2P exchanges difficult. In 2021, though mobile networks cover 92% of the population and 53.5% had access to cellular phones, internet penetration is low at 14.3%, and only 29.6% of the adult population own smartphones, according to the telecom regulator.[142]

[137]StartupBlink (2023). Global Startup Ecosystem Index 2022 (Available at https://lp.startupblink.com/report. Accessed Feb 10, 2023).

[138]WIPO. (2021). Global Innovation Index 2021: Tracking Innovation through the COVID-19 Crisis. Geneva: (Available at https://www.wipo.int/global_innovation_index/en. Accessed February 10, 2023).

[139]StartupBlink (2023), The Startup Ecosystem of Zambia (Available at https://www.startupblink.com/startup-ecosystem/zambia?flag=pantheons. Accessed March 18, 2023).

[140]FGS (2023), "PREMIERCREDIT: Pan African Challenger bank for small businesses in Africa" (Available at https://www.f6s.com/company/premiercredit. Accessed March 2, 2023).

[141]https://lupiya.com/pages/about

[142]ZICTA (2021). Corporate Strategic Plan 2022-2024. Lusaka: Zambia Information and Communications Technology Authority.

There is a high level of interest among innovators demonstrated by numerous events frequently organised by stakeholders which attract many applicants. For instance, ZICTA, which has been hosting innovation events since 2019, receives 300 applications on average for each event and once received 600 applications for only 60 places. This shows that Zambian entrepreneurs are eager to innovate for their local markets. The government encourages innovation and has launched a regulatory sandbox on digital finance services, indicating the government's willingness to embrace innovation. Currently, the Security Exchange Commission (SEC) has accepted four companies into the sandbox. Zambia ICT Authority (ZICTA) is also considering a sandbox focused on emerging technologies.

VCs are actively looking for entrepreneurs who can execute innovative ideas and not just depend on the organic growth of their portfolio. With the small startup market, VCs are investing in greenfield projects outside of startups. Furthermore, the Zambian Business Angel Network (ZBAN) is at the forefront of early-stage funding. ZBAN was founded in 2020 and connects angels as a syndicate to collectively look for startup investment opportunities. The network has funded six projects by 2023. Deal size varies from US$1,000 to US$20,000, with the highest being US$100,000 so far, and angel interest is not limited to any sector. On the other side, the lack of a regulatory framework to protect angels and assure the visibility of well-written funding proposals is a challenge. Early-stage firms that may receive government funding must go through the Ministry of Small Business Enterprises, which favours MSMEs. Thus, the requirements and risk profile of startups are insufficiently addressed by the current system.

VCs are actively looking for entrepreneurs who can execute innovative ideas and not just depend on the organic growth of their portfolio. With the small startup market, VCs are investing in greenfield projects outside of startups. Furthermore, the Zambian Business Angel Network (ZBAN) is at the forefront of early-stage funding.

Nonetheless, stakeholders are trying various ways to widen the narrow pipeline of innovation and there are ongoing discussions to understand the startup phenomena, the role of startups in national development and the required actions to advance them. However, a key unresolved issue is how to define and distinguish startups from Small & Medium Enterprises (SMEs), as they are different in terms of risk profile, economic contribution, and business requirements.[143] There was no consensus on this at the time of our research. Another difficulty is choosing which ministry should host the proposed national startup initiative among the ones in charge of Information and Media, Small and Medium Enterprises, or Science and Technology.

Yet one more challenge for startups is the scarce talent and digital skills locally available, with the compulsory registration of IT professionals by the ICT Association of Zambia (ICTAZ) being an obstacle. ICTAZ aims to improve professional skills development and requires that anyone who works in the Zambian ICT sector must be a member. However, innovation is well-known to be spontaneous and does not need certification of this sort. Stakeholders believe that this requirement creates a barrier for startups because one must have a licence to work in ICT.

Finally, women have a low representation in the startup space. Though data was not available, the events organised by stakeholders show more males than females apply. More than 80% of the applicants in ZICTA-organised events are males and the efforts to attract more female participation have so far failed. It is important to showcase leading women in the ICT sector as role models for women founders in startups.

In summary, Zambia has an opportunity to strengthen the startup ecosystem, but a policy and regulatory framework is imperative. The efforts to pass startup legislation are suitable and will form a good basis to bring together stakeholders to address all elements of this embryonic startup ecosystem.

[143]Mubanga, L. (2022), Journal on Challenges and the Survival of Early Start Ups Amidst Covid-19 in Zambia. International Journal of Innovative Science and Research Technology, Volume 7(6). (Available at https://www.ijisrt.com/assets/upload/files/IJISRT22JUN1241_(1).pdf Accessed March 2, 2023).

moz://a

CHAPTER THREE:

REGIONAL ECONOMIC COMMUNITIES AND THE AFRICAN STARTUP ECOSYSTEM

We briefly discuss the impact of the Regional Economic Communities on the African startup ecosystem in this section and review some tech startups that illustrate how innovation can occur in the absence of regional regulatory coordination and oversight.

3.1 The Role of Regional Economic Communities in the African Startup Ecosystem

Africa's regional economic communities play an important role in facilitating trade, investment, infrastructure development, and regional integration. However, as far as is known, they are presently not playing any active role in enabling the emergence of African startups and are yet to develop any policy interventions or funding activities that support startups and innovation in the region. The African Union's role in coordinating and deepening national startup ecosystems is also said to be weak and ineffective. Of the eight RECs recognized by the AU, the Economic Community of West African States (ECOWAS) appears to be taking some early steps to assist the proliferation of startups and innovation ecosystems in the region.

Of the eight RECs recognized by the AU, the Economic Community of West African States (ECOWAS) appears to be taking some early steps to assist the proliferation of startups and innovation ecosystems in the region.

ECOWAS has announced a goal of enabling the growth of tech startups and innovation hubs through capacity building, funding, and awards, and organized its first-ever West African Startup Summit in November 2021.[144] In 2019, an attempt was made by the German Development Cooperation (GIZ) and the World Bank to work with the REC to create the ECOWAS Innovation Hub Network (EIH-NET) which would connect and strengthen innovation hubs, incubators, accelerators and other stakeholders across West Africa.[145] However, the current status of that initiative, as well as the extent of any related achievements, are unknown.

The African Union itself has set up an AU-Startups online portal[146] as an initial step to bring together startup founders, investors, and other actors together to exchange knowledge, access funding resources and exploit opportunities. The website celebrates African startup success stories and offers details on entrepreneurship, innovation, and pertinent AU policy efforts.

Nonetheless, the impacts of these initiatives are feeble to non-existent, according to key informants who participated in this study. As national startup ecosystems on the continent are being driven by the private sector, innovation can be found in each economic region despite the lack of regulatory coverage of national and regional bodies. In the sub-sections below, we highlight the resilience of African founders in creating ventures in challenging conditions through brief reviews of randomly selected case studies of startups that have unusual innovation features in ecosystems outside the top four.

African Union

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[144]ECOWAS (2021), ECOWAS organized the 1st West African Startups Summit (Press Release), Abuja: Economic Community of West African States.

[145]GSMA (2019) Digital ECOWAS: Pathways to Investment, Innovation and Inclusion. London: GSM Association.

[146]https://au-startups.com/about/

3.1 Arab Maghreb Union

3.1.1 InstaDeep Tunisia

AI-Powered Decision-Making Systems for Enterprises.

Founded in Tunisia in 2014, InstaDeep[147] is a startup studio that specializes in enterprise AI solutions for complex decision-making problems. Its business model is to provide end-to-end AI products and services to B2B clients across various sectors, such as health care, logistics, energy, mining, finance, and gaming. The startup also develops its own AI research and innovation projects, leveraging deep learning, reinforcement learning, and natural language processing.

With global presence and offices in Africa (Tunis, Lagos & Nairobi), Europe (London, Berlin & Paris), and the USA (New York), InstaDeep has grown its business and currently employs over 200 engineers, researchers, and scientists, mainly in AI-related fields. The startup has a strong focus on the African market where it promotes AI and local talent innovation. The company has built a portfolio of AI products and platforms for protein design, printed circuit board design, and natural language processing, and works in close partnership with BioNTech, the German biotech company that developed one of the first Covid-19 vaccines. During the pandemic, InstaDeep assisted BioNTech to create an early warning AI system that rapidly detected more than 90% of new variants of the coronavirus with vaccines designed subsequently.[148]

US$100m

In March 2022, InstaDeep secured US$100m in Series B funding, making history as the first mega funding ever raised by a startup from the Maghreb region, and in January 2023 was acquired by its Nasdaq-listed German biotech client BioNTech SE in a record US$684m deal.

InstaDeep plans to become a leading AI company in the world, creating impactful solutions for real-world problems and seeks to expand its client base and product offerings across different industries and regions.

InstaDeep plans to become a leading AI company in the world, creating impactful solutions for real-world problems and seeks to expand its client base and product offerings across different industries and regions. The startup is also collaborating with other stakeholders, namely governments, universities, NGOs, and tech communities to create an enabling environment for AI development and adoption in Africa, and intends to showcase its success stories and best practices to inspire more entrepreneurs and innovators in the AI field. In March 2022, InstaDeep secured US$100m in Series B funding,[149] making history as the first mega funding ever raised by a startup from the Maghreb region, and in January 2023 was acquired by its Nasdaq-listed German biotech client BioNTech SE in a record US$684m deal.[150] Since 2020, InstaDeep has been ranked every year by research firm CB Insights as one of the 100 most promising artificial intelligence startups in the world.[151] The company's achievements demonstrate the potential of smaller markets in Tier 2 and Tier 3 African startup ecosystem categories if constraints in the regulatory and operating environments are lifted.

[147]https://www.instadeep.com/

[148]FT (2022) "BioNTech and AI start-up develop tool to predict high-risk coronavirus variants" (Available at https://www.ft.com/content/dc8f8040-c9ce-43be-9b6c-c276930064d4. Accessed April 29, 2023).

[149]TechCrunch (2022) "Tunisian enterprise AI startup InstaDeep raises $100M from AI Capital, BioNTech, Google" (Available at https://techcrunch.com/2022/01/25/tunisian-enterprise-ai-startup-instadeep-raises-100m-from-alpha-biontech-google. Accessed April 29, 2023).

[150]TechCabal (2023) "German BioNTech acquires Tunisia's InstaDeep for £582 million" (Available at https://techcabal.com/2023/01/11/german-biontech-acquires-tunisias-instadeep-for-582-million. Accessed April 29, 2023).

[151]InstaDeep (2022) "InstaDeep ranked among global top 100 AI startups for third year running" (Available at https://www.instadeep.com/2022/05/instadeep-ranked-among-global-top-100-ai-startups-for-third-year-running/#:~:text=InstaDeep%20is%20very%20proud%20to,named%20on%20the%20influential%20index. Accessed April 29, 2023).

3.2 Common Market for Eastern and Southern Africa (COMESA)

3.2.1 PremierCredit Zambia

Advancing Financial Inclusion Through Supportive Regulations Despite Inadequate Infrastructure.

Founded in 2019, PremierCredit Zambia[152] is an online microlending and investment platform that provides inclusive financial services. It offers affordable credit to borrowers on flexible terms, contributing to financial inclusion and passive income for investors. The company is part of an international financial technology company headquartered in Mauritius and currently operating in Zambia and Zimbabwe. Its vision is to be the market leader in online microlending, investment services and affordable alternative finance in emerging markets across Africa.

PremierCredit Zambia launched a P2P lending platform that allows investors to invest in pre-vetted secured loans with guaranteed returns. The platform is said to be AI-driven and part of the regulatory sandbox initiative of the SEC, which aims to foster innovation and protect investors in the local capital market. Investments start from ZMW500 (c. US$26). The company has invested in IT infrastructure, enabling them to automate processes, streamline loan disbursements, and improve customer experience. The implementation of a user-friendly mobile banking platform also has allowed customers to access financial services conveniently, enhanced operational efficiency and hurled geographical barriers.

The government's openness to innovation creates a favourable environment for startups evidenced by Zambia's willingness to accept external investment and the government's commitment to fostering innovation through initiatives such as regulatory sandboxes.

However, the biggest challenge it faces in its quest for growth is changing people's mindsets and convincing them that they can get a loan by sending an SMS from the comfort of their homes at any time of the day. "Most people think that this is fraud so [educating people] that this is genuine needs a lot of resources to preach the 'gospel'," said a manager. Nevertheless, the company's impressive growth from 100 to 40,000 customers since its formation, its focus on providing solutions to civil servants and local businesses, and the launch of its lending platform have been positive outcomes, though insufficient funding to cater for their rapid growth is said to be a key concern. To address this, the startup raised US$650,000 in funding from Enygma Ventures in 2020.[153]

The government's openness to innovation creates a favourable environment for startups evidenced by Zambia's willingness to accept external investment and the government's commitment to fostering innovation through initiatives such as regulatory sandboxes. The rollout of digital infrastructure and the eagerness of the Zambia ICT Authority to support online connectivity tools are also positive developments that enhance financial inclusion and encourage startups to reach previously unserved markets. Accordingly, the company now offers investment opportunities in loans under the Regulatory Sandbox of The Securities and Exchange Commission (SEC), Zambia. The sandbox provides a controlled environment for innovation while allowing the Authority to maintain system integrity, protect investors and guarantee financial stability.

Nonetheless, inadequate digital infrastructure limits scale-up especially in rural areas where P2P activities are challenging. According to the Zambia ICT Authority, internet uptake is low at 14.3% of the adult population that are internet users as of 2021, though population coverage at 92% is near universal.[154] Only 53.5% of the population had access to cellular phones and smartphone ownership is 29.6%.

Going forward, the future of Zambia's startup ecosystem appears bright and the opportunity for startups like PremierCredit to achieve their vision can be achieved if improvements continue to be made to the enabling environment as building blocks of the ecosystem are established.

[152]PremierCredit (2023), About PremierCredit: Lending Made Simple (Available at https://premiercredit.co.zm/about-us. Accessed March 18, 2023).

[153]Crunchbase (2023) PremierCredit Zambia (Available at https://www.crunchbase.com/organization/premiercredit-zambia. Accessed March 18, 2023).

[154]ZICTA (2021), Corporate Strategic Plan 2022—2024, Lusaka: Zambia Information and Communications Technology Authority.

3.3 East African Community

3.3.1 Lami Insurance Technology Kenya

Breaking Archetypes of Male Dominance in the Startup Ecosystem in Insurtech.

Women startup founders are extremely few in African countries, Kenya inclusive. According to the Disrupt Africa Report 2022, only 17.9% of Kenyan startups had at least one woman within their founding team. However, Kenya was more diverse than other leading ecosystems: Nigeria (15.6%), South Africa (14.3%), and Egypt (12.5%). But this figure is low and there is a lot of work to be done to address the diversity divide in the startup ecosystem. Jihan Abass is at the forefront driving the change.

Jihan Abass is the founder of Griffin Motor Insurance and Lami Insurance Technology, two companies that aim to make insurance more accessible and affordable in Kenya and beyond. She is said to have been inspired by a conversation with a waiter who did not have health insurance and decided to quit her job as a commodities trader in London to pursue her passion for finance and technology.

Founded in 2018, Lami Insurance Technologies[155] is a Kenya-based startup that offers an end-to-end insurance platform for underwriters and businesses in Africa to address the low uptake of insurance – currently only 3%.[156] The insurtech startup focuses on revolutionizing access to insurance by helping businesses to sell the coverage customers need, allowing them to take control of their insurance by adjusting risk to their preferences and budget.

17.9%

According to the Disrupt Africa Report 2022, only 17.9% of Kenyan startups had at least one woman within their founding team. However, Kenya was more diverse than other leading ecosystems: Nigeria (15.6%), South Africa (14.3%), and Egypt (12.5%).

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Lami's platform is a B2B and B2B2C insurance-as-a-service platform that has digitized the entire insurance value chain through Application Programme Interfaces (APIs). The platform handles Know Your Customer (KYC), pricing, underwriting, and claims processing all in one place and can be used to create, distribute, and embed any type of insurance product at any point of sale. The platform can also be used by the company's partners to manage their insurance needs which allow businesses like banks, startups, and organizations to offer digital insurance products to their users.

To expand its operations and consolidate its presence in the Kenyan insurance market and penetrate other African countries, Lami acquired Bluewave Insurance Agency in 2022.[157] By combining innovative technology-driven solutions with Bluewave's deep industry expertise and extensive network, the company seeks to overcome the barriers to insurance access that many individuals and businesses face in Africa. Lami partners with JumiaPay Kenya and Standard Bank, and offers insurance coverage to motorcycle riders in Kenya through Unchorlight Kenya.

Lami's female founder has a dream: To reach a billion dollars in premiums and underwrite policies for millions of people. "We aim to provide that safety net and use technology as the driving force

[155]Lami (2023) "Our vision is to democratise financial products and services, helping improve the lives of millions" (Available at https://www.lami.world/about.html. Accessed March 18, 2023).

[156]Built-in-Africa (2022) "Lami Technologies, the Kenyan startup transforming and democratising insurance" (Available at https://www.builtinafrica.io/blog-post/jihan-abass-lami. Accessed March 18, 2023).

[157]Capital (2022), "Lami Acquires Kenya's Bluewave to Expand Access to Insurance in Africa" (Available at https://www.capitalfm.co.ke/business/2022/02/lami-acquires-kenyas-bluewave-to-expand-access-to-insurance-in-africa. Accessed March 18, 2023).

behind it," she is as quoted as saying.[158] Towards this goal, Lami has raised a total of US$5.6m in funding[159] and is among the few startups selected by the Catalyst Fund fintech accelerator.

Jihan's journey offers valuable insights to bridge the diversity divide in African startups. These include having a supportive background, clearly defining challenges to innovation, leveraging partnerships for scaling, possessing a pan-African vision for a large market, and overcoming the gender barrier.

3.4 Economic Community of West African States

3.4.1 MStudio Cote D'Ivoire

90%

MStudio core focus is on the informal sector, which accounts for about 90% of new jobs in West Africa, and targets women and youth as the main beneficiaries of its model.

Launching the Next Tech Champions of Francophone Africa?

MStudio is a startup foundry based in Abidjan, Côte d'Ivoire, that aims to transform the informal sector of Francophone West African countries by building and supporting tech startups to address needs.[160] Founded in 2022, it operates as a "mobile" studio and positions itself to launch startups in any country in the region based on market opportunity and demand. It says it recruits the "best entrepreneurs" who are provided with funding, expertise, and mentorship to launch startups in francophone markets that are inspired by proven business models of successful startups in English-speaking Africa, particularly those in Nigeria, Kenya, Egypt, and South Africa.[161] The studio also offers a co-working space and a community of partners and investors who assist in-house startups to grow and scale beyond the usual duration of accelerators.

MStudio core focus is on the informal sector, which accounts for about 90% of new jobs in West Africa,[162] and targets women and youth as the main beneficiaries of its model. The overall social impact is to create employment, improve livelihoods, and foster financial inclusion and digital literacy within the informal sector. Sectors where opportunities are sought are fintech, healthtech, edtech, e-commerce, and foodtech with plans to launch at least four startups annually.

MStudio claims a membership of the Global Startup Studio Network (GSSN), a selective community of startup studios through which it benefits from a globally recognized methodology for supporting startups from conception to Series A.[163] The startup intends to grow to become the foremost startup studio in francophone West Africa by attracting talent, partners, and investors to expand its portfolio of startups, and by collaborating with other stakeholders, governments, regulators, NGOs, and academia, to create an enabling environment for innovation and entrepreneurship in the region. It also plans to showcase best practices and its success stories to inspire more entrepreneurs and innovators in the region. MStudio launched in Abidjan on March 7, 2023.[164]

[158]Built-in-Africa (2022) "Lami Technologies, the Kenyan startup transforming and democratising insurance" (Available at https://www.builtinafrica.io/blog-post/jihan-abass-lami. Accessed March 18, 2023).
[159]Crunchbase (2023) Lami (Available at https://www.crunchbase.com/organization/lami-insurance. Accessed March 18, 2023).

[160]Mstudio (2023) "We launch the next tech champions of Francophone Africa" (Available at https://www.mstudio.vc/ Accessed April 28, 2023)

[161]TechCabal (2023) "Ivorian Mstudio wants to build a strong francophone ecosystem, one venture at a time" (Available at https://techcabal.com/2023/03/24/ivorian-mstudio. Accessed April 29, 2023).

[162]WEF (2015), The importance of the informal sector in West Africa (Available at https://www.weforum.org/agenda/2015/03/the-importance-of-the-informal-sector-in-west-africa Accessed April 29, 2023)

[163]Morrow (2023), Changing Venture Creation in Africa (Available at https://morrow.co/perspectives/studio-venture-creation-africa-mstudio. Accessed April 29, 2023)

[164]Financial Afrik (2023) "Mstudio opens an office in Côte d'Ivoire to 'transform' start-ups in French-speaking Africa" (Available at https://www.financialafrik.com/2023/03/10/mstudio-ouvre-un-bureau-en-cote-divoire-pour-transformer-les-start-up-dafrique-francophone. Accessed April 28, 2023).

3.5 Economic Community of Central African States

3.5.1 Jambo DRC

Making Education Exciting and Blockchain Opportunities Accessible in an Underwhelming Startup Environment.

Jambo[165] is a DR Congo-based startup founded in November 2021 whose aim is to build a web3 user acquisition portal that can be accessed by consumers to generate crypto-based income opportunities. It claims to be the first in the Democratic Republic of Congo and a pioneer web3 startup in Africa. Its business model is designed around partnerships with telecom providers, social media companies and web3 game developers to offer discounted data and airtime, token rewards and play-to-earn games to its users. Jambo also offers a curated web3 curriculum to over 12,000 students in 14 African countries in partnership with select universities.[166] The company's revenues derive from advertising incomes and commissions from selling airtime and data.[167]

To date, Jambo has raised US$37.5m in seed and Series A funding from investors such as Coinbase Ventures, Paradigm, ParaFi Capital, Pantera Capital, Kingsway Capital, and Gemini Frontier Fund.[168] Jambo plans to use the funds to expand its team, develop its 'super app' platform and grow its user base across Africa. The company also intends to share its technology and product-testing platform with other startups. So far, the company is said to have built a

100-member workforce and opened offices in 15 countries including Nigeria, South Africa, and Kenya. Jambo founders have also launched a new Pan-Africa investment fund, AfricaDAO, which has raised US$125m to accelerate web3 adoption on the continent.[169]

Presently, Jambo faces challenges such as low internet penetration, regulatory uncertainty, and lack of awareness about crypto and web3 in its home region.

US$37.5m

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Presently, Jambo faces challenges such as low internet penetration, regulatory uncertainty, and lack of awareness about crypto and web3 in its home region. But it aims to tap into the young and fast-growing population of Africa which is eager for digital services and new ways of earning income to deliver its business ambition which is to "onboard millions of users" in Africa to web3 through various applications and products.[170]

[165]https://www.jambo.technology/

[166]TechCrunch (2022), "Jambo raises $7.5M from Coinbase, Alameda Research to build 'web3 super app' of Africa" (Available at https://techcrunch.com/2022/02/21/jambo-raises-7-5m-from-coinbase-alameda-research-to-build-web3-super-app-of-africa. Accessed April 29, 2023).

[167]BD (2022), "Jambo secures $7.5 million in seed funding to build a super app for African youths" (Available at https://www.benjamindada.com/jambo-secures-7-5-million-in-seed-funding-to. Accessed April 29, 2023).

[168]Forbes (2022) "African Crypto Startup Raises $30 Million To Build a Web3 WeChat" (Available at https://www.forbes.com/sites/ninabambysheva/2022/05/10/african-crypto-startup-raises-30-million-to-build-a-web3-wechat-for-the-continent/?sh=251762db4540. Accessed April 29, 2023).

[169]Crunchbase (2023) AfricaDAO (Available at https://www.crunchbase.com/organization/africadao. Accessed April 29, 2023).

[170]CoinDesk (2022) "Paradigm Enters Africa with $30M Round for 'Super App' Jambo" (Available at https://www.coindesk.com/business/2022/05/10/paradigm-enters-africa-with-30m-round-for-super-app-jambo. Accessed April 29, 2023).

3.6 Southern African Development Community (SADC)

3.6.1 Aerobotics South Africa

Scaling Precision Agritech Leveraging Drones and Advanced Data Analytics

Aerobotics is a South African agritech startup[171] whose market success can be attributed to its innovative approach in combining aerial imagery, satellite data, and machine learning algorithms to deliver actionable insights to farmers. By providing farmers with precise and timely information about their crops Aerobotics empowers them to optimize resource allocation, minimize yield losses, and make informed decisions to improve their overall operations.

Founded in 2014, Aerobotics has gained traction and industry recognition both domestically and internationally. The startup has also attracted a substantial customer base since its establishment including farmers and other agribusinesses that seek to leverage technology to enhance their crop management practices. It claims to have flown over 100 million trees for more than 1,000 clients in 18 countries in Africa, Europe, Australia, and the USA.[172]

Aerobotics' technology platform can be applied to diverse agricultural regions around the world. By leveraging their expertise in crop monitoring and management, Aerobotics assists farmers to optimize their farming practices thereby increasing productivity. The company has expanded its operations beyond South Africa and has been actively targeting international markets to bring agritech solutions to farmers globally.

Cape Town's vibrant innovation communities provide Aerobotics with access to talent, resources, and a network of industry professionals, and the company has been able to leverage this hub to expand its operations. But like any African startup, the enterprise faces several sectoral challenges. The common challenges faced by agritech startups include adoption and awareness, connectivity and infrastructure, data quality and integration, and regulatory and policy environment where compliance with agricultural regulations, policies, and environmental standards. Nevertheless, Aerobotics' innovative solutions continue to make a significant impact in the agriculture industry in South Africa and beyond.

Aerobotics has been incubated and accelerated by various programs. In 2018, it was selected to participate in the Google Launchpad Accelerator Africa program[173] benefiting from the guidance, support and resources offered by Google. Its successful 2021 raise has helped the company's expansion plans and strengthened its AI-driven platforms. Aerobotics has so far raised US$27m from investors including Naspers Foundry, Partech Africa, FMO and Cathay AfricInvest Innovation.[174]

The company's focus on international expansion is in line with its goal of innovating to tackle global agricultural challenges and positively influence the industry at a global level. The startup seeks to become a pathfinder and a beacon to show that African-built solutions can scale globally. The rapid growth of venture capital in the last 7 years is not enough to overcome the fragmentation of African markets that hinders the global ambitions of startups like Aerobotics. The Africa Continental Free Trade Area (AfCFTA), which is a pioneering initiative by governments to create a larger pan-African market which startups can exploit, can bridge this gap. Startups, therefore, need to look at the larger African market and even globally. Aerobotics continues to expand its reach to meet farmers' demands beyond Africa, overcoming cross-border regulatory hurdles along the way.

100mn

Founded in 2014, Aerobotics has gained traction and industry recognition both domestically and internationally. The startup has also attracted a substantial customer base since its establishment including farmers and other agribusinesses that seek to leverage technology to enhance their crop management practices. It claims to have flown over 100 million trees for more than 1,000 clients in 18 countries in Africa, Europe, Australia, and the USA.

[171] https://www.aerobotics.com/

[172] Aerobotics (2023), We're creating intelligent tools to feed the world (Available at https://www.aerobotics.com/about-us. Accessed March 18, 2023).

[173] Startup Talky (2023), Aerobotics: Optimizing Crop Performance with Data Analytics (Available at https://www.startuptalky.com/aerobotics-success-story. May 15, 2023).

[174] Crunchbase (2023), Aerobotics (Available at https://www.crunchbase.com/organization/aerobotics. Accessed March 18, 2023).

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CHAPTER FOUR:

BENCHMARKING GOOD PRACTICES

We examined the startup ecosystems of four countries with similar development and socio-economic characteristics as Africa, two from Asia and two from South America, to identify some good practices that could help African policymakers improve the sector.

4.1 India

The Indian startup ecosystem is highly developed, exemplifying commitments by the government to mainstream and support startups in the country. In 2015 the government set up a framework for the growth and evolution of the startups in the country by creating Startup India as the principal vehicle for the realisation of this objective, and there has been a lot of activity around a 19-point agenda for the development of tech startups. Alongside Startup India, the government launched *Made in India* as a complementary initiative to expand the local market and encourage investments in the country. The growth of domestic markets has helped to create more opportunities for startups.

By December 2020, Startup India had recognised 41,317 startups with 470,000 jobs reported. Additionally, 30 States and Union Territories had a dedicated startup policy,[175] and 590 districts had at least one startup. By April 2023, the number of recognised startups had increased to 98,405.[176] To date, India's ecosystem has produced 54 unicorns, the second highest in Asia after China.[177] The Global Startup Ecosystem Index 2022 ranks India at 19th position with the second highest number of cities in the Global 20, a distinction it shares with China.[178]

By April 2023, the number of recognised startups had increased to 98,405. To date, India's ecosystem has produced 54 unicorns, the second highest in Asia after China.

41,317

By December 2020, Startup India had recognised 41,317 startups with 470,000 jobs reported. Additionally, 30 States and Union Territories had a dedicated startup policy, and 590 districts had at least one startup.

The Indian startup ecosystem has some features that make it stand out among other Asian economies. These features include:

- Strong government support evidenced by the launch of Startup India, a flagship initiative that fosters entrepreneurship and innovation in the country.
- A comprehensive action plan that outlines detailed measures to facilitate the growth of startups in various domains. These measures include easing regulatory hurdles, providing mentorship and guidance, and enabling access to funding and market incentives.
- A multi-stakeholder approach that involves creating awareness and building capacities at the state and local levels, as well as running sector-specific programs that address the needs and challenges of different industries and sectors.

[175]DPIIT (2020). Evolution of Startup India: Capturing the 5-year Journey. Department of Promotion of Industry and Internal Trade, Ministry of Commerce and Industry. (Available at https://www.startupindia.gov.in. Accessed March 15, 2023).

[176]https://www.startupindia.gov.in/

[177]Statista (2023) Startups in India - Statistics & Facts (Available at https://www.statista.com/topics/4839/startups-in-india/#topicOverview. Accessed April 30, 2023).

[178]StartupBlink (2023). Global Startup Ecosystem Index 2022 (Available at https://lp.startupblink.com/report. Accessed Feb 10, 2023).

- A vibrant private sector that complements government efforts and provides a conducive environment for startups to thrive and scale. India's startups have created many jobs and social benefits through their innovative solutions.

- A coherent framework to showcase Indian startups to global markets, especially in Europe, Asia, and the Americas, helping them to access international opportunities, partnerships, and customers.

- An evolving definition of a startup that reflects the changing realities and needs of the sector. India has revised the startup definition three times since 2015, adjusting the criteria for age, turnover, and sector of the enterprise. This shows that India is flexible and responsive to the feedback and challenges faced by its startups. Though a common requirement is that the startup must be registered in India, the government also welcomes foreign talents, collaborations, and investments.

- A wide range of sectoral incentives that support startups in various stages of their evolution. These include tax exemptions, relaxed norms for public procurement, easier exit mechanisms, and funding. These incentives aim to reduce the regulatory burden and financial risk for startups and encourage innovation and entrepreneurship.

Box 5: Startup India Portal

Setup by the Department for Promotion of Industry and Internal Trade (DPIIT), the Startup India portal[179] captures comprehensive data about each of the country's 98,405 officially recognized startups. The portal is an all-encompassing central landing station for startups, investors, incubators, accelerators, government agencies and other players in the Indian startup ecosystem to discover themselves and network together. The incentive for startups to register their enterprises and submit required personal and business data include income tax exemptions, fast-tracked patents and IP protection, and access to public procurements. They can also freely pick up useful tools and resources such as templates, courses, etc from the site's knowledge bank. Registered startups are also eligible for direct public sector seed funding and can officially access private investors seeking available opportunities through facilitation and marketplace exchanges. Though the portal may not cover all the aspects and challenges of entrepreneurs and investors as specific needs and preferences may vary, it is a significant action of the state in deepening the startup ecosystem and may be the way to go for African countries.

Despite a history of strong leadership driving change and building the requisite digital infrastructure, Malaysia has been struggling to keep pace with sectoral growth in recent years. Subsequently, Malaysia has a lower position in the global startup ecosystem and has only produced two unicorns to date, owing to an inward-focused startup strategy.

4.2 Malaysia

Malaysia was among the earliest countries to identify ICT as a driver for economic development and has been setting up various successful initiatives to mainstream ICT in development since 2000. One way the government has interconnected the nation both internally and with the rest of the world is through the Multimedia Super Corridor. There have also been large-scale efforts to digitalize government services and provide ICT tools to the citizens. These efforts are presently being driven by the Malaysia Development Economic Corporation (MDEC) the agency mandated to promote the digital economy.

Despite a history of strong leadership driving change and building the requisite digital infrastructure, Malaysia has been struggling to keep pace with sectoral growth in recent years. Subsequently, Malaysia has a lower position in the global startup ecosystem and has only produced two unicorns to date, owing to an inward-focused startup strategy.[180] The Global Startup Ecosystem Index 2022 puts Malaysia at 42, having dropped two places from 2021.

[179]https://www.startupindia.gov.in/

[180]DNA (2023) "Seeing ourselves as creators, not merely consumers" (Available at https://www.digitalnewsasia.com/digital-economy/seeing-ourselves-creators-not-merely-consumers. Accessed April 20, 2023).

Lately, the government wants to change course and has committed to addressing the slow pace of startup contribution by adopting and launching a new strategy, the Malaysia Startup Ecosystem Roadmap 2021-2030,[181] to create an enabling environment for a radical change in the contribution of startups. The strategy lays out a comprehensive guide to transforming Malaysia into a top 20 global startup ecosystem by 2030 and outlines 16 interventions across five key thematic areas that aim to intensify the nation's startup ecosystem through collaboration. These areas include funding, talent, innovation, policies and regulations, and market environment. The strategy also highlights the benefits of startups in improving socio-economic status and generating jobs.

Top 20

The strategy lays out a comprehensive guide to transforming Malaysia into a top 20 global startup ecosystem by 2030 and outlines 16 interventions across five key thematic areas that aim to intensify the nation's startup ecosystem through collaboration.

The framework is intended to make Malaysia the startup destination for Asian countries and its key focus is to build at least five unicorns by 2025. Towards this, the government is identifying at least 20 companies that can be assisted to become lodestars for other startups. In line with this initiative, the government has committed to reviewing the business environment to make urgent improvements to the satisfaction of startup founders and financiers. As a start, Malaysia is encouraging talent flow into the country as well as funding. In the case of talent, Malaysia has developed a startup visa for talent and a startup visa for investors.[182]

Malaysia provides useful lessons for Africa. The effort to build a nationwide broadband infrastructure and implement digital literacy programs is a good foundation for startups. With a market as small as many African countries (50 million population), Malaysia is encouraging foreign startups to launch in Malaysia to serve the world.

The Brazilian startup ecosystem is highly dynamic, vibrant, and fast maturing evidenced by remarkable growth in the number of startups, funding rounds, and investments in recent years.

4.3 Brazil

The Brazilian startup ecosystem is highly dynamic, vibrant, and fast maturing evidenced by remarkable growth in the number of startups, funding rounds, and investments in recent years. It hosts 17 unicorn companies – compared to none in 2018[183] – and currently ranks 26 in the world.[184] Despite the challenges of the COVID-19 pandemic, Brazilian startups raised US$10b in VC funding in 2021 across a wide range of sectors including fintech, retail, real estate, edtech, agritech, healthtech, games and deep tech.[185] The Brazilian Startups Association reports that almost half of the country's startups (46%) emerged after 2020.[186]

The country's growth is driven by a large and growing population, strong entrepreneurial culture, and mindset, which fosters creativity, resilience, and risk-taking among Brazilian entrepreneurs A high percentage of the population is involved in forming new businesses and, as a result,

[181]MOST (2020), Malaysia Startup Ecosystem Roadmap (SUPER) 2021-2030, Putrajaya: Ministry of Science, Technology and Innovation.

[182]MOSTI (2021), "Malaysia Startup Ecosystem Roadmap 2021-2030: Supercharging the Way to Our Shared Future (Available at https://www.mosti.gov.my/wp-content/uploads/repository/penerbitan/2021/(SUPER)%20Malaysia%20Startup%20Ecosystem%20Roadmap%202021-2030.pdf Accessed April 10, 2023)

[183]Bruder, C. (2023), "Brazil in focus: Why is the startup ecosystem booming?" (Available at https://rio.websummit.com/blog/brazil-startup-ecosystem-investor. Accessed May 4, 2023).

[184]StartupBlink (2023) The Startup Ecosystem in Brazil (Available at https://www.startupblink.com/startup-ecosystem/brazil. Accessed May 4, 2023).

[185]LABS (2022) "It was a remarkable year: an overview of Brazil's startup ecosystem in 2021" (Available at https://labsnews.com/en/articles/business/brazils-startup-ecosystem-overview-2021-a-remarkable-year. Accessed May 4, 2023).

[186]Swissnex (2023), Expectations and challenges for startups in Brazil during 2023 (Available at https://swissnex.org/brazil/news/expectations-and-challenges-for-startups-in-brazil-during-2023. Accessed May 4, 2023).

the country ranks among the top five economies with the highest start-up rate in the world. The market for digital products and services is also significantly driven by the demand and consumption of more than 167 million internet users[187] and 120 million smartphone users.[188]

Government initiatives that have contributed to the development of the Brazilian startup ecosystem include InovAtiva Brasil (2020) and the Legal Framework for Startups of 2020[189] which was passed into law the following year to create a more favourable environment for startups and innovation. The law simplifies the legal status and taxation of startups and investors, creates regulatory sandboxes for testing new products and services, encourages corporate venture capital and crowdfunding platforms, protects minority shareholders and intellectual property rights, establishes mechanisms for resolving disputes, and facilitates exits.[190] Older programs, Start-Up Brasil, Finep Startup, Capital Empreendedor and the Startup Point Program, supported startups with funding, acceleration, mentoring, training, networking and access to investors helped to jump-start the sector. The new law is expected to have positive effects on the Brazilian startup ecosystem, increase the availability and diversity of funding sources, reduce the bureaucracy and costs of starting and running a business, enhance collaboration and competition among different actors, and stimulate the diffusion of knowledge and innovation.

US$10b

Despite the challenges of the COVID-19 pandemic, Brazilian startups raised US$10b in VC funding in 2021 across a wide range of sectors including fintech, retail, real estate, edtech, agritech, healthtech, games and deep tech. The Brazilian Startups Association reports that almost half of the country's startups (46%) emerged after 2020

Brazil's ecosystem benefits from a strong academic and research base which produces over 13,000 PhD graduates per year at more than 2,400 universities.[191] The availability and diversity of talent help Brazilian startups rapidly develop cutting-edge technologies and solutions. The ecosystem also enjoys the collaboration and support of different stakeholders, including government agencies, universities, accelerators, investors, and corporations.

Nonetheless, like Africa, the Brazilian startup ecosystem faces many challenges and barriers that limit its potential and competitiveness. Some of these include corruption, poor infrastructure due to the country's challenging terrain, low consumer awareness, restrictive regulations, and the dominance of large business groups or state monopolies in key economic sectors limiting the opportunities and incentives for innovation by startups.[192] Startups also face strong competition from North America and other emerging markets like India and China. Moreover, Brazil has a complex and costly tax system and a heavy regulatory environment which increases the operational costs and risks for startups. Due to these and other factors, VC funding has shrunken, amid capital shortages and declining valuations, and the country's global ecosystem position has dropped by 12 places since 2021 to 26, according to StartupBlink.

Nonetheless, like Africa, the Brazilian startup ecosystem faces many challenges and barriers that limit its potential and competitiveness. Some of these include corruption, poor infrastructure due to the country's challenging terrain, low consumer awareness, restrictive regulations, and the dominance of large business groups or state monopolies in key economic sectors limiting the opportunities and incentives for innovation by startups.

[187]Statista (2023) Internet usage in Brazil - Statistics & Facts (Available at https://www.statista.com/topics/2045/internet-usage-in-brazil. Accessed May 4, 2023).

[188]DataReportal (2021), DIGITAL 2021: BRAZIL (Available at https://datareportal.com/reports/digital-2021-brazil. Accessed May 4, 2023).

[189]Gov.BR (2022) Brazil's Legal Framework for Startups (Available at https://www.gov.br/en/government-of-brazil/latest-news/2022/startups. Accessed May 4, 2023).

[190]Garcia, S. O. (2022). "The Brazilian Startup Ecosystem and the Potential Effects of Regulatory Sandboxes for Fintech Companies," (Available at https://repository.upenn.edu/joseph_wharton_scholars/138. Accessed May 4, 2023).

[191]FindPhD (2023), PhD Study in Brazil – A Guide for 2023 (Available at https://www.findaphd.com/guides/phd-study-in-brazil. Accessed May 4, 2023).

[192]Startup Universal (2020) Brazil Startup Ecosystem Summary (Available at https://startupuniversal.com/country/brazil. Accessed May 4, 2023).

4.4 Colombia

Colombia is a vibrant and active startup community with many events, programs, initiatives, and networks that advance innovation and entrepreneurship. Currently ranked 44th among the top startup ecosystems in the world,[193] the country's startups secured US$1.4b in investments in 2021, an increase of 140% compared to the previous year.[194] Though fintech is the dominant sector, startups offer solutions to local and regional problems in other sectors e.g., e-commerce, healthtech, agritech, edtech, logistics, and energy. Colombia has 3 unicorns as of 2022.

Colombia is also a large and diverse country with different regional characteristics and preferences which makes it hard for startups to know and easily reach their potential customers and partners in other areas of the country.

The ecosystem benefits from the contributions of different stakeholders, such as government agencies, universities, accelerators, incubators, investors, and corporations. For example, in contrast to other nations, Colombia's startup ecosystems are distinguished by the active engagement of chambers of commerce in supporting digital entrepreneurship and innovation at the national and local levels.

US$1.4b

Currently ranked 44th among the top startup ecosystems in the world, the country's startups secured US$1.4b in investments in 2021, an increase of 140% compared to the previous year.

Growth is being driven by the entrepreneurial culture of the population, a large domestic market (about 50 million people with more than 35 million internet users or 69% of the population[195]), talent availability and diversity, and government policies that stimulate a favourable investment climate. Innpulsa Colombia, a government agency under the Ministry of Commerce, Industry and Tourism promotes innovation and entrepreneurship through various programs and services that include mentoring, training, networking, funding, and access to markets for startups and SMEs. Two other groups supported by the government, Ruta N and INNPulsa, promote the growth of early-stage companies, and startups through education, networking opportunities, grants, and potential funding promotion, among other activities.[196] In 2020, the government created a US38m fund of funds for startups and set up a specialized, high-level committee with a mandate to train 100,000 young people and children in software programming.[197]

Nonetheless, the ecosystem is constrained by a complex tax system which places a high compliance burden on smaller businesses, a heavy and bureaucratic regulatory environment, and a shortage of skilled digital workers in some fields. Colombia is also a large and diverse country with different regional characteristics and preferences which makes it hard for startups to know and easily reach their potential customers and partners in other areas of the country. Moreover, the country still suffers from the effects of violence, insecurity and political instability issues that have plagued its history, although the situation has improved in recent years.

[193]StartupBlink (2023) The Startup Ecosystem of Colombia (Available at https://www.startupblink.com/startup-ecosystem/colombia. Accessed May 6, 2023).

[194]Crunchbase (2022), Venture Capital Investors with Investments in Colombia https://www.crunchbase.com/hub/venture-capital-investors-investments-in-colombia- Accessed May 6, 2023).

[195]DataReportal (2023), DIGITAL 2022: COLOMBIA (Available at https://datareportal.com/reports/digital-2022-colombia. Accessed May 6, 2023).

[196]Startup Universal (2020), Colombia Startup Ecosystem Overview: Latin America's Most Viable Market for Startups? (Available at https://startupuniversal.com/colombia-startup-ecosystem-overview. Accessed May 6, 2023).

[197]Lopez, M. (2020), "Colombia is building dream team of entrepreneurs for tech and startups committee" (Available at https://contxto.com/en/colombia/colombia-startup-ecosystem-special-committee. Accessed May 6, 2023).

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CHAPTER FIVE:

ENLARGING THE DIGITAL STARTUP ECOSYSTEM

This section explores how to expand the African digital startup ecosystem, which economic sectors have potential, how to help MSMEs and the informal sector go digital, and how countries can grow their ecosystems by making crucial cross-border connections.

From our research, we have identified three steps that African countries can take to improve and expand their startup ecosystems. One step is to increase the sectors that involve startups, prioritizing Fintech because of its multiplier impacts. The second is to create active linkages with the more developed ecosystems and economies on the continent. The last step is to digitalize MSMEs and the informal sector to boost the number, business performance, and economic contribution of startups. We elaborate on each of these steps in this section.

US$1.4b

Fintech in Africa is the fastest-growing start-up sector on the continent with publicly-disclosed VC investments of US$1.4b in 2022 and estimated yearly revenues of over US$4b. Fintech startups provide access to financial services by creating digital solutions that simplify complex banking services at lower costs.

5.1 Promising Economic Sectors

The African continent has many economic sectors that are ready for innovation and digital transformation arising from emerging technologies and increasing levels of infrastructure development. Currently, some of the most attractive sectors for early-stage investors are Fintech or Digital Financial Services, Healthtech, Agritech and Edtech.

5.1.1 Fintech

Fintech in Africa is the fastest-growing start-up sector on the continent with publicly-disclosed VC investments of US$1.4b in 2022[198] and estimated yearly revenues of over US$4b.[199] Fintech startups provide access to financial services by creating digital solutions that simplify complex banking services at lower costs. They are extending the boundary of financial services by digitizing and 'democratising' Peer-to-Peer (P2P) transfers in countries where interbank transfers have been hitherto electronically impossible. They design their solutions for the financially excluded. They are also establishing interoperability among financial institutions and third-party settlement gateways, either on their own or in collaboration with other operators. Other digital finance services on offer throughout the more developed ecosystems on the continent include funds transfers, lending, bills payment, remittances, insurtech, investments, and API integration services, to name a few.

In our research we found that the most developed startup ecosystems in Africa have a common feature: they are led by Fintech. Fintech has multiplier effects across different sectors in Africa as it enables other startups in health tech, edtech, agritech, and so on to offer digital financial services and payments for their online products and services. Without digital payments, businesses in the digital economy would struggle to collect revenues. Also, common to the more advanced startup ecosystems in Africa is a tech-friendly, progressive, and dynamic central bank. In the leading countries. Financial regulators have moved beyond the initial tensions with telecom regulators over control of digital financial services and are said to be more open than in previous years. The central banks of the top-rated countries are moving faster in the direction of creating an enabling environment for Fintech innovation specifically, and tech startups in general, though respondents still allude to the presence of residual bureaucracy in these countries. This trend is a major distinction between leading and lagging countries in the African tech startup sector and is backed up by the latest empirical data. According to Disrupt Africa, 49% of new investments in 2022 were made into fintech startups.[200] Thus, without a liberal financial regulator[201] the chances for a nation to broadly develop its tech startup ecosystem range from remote to impossible.

[198]Disrupt Africa (2023), The African Tech Startups Funding Report, Nairobi: Disrupt Africa.

[199]McKinsey (2022), Fintech in Africa: The End of the Beginning, London: McKinsey.

[200]Disrupt Africa (2023), The African Tech Startups Funding Report, Nairobi: Disrupt Africa.

[201]There is no definitive ranking of African central banks by a single authority.

Fintech's rise in Africa is primarily driven by the sheer inability of traditional banks to understand how to deliver digital products and services to digitally savvy (and increasingly demanding) consumers. In addition, respondents say banks follow strict rules that prevent them from making VC investments in startups – Venture Capital is the main route that startups are getting funding. Moreover, African Fintech players often operate on the borders of regulatory coverage but central banks, which used to be quite strict with enforcing rules, are said to have become more open and willing to work with the tech industry to promote innovation and financial inclusion. Some African countries have gone further to set up sandboxes as a different way of regulating new digital products before they are launched (Table 8). This means that an operator who wants to offer a P2P lending product, for instance, can test it within the secure and supervised environment of a sandbox to understand how to manage any future risk.

Table 8: Digital financial services regulation in study countries.

Country	Launch of Digital Financial Services Regulation	Launch of Regulatory Sandbox on Fintech Innovation
Nigeria[202]	2012	2018
Ghana[203]	2012	2019
Senegal[204]	2020	2022
Kenya	2007[205]	2019[206]
South Africa	2002[207]	2020[208]
Zambia	2017[209]	2021[210]

Source: Fola Odufuwa & Muriuki Mureithi.

However, this trend can only be found in the more developed ecosystems, though sandboxes have also been set up in Mozambique, Rwanda, Mauritius, and Sierra Leone.[211]

Fintech's rise in Africa is primarily driven by the sheer inability of traditional banks to understand how to deliver digital products and services to digitally savvy (and increasingly demanding) consumers.

[202]CBN (2022), Update on The Digital Financial Services (DFS) Awareness Guidelines by the Consumer Protection Department, Abuja: Central Bank of Nigeria.

[203]BoG (2021), The Evolution of Bank of Ghana Policies on the Ghanaian Payment System, Accra: Bank of Ghana.

[204]BCEAO (2022), Évolution Des Services Financiers Numériques dans L'UEMOA Au Titre de L'année 2021 Rapport Annuel, Dakar : Central Bank of West African States.

[205]ITU (2021) Keynote Address by the Director General Communications Authority of Kenya during the Workshop on Digital Financial Services & Financial Inclusion at the ITU in Geneva, Switzerland (Available at https://www.itu.int/en/ITU-T/Workshops-and-Seminars/ifds/Documents/Keynote-Francis-Wangusi.docx Accessed April 18, 2023).

[206]CGAP (2016) "Kenya Ends Hidden Costs for Digital Financial Services" (Available at https://www.cgap.org/blog/kenya-ends-hidden-costs-for-digital-financial-services. Accessed April 18, 2023).

[207]SAFRJ (2021) First-step analysis: fintech regulation in South Africa (Available at https://financialregulationjournal.co.za/2021/05/14/first-step-analysis-fintech-regulation-in-south-africa/ Accessed April 18, 2023).

[208]IFWG (2021) Regulatory Sandbox (Available at https://www.ifwg.co.za/Pages/Regulatory-Sandbox.aspx. Accessed April 18, 2023).

[209](BoZ) (2017) National Financial Inclusion Strategy 2017-2022 (Available at https://www.boz.zm/National-Financial-Inclusion-Strategy-2017-2022.pdf Accessed April 18, 2023).

[210]BoZ (2021) Regulatory Sandbox (Available at https://www.boz.zm/regulatory-sandbox.htm Accessed April 18, 2023).

[211]Empower Africa (2021) Regulatory Sandboxes in Africa (Available at https://empowerafrica.com/regulatory-sandboxes-in-africa. Accessed April 18, 2023).

In countries with modest or negligible startup activity, the Fintech sector faces many more significant hurdles, challenges and risks reflected through retrogressive regulatory systems, cybersecurity threats, infrastructure gaps, talent shortages, and poor stakeholder coordination. Though there are 131 fintech startups in Francophone West Africa,[212] a region in which fintech regulations are controlled by the Central Bank of West African States (BCEAO), it is difficult to obtain a license and, as such, there are only 4 licensed fintech operators in Senegal.[213] Furthermore, Senegal's Wave is the first (and so far, only) fintech licensed by BCEAO to offer mobile money transfers, bill payments, and merchant payments across multiple WAEMU countries.[214]

Though Senegalese startups continue to receive VC funding, key informants are adamant that the regulation of the financial sector is fraught with "hills and cliffs" and that the market is not as open as it initially appears to an outsider. Political patronage is rife. "When you're not in *the* circle, you'll have nothing. Without a relationship [with a power broker], you'll get nothing" – Senegalese founder. The regulator is presently developing a digital financial services framework and set up a Fintech Committee in 2020 and a WAEMU FinTech Knowledge and Monitoring Office in 2022 to promote innovation and the emergence of fintech players through collaboration with industry.[215]

480

Presently, at least 480 healthtech startups are operating across Africa as of September 2022 with a concentration in the more developed ecosystems. Only 12 of the 53 African e-health startups that raised a total of US$145.6m in 2022 are from other countries besides Egypt (13), South Africa (12), Nigeria (8), and Kenya (7).

The sector is also likely going to benefit from the ongoing implementation of the Pan-African Payment & Settlement System (PAPSS). PAPSS is a digital platform for intra-African payments delivered instantly and in local currency that was set up in 2022 by Afreximbank with the backing of the African Union and the AfCFTA. The system significantly reduces transaction costs and exchange rate risks and is currently operational with over 60 commercial banks in Nigeria, Ghana, The Gambia, Liberia, Sierra Leone, and Guinea. PAPSS is also being deployed in Zimbabwe, Zambia, and Djibouti where the central banks have joined the system.[216] PAPISS may assist in breaking down the difficulty that startups face with transborder payments. "We need something like the EU Payment System across Africa. The infrastructure deficit must be plugged in. We need to start now" – Nigerian startup founder.

5.1.2 Health

Like Fintech, though to lesser degrees, the African healthtech startup sector is booming due to the mounting demand for accessible and affordable healthcare solutions by Africans and the increased opportunities presented by the Covid-19 pandemic. Presently, at least 480 healthtech startups are operating across Africa as of September 2022[217] with a concentration in the more developed ecosystems. Only 12 of the 53 African e-health startups that raised a total of US$145.6m in 2022 are from other countries besides Egypt (13), South Africa (12), Nigeria (8), and Kenya (7).[218] Some of the better-known African healthtech startups include mPharma (Ghana), LifeQ (South Africa), Reliance Health (Nigeria), Zipline (Rwanda & Ghana), Vezeeta (Egypt) and Helium Health (Nigeria), to list a few.

[212]BCEAO (2023), FinTech and digitalization of Financial Services in WAEMU (Available at https://www.bceao.int/fr/content/fintech-et-digitalisation-des-services-financiers-dans-luemoa. Accessed April 18, 2023).

[213]BCEAO (2022), Évolution Des Services Financiers Numériques dans L'UEMOA Au Titre de L'année 2021 Rapport nnuel, Dakar : Central Bank of West African States.

[214]FindDev (2022), "Wave Mobile Money Becomes the First Fintech Operating in Multiple WAEMU" (Available at https://www.findevgateway.org/news/wave-mobile-money-becomes-first-fintech-operating-multiple-waemu-countries-get-e-money-license. Accessed April 18, 2023).

[215]BCEAO (2023), Opening of the FinTech Knowledge and Monitoring Office (BSCF) (Available at https://www.bceao.int/fr/communique-presse/ouverture-du-bureau-de-connaissance-et-de-suivi-des-fintech-bscf. Accessed April 19, 2023)

[216]Internal communication between the authors and senior PAPSS executives.

[217]Statista (2023) Number of funded e-health startups in Africa from 2015 to 2021 (Available at https://www.statista.com/statistics/1279486/number-of-e-health-startups-that-raised-funding-in-africa. Accessed April 26, 2023).

[218]Disrupt Africa (2023), The African Tech Startups Funding Report, Nairobi: Disrupt Africa.

Health tech startups are providing better, cheaper, and faster solutions for different health problems in areas like prevention, diagnosis, treatment, medication adherence, data management, telemedicine, vaccine delivery, health insurance, data management and wellness. Innovation collaboration is also thriving across the entire health sector in emerging technologies including genetics, wearables, and responsible AI-enabled healthcare solutions. Like other sectors, African healthtech startups have learned how to innovate for the local context and needs of Africans and their solutions are usually easy to use, suitable for the culture and environment, and affordable for most people.[219]

Health tech startups are providing better, cheaper, and faster solutions for different health problems in areas like prevention, diagnosis, treatment, medication adherence, data management, telemedicine, vaccine delivery, health insurance, data management and wellness.

However, one major problem being faced by African healthtech startups is the inadequacy of governance and regulatory frameworks which stifles innovation and hampers growth.[220] Moreover, unlike most Fintech operators, healthtech startups have to build offline touchpoints to deliver digital solutions to users.[221] This is where the parlous state of the continent's healthcare infrastructure[222] affects them the most as they have to deal with the poor state of digitalization of the sector as well as limited access to electricity, water, internet, and other basic amenities that they need for their solutions.[223] They also have to contend with unproven business models,[224] the lack of interoperability within the health industry, and the shortage of qualified medical personnel and skilled healthcare workers who know how to use technology to provide quality care.[225] Externally, they have to find ways to overcome low digital literacy and awareness of the populace that results in a lack of trust and misinformation; pricing and affordability that leads to low adoption,[226] problems in supply chains and distribution systems,[227] and competition.

However, one major problem being faced by African healthtech startups is the inadequacy of governance and regulatory frameworks which stifles innovation and hampers growth. Moreover, unlike most Fintech operators, healthtech startups have to build offline touchpoints to deliver digital solutions to users.

Despite these challenges, the African healthtech sector is poised for further expansion in the coming years[228] as demand for digital health solutions increases and opportunities for regional collaboration rise when the continent's Digital Single Market under the AfCFTA arrangement gets fully implemented.

[219]TechCabal (2022) "The Next Wave: Can healthtech prepare Africa for another global health crisis?" (Available at https://techcabal.com/2022/04/25/the-next-wave-can-healthtech-prepare-africa-for-another-global-health-crisis. Accessed April 26, 2023).

[220]BaoBab Network (2021), VC-Backed HealthTech in Africa – H2 2020 to H1 2021 (Available at https://insights.thebaobabnetwork.com/africa-healthtech-2021-technology-market-map. Accessed April 26, 2023).

[221]Newtown Partners (2023), Healthtech in Africa: Technology is Not Enough (Available at https://www.newtownpartners.com/healthtech-in-africa. Accessed April 26, 2023).

[222]Knight Frank (2020), Healthcare in Africa, London: Knight Frank.

[223]AHTS (2023), AHTS INAUGURAL EDITION REPORT: Digitalization – Towards Universal Quality Care and Resilient Health Systems, Kigali: Africa Healthtech Summit Secretariat.

[224]TechPoint (2023), COVID-19 brought a surge in African healthtech innovation, but how viable are the startups now? (Available at https://techpoint.africa/2023/01/16/covid19-viable-african-healthtech-startups. Accessed April 26, 2023).

[225]Coker, T. (2023), Investing in African Health Tech - In Search of the Perfect Unicorn? (Available at https://www.tchealthng.com/thought-pieces/investing-in-african-health-tech-in-search-of-the-perfect-unicorn. Accessed April 26, 2023).

[226]Onaleye, T., (2023), Healthtech rise follows the path laid by Fintech's boom in Africa (Available at https://www.linkedin.com/pulse/healthtech-rise-follows-path-laid-fintechs-boom-africa-bantaba. Accessed April 26, 2023).

[227]Gavi (2022) The Necessary Rise of Africa's Health Tech (Available at https://www.gavi.org/vaccineswork/necessary-rise-africas-health-tech. Accessed April 26, 2023).

[228]Nairobi Garage (2023), Great Funding Opportunities for Health Tech Companies in Africa (Available at https://nairobigarage.com/funding-for-health-tech-companies-in-africa. Accessed April 26, 2023).

5.1.3 Agritech

Agriculture is an important sector in Africa and is key to achieving food security and reducing poverty. It employs about two-thirds of the continent's working population and contributes an average of 30 to 60 per cent of the Gross Domestic Product and about 30 per cent of the value of exports.[229] Confined to subsistence farming and with the increasing population and the impact of climate change, the capacity for Africa to achieve food security is increasingly being affected.

Several challenges need to be addressed to increase productivity and promote sustainable development. These include technological innovation, land reforms, irrigation, climate change, trade, value chains and the gender gap in resource access. The decline in farm size is also a major problem that the sector faces. The average farm size in Africa is decreasing due to land fragmentation caused by population growth, inheritance practices, and urbanization. Smaller farms are less productive and less profitable resulting in reduced food security and increased poverty,[230] and it is becoming harder for African farmers to produce enough food for everyone. Additionally, climate change is making efforts at agricultural development more challenging. Weather patterns are becoming less auspicious in many instances, increasing the volatility of crop and livestock yields.[231] The frequency and severity of extreme events are increasing as temperatures continue to rise and rainfall patterns are expected to shift more than ever before.

4.4%

According to a report, the African agritech space received US$95,101,000 in 2021 or 4.4% of total funding for African tech startups, though this was a 58.5% increase from US$59,990,000 (8.6% of total) injected into the sector in 2020.

This is the context of agritech in providing the digital solutions agriculture in Africa needs for it to become the most important economic activity. Agritech is transforming traditional agriculture by providing farmers with access to data, markets, and finance. This allows farmers to increase their productivity and profitability in a low-cost and efficient manner which results in higher food productivity, food security, and financial inclusion.

There are many agritech startups providing solutions in Africa. These startups are providing technological solutions to problems faced in the agricultural sector with ultra-modern technologies like drones, automated irrigation systems, and soil sensors, among others. These new enterprises are also setting up digital systems to help farmers access markets, inputs, insurance, financing, and knowledge to boost productivity. Despite being the most important economic activity, investment in agritech solutions underperforms other sectors. According to a report, the African agritech space received US$95,101,000 in 2021 or 4.4% of total funding for African tech startups, though this was a 58.5% increase from US$59,990,000 (8.6% of total) injected into the sector in 2020.[232]

It is not easy for agritech startups in Africa to design and deliver their products and services to farmers. Many smallholder farmers have low education levels and rely on the old, traditional ways of farming that they learned from their ancestors. They also tend to speak different local languages which makes it hard for them to communicate with digital entrepreneurs. However, there are different ways to help agritech in Africa. Investing in agritech startups and giving them the resources to expand and scale is one way. Another is by supporting research and development to drive innovation and increase productivity. Also, assisting farmers to learn and train on new technologies and farming methods can help them adopt innovative technologies to improve their farming practices.

Startup investors may avoid agritech because its ability to scale is affected by trans-frontier challenges in order fulfilment, distribution logistics, and complex regulations across jurisdictions. Governments can intervene to prioritize agritech funding by addressing cross-border challenges, to cite one instance. The Africa Continental Free Trade Area (AfCFTA) and ongoing Phase III negotiations provide a framework to address agritech startup operations.

[229]Brittanica (2023) Agriculture of Africa (Available at https://www.britannica.com/place/Africa/Agriculture)
[230]Ritchie, H. & Roser, M. (2022) - "Farm Size and Productivity". (Available at https://ourworldindata.org/farm-size. Accessed April 26, 2023).)
[231]McKinsey (2020), "How will African farmers adjust to changing patterns of precipitation?" (Available at https://www.mckinsey.com/capabilities/sustainability/our-insights/how-will-african-farmers-adjust-to-changing-patterns-of-precipitation. Accessed April 26, 2023).
[232]Ventures Africa (2022) African Agritech Funding for the first half of 2022 (Available at https://venturesafrica.com/african-agritech-funding-for-the-first-half-of-2022. Accessed March 18, 2023).

5.1.4 Edtech

Many Africans lack access to high-quality education and subsequently have low levels of education. Edtech startups are attempting to address these issues and generate possibilities by leveraging digital technologies. African edtech businesses are improving education by delivering digital content in the fields of Science, Technology, Engineering, Arts, and Mathematics. They provide online, offline, and low-bandwidth solutions to students and teachers. Kenya's Elimu, for example, is a leading digital educational provider in East Africa, offering literacy apps for reading fluency.[233] Notwithstanding their efforts, Edtech ranks lower in the startup ecosystem. It is 5th in VC funding after fintech, e-commerce, e-health, and logistics, attracting US$24.6m or 0.7% of Africa's total funding in 2022.[234] But these startups are still making and launching important solutions for education by providing digital solutions involving digital content, personalized training, and school management.

One of the main challenges is the decline in funding. The amount raised by Edtech startups in 2022 dropped by 69.6% over the previous year,[235] and most African countries do not have VC-funded Edtech players. Besides, VC funding is uneven and the current decline underscores the challenge of delivering education with technology across Africa. Table 9 shows the top 5 countries receiving funding in the education sector since 2018.

Table 9: Top countries in African Edtech.[236]

COUNTRY	AMOUNT (USD)
South Africa	$50,609,000
Nigeria	$11,805,000
Kenya	$4,460,000
Egypt	$2,167,000
Tunisia	$980,000

Source: Endeavor South Africa

69.6%

One of the main challenges is the decline in funding. The amount raised by Edtech startups in 2022 dropped by 69.6% over the previous year, and most African countries do not have VC-funded Edtech players.

Apart from funding, Edtech startups in Africa also face many other challenges. These include a fragmented market of 54 countries, low consumer purchasing power, complex and inconsistent regulations, inadequate data communications infrastructure, and scarcity of digital talent. Fragmented markets make it difficult for startups to scale and expand their operations across the continent as each African country has its own unique set of regulations, languages, and cultural norms that startups must navigate to enter and successfully operate in the market.

Low consumer purchasing power is another challenge faced by Edtech startups in Africa. Many consumers in Africa have limited disposable income which can make it difficult for startups to generate revenue when charging for their products or services. This can also limit the ability of startups to invest in research and development, marketing, and other activities that are necessary for success.

Yet the challenges can be surmounted. One way is through corporate partnerships with large corporations that already have the means and assets needed to overcome the region's structural challenges. African corporations have the expertise needed to navigate complex

[233]Nairobi Garage (2022), Top 10 Edtech Platforms Changing the Face of Edtech in Kenya (Available at https://nairobigarage.com/edtech-platforms-impacting-education-in-kenya. Accessed May 15, 2023).

[234]Disrupt Africa (2023), The African Tech Startups Funding Report, Nairobi: Disrupt Africa.

[235]TechCabal (2023) "Africa's edtech startups remain bullish despite funding decline" (Available at https://techcabal.com/2023/03/04/edtech-startups-africa. Accessed May 15, 2023).

[236]Endeavor SA (2021), Most Funded EdTech Companies in Africa (Available at https://endeavor.co.za/2021/06/most-funded-edtech-companies-in-africa. Accessed May 15, 2023).

regulatory environments and create a presence in multiple markets. In addition, African governments can improve the regulatory environment so that countries can better cultivate hospitable investment ecosystems for startups and venture capitalists.

To use technology to help people learn faster, reduce the number of people who cannot read or write, and develop digital skills, Africa needs to focus on closing the gaps in hard infrastructure (such as the internet, devices, and software), soft infrastructure (such as teacher skills, student skills and parental support), and the logistical and administrative systems that underpin the continent's tech architecture.[237]

5.2 Creating Linkages with More Developed Economies & Ecosystems

83%

In Southern Africa, informal MSMEs average 83% and represent nearly all enterprises in Tanzania (99.5%), Malawi (98.0%), Zambia (97.0%) and 87.0% of all businesses in Lesotho.

Startups in Egypt, Kenya, South Africa, and Nigeria, the top four startup ecosystems in Africa, are increasingly collaborating to expand their operations, acquire other players and explore new opportunities. Meanwhile, startups in countries with moderate ecosystems like Ghana, Senegal, and Cote d'Ivoire are also looking to connect with these more mature ecosystems as well as with each other. However, countries in the Tier 3 band are struggling to establish these kinds of connections and are lagging further behind. Based on stakeholder interactions, although there is not enough data to draw firm conclusions, it seems that a lagging country's

startup ecosystem can benefit from connections with more advanced ecosystems on the continent. The African startup ecosystem can benefit greatly by forging active links with the continent's more developed ecosystems and economies.

5.3 MSME Digitalization & the Startup Ecosystem

How can African countries expand the startup ecosystem? A relatively simple way is to work with African tech founders, VC firms, development partners and ministries responsible for the tech sector to digitalize MSMEs and the informal sector to boost the number, business performance, and economic contribution of startups. This step should also help to drastically reduce the high levels of MSME informalization in Africa.

In Southern Africa, informal MSMEs average 83% and represent nearly all enterprises in Tanzania (99.5%), Malawi (98.0%), Zambia (97.0%) and 87.0% of all businesses in Lesotho.[238] MSMEs usually face tough conditions and business environments due to their smaller sizes and limited scalability. Many of these smaller enterprises are also part of the informal sector, which makes it harder for them to digitalize or even go as far as joining the Digital Single Market that is being implemented under the AfCFTA arrangements. A United Nations report states that African countries have adequate resources to develop and digitalize the MSME sector but policymakers are lacking in a "consciousness of the benefits", the determination to take necessary steps to claw into those benefits, and the openness to collaborate.[239]

[237]World Bank (2023), Digital Technologies in Education (Available at https://www.worldbank.org/en/topic/edutech. Accessed May 15, 2023).

[238]ECA (2020), Strategies and Policies for the Integration of Micro, Small and Medium-Sized Enterprises into the Industrialization Process in Southern Africa, Addis Ababa: United Nations Economic Commission for Africa.

[239]Odufuwa, F. (2023), The Role of Digitalization in Strengthening Capacities of Micro, Small and Medium-size Enterprises (MSMEs) in Southern Africa to Take Advantage of the AfCFTA, Addis Ababa: United Nations Economic Commission for Africa.

Startups that are working to modernize and digitize MSMEs and the informal sector in Africa are increasing in number and can help with policy-making and execution (Box 6).

Box 6: Selected case studies of startups that are helping MSMEs and the informal sector with digitalization.

TradeDepot Nigeria is a B2B e-commerce platform that connects small shops, kiosks, and retailers in West Africa with manufacturers and distributors of fast-moving consumer goods – foods, beverages, and personal care products – using mobile apps, USSD, and social media. The company claims it uses real-time trade data to assist its 40,000 micro-retailers to deliver their products to "the right retail stores at the right time"[240] and offers them micro-loans if needed. Since its 2016 launch, TradeDepot has raised US$123m in VC funding and presently operates in Nigeria, Ghana, Ivory Coast, and Senegal.[241]

ShopSoko Kenya is a digital manufacturing startup led by women that has secured US$8.3m in funding to create a manufacturing platform that links local, independent artisans to the global market.[242] The startup works with over 2,000 artisans in a distributed production model to make and sell African jewellery worldwide.[243] The site empowers artisans, whose sales were previously narrowly limited to local informal markets, with digital tools so they can automate production and gain access to international buyers in advanced economies. The company says it is working to develop the East African ethical jewellery supply chain and is said to have sold over 100,000 products valued at over US$800,000 since it commenced business.[244] Also, artisans in its virtual factory are said to make five times more income than their non-digital counterparts.[245]

Paymob Egypt is a fintech startup that provides digital payment solutions to online and offline businesses in the Middle East and Africa. Paymob works with MSMEs of all sizes in sectors such as e-commerce, retail, education, health, and transportation, helping to grow their businesses by providing them with a secure and efficient payment experience for their customers. Paymob also helps MSMEs to manage their finances, track their transactions, and access data and insights on their payments. The startup has raised over US$50m in VC funding from various investors and claims it serves over 170,000 merchants in Egypt, Kenya, Sudan, Palestine, and Pakistan where it operates.[246]

[240]TradeDepot (2023) Retail distribution made simple (Available at https://www.tradedepot.co. Accessed April 26, 2023).

[241]Crunchbase (2023), TradeDepot (Available at https://www.crunchbase.com/organization/tradedepot. Accessed April 26, 2023).

[242]Crunchbase (2023), Soko (Available at https://www.crunchbase.com/organization/soko. Accessed April 26, 2023).

[243]Yahoo News (2023) "Black Women-Owned Jewelry Lines That Prove We Were Made for Gold" (Available at https://news.yahoo.com/black-women-owned-jewelry-lines-114125096.html Accessed April 26, 2023).

[244]ECA (2017), Promoting Connectivity in Africa: The Role of Aid for Trade in Boosting intra-African Trade, Addis Ababa: United Nations Economic Commission for Africa.

[245]www.shopsoko.com/pages/about (Accessed April 26, 2023).

[246]LinkedIn (2023) Paymob (Available at https://www.linkedin.com/company/paymobcompany. Accessed at April 26, 2023).

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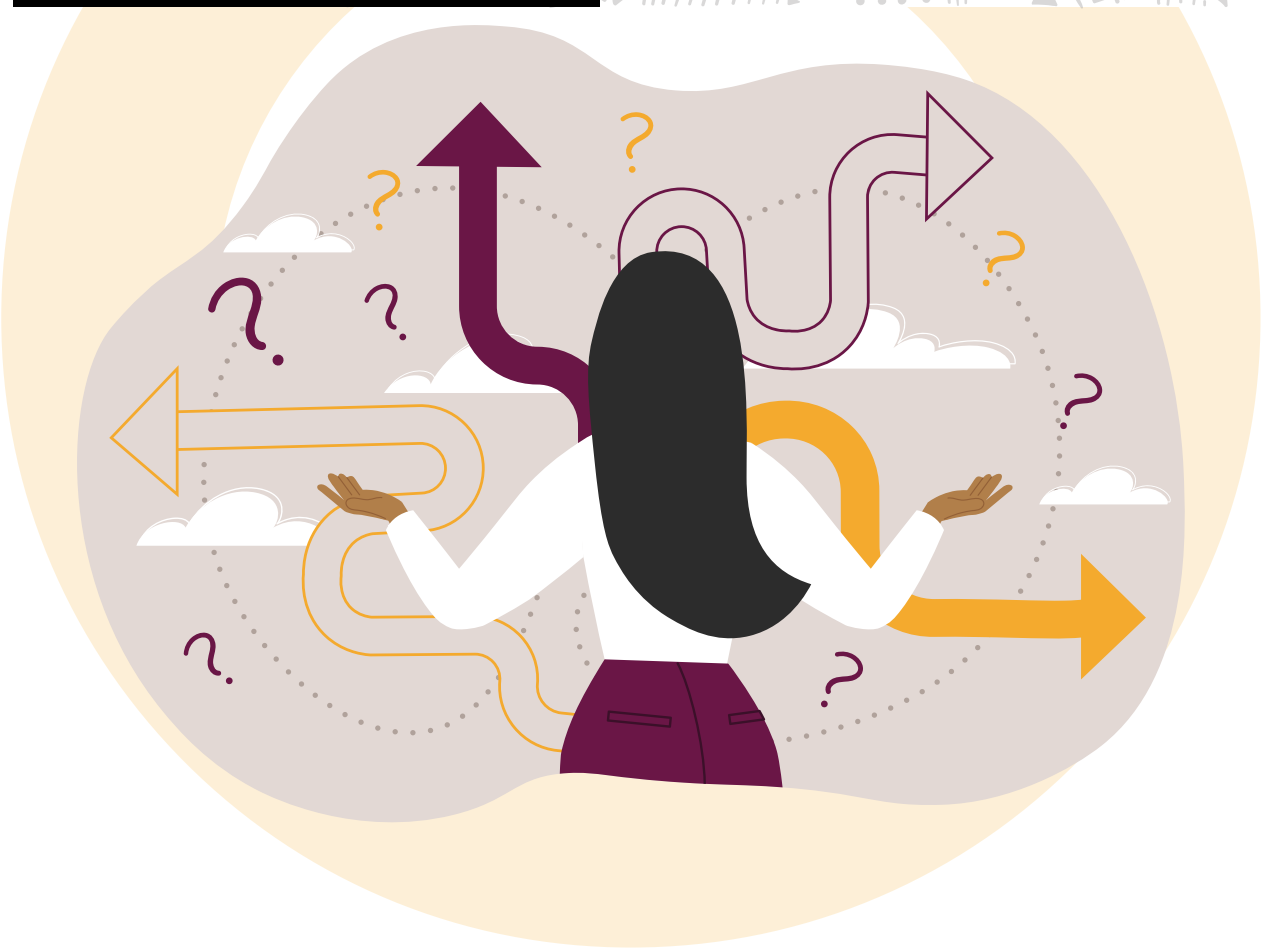

CHAPTER SIX:

SUMMARY OF LESSONS LEARNED - PATHWAYS TO THE FUTURE

6.1 Emerging Trends and Lessons for African Policymakers

Africa faces many challenges and opportunities in the global startup ecosystem, but it also has a huge potential to become a leader with its 55 countries. From a review of the African startup ecosystem supplemented by the benchmarked Asian and South American countries as we have carried out, there are some key lessons for African countries to consider in improving their startup ecosystems. These lessons are as follows:

1. There is an urgent need for vision, clarity of purpose, commitments, and implementation of institutional infrastructure to drive the startup ecosystem.

From discussions with stakeholders and the evidence gathered during this study, Africa is not producing enough startups either for its potential or to meet investor appetite, and stakeholders need to look beyond the 'veneer of success' of the record levels of VC funding currently flowing into the continent. Many key informants hold the view that "policymakers do not understand the startup ecosystem". One Ghanaian respondent says that "policymakers are trying to do things around the natural moneymaking aspects of the ecosystem without giving good thought to all the pertinent issues or having an appreciation for the deeper intricacies of how the ecosystem is set up and works". It is increasingly evident that policymakers and regulators in many markets have limited understanding of the sector and are generally "terrified of technology".

African nations must overcome this by establishing policies and regulations governing innovation and entrepreneurship, as well as a clear vision and strategy for supporting startups. Governments need to address macroeconomic issues in their respective countries to facilitate digital markets, give access to foreign exchange and improve the ease of doing business. Stable foreign exchange markets are critical, particularly for venture capitalists who are concerned about how they would exit even before they invest. While the venture may be performing well in local currency, it may not be in foreign exchange due to unfavourable regulations and rate volatility.

Africa faces many challenges and opportunities in the global startup ecosystem, but it also has a huge potential to become a leader with its 55 countries.

In addition, given the variety of challenges that African countries encounter, it is essential to identify specific issues or opportunities that startups should tackle and track their progress. Resources should be provided and funds allocated to incentivize startups, investors, academic institutions, and other stakeholders. Political authority to back the implementation of any institutional frameworks must also be in place., and a culture of collaboration and trust among different stakeholders deliberately encouraged.

> *"Find your niche as a country and use your competitiveness as bargaining chips. There is a pattern emerging in the West where cities put together a strong case to attract big tech and startup investments into their respective jurisdictions. Now, there is an ongoing tug-of-war between cities and countries seeking to get tech corporations to relocate" – African startup founder.*

2. Political leadership of Africa at the highest levels should embrace the challenge of driving the growth of the African startup ecosystem.

Though an argument can be made for a "whole-of-government" approach to the development of the startup ecosystem, this may not suit the African context which faces challenges such as entrenched forces and vested interests which often result in turf wars within the public sector. Moreover, the advanced ecosystems on the continent are developing without necessarily following a "whole-of-government" model. Nonetheless, political leadership at the highest levels, definitively the presidency, must lead the way by giving policy direction and actively engaging lower-level governance structures to create an enabling environment.

The unique needs of startups should be addressed at the national level by involving different layers and sectors of government in creating and implementing favourable policies and programs. Healthy competition and cooperation among different regions and cities should also be encouraged. Policymakers can encourage the spread of the dynamism of the digital economy and startup culture to smaller cities and rural areas by supporting local entrepreneurs

to roll out digital infrastructure and solutions. In other words, different levels of government need to compete in some areas and cooperate in others that are important for the country's development. This way, everyone is involved and focused on the national priorities. This approach also balances the needs and interests of different regions and cities with national priorities and goals.

To ensure that officials in charge of startup policies and regulations are knowledgeable about the demands and nuances of the industry, national governments must attract resources from the private sector to staff policymaking and regulatory bodies with expertise. "Policymakers should be drawn from the industry because the present crop does not have enough industry experience or expertise. Industry knowledge is critical for good policymaking" – Nigerian founder. Regulators need not be seen as putting obstacles in the way of innovation or dampening the speed at which founders can take their solutions to market. "Regulators should not be draconian. You don't have to shut down a startup that is found not to be paying taxes. If I'm being harassed for non-compliance, what's the incentive to comply?", asked a West African startup co-founder.

Some founders who operate in heavily regulated sectors such as digital financial services say that it simply takes "too long to get anything done" and that the opportunity they seek to exploit may "vanish" by the time they are cleared by the regulator to launch a new service. It is universally known that a startup's biggest advantage is speed but innovators in Africa often face heavy roadblocks navigating complex regulations (e.g., when applying for patents) and typically give up in the process or do not even bother trying at all. Hence, the regulatory regime as it impacts startups across Africa needs to be revamped and synergized. "Enough of the talk shop", said one founder.

African governments can stimulate a culture of entrepreneurship and risk-taking by reducing regulatory barriers, promoting education and mentorship, and celebrating success stories.

Startups may also need help to pivot to larger markets. For example, Dochase,[247] a Nigeria digital advertising platform that is currently serving some of the biggest startups in the country, hit a success milestone when it moved its business operations out of the northern town of Zaria to Lagos where the ad spending decisions of national corporations are made. uLessons[248] is based in Jos in Northern Nigeria but accesses wider markets by selling its edtech offerings to users in seven African countries.

Finally, policymakers need to find a way to incorporate startups into meeting Sustainable Development Goals (SDGs). Presently, startup founders are not interested in the SDG matrix and do not typically set up their ventures with development ambitions in mind. Besides, there is limited youth ownership or even input into youth-related policies. "How can you be discussing youth issues and not invite the youths themselves to discuss their problems? There is a need to engage directly with youths for any AU Startup Policy. This devolution is critical as youths cannot be represented except by themselves" – Senegalese founder.

3. Government support for innovation and digital entrepreneurship must be much stronger than it currently is.

African governments can stimulate a culture of entrepreneurship and risk-taking by reducing regulatory barriers, promoting education and mentorship, and celebrating success stories. As this report demonstrates, policymakers should open the Fintech sector to drive innovation across the ecosystem due to its multiplier impacts. For businesses to thrive in the digital economy digital payments must be enabled. Governments can provide funding, incentives, and infrastructure for startups and investors in different sectors and regions. They can also invest their funds to seed ideas to give comfort to early-stage investors like angels and venture capitalists involved in the ideation phase. For instance, startups can receive milestone grants to help them get their solutions off the ground. A Senegalese founder says he needs 10 new hands to extend incomes but can only afford 2 presently. He believes he will make more revenue if he has access to complementary (in-kind) resources and funding.

[247] https://www.dochase.com/

[248] https://ulesson.com/

Furthermore, governments need to identify and support key phases and sectors of the startup lifecycle that require unique attention and intervention, as well as attract the long-term interest of private investors. Policies to ease rental costs on office accommodation will be helpful. A founder had to give up his office space in Lagos because the new business was in conception and did not have sufficient cash flows to follow the startup lifecycle through. The problem of inadequate data sources and data quality also needs to be addressed. Creating an enabling environment covering the reduction in applicable import duties, levies and taxes would also be necessary. The evolution of startups depends on the government investing in the areas where there are pain points to reduce risk throughout the ecosystem.

4. Governments must encourage African pension funds and African venture capital to invest in startups and support them to scale as they desire.

African countries have to prioritize capital mobilization for the startup ecosystem and a favourable environment should be created for local and international venture capital firms to invest in African startups to foster a cycle of growth and innovation for both startups and investors. Africa needs to unleash capital flows from African institutional investors and corporates into startups especially as 58% of Limited Partners (LPs) of Africa-focused PEs that participated in a 2021 industry survey believe that a push to mobilize local capital will significantly benefit the ecosystem.[249] Policymakers must design "pull" policies and processes that ensure a fast-growing pipeline of startups and the emergence of robust exit structures. With increased exits, investors would re-invest their funds back into the market, thus increasing liquidity. All the countries that we benchmarked in this study provide financial assistance to startups during their early stages.

African countries have to prioritize capital mobilization for the startup ecosystem and a favourable environment should be created for local and international venture capital firms to invest in African startups to foster a cycle of growth and innovation for both startups and investors.

Two possible approaches could be to: (a) Pool government funds under programs such as Funds of Funds, and (b) Provide legal recognition for angels. A framework can be put in place to define who can be an angel investor and to incentivize alternative private funding by individuals and groups (e.g., with tax benefits).[250] Ongoing consultations on any startup bill should incorporate mechanisms to de-risk angel investments. Institutionalizing early-stage funding structures as an alternative investment option by establishing a certification and registration system for early-stage funding can also motivate other ecosystem partners.

Beyond the need to have African money invested in African startups, policymakers also need to brace up for such a time when there may be a contraction in foreign VC funding being pumped into tech startups. To illustrate this point: the flow of VC funding into African startups reduced by 57% during 1Q2023 compared to the same period for the previous year.[251] It is imprudent therefore to assume that the pace and scale of new investments will continue unabated and it is better to begin to prepare for any shake-up in the investment climate that may reduce foreign VC interest in African startups. In doing this, a key question that needs to be addressed through policy is: How can Africa prevent any future downturn in the startup investment systems presently benefiting the continent?

5. Governments can consider enacting startup legislation in addition to supportive policies and regulations that open the opportunity for startups to serve Africa through the AfCFTA arrangements. However, legislation must enable transnational collaborations and be periodically reviewed.

Africa needs to keep up with the changing needs and trends of the startup ecosystem. Going forward, the greatest opportunity for startups lies in playing in rapidly expanding markets across boundaries and the Africa Continental Free Trade Area (AfCFTA) provides an opportunity of

[249]AVCA (2021), 2021 African Private Equity Industry Survey, London: Africa Private Equity Association.

[250]DPIIT (2020). Evolution of Startup India: Capturing the 5-year Journey. Department of Promotion of Industry and Internal Trade, Ministry of Commerce and Industry. (Available at https://www.startupindia.gov.in. Accessed March 15, 2023).

[251]Disrupt Africa (2023), "African tech startup funding dramatically declines in Q1 2023" (Available at https://disrupt-africa.com/2023/04/03/african-tech-startup-funding-dramatically-declines-in-q1-2023/. Accessed April 26, 2023)

connecting them to 1.4 billion people. African startups should be primed towards addressing this huge potential. African markets are small and fragmented. It is therefore important that African governments, as they develop the legal framework for startups, incorporate support at an early stage for their startups to serve Africa and the world.

Presently, there are virtually no digital connections between African markets and there are no linkages between African startups and the AfCFTA in the governing documentation or implementation. As the implementation of the AfCFTA rests with each country's national AfCFTA implementation committees and not individuals or corporations, the onus is on party states to find ways to incorporate startups into the implementation of the continental free trade area. However, even this may not be sufficient given the size and scale of the challenge of regulatory harmonization and regional integration. Ecosystems which are presently highly fragmented need to be interconnected to gain the full benefits of the digital economy. The quest to create a digital single market may be unrealized except urgent and critical changes are made to the regulatory and operating environments in which African startups play.

To successfully participate in the digital single market, governments need to consider two things: One, as suggested by a Pan-African investor who participated in this study, they need to "generate a common policy framework or startup act for the continent that includes a friendly taxation regime or a single innovation law that encourages open source, blockchain, mutual recognition of licenses and employees, etc". Startups say they will be interested to see an African startup policy document that creates a single continental framework that covers startup-specific regulations such as intellectual property, trademarks, and patents, among others. Central to whatever policy is eventually drawn up would be youth engagement and creating awareness for more youths to know and participate in the ecosystem.

There is also a problem that needs to be addressed in any continental framework for startups, and that is the language barrier non-English speakers say they experience when having to compete for opportunities.

Secondly, they should review existing national laws to make sure they are consistent with the terms of AfCFTA. Nigeria's recent review of its laws found 26 of 378 laws in conflict with the AfCFTA.[252] Furthermore, policymakers should collaborate with other national governments and international organizations for cross-border connections and knowledge exchange among ecosystems. Current attempts at encouraging the scaling of startups are spotty and incoherent. Regional Economic Communities and the AfCFTA can create larger markets by digitally connecting small and fragmented markets. The AU and RECs must provide open market access across the whole continent. "No need for Africans to be suffering. We can bring so much value. Nations should stop seeing themselves as competitors", says a Ghanaian founder.

> *"There is no blanket action covering the entire continent, only ad hoc moves by nations that do not have any impact on even neighbouring countries. The scaling of startups should be developed as a continental wave. You shouldn't leave Nigeria to scale in Tanzania when you haven't 'conquered' Benin or Cameroun" – Senegalese tech executive.*

There is also a problem that needs to be addressed in any continental framework for startups, and that is the language barrier non-English speakers say they experience when having to compete for opportunities. Due to the Western nature of capital flows, most initiatives are carried out and processed in English which non-speakers consider discriminatory. A Senegalese founder asked, "If all the opportunities are in English, how can I have access?" The problem of language equity should be addressed. To compound this problem, there are relatively fewer France-based or French-speaking investors participating in the African startup ecosystem,[253] compared to English-speaking investors who are predominantly from the US and Europe.

[252]Guardian (2022), "Experts Validate Nigeria's Implementation Strategies to Maximise AfCFTA's Gains" (Available at https://guardian.ng/business-services/experts-validate-nigerias-implementation-strategies-to-maximise-afcftas-gains Accessed April 26, 2023).

[253]Quartz (2023), "Startups in Francophone Africa are on the rise" (Available at https://qz.com/startups-in-francophone-africa-are-on-the-rise-1850177531. Accessed April 25, 2023).

The African Union has put in place some recommendations on emerging technologies for regulators to adopt, though key informants are unanimous that the AU can do better to get continental agreements and policy recommendations implemented. The AU can promote the enactment of startup acts throughout the continent. Sectoral incentives such as tax holidays, guaranteed access to public markets, acceleration-style initiatives that feature startup mentoring and deep engagement, organising pan-African and regional events that bring founders and innovators together, creating startup funds, developing outsourcing opportunities for startups to exploit digital competencies, upskilling, etc would all be helpful. Nigeria, which embraced the ATU recommendation on LEO satellites and became Africa's first Starlink implementation in 2022, is an example of successful governmental action in this regard.

The AU can also assist to coordinate startup policy frameworks, facilitate the penetration of digital infrastructure, and harmonize short codes and numbering systems, among other important activities. Furthermore, AU can put pressure on governments to make it easier for startups to participate in public tenders. "In Senegal, MDAs sometimes insist that materials such as vehicles to be used in a public sector project should be owned and not just leased by the startup. For most startups, this is virtually impossible" – Senegalese startup founder.

6. Governments can do more to deepen the talent pool available to the startup ecosystem.

Many African founders say that most graduates are "half-baked" and need to be retrained as the disconnect between academia and industry is said to be huge. One startup founder says that "most agriculture graduates cannot handle a tractor". But this is not the only problem. In many countries, the competition for IT talent is fierce and developers on the continent are considered "nomads" due to a high rate of staff mobility. A Ghanaian founder says, "[Attracting and retaining IT staff] is a big challenge. It is a fickle market. Though the quality [of IT hands] is gradually improving, the demand pressure on talent especially from overseas enterprises who are looking for cheap labour in Africa is high." This is backed by empirical data – 38% of developers who participated in a 2021 Google survey work for overseas corporations and almost half (43%) acquired their coding skills for this very purpose.[254]

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Stakeholders are unanimous that Africa's educational curriculum needs to be strengthened from high school so the culture of entrepreneurship and innovation can be created and cultivated early on. "Educating the next generation is key and the curriculum must catch up [with modern times]. Once the mass population is grounded in STEM, it is easier and to be expected for innovation and startups to thrive" – African founder of UK-based biotech startup.

> *"Moving away from silos and focusing the curriculum on the boundaries of new knowledge by adding minors to majors as undergraduate courses is the norm now e.g., combining math with chemistry or biology with philosophy, etc. In the UK, innovation is being accelerated through DISCIPLINE HOPPING to eliminate silos of knowledge".*
>
> *"Think of coding for free at a massive scale. Incubators don't cost huge sums [to set up and run]. You don't need a huge infrastructure to get going. Small things like a government-sponsored summer-for-maths program even when streamed through YouTube teachers can go a long way in ensuring a country's digital transformation. LET MY PEOPLE CODE – this should be the new mantra of African governments as the new world is going to be software-driven" – Key informant.*

7. Financial regulators should design and implement alternative funding mechanisms

[254] Google (2021). Africa Developer Ecosystem 2021: Creating Opportunities and Building for the Future. Mountain View: Google.

like crowdfunding and satisfactory exit structures to strengthen the ecosystem.

Early-stage funding for startups is risky and funding is currently inadequate. African governments need to explore ways to promote crowdfunding. Crowdfunding is alternative financing for startups that complement bootstrapping and angel investors. Regulatory frameworks for crowdfunding can be developed with monitoring mechanisms to ensure transparency e.g., a national register of crowdfunding platforms. Two approaches to crowdfunding include incentivizing potential investors to contribute small amounts of money either in exchange for equity or for preferential access to the startup's products.

Crowdfunding is observed in Nigeria, Ghana and South Africa and is powered by platforms where information on the products and services of participating startups are shared. Such platforms target a large audience of investors notionally or globally but focus on Africans in the diaspora. They typically take a commission on investments funnelled into a startup. One such crowdfunding platform focuses on the South African market and is licenced by the financial authority, giving credence to the rising profile of crowdfunding on the continent.

On exits, this is a crucial stage in the lifecycle of a startup where founders take a definitive position on the future of the venture. This can take several options where the venture has been successful which culminates in a merger, acquisition, or an IPO on a stock exchange. Startups are risky businesses and they are not always successful. Data available for South Africa indicates that 60% of investor-led exits from 2017 to 2019 were unprofitable.[255] Some of the drivers motivating exit are investors who see this as an opportunity to recoup their investments. Some VCs may wait for up to eight years to recoup their investments. In other cases, founders also want to cash out and invest in other activities. Where a venture has not been successful, it may lead to dissolution or liquidation. Legal procedures can encumber dissolution or liquidation tying investors into a failed venture. India reviewed its liquidation procedures to remove venture liquidates as a barrier.

Startup founders are largely young (18 to 35 years) and are inspired to address challenges that they encounter in their daily lives. These experiences could take the form of mobility, accessing finance, or some other economic activity.

Successful exits validate the health of a startup pipeline and release funds to the investors and founders who often reinvest in the pipeline ensuring a continuous supply of startups to the ecosystem. At the same time, exits often become a signpost of inspiration for other startups. As indicated earlier, Malaysia is directly supporting five startups to unicorn status as an inspiration to other startups in the country.

8. **Governments should also review the hub space and formulate policies to facilitate a more balanced distribution of innovation hubs across the country to better reach potential innovators. Also, awareness of the ecosystem must be ramped up through national programs and initiatives.**

Startup founders are largely young (18 to 35 years) and are inspired to address challenges that they encounter in their daily lives. These experiences could take the form of mobility, accessing finance, or some other economic activity. Founders typically look for innovation hubs the moment they have ideas which are strong enough to develop a concept around. Hubs provide a critical space and define how a country can nurture startups and innovation. "Everyone goes to hubs because they give you a safe haven", says an investor. However, the challenge faced by founders in many countries is how to access these hubs. In urban areas, awareness about hubs is readily available and most have the infrastructure and tech communities that founders need. These support structures are however difficult to access for those in rural areas.

[255]SAVCA (2022), Venture Capital Industry Survey Covering the 2009-2021 Calendar Years. Johannesburg: South Africa Venture Capital and Private Equity Association.

But only a few African governments are making efforts to establish hubs. The Kenyan government has committed to building innovation hubs across the country in all the constituencies outside the major cities of Nairobi and Mombasa,[256] a move that is cascading to lower-level administrative units. Other stakeholders in the private sector, development partners, and NGOs have complimented this initiative.

South Africa is also another illustration of this with at least two institutions playing a crucial part. The Innovation Hub and Technology Innovation Agency (TIA) admits founders at the conception stage and works with them to structure and clarify their ideas. The Innovation Hub engages founders at its main hub in Pretoria or at satellite hubs in Gauteng province. Through its nationwide grassroots innovation program, the TIA encourages potential creators to step forward, choose workable concepts, and develop MVPs. The hub has also established innovation stations in collaboration with a few national colleges, providing innovators with resources to help them develop their ideas into MVPs.

India provides a framework for hubs to compete among themselves and receive points based on a preset matrix. This encourages hubs to continually review and improve their value proposition. Recent studies on African hubs indicate that they are going through serious difficulties and many that were pioneers are shutting down as external funding eases.

Finally, governments should organize events such as hackathons, competitions, and other forums that bring together various stakeholders who are helping to advance the ecosystem. Additionally, there should be a strong focus on hubs and incubators as key enablers of startup success. India has launched several initiatives to promote incubation centres, funding, mentorship, and infrastructure to incubators across the country.

Finally, governments should organize events such as hackathons, competitions, and other forums that bring together various stakeholders who are helping to advance the ecosystem.

6.2 Towards An African Startup Policy Document

Based on the discussions with founders, startup investors and other ecosystem stakeholders who participated in this study, a Pan-African startup framework may have the following features:

Issue	Proposed Elements of a Pan-African startup framework
Mutual Recognition	Legal documents obtained in one African jurisdiction are to be recognized as proof of the incorporation of a startup in another jurisdiction.
Information Sharing	A comprehensive and centralized source of information for founders and other startup actors connected to the AfCFTA is to be made available at both national and continental levels, where actors can find everything they need to know about the administrative procedures, market opportunities, and funding options in their countries and regions.
Regulatory Coherence	Startups should be able to scale across different countries without facing any policy obstacles, regulatory barriers, or excessive administrative hassles (red tape) that hinder their progress. These should be removed sector by sector.
Innovation Experimentation	Fostering innovation through continent-wide policy tools such as regulatory sandboxes in sectors where new ideas can be experimented with under the supervision of regulatory bodies.

[256]Constituency is an area represented by a Member of Parliament – At the time the government announced the strategy Kenya had 290 constituencies

Issue	Proposed Elements of a Pan-African startup framework
Access to Finance	Adopting and implementing Pan-African policies that help startups to obtain finance from various sources such as mandating pension funds and sovereign wealth funds to fill the current funding gap. These policies should facilitate the growth and consolidation of funds invested by African companies, angel investors, etc in African startups.
IP Protection	Develop IP protection for startups
Common Incentives	A common set of minimum targeted incentives to enable startups to achieve growth and regulatory compliance, including through alternative means.
Public Procurement	Any legal or administrative barriers that prevent startups from taking part in procurement opportunities are to be identified and removed. African MDAs to be formally encouraged to buy innovation from African startups.
Social Inclusion	Promote social inclusion by motivating startups to tackle marginalisation and social exclusion related to gender, low income, limited education, or disability by integrating and applying all relevant AU policies to startups.
Knowledge Sharing & Collaboration	Encourage cooperation within and among the public and private sectors (and across national governments) with a proactive role assigned to the exchange of information and best practices about digitalisation by African startups.

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CHAPTER SEVEN:

SHAPING MOZILLA AFRICA MRADI STARTUP INVESTMENT STRATEGIES

This section is NOT for public consumption.

This private and confidential section collates relevant themes identified through the research that may be of greater interest to Africa Mradi. We address the desire of the team for insights on the digital operations of a startup as highlighted in the terms of reference.

7.1 Digital Operations of African Startups

Tech startups have digital technology as a foundation for their operations and it is infused in all parts of their operations. These startups use applications adapted to their sector, whether vertical or horizontal, such as deep tech startups. Deep tech focuses on the use of emerging technology such as AI, IoT, data analytics, and cloud.

For African startups, digital workflows are essential to perform various business tasks such as coding, monitoring, storage, communication, and software integration. Before Until the COVID-19 pandemic, it was common for tech executives and staff to work with devices provided by the company. The pandemic has changed the way people work as they now use their own devices as well working from home. Often, remote VPN connections are made between the servers of the enterprise and the staff's digital work tools.

For African startups, digital workflows are essential to perform various business tasks such as coding, monitoring, storage, communication, and software integration.

In the past, many startups depended on data centre providers for remote work. But lately, even the smallest startups use well-known cloud services like Azure and AWS. Cloud providers have different products and services that they promote aggressively and widely in many African markets. However, remote working in Africa is limited by poor infrastructure. A founder queried, "How many startup executives have a standby generator at home?" While the shift to remote working has helped to develop the ecosystem, however conversations with key informants suggest that tech hubs are being negatively impacted by this transition as co-working spaces are gradually emptying. This trend was observed in Senegal and Ghana.

Digital workflows are cloud-based for the most part and startups usually use free open-source tools at the beginning of their ventures. These digital tools include those from Azure, AWS, Google, and Microsoft. However, African startups tend to switch to paid platforms for better security, fraud prevention, customer support, and reliability as they mature. Although cloud-based services can be costly, new ventures try to find innovative ways to reduce these costs and improve efficiency as they expand. Founders and startup leaders are aware of the cloud tools that their businesses need.

Agritech startups, for example, leverage web platforms and apps for client outreach. Some platforms are web-based and used daily. An agritech founder says, 'When it comes to our farmers, our agents will use the app. For farmers who are not tech-savvy, there is also USSD, SMS, and the use of the digital platform is assisted by an agent.'

The interviews also showed that the main digital workflow specialization in startups is coding followed by data production when products are developed, tested, and marketed. The pace of adoption of technology, connectivity, and digital workflow tools varies across countries which means that startups that are scaling across frontiers often have to invest to educate and "make" the market that they want to play in due to relatively slower or uneven adoption, a situation that worsens if most of the end-users are located in rural or harder-to-reach localities.

Digital workflows are usually done over open platforms using cloud services or custom solutions depending on the stage of the startup. As the startup becomes more established, it is less reliant on free digital tools. At this stage, it shifts to paid services and, in many instances, staff are not allowed to use personal tools, apps or software for work purposes or on company devices. Paid versions of digital tools offer more powerful platforms, features, scalability and optimization of operations, and access to analytics, security, and customer support.

According to one founder, "most free tools are known but there are those that not everybody knows about e.g., Zoho Mail". The table below shows popular digital workflow tools in use, according to the African startups that we interviewed for this study.

Table 10: Common digital tools being used by African startups

Workflow	Digital tools
Collaboration	Slack, Office360, WhatsApp, Zoom
Email	Gmail
Storage	Google Drive, AWS, Azure, WOM
Accounting	Wave Financial
Productivity	Google Docs, Microsoft Office
Monitoring	
CRM & Sales	Zoho Begin
Coding	Github, PostGres, Java, Jira
Design	Figura

Source: Fola Odufuwa & Muriuki Mureithi.

Digital workflows are usually done over open platforms using cloud services or custom solutions depending on the stage of the startup.

However, many respondents, especially those working in Fintech, advise against the continuing use of free digital tools. "It is central to the business health of the startup to move away from free, open-source workflow tools as it grows. You need to spend money to get a corporate website, secure servers, software languages, etc" – Nigerian founder.

In deep tech software development, a range of software is used to create Progressive Web Applications (PWAs). Most activities are done through web platforms or apps using technologies such as React and Laravel. A founder said, "Currently, PWAs are the thing. Most activities with someone across the border are through the web or an app. There are many technologies available nowadays for web development such as React and Laravel".

Finally, permissions management and access control are central to digital workflow processes. However, fewer startups can hire a chief security officer whose job is to ensure the sophistication of digital workflows.

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CHAPTER EIGHT:

RECOMMENDATIONS

8.1 Recommendations

Government

Strengthen the startup ecosystem business environment, operations, policy coverage and oversight

1. Work with ecosystem stakeholders to create and fully implement sectoral policies and, if necessary, legislation to enable the sustained growth of startups.
2. Motivate African investors to invest in the ecosystem by creating policies and structures that encourage local and foreign venture capital, African corporations, pension schemes, angel investors, and other alternative capital providers (e.g., crowd-funders) to fully participate in the sector.
3. Undertake to put an end to onerous regulation of startups and the MSME sector.
4. Take direct actions to deal with all the factors that constrain innovation in the business environment, tax regime (as it affects smaller players), physical and digital infrastructure, distribution systems, and e-payments interoperability, among others.
5. Develop a functional local tech community by encouraging direct and indirect investments in innovation, tech hubs, incubators, and accelerators, and promote linkages between these hubs and others on the continent.
6. Develop and launch national and regional initiatives on digital entrepreneurship and innovation.
7. Develop, in conjunction with industry stakeholders, a comprehensive online database that captures market data and all the information required by founders, investors, and players so they can exchange knowledge and further collaborate among themselves.
8. Improve national education systems especially Science, Technology, Engineering, and Mathematics (STEM) and Technical Education Vocation and Training (TVET) to demystify technology and entrepreneurship and to increase digital literacy and digital skills within the local population.
9. Work with stakeholders to strengthen the role of women, female-led startups, and girls in the tech sector by addressing gender gaps in access to education, skills, finance, and networks.
10. Work with the AU, regional bodies, development partners and other ecosystem players to access capacity-building programs and resources that deepen public sector capacity in the regulation of emerging technologies.
11. Allocate and release budgetary provisions to support the development of startups and the digital MSME ecosystem and consider setting up funds within existing investment structures (e.g., at the central bank or sovereign wealth fund).
12. Review existing competition policies governing the communications sector to remove any abuse of market dominance practices so as deepen the penetration and affordability of devices, connections, and broadband data.

Encourage the cross-border market activities of startups

13. Review and revise any legislation or portions of existing law that conflict with the AfCFTA protocols, the progressive development of the sector, or the adoption of digitalization within the country.
14. Work with the AU and RECs to harmonize national and regional policies to eliminate barriers to Pan-African scaling and growth of startups.
15. Accelerate the implementation of the recommendations of national AfCFTA implementation strategies regarding digitalization, and channel greater effort and resources into making startups, MSMEs and the private sector aware of the benefits of the digital single market.
16. Set up a national legal aid service that grants early-stage startups free access to digital trade attorneys who will assist in resolving transnational trade disputes.

Ecosystem Players ***(Development Partners, Big Tech, Accelerators, Academia, Support Organisations, Industry Groups, Etc)***	1. Advocate for a conducive regulatory environment that enables ease of doing business, protects intellectual property rights, fosters competition, and reduces barriers to entry. 2. Work with national governments to create a conducive business environment for African startups that is marked by a reduction in regulatory barriers, and improvements in competition, and cross-border trading activities. 3. Work with responsible ministries to improve the digital economy capacity and knowledge of policymakers and regulators. 4. Continue to provide training, funding, expertise, market access and technical resources to African startups so they can leverage existing networks, relationships, and platforms to grow their ventures. 5. Invest in digital and physical infrastructure that advances connectivity, mobility, and scalability for startups. 6. Continue to establish physical and virtual tech communities, hubs, and accelerators to serve the ecosystem. 7. Increase investments in African startups through all vehicles and mechanisms. 8. Enhance the visibility and recognition of African startups by showcasing their achievements, impact, and potential on local and global platforms, through events, media, and awards. 9. Promote digital education and entrepreneurship by providing support and resources to public and private academic institutions serving the sector. 10. Increase support for innovation and local innovation hubs that provide mentorship, training, networking, and funding opportunities for entrepreneurs. 11. Build trust and confidence among stakeholders in the startup ecosystem by ensuring transparency, accountability, and ethical standards in the use of data, technology, and innovation. 12. Create publicly-available information resources for policy advocacy, research, market intelligence support, capacity building, and the onboarding of MSMEs into the ecosystem. 13. Work with national AfCFTA implementation bodies to ensure the inclusion and effective participation of startups in the continental trade agreement. 14. Adopt and connect the national startup ecosystems of the lagging countries to the more developed ones to prevent them from falling further behind. 15. Improve inter-organizational collaboration and knowledge-sharing among ecosystem players, and harmonize all ecosystem activities to avoid unnecessary duplication of efforts and resources by working together to co-fund and co-implement initiatives that support startups.

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APPENDIX: LIST OF RESPONDENTS & KEY INFORMANTS

	Name	Designation	Organization
1	Evans Edebor	Intra-Africa Trade Advisor	AfCFTA Media Fellow
2	Joe Kinvi	Founder	Stealth Startup
3	Enoch Currie Tetteh	Founder	Percepton AI
4	Frank Ansong	CEO	Ghana Digital Centre
5	Edward Aikins	Business Development Manager	
6	John Bosco Sebabi	Deputy CEO	Pan-Africa Payment & Settlement System
7	Gloria Atanga	Associate Business Development	
8	David Asumadu-Boateng	IT Director	Ashesi University
9	Gabriel Odu	Network Security	
10	Emmanuel Derry Wanye	Coordinator AVI, DLAB	
11	Ernest Amankwah	Managing Partner	GEMS Consulting
12	Emmanuel Ansah-Amprofi	Co-founder/CEO	Trotro Tractors
13	Musah Issah	Deputy Director	National Information Technology Agency Ghana
14	Joshua Eyisom	Founder Chairman, Ghana Hubs Network	iSpace Ghana
15	Ashwin Ravichandran	Co-founder	Spark
		Portfolio Advisor	MEST Africa
16	Charles Edem Goh	Business Dev/Regulatory Affairs Manager	ExpressPay
17	Kwame Larlor	Internet Services	National Communications Authority
18	Emmanual Anni Acquah	Managing Consultant	Bridge-Tailor Consulting
19	Bunmi Otegbade	Founder/Ashoka Fellow	MStreet Ventures
20	Omotola Ariyo	Special Adviser, Ondo State Government	
21	Adeola Bojuwoye	Managing Partner	Kada Hive Hub
22	Ireti Ajala	Data Architect	Oxford Intl Education Group
23	Olu Teniola	National Coordinator - Nigeria	Web Foundation
24	Bukola Agha	Ag. CTO	Lotus Bank
25	Femi Adeluyi	Technical Advisor to the Minister Digital Economy Nigeria	Ministry of Communications & Digital Economy
26	Ope Olugasa	Founder	LawPaviliion
27	Sola Idowu	Founder	HexisLab
28	Deolu Omosebi	Snr. Implementation Consultant	Tech Mahindra

	Name	Designation	Organization
29	Chinasa Ken-Ugwuh	Head, Inclusion for All Advocacy Hub	Africa Practice
30	Saint Germain Onwukeme	Founder/CEO	Cybertron Ads
31	Amadou Gueye	Founder/CEO	Tanim Senegal
32	Mamadou Alhaji	Director	FDSUT Senegal
33	Souleymane Diagne	Cabinet Director	Ministry of Communications & Digital Economy Senegal
34	Charles Nunez	Director General	Pharmadev Senegal
35	Mohammed Ngom	Founder	Senfablabs
36	Maimoune Diop	Senior Adviser	Tony Blair Institute
37	Karim Sy	Founder & Chief Catalyst	Jokkolabs
38	Laïssa Mouen	Founder & President	Kinaya Ventures
39	Modibo Mamoune Ngom	Coordinator	Universal Service Fund Senegal
40	Nafi Gueye	African Young Leader	Mandela Washington Fellowship
41	Nekesa Were	Outgoing Strategy Director	Afrilabs
42	Eric Osiakwan	Managing Partner	Chanzo Capital
43	Jason Musyoka	Associate	Victoria Business Angel Network
44	Adelaide Njoki Muthangi	Venture sourcing analyst	Founders Factory Africa
45	Ludovica Ochieng	Incubation Manager	IbizAfrica (Strathmore University
46	Ali Hussein Kassim	Chair	Association of Fintechs in Kenya
47	Peninah Wanja	CEO	FarmingTech Solutions Ltd
48	Wilberforce Seguton	CEO	Bunifu Technologies
49	William Chesoni	Community Manager	iHub
50	Akram Mathu	Fintech analyst	CMA Regulatory Sandbox
51	Victor Ogolla	Chief County Officer	Nairobi County Government
52	Yareka Mhando	CEO	Anakazi Centre
53	Susan Zulu	Programme Manager Zambia	
54	Lukonga Lindunda	Co-founder and Executive Director	BongoHive Technology and Innovation
55	Mphaso Banda	Investment Associate	Kukula Capital
56	Mwansa Kateule	Manager	Lupiya Capital
57	Pamela Chitulangoma	Assistant Director	Ministry of Small and Medium Enterprises
58	Audrey Hampekema	Chief Planner	Ministry of Youth, Sports, and Child Development

	Name	Designation	Organization
59	Chitundu Kasase	Director / CEO	National Technology Business Centre
60	Edward Mutila	Branch Manager	Premier Credit Zambia Ltd
61	Phillip Chitalu	CEO	Securities Exchange Commission
62	Mubanga Kondolo	Manager Financial Inclusion	
63	Bruce Mulenga	Manager Market Transaction	
64	Melanie Mchinzi	Secretary	Zambia Business Angel Network
65	Mwangala Muyoyeta	Chief Information Officer	Zambia Industrial and Commercial Bank (ZICB)
66	Bernard Banda	Director Economic Regulation	Zambia Information and Communication Technology Authority (ZICTA)
67	Hendrix James Miyoba	Statistics and Research Officer	
68	Chisoko Luala Simbule	Innovations and Partnership Head	Zambian National Commercial Bank (Zanaco) Innovation Lab
69	Mutinta Tembo	Strategy Head	Zambian National Commercial Bank (Zanaco)
69	Andrew Muyaba	Head Corporate & Investment Banking	
70	Bill Sangiwa	Telecom Consultant.	Zambia
71	Lebohang Likonjane	Enterprise Analyst	Tsimolong Digital Innovation Precinct
72	Edwell Gumbo	Head of Enterprise Development	
73	Daleen Fourie		
74	Anonymous		Innovation Hub
75	Ipeleng Mathebula		Boost
76	George Mulumba		AUDA NEPAD
77	Chipililo Saka		
78	Bienvenu Comlan Agbokponto Soglo	Director Government Affairs & IGA CTO Liaison	Intel Corporation
79	Anonymous		Technology Innovation Agency
80	Irfaan Khota		IDC
81	Bredan Fernadez	Co-founder	Graf-In tech
82	Keletso Lekwakwe	Co-founder	PasswordKids


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