TECH START-UPS AND THE ENTREPRENEURIAL RENAISSANCE IN AFRICA: THE NEW FRONTIER FOR DEVELOPMENT?

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(10303831)

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DECLARATION

I hereby declare that this dissertation is the result of original research undertaken by me under the supervision of Dr. Philip Attuquayefio and that no part of it has been submitted elsewhere for any other purpose. Further, references to the work of other persons or bodies have been duly acknowledged.

……………………………  ……………………………
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Date:……………………  Date:……………………
DEDICATION

This work is dedicated to my mother, Elizabeth Eklu, for being a strong pillar in my life.
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I would like to express my profound gratitude to the Almighty God for giving me the strength and guidance to undertake this research. I would also like to express my deepest gratitude to my parent, my uncle, Daniel Eklu, and my siblings, for their prayers and support throughout the academic year.

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ABSTRACT

Africa has been perennially touted as a continent heavily dependent on aid for its development. However, with the advent of a global focus on entrepreneurship, there are a lot of euphoria surrounding tech start-ups amidst talks of an “Africa rising”, where the continent is believed to be at the threshold of asserting itself and developing economically. The study of entrepreneurship has often been side-lined in academia. This is even more pronounced on the continent where literature on entrepreneurship is almost non-existent that it is difficult to give substance to the claim of tech start-ups being the new frontier for the continent’s development. Consequently the purpose of this study is to find the contribution of tech start-ups in Africa to the continent’s development. The study relied on qualitative research methodology where unstructured interviews and observation techniques were employed to gain insights into the continent’s start-up ecosystem and also a review of relevant literature. Findings revealed that the main contributions of tech start-ups to development on the continent are innovation, the creation of jobs and increased competition between firms. Beyond the proliferation of tech start-ups on the continent, the study found major challenges that could inhibit the promise of tech start-ups to the economic growth and development of states on the continent. It is recommended that African states and private stakeholders be deliberate about solving these challenges so as to enhance the competitiveness and appeal of start-up ecosystems on the continent.
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CHAPTER ONE

RESEARCH DESIGN

1.0 Background to the Research Problem

Africa has a myriad of development challenges. In its bid to improve on its economic development, it has relied heavily on foreign aid from developed countries. It has been argued that due to corruption and political instability, much of this development aid has not reflected in substantial growth and development.\(^1\) It has been worryingly noted that periods of increased development aid also saw a decline in the real per capita income of most countries on the continent.\(^2\) However, this appears to be changing. According to the IMF’s 2014 World Economic Outlook report, of the ten fastest growing economies in the world, six will be from Africa.\(^3\) This is consistent with an earlier report by the Economist that pointed out that six of the ten fastest growing economies from 2000 to 2010 were from Africa and makes a forecast that the continent will host seven out of the ten fastest growing economies by the end of 2015.\(^4\) These statistics have thrown a new light on the continent suggesting that the continent is finally at the thresholds of asserting itself and developing economically.

Surprising enough, this optimism is not as a result of an increase in development aid. Rather it is perceived to be championed by an increase in foreign direct investment and a surge in entrepreneurship.\(^5\) This perceived surge in entrepreneurship has been captured by a wave of optimistic reports on the performance of the African private sector. For instance, Accenture’s report in 2010 concludes that Africa is the second fastest growing region in the world which it claims presents new opportunities for African businesses, which are growing faster than their peers in other parts of the world.\(^6\) Also, a McKinsey report forecasts that the African business
sector will play an increasingly important role on the world economic stage and claimed that already 100 African companies with revenues greater than US $ 1 billion can be identified on the continent. These signal a renewed belief in the developmental prospects of the continent driven by the activities of entrepreneurs.

Accompanying this perceived rise in entrepreneurship across the continent is the phenomenon of tech start-ups. There has been so much hype surrounding the development of start-ups in Africa that even the world renowned Cable News Network (CNN) has a dedicated program for it. Tech Start-ups (also referred to as technology entrepreneurship or digital entrepreneurship) are a global trend in entrepreneurship characterized by small companies focused on growing quickly unconstrained by geography and using technology to solve problems. Facebook, Google, Microsoft, WhatsApp, among other global entrepreneurial icons all begun as start-ups and are now contributing immensely to their country’s growth and development and the world at large. As such there is the belief that when the right environment for tech start-ups to flourish is created, Africa could have its own big companies which would spur its growth and development agenda.

Africa’s tech Start-up scene gained the world’s attention in Kenya with M-PESA in 2007. M-PESA (known popularly as mobile money) is an innovative technology which allows people to send money and conduct other financial transactions using their mobile phones. M-PESA has grown from Kenya and is now being replicated in many countries such as India, Afghanistan, Egypt, Ghana, and even countries in Eastern Europe, among others. The growing recognition of Africa’s tech start-up scene is leading to more foreign direct investment for start-ups, the building of immense infrastructure like fibre optics, and encouragement by governments for more people to undertake such ventures.
The entrepreneurial renaissance in the tech start-up industry has been supported by an increase in access to cheaper bandwidth (internet), the proliferation of mobile devices and the development of a home grown market for content and commerce. Also some people are of the view that due to the similarities in socioeconomic conditions between African cities and major tech start-up hubs in Africa, solutions to problems can be shared. For instance Jobberman, said to be the single largest job placement site in sub-Saharan Africa, has moved beyond Nigeria into Ghana and is now in Kenya. Most tech start-ups are built with this in mind and are increasingly scaling their solutions across the continent and beyond.

A lot of the hype and significance given tech start-ups arise from their promise to promote economic development through providing innovative solutions that have a rippling and multiplying effect across industries. For example, mPedigree, a tech start-up initiative started in Ghana that tackles the problem of counterfeit medicine is helping other countries such as Kenya, India and Nigeria solve its pressing problem of fake drugs. Similarly, Zoona, a mobile money platform based in South Africa, Zambia and Malawi allows entrepreneurs the opportunity to provide money transfer and other payment services to low-income consumers while earning commission and employment. These examples show how tech start-ups are tackling some of the continents problem and increasingly the general welfare of some of its people.

More importantly, tech start-ups have seen an increase in support from venture capitalists, multinational corporations and governments. In 2014 alone, venture capitalists and multinational corporations like Microsoft, Intel, IBM and Google invested $26.9 million in tech start-ups in Africa, more than the previous year when it was $12 million. The United States government, through its Department of State for Africa, is using initiatives such as DEMO Africa and TechCamp West Africa to promote and support tech start-ups on the continent. In response to
this increase in FDI, African states are also touting a renewed belief in the ability of tech start-ups to promote development. In Nigeria for instance, the National Information Technology Development Agency (NITDA) in 2014, announced plans to support the growth of technology, especially start-up innovations with 1.5 billion Naira.\textsuperscript{16} Most African states are being encouraged by the UN’s Economic Community for Africa to develop ICT policies with emphasis on creating the enabling environment for small businesses to thrive.\textsuperscript{17}

Even more, international donors and philanthropists appear to be shifting the focus of their activities to promoting entrepreneurship and tech start-ups on the continent. For instance, the World Bank in an attempt to help solve the energy crisis facing the developing world, embarked on a programme dubbed Negawatt which was a competition to get the best most feasible idea that could solve it.\textsuperscript{18} The winning teams with the most innovative solution will be supported by the World Bank to scale their start-up. Also the philanthropists Tony Elumelu recently initiated the Tony Elumelu Entrepreneurship Program which aims to support 1000 African start-ups per year for the next ten years with US $100 million.\textsuperscript{19} Capping it all is the fact that the global entrepreneurship summit, a gathering of entrepreneurs and high government officials from all over the world, for 2015 is happening on the continent (Nairobi, Kenya), highlighting entrepreneurship’s increasing role for economic development.

1.1 Statement of the Research Problem

In spite of the above optimism, there are questions relevant to whether this is a political charade championed by the West and the media. One of the claims in this regard has related to the apparent inability of countries to transfer growth for tech entrepreneurship to everyday livelihood of Africans. Fal\textsuperscript{20} for instance observes that in spite of the reality that the growth of entrepreneurship has indicators on par with or higher than global peers, the GDP per capita of
most African countries still lags behind. While views such as these are common, they appear to ignore critical drivers of the tech start-up ecosystem that could ultimately determine the contribution of tech start-ups to development. Notwithstanding this omission, the viewpoint such as Fal’s question the extent to which the entrepreneurial renaissance witnessed in Africa’s tech start-up ecosystem constitutes the new frontier for development in Africa. This is the problem the study intends to investigate by identifying the main contributions of tech start-ups to the economic development of Africa. That is, the study intends to understand the real contributions of start-ups to development beyond the euphoria that it increasingly generates across the continent.

1.2 Research Questions

In addressing the above research problem, the study attempts to provide responses to the under listed questions:

- What is the state of entrepreneurship in Africa?
- What are tech start-ups and how do they operate?
- What is driving the proliferation of tech start-ups across Africa?
- How are tech start-ups contributing to economic development in Africa?
- What are the constraints/challenges facing tech start-ups on the continent?

1.3 Research Objectives

- To briefly describe the state of entrepreneurship in Africa.
- To examine the phenomenon of tech start-ups in Africa including the drivers of its ecosystem.
- To explore the reasons for the proliferation of tech start-ups in Africa.
To examine the contribution of tech start-ups to economic development in Africa.

To examine the challenges to tech start-ups in Africa.

1.4 Rationale of the Study

Since 2011, one of the catchphrases indicating optimism for Africa’s development has been “Africa Rising.” Within this framework, there have been observations and debate about entrepreneurship and its relevance to sustainable development in Africa. This dissertation puts tech start-ups within the context of entrepreneurship and sustainable development in Africa. Apart from throwing light on an emerging sector in African countries, it also seeks to explore the policy relevance as well as challenges to maximising the contribution of tech start-ups to development. Hopefully, this should serve as a reference point to further research on tech start-ups in Africa.

1.5 Scope of the Study

Although the study is aimed at bringing to the forefront the new burst of entrepreneurial energy across the African continent, the prime focus will be on Ghana, Nigeria, Kenya and South Africa. These countries have been cited as leaders in the development of successful start-up ecosystems and are considered the most technologically advanced countries in Africa. A careful study of them will help capture the development of start-up ecosystems across the continent.

1.6 Hypothesis

The hypothesis that will be guiding this study is the boom in tech start-ups across Africa represents the new frontier for the continent’s development.
1.7 Conceptual Definitions

For the purpose of this study, the following concepts have been operationally defined as follows:

- **Start-up**: a high growth company or a business that scales rapidly.

- **Tech Start-up**: refers to a high growth company that has technology as a central component to the product or service being provided. In addition, the product or service being provided is a ‘disruptive innovation’, meaning that it helps in creating a new market which disrupts an existing market.

- **Tech Start-up Ecosystem**: is made up of communities of support organizations and start-ups. Members of the support organizations usually include mentors, government, funding, professional advisors, incubators/accelerators, universities, research and development, management team and employees, customers, sales and marketing partners, and so many others.

- **Tech Hub**: also referred to as Innovation hub points to a work space that serves as a meeting and convening point for tech entrepreneurs and other members of the start-up ecosystem with the hope that through their interactions innovations can serendipitously result.

- **Technology**: refers to innovative products and services that are produced from the practical application of knowledge.

- **Innovation**: this refers to a newly introduced idea, a more effective process or device. It is usually the application of better solutions to meet new requirements, needs of existing markets or unarticulated needs.

- **Entrepreneurship**: is the process of starting a business or start-up and assuming all risks associated with it.
1.7 Theoretical Framework

The study will be framed within the competence bloc theory.\textsuperscript{22} The main proponents of the theory are Gunnar Eliasson and Asa Eliasson.\textsuperscript{23} The competence bloc theory recognizes all the economic actors in a start-up ecosystem and how they contribute to economic growth and development. Competence bloc theory closely relates to the theory of the experimentally organized economy and has a wide theory base. Coming from macro-economics and industrial economics, it highlights the need to efficiently select investment projects.\textsuperscript{24} For this study, its wide theory base will be intentionally limited to its economic actors using them as structural components for a start-up ecosystem.

The competence bloc theory was advanced to explain how the selection of innovations and firms were organized. The seminal article which laid out the theory posits that a competence bloc is “the total infrastructure needed to create (innovation), select (entrepreneurship), recognize (venture capital provision), diffuse (spill overs) and commercially exploit (receiver competence) new ideas in a cluster of firms.”\textsuperscript{25} The theory emphasizes the role of the entrepreneur, in that it focuses on the human competence that is gained from competition against internationally best competitors. It contends that the entrepreneur only gains this competence by actively participating in a viable market competition with the market serving as the school and a necessary condition being its closeness to the market.

According to Eliasson & Eliasson, actors within the competence bloc are customers, innovators, entrepreneurs, venture capitals, exit markets and industrialists. Going forward, we will discuss these actors in the context of the start-up ecosystem.
The foremost actor in the competence bloc theory is the “competent and active customer” who determines how sophisticated a product should be and how much the most advanced consumer will be willing to pay.\textsuperscript{26} It is believed that products only get as good as consumers will be able to appreciate, no matter how advanced the technology is. Here the customer is seen as a strategic partner who makes valuable inputs in all stages of the product development cycle.

The second competence bloc actor is innovators who are defined as actors who combine new and old technologies to create new composite technologies which will then be selected by the entrepreneur based on how profitable they appear to be. The theory defines the innovator mainly through technology; however, the start-up ecosystem sees the innovator as an agency that is not restricted to technology in value creation. As such this study also takes into account innovations manifested by the advancements of design thinking (the building up of ideas to solve a problem)\textsuperscript{27} and business design (the strategies and methods adopted by businesses to scale their operations).\textsuperscript{28}

The entrepreneur is the third actor in the competence bloc theory who either creates commercially viable innovations or selects one they see as having a desirable market potential. The entrepreneur’s core function is to connect innovations to the market and economy. The entrepreneur’s role is the most important as “he/she understands and initiates the commercialization of the innovations”.\textsuperscript{29}

The fourth actor in the theory is venture capitalists who make the final financing of the start-up possible for a share of the profits. For the start-up ecosystem, we add the other important sources of risk capital – business angels and corporate venture capitalists.
The fifth actor of the competence bloc theory is exit markets which refer to the market for strategic acquisitions of start-ups either through initial public offerings (IPO) or mergers and acquisitions (M&A). Exits often make innovators, entrepreneurs, and early employees gain experience-based competence. Also, they make money through the exits which is often invested back into new start-ups, funds or their own entrepreneurial ambitions.

The last and sixth actor is the industrialists who according to Eliasson and Eliasson take the winning products and innovation to large-scale production and distribution. For the start-up ecosystem perspectives, the industrialists (big companies) also represent the scale and platforms that start-ups need for growing their business.

The competence bloc theory is criticized for ignoring to factor in the high failure rate of start-ups. Start-ups are often seen as business experiments where only a small number will actually grow into big successful businesses making critics doubt the rationality of investing so much into businesses that will most likely fail. The theory is also criticized for its tacit implication that the various components of the start-up ecosystem could be taken and injected into other areas producing the same results. However, regarding start-up ecosystems, there have been numerous attempts to copy the Silicon Valley model by countries from all over the world often without success.

In spite of these criticisms, the competence bloc theory is relevant to this study because it best explains the phenomenon of tech start-ups, taking into account the various components that make it effectively contribute to economic growth and development. Also, by emphasizing the role of entrepreneurship, it helps explain the growing importance and surge of entrepreneurship to Africa’s economic development. Further, its key assumption of innovation is important in
explaining tech start-ups central contribution to development – finding innovative solutions to problems.

1.8 Literature Review

1.8.1 The entrepreneurial renaissance in Africa

In considering the entrepreneurial renaissance in Africa, Nafukho & Muyia in their work *Entrepreneurship and Socioeconomic Development in Africa: a Reality or Myth?* examine Africa’s entrepreneurial spirit and how its development can be promoted across the continent. Using Kenya as a case study, they show that the development of the entrepreneurial spirit is not a short term pursuit but rather one that should be a lifelong process. They argue that for entrepreneurship to effectively address Africa’s socioeconomic development, successful lessons from both within and outside the continent should be learned and applied. Similarly in *Accelerating Entrepreneurship in Africa*, Fal shows that there is the growth of an entrepreneurial renaissance in Africa with “indicators related to entrepreneurial motivation on par with or higher than global peers.” This asserts that the motivations to undertake entrepreneurial activities on the continent are as high as anywhere else if not higher. However, Fal opines that the everyday livelihood of Africans is not the same as reported by increasing macroeconomic indicators and that Africa’s GDP per-capita still lags behind the rest of the world. This makes it difficult to translate the desire for entrepreneurial pursuits into substantive high-growth business ventures. He proposes that it is only by fostering and promoting entrepreneurship beyond its current state based on necessity and to one that is vibrant and robust that Africa stands a chance of addressing its income gap. These two articles contribute significantly to the field of entrepreneurship in Africa. They attempt to discuss the need to promote entrepreneurship on the continent and the reasons that the entrepreneurial spirit on the
continent. They are however silent on the entrepreneurial renaissance itself, how it came to be and how it is contributing to development on the continent.

1.8.2 Entrepreneurship and government policy

Although, the entrepreneurial renaissance in Africa holds a lot of promise, there are factors beyond the individual that need to be thoroughly explained. Sriram & Mersha\textsuperscript{36} in their work \textit{Stimulating Entrepreneurship in Africa} sought to identify factors that lead to the creation and success of new businesses on the continent. In an analysis of entrepreneurs in Ethiopia and Ghana, they found that while personality factors such as personal drive, competency and resource availability are necessary conditions for a successful new business launch, effective government policies is even more needed in promoting successful entrepreneurial pursuits. They outline the role of government as “creating the right business climate, enacting appropriate legislation to facilitate entrepreneurial initiative, identifying and nurturing start-ups with potential, and providing the necessary training and education for entrepreneurs.”\textsuperscript{37} Nafukho & Muyia\textsuperscript{38} also assert to this position in their study of entrepreneurship in Kenya by highlighting the government’s policy to promote entrepreneurial spirits and skills through the establishment of vocational and technical training institutions. They argue that the development of the entrepreneurial spirit among the youth is a prerequisite for the take-off of successful entrepreneurial ventures and that the government must support these efforts and create the environment necessary to ensure graduates excel at creating and establishing their business interests. They report that in Kenya, this institutions established by the government have contributed immensely to the development of a start-up culture which is increasingly finding innovative solutions to problems. These articles show the state’s indispensable role in creating the enabling environment for entrepreneurship to thrive. They build a strong case for government
to get involved in a country’s entrepreneurial pursuits but take for granted the significance of the contribution of entrepreneurship to a nation’s development. They appear to make the assumption that entrepreneurship is the engine of growth for all economies but the question of how exactly entrepreneurship contributes to economic development on the continent remain largely unanswered.

1.8.3 Tech Start-ups as frontiers for development

There are many examples of instances where tech start-ups have been at the frontiers of development for states. The most comprehensive work done on how start-ups can affect the development of a country is the book by Senor & Singer\textsuperscript{39}, \textit{Start-up Nation: The Story of Israel’s Economic Miracle}. They sought to find out how “a community of penniless refugees” had transformed a desolate land to a “high tech powerhouse” that has achieved fifty-fold economic growth in sixty years. They found the answer in this “economic miracle” through innovation and entrepreneurship – particularly tech start-ups. They found that Israel has the highest density of tech start-ups in the world. Also venture capital, which is the most critical measure of technological promise, overflows in Israel such that “in 2008, per capita investments in Israel were 2.5 times greater than in the United States, more than 30 times greater than in Europe, 80 times greater than in China, and 350 times greater than in India.”\textsuperscript{40} They further report that Israel’s tech exports to the rest of the world have been on an increase from $5.5 billion to $13 billion from 1996 to 2000, reaching almost $18.1 billion in 2008.

The authors argue that Israel’s social and political environment is supportive of innovation and entrepreneurial pursuits. This is more evident in the fact that every citizen is required to go into the military which gives them rigorous training and battlefield experience which they bring into entrepreneurship.
According to the authors, the government’s macroeconomic policy played an important role in speeding up the country’s growth beyond its expectations. They explain that once the government saturated the economy with big infrastructure spending, entrepreneurs were relied to play their part to drive growth as it was only them that could find “the niches of relative advantage.” Senor & Singer establish that the factors that led to Israel’s “economic miracle” are an industrial policy that worked, immigration of Jews from all over the world, an active diaspora, investor confidence and Yozma. Yozma is a programme run by the Israeli government in which $100 million was invested to create ten new venture capital funds and then an additional $20 million invested directly in tech start-ups. It is a widely-held belief that Yozma helped the tech start-ups to flourish and compete globally. From 1992 to 1997, the ten Yozma venture capital funds raised over $200 million with the help of the initial government funding and today manage nearly $3 billion of capital and support hundreds of new Israeli start-ups.

In *Brilliant, Crazy, Corky: How the Top 1% of Entrepreneurs Profit from Global Chaos*, Sarah Lacy sought to find out how entrepreneurship was pioneering growth and development across emerging countries. To this end, she interviewed entrepreneurs in Israel, China, India, Brazil, Indonesia, and Rwanda. Her main argument is that entrepreneurs now have advantages that enable them to take on global competition no matter where they are. The advantages include home field advantage where like the way a football team has a home advantage, knowledge of problems and a locale gives the entrepreneur an edge against those coming in from other markets; the globalized nature of the world where money and talent do not have boundaries and hence flow to where opportunities are; and the fact that emerging markets and their entrepreneurs have nothing to lose. She argues that mobile telephony is a hothouse of innovation in most developing countries. She makes this point with the example that billions of people in the poorest
villages may not have electricity or running water, but have mobile phones which are changing their lives. She continues that this has led to the emergence of so many services that couldn’t be delivered before such as banking, ecommerce, education and even games. This book shows what can be achieved when innovation and entrepreneurship merge, and this is usually pioneered by start-ups.

In focusing on Rwanda, Lacy touched on the progress made by the state after the genocide. She highlights that Rwanda has almost no violent crime with most parts of the country having access to water, basic health care and primary school education. She continues that Rwanda does not only have four bars of cell phone reception, even in the poorest most mountainous areas but is also connected by high-speed fibre-optic lines. She makes the case further for the efforts which the government is taking to support technology and development with the example that the government sends 300 students at a time to the India Institute of Technology to learn hardware, software and telecommunication engineering skills.

She then zoomed out to the whole continent where she cited a Mckinsey 2010 report that claims that global business cannot pretend to ignore the potential structural changes in African economies like lowering inflation, reducing debts, state-owned companies being privatized, cutting taxes, and stronger legal systems. These changes have given birth to a young private sector where productivity is no longer declining. She continues that opportunities in Africa are spurred by modern agriculture and mobile services, as 60% of the world’s uncultivated arable land is on the continent and from 2000 to 2008 the continent added 316 million new mobile phone subscribers. She asserts that these have led to the establishment of tech start-ups which are finding ingenious solutions in mobile services and agriculture. She concludes her chapter on Rwanda by summarizing the challenges of the continent which she suggests are the extreme
fragmentation and diversity in language, quality of life, political systems, safety, corruption, and economic sophistication. Some of these challenges have been noted by other authors as difficulties to the spread of tech start-ups on the continent.\textsuperscript{43} These two books are significant to this study because they comprehensively portray the contribution of tech start-ups to the economic development of states. However, they fall short in examining the situation in Africa. Lacy’s work on Rwanda is minimalist at best as it only mentions stories of entrepreneurs that are thriving and infrastructure improvements, without tackling conclusively how start-ups contribute to the economic development of Rwanda.

1.8.4 The Tech Start-up Scene in Africa

Erik Hersman’s\textsuperscript{44} article titled \textit{Mobilizing Tech Entrepreneurs in Africa} is one of the very minimal literature on tech start-ups on the continent. He contends that institutions are being built across the continent to leverage on strengths and address the weaknesses in start-up ecosystems. He argues that for any country or city to build a healthy tech ecosystem, there must be a combination of location, talent, government policies, entrepreneurial culture, infrastructure, and money. He makes the claim that so far in Africa, only six cities have been successful in establishing them – Nairobi, Lagos, Accra, Cape Town, Cairo and Dakar. To drive his points further, he focuses on the happenings in the tech scene in Nairobi. To promote the development and growth of tech start-ups and industry, Nairobi has the iHub which serves as the city’s innovation centre where the tech community, industry, academia, investors, and government can meet, share ideas and collaborate. He contends that the iHub is the first of its kind on the continent and since its establishment more places like it has sprung in 15 other countries on the continent. These include MEST in Ghana, ccHub in Nigeria, Bongo Hive in Zambia, iLab in Liberia, ICE in Ethiopia, ActivSpaces in Cameroon, and others, all of which are part of a
network called Afrilabs. Hersman continues that this network and technology hubs are increasing collaboration across the continent and are expected to breed the next generation of Africa’s tech entrepreneurs and start-ups. He shows the promise of tech start-ups on the continent by observing that in 2002, internet penetration in Africa was 1% but at the time of his writing it was 36%. He continues that mobile phone penetration is 67 percent and that 34 percent of Africa’s 313 million populations are now considered middle class with the continent’s future GDP growth expected to exceed 5 percent. All these show a positive trajectory for growth especially for tech start-ups who are increasingly at the forefronts of innovation using the internet and mobile phones as mediums. He mentions that ideas and products like M-PESA, Ushahidi and Mxit which started in Africa have been exported beyond the continent. He argues that the innovative ideas coming from Africa are based on local needs and as such people from the West can’t imagine or create the solutions needed as they do not have the context nor understand the mobile first paradigm that drives those innovations. Hersman did a great job at describing the tech start-up ecosystem in Africa. His work however is limited in scope as it focuses mainly on the proliferation of tech start-ups on the continent giving little attention to how it contributes to the economic development of African states.

The foregoing literatures give a panoramic view of tech start-ups and entrepreneurship, not just on Africa, but globally. Although the literature reviewed here is not exhaustive of all those available, they represent a fair amount of available literature on the topic and denote the major discourses on tech start-ups.

Tech start-ups as a phenomenon have become more prominent with the rise of the internet which is just a little over two decades old. As such, the phenomenon is relatively new to academia. This study is therefore necessary as it will serve as a pioneer for future studies in the field.
States, international governmental organizations and multinational corporations look at how the “Start-up Nation” and Silicon Valley were able to create their economic miracle and automatically assume that such a phenomenon can be replicated easily over other places. Countries like India, Ireland and Singapore put in large investments to replicate Israel’s achievements, but have not met similar success.\(^{45}\) So then, although Africa’s tech start-up scene is getting a lot of euphoria as shown in Hersman’s work, there is the need to do a comprehensive study of this phenomenon to assess whether Africa is really at the verge of sustainable economic growth and development through innovation and entrepreneurship.

### 1.9 Sources of Data and Methodology

The study makes use of the qualitative approach to research. This is chosen because of the research’s explorative nature. As noted by Kumar, a study that seeks to describe a problem, phenomenon, situation or event requires a robust qualitative approach.\(^{46}\) To that end, the researcher makes use of semi-structured interviews, observation and analysis of documents to gather data for the research. Participants for the interview are based on purposive sampling where tech entrepreneurs and experienced stakeholders in the start-up ecosystem are targeted.

The study makes use of both primary and secondary sources of data. Primary sources of data include interviews with entrepreneurs and other stakeholders in Africa’s start-up ecosystem. It also includes observations of how the start-up ecosystem functions and this is done through attending and interacting with participants at technology events and visiting tech hubs. Secondary sources of data include journal articles, reports, documents, websites and blogs.
1.10 Arrangement of Chapters

In order to have some direction, coherence and focus, the chapters of the dissertation have been arranged as follows:

Chapter One  Research Design

Chapter two  An overview of tech start-ups and the entrepreneurial renaissance in Africa

Chapter three  An examination of tech start-ups as the new frontier for development?

Chapter four  Summary of findings, Conclusions and Recommendations
ENDNOTES

1 Moyo, D. (2009). Dead aid: Why aid is not working and how there is a better way for Africa. Macmillan. pp. 49-68
2 Ibid. pp. 47


Ibid. pp. 12


Ibid. pp 150


Ibid. pp. 258


Ibid. pp. 18

Ibid. pp. 106


Fal, M. Op. Cit. pp. 159-165


CHAPTER TWO

AN OVERVIEW OF TECH START-UPS AND THE ENTREPRENEURIAL RENAISSANCE IN AFRICA

2.0 Introduction

From “The Hopeless Continent”\(^1\) to “The Hopeful Continent”\(^2\), African businesses and entrepreneurial activities on the continent are getting a lot of attention. The media is projecting that there is a new generation of African businesses that are turning the continent into “the new Asia”\(^3\). Even more evident is the increasing belief by development organizations that firms, entrepreneurship and private sector development are the solutions to many of Africa’s woes.\(^4\) Africa’s development partners like the United States are also seeing the potential of entrepreneurship and private sector development as a solution to Africa’s economic woes and are increasingly pursuing direct interventions to promote entrepreneurship on the continent.\(^5\) This chapter will provide an overview of Africa’s entrepreneurial renaissance and the seeming pioneering role of high growth firms popularly referred to as start-ups that are increasingly getting attention for their promise of sustainable economic development.

2.1 Entrepreneurship

Empirical research has revealed that entrepreneurship is the driving force behind every nation’s economic development.\(^6\) Economic studies from around the world consistently link entrepreneurship, particularly start-ups, with rapid job creation, long term productivity increases, and GDP growth.\(^7\) Scholars attribute the strength of the USA’s economy to its enterprising spirit and dynamism.\(^8\) In fact, several scholars have gone on to show that entrepreneurship is not only beneficial but necessary to the sustained growth of an economy.\(^9\) This has led to the widely held
assertion that the newly industrialized countries of South East Asia like Singapore, Malaysia and South Korea developed because they gave entrepreneurship the free hand to flourish. Further, studies have shown that in the USA, periods of high economic growth tended to correlate directly with an increase in the start of new business ventures.\textsuperscript{10} Also, in Europe, it has been observed that since the 1970s small businesses had become an important avenue for wealth creation and are the net creator of jobs for the economy.\textsuperscript{11} All these show that globally entrepreneurship has risen in prominence over the decades and this rise is not leaving Africa out. In fact, there appears to be a new philosophy on entrepreneurship gaining prominence on the continent called Africapitalism.\textsuperscript{12} This is shaping discourses and is seeing a lot more attention being paid to entrepreneurship on the continent.

Scholars and practitioners alike have had difficulties in agreeing to a single definition for entrepreneurship. This notwithstanding, it is assumed that humanity’s progress can largely be attributed to the roles of certain “agents of change” - the entrepreneur.\textsuperscript{13} Several definitions of entrepreneurship have been forwarded over time. Prominent among them has been Richard Cantillon’s definition of entrepreneurship as “self-employment with additional uncertainties and activities proportionate to market demand”\textsuperscript{14} and Isreal Kirzner who defines it as “the identification and exploitation of market arbitrage opportunities.”\textsuperscript{15} This work however will make use of Nafukho’s definition of entrepreneurship which is that an entrepreneur is an “individual who undertakes new tasks and adds value to a product or a service.” He continues that although such new tasks may involve creating a new business venture or managing an existing one, the tasks must be creative or must respond to change and add value to a product or service else they cease being entrepreneurial.
2.1.1 The Entrepreneurial Renaissance in Africa

Understanding the entrepreneurial renaissance in Africa will require us taking a look at economic activities prior to and after independence in the 1960s. Entrepreneurship has been part of the economic development of African states even before the arrival of colonialism. This is seen in most parts of Africa where trade routes had been established leading to the flourishing of trade between those in the hinterlands and the coast. A very good example of this is the “trans-Saharan trade” which refers to the north-south trade across the Sahara before the fifteenth century. The trans-Saharan trade led to the growth of African cities and kingdoms like Jenne, Gao, Timbuktu, Kumbi and Ghana which promoted innovation and led to the building of large craft industries. The entrepreneurial activities engaged in included the exchange of manufactured goods – silk and cotton cloth, beads, mirrors – from North Africa with commodities of the West African savanna – gold, ivory, gum, kola nuts and captive slaves. However, the trans-Atlantic slave trade and the economic consequences of European trade with Africans led to a reduction in entrepreneurial activities on the continent, as the people looked more and more to the West and their colonial powers for technology and innovation.

After independence, most African states ordered their societies in such a way that development was public sector driven with governments controlling the “commanding heights” of the economy. This is due in part to the fact that the new African states inherited an economic system that was structured around the economies of their colonial masters which usually involved supplying raw materials to feed the latter’s industries. Also, due to the commodity booms of the 60s and 70s, African states had enough resources to pursue ambitious socialist-inclined entrepreneurial ventures which were aimed at the state owning the means of production so as to share the proceeds equally to its citizens. In Ghana, this reflected in the focus of the
government on large-scale import substitution industries. There was an absence of policies for small and medium scale enterprises leading to very low entrepreneurial pursuits by the private sector.

Soon, the deficiencies of such a system became manifest. The end of the commodity boom, the inefficiencies of the State-Owned Enterprises (SOEs), the development of the bloated Administrative State – one in which the government is envisioned as playing an omnipresent role in driving industrial development and socio-economic progress –, and the oil price hikes in the late 70s plunged the economies of African countries into serious debt and a probable collapse. Following from this, African leaders saw the need to join efforts to put together plans for a more sustainable economic development. This led to the Lagos Plan of Action (LPA) in 1980 which was meant to increase Africa’s self-sufficiency by a decreased reliance on raw material extraction, industrialization, global equity in trade relations and an increase in development aid from the international community. The LPA however, was stillborn as the release of the Elliot Bergs’ commission report in 1981 eventually led to the Structural Adjustment Program by the Bretton Woods institutions.

It is often said that the externally imposed Structural Adjustment Program of the Bretton Woods institutions as a response to the economic malaise put back entrepreneurship and private sector participation onto the agenda for economic development on the continent. Structural Adjustment emphasized the liberalization and privatization of the economy. These are necessary ingredients for entrepreneurship and enterprise to thrive. With structural adjustment, the economic structure of African states begun to shift from one of a state dominated, centrally-planned economic structure to one where the state gradually brought back the private sector into nation building. This was done through initiatives involving support for the private sector,
creating the enabling environments for business to thrive and promoting economic integration with other States.\textsuperscript{25} This set the ball rolling for entrepreneurship to take off on the continent, albeit very slowly.

This entrepreneurial renaissance is reflected in the surfacing of a wave of very optimistic reports on the performance of the private sector in Africa in recent times. A study by Accenture (2010)\textsuperscript{26}, titled “Africa: the New Frontier for Growth” argues that the moment is right to look beyond BRIC to see Africa as the “new emerging market”, because Africa’s gross domestic product (GDP) growth of more than 5 percent during the 2000s has made it the second fastest growing region globally. They continue that this growth is very profound considering Africa’s very poor average growth rates of 2.5 per cent and 2.3 per cent in the 1980s and 1990s respectively. The report concludes that this very impressive growth-showing of the continent presents new opportunities for African businesses, which are growing at a faster rate than their peers in other parts of the world. A similar report by McKinsey Global Institute (2010)\textsuperscript{27} titled “Lions on the Move” also announced the claim of growth and potential of economies on the continent. They projected Africa’s GDP to be at $2.6 trillion in 2020, consumer spending to be at $1.4 trillion and about 128 million households to gain “discretionary income.” From these projections, McKinsey forecasts that in the near future a dynamic African business sector will play a more and more significant role on the economic stage in the world. They claim that they can already identify 100 companies with revenue above $1 billion on the continent. Further, an Ernst and Young report in 2011 from interviews with 500 business leaders shows Africa’s economic development as positive pointing to “stronger foreign direct investment (FDI) flows”, improved investor confidence, and in general, a “positive macroeconomic outlook” as signals.\textsuperscript{28} Adding to these, a study by the African Development Bank (AfDB) also in 2011, notes that
manufactured exports from Africa approximately doubled in the 2000s. Also, as a result of the fact that in 2009 FDI inflows to Africa reached $62 billion, the United Nations Economic Commission for Africa (UNECA) reported of a dramatic rise in FDI on the continent during the 2000s. This is reported to have reached about a 7-fold increase that decade.

This entrepreneurial renaissance cannot be fully understood by just looking at macroeconomic figures alone. There are several studies pointing to positive developments at the entrepreneurial level which are contributing to the phenomenon. First, a study by the OECD Center for Development in 2009, argues that growing numbers of businesses in Africa are moving from informality to formality due to improved governance and market institutions. Second, scholars like Olomi and Kelley et al argue that the world is presently witnessing the rise of an African entrepreneurial class who strive to build medium and large-scale businesses in the modern formal sector. Third, a number of studies describe the emergence of “national champions”. For example, the Boston Consulting Group (2010) published a report on 40 African companies that they perceived to be the fastest growing and globalizing arguing that a new “African Capitalism” is being defined as a result of “African Challengers” that are emerging from the “overlooked continent”. Finally, several reports (e.g. Accenture, 2010; Mckinsey Global Institute, 2010; Ernst and Young, 2011) highlight the surge in the number of foreign multinational corporations (MNCs) in the African business sector encouraged by improved conditions of doing business and changing views of Africa among decision makers of MNCs.

Although there is a lot of euphoria surrounding the rise of entrepreneurial pursuits in Africa and its economic possibilities, the prevailing business environment is anything but conducive. Some of the reasons for this include government policies that are hostile to business and bureaucracies that are intrusive, inefficient and corrupt. Also, this unconducive business environment is
brought about by regulatory regimes that “stifle entrepreneurship, impede business expansion, and penalize innovation through high taxation”. For instance, data from the World Bank shows that African entrepreneurs pay, on average, 57.1 percent taxes on their profits, which is one of the highest in the world. Data from World Bank *Doing Business 2015* report shows that while the ease of doing business in Africa has improved considerably, it takes 8 different procedures and 29.7 days on average to start a business, with only Latin American and Caribbean region being worse. Putting this in economics terms, it costs 67.4 percent of per capita income on average to start a business in SSA and a 125.7 percent of per capita income as paid-in minimum capital. Although as a group, the picture on average looks bleak, there are variations among individual countries in the report. For example, starting a business in Eritrea takes 84 days and 50.5 percent of per capita income; in Equatorial Guinea it takes 135 days and 98.6 percent of per capita income; and in Democratic Republic of Congo it takes 31 days and 200.1 percent of per capita income. Countries on the other side of the scale like Rwanda, Mauritius and Burundi appear to be more efficient. Starting a business in Rwanda takes 2 days and 4.4 percent of per capita income, in Mauritius takes 6 days and 3.6 percent of per capita income and in Burundi 5 days and 17.5 percent of per capita income. For Ghana, the figures are 8 days and 14 percent of per capita income.

From all these, we observe that as the continent transitions away from state-dominated economy to a more robust and sustainable economy powered by the private sector, complex and costly procedures are slowing entrepreneurial initiative and can likely stunt the potential of the private sector if not properly addressed. It is true that the continent is on a path to an entrepreneurial boom likely to produce the economic development that it so badly needs, however it can do more to accelerate this process.
2.2 Small and Medium Sized Enterprise (SME) and Start-ups

As we have seen, entrepreneurship in Africa is gaining increasing importance and is gradually being pushed as the solution to Africa’s economic and development woes. Although the private sector includes companies of varying sizes from large multinationals to the small and medium sized enterprises (SME), the SME sector in particular is a very significant player. For example, SMEs accounted for 3.2 million jobs and 18 percent of Kenya’s GDP in 2003 and were responsible for 95 percent of Nigeria’s manufacturing in 2005. Further, in Ghana, data from the Registrar General show that 90 percent of companies registered are in the realm of SMEs and 70 percent of Ghanaians are employed in microenterprises. For South Africa, SMEs account for almost half of the country’s GDP and nearly a fifth of employment.

This importance attached to the SME sector and its prospects for development has led to a lot of initiatives especially on the part of governments and international organizations to support it. In Egypt in 2004, the government passed an SME law (No. 84/2014) to improve and support the development of SMEs and set up a Social Fund for Development through its support programs to contribute to enhancing the growth of SMEs.

Start-ups are new ventures aiming for high growth often with funding from venture capitalists. They pursue global opportunities based on introducing customers to new innovations that have a clear competitive advantage and high growth potential. Although most people automatically associate the term start-up with tech start-ups due to its popularization by Silicon Valley’s technology ventures, it has grown to be representative of just more than tech start-ups. It is now very fashionable for almost any business venture starting out to describe itself as a start-up.
Hence we have biotech start-ups, social start-ups, lifestyle start-ups among others. This trend advised this researcher to be specific and hence the use of “tech start-ups” in this work, however any reference to start-ups in general in this work should be taken to mean tech start-ups.

There is the general tendency to interchange SMEs and start-ups as one and the same thing. In fact most governments and scholars are yet to differentiate between the two. Although there are reports to show the difference between the two concepts, an attempt to prove it goes beyond the scope of this work. However, in line with the general lumping up of SMEs and start-ups as one especially in the African context, start-ups will be seen as a different kind of SME, i.e. an SME focused on high growth and innovation in this work. In the following chapter, it will be seen that the failure to clearly dissociate this link is one of the challenges inhibiting start-ups from achieving their promise of economic growth and development for the continent.

2.3 Tech Start-ups

The number one trend that gives credence to the entrepreneurial renaissance across the globe is tech start-ups. Tech start-ups look to be the primary growth engine of the new information economy. It is believed that the recent development of start-up ecosystems all over the world has big consequences for the future of the global economy. This relationship between the entrepreneurial renaissance and tech start-ups was echoed by a report by Start-up Genome where they stated that “simultaneous with a global explosion of entrepreneurship has been an explosion in the rise of new start-up ecosystems around the world.” A special report by the Economist on tech start-ups described this phenomenon as “a Cambrian moment” equating the explosion in the rise of new start-ups to a biological evolution that happened 540 million years ago where life forms begun to multiply leading to what is popularly known in biology as the “Cambrian Explosion.” This allusion of tech start-ups to the Cambrian explosion presupposes that tech
start-ups like the Cambrian explosion are “reshaping entire industries and even changing the very notion of the firm.”45 Putting this in perspective, in 2015 Uber the world’s largest taxi company owns no vehicles, Facebook the world’s most popular media owner creates no content, Alibaba the most valuable retailer has no inventory and Airbnb the world’s largest accommodation provider owns no real estate. All these companies are tech start-ups who started operations less than a decade ago on average.

It is very difficult to find a common definition for tech start-ups that is universally accepted. In common terms tech start-up is a technology firm that is just starting and is still figuring out its business model but then is focused on growing quickly to become a big global company. Eric Ries defines it as a “human institution designed to create a new product or service under conditions of extreme uncertainty.”46 Steve Blank, a tech start-up expert, defined a start-up as “an organization formed to search for a repeatable and scalable business model”.47 Through these definitions, we find a common trend. The key attributes of a tech start-up is that it focuses on innovation and scalability. Tech start-ups use many kinds of innovation such as novel scientific discoveries, repurposing an existing technology for a new use, devising a new business model that unlocks value that was hidden, or simply bringing a product or service to a new location or a previously underserved set of customers. Scalability usually refers to a firm’s ability to grow. Tech start-ups are not just expected to grow but are expected to have high growth potential unconstrained by geography. This is because their solutions are believed to have a global reach due to technology and the internet.

According to the Economist the explosion in the number of tech start-ups is caused by “cheap and ubiquitous building blocks for digital products and services.”48 They continue that often these building blocks come in the form of snippets of code that are freely available on the
internet, and have easy-to-learn programming languages (such as Ruby on Rails and Python). Others are services for sharing code (GitHub), finding developers (eLance, oDesk) and testing product usability (UserTesting.com). Also “application programming interfaces” (APIs), digital plugs that are multiplying rapidly allowing one service to use another, is one of the cheap and ubiquitous building blocks for tech start-ups. For example, a person designing a product can integrate these “APIs” into his product - (Twilio), maps (Google) and payments (PayPal) - without having to rebuild them. The report emphasises that the most important of these building blocks are “platforms”- services that can host start-ups’ offerings (Amazon’s cloud computing), distribute them (Apple’s App Store) and market them (Facebook, Twitter). It further mentioned that the mother of all platforms is the internet, which is now fast, universal and wireless. For Africa, these building blocks also include the deep penetration of mobile telephony with over 564 million subscribers as at 2013 representing a 65 percent penetration rate. Africa has leapfrogged the use of telephone landlines for mobile telephony making available opportunities such as internet, SMS, and partnerships with mobile operators on which tech start-ups design some of their products. This trend is not likely to end anytime soon as mobile telephony is projected to reach a 91 percent penetration by 2020, still making Africa one of the highest and fastest growing regions for mobile telephony. The growing number of Africans being connected to mobile networks and the Internet is helping unlock market opportunities for tech start-ups which were previously untouched.

2.4 Start-up Ecosystems

Tech Start-ups, unlike other firms, usually operate in communities where they support each other to thrive. These communities consist of entrepreneurs, investors, mentors, universities, government, service providers and large companies. The largest start-up ecosystem in the world,
referred to as the mother of all start-up ecosystems, is Silicon Valley. It has set a global example as being birthplace and home to some of the World’s largest technology corporations and thousands of start-ups.

Silicon Valley’s beginning is traced to the 1960s where Russia edged ahead in the space race with the United States when it launched the Sputnik 1. This led to the creation of NASA which had to develop high-powered technologies so that it can put the first man on the moon. A company called Fairchild Semiconductor, which was located in San Francisco (home of Silicon Valley), was established towards fulfilling that need in the heart of the Cold War. This pivotal event is said to be the spark that ignited Silicon Valley’s innovative start-up culture some five decades ago. This is because Fairchild Semiconductor spawned dozens of companies like Intel, NVIDIA, and AMD (popularly referred to as “Fairchildren”) that provided the foundations for software and internet industries like Facebook and Google to flourish.

Countries around the world are doing their best to recreate and compete with Silicon Valley. A prominent example is the Start-up Chile program established by the Chilean government “to attract world-class early stage entrepreneurs to start their businesses in Chile”. China also has boosted its research and development spending by an average of 64 percent every year for the past six years and is making huge investments in the country’s university system with the hope of creating a Silicon Valley style between industry and the research sector. Meanwhile in Canada, the government is promoting a start-up visa policy with hopes that “some of Silicon Valley’s top tech prospects from around the world will consider setting up shop north of the border”. In Kenya, a presidential decree has opened 30 percent of public contracts to young entrepreneurs, especially those in its start-up ecosystem. All these efforts are increasing the
boom of start-up ecosystems across the world with Israel having been able to closely follow Silicon Valley earning the entire country the name “Start-up Nation”.55

2.5 Africa’s Start-up Ecosystems

The revolution in the rise of the number of start-up ecosystems across the world is not leaving Africa behind. Over the years, across its major cities, more and more start-up ecosystems are springing up in Africa. The most vibrant start-up ecosystems are found in Nairobi, Cape Town, Accra, Lagos, Dakar, Kampala, Dar Es Salaam and Johannesburg. In total, there are fully developed start-up ecosystems in varied shapes and sizes in at least 29 countries on the continent.56

So many factors contribute to the increasing number of start-up ecosystems; chief among them is the internet. The internet is known to increase productivity and adds to the GDP of an economy be it already developed or not. Empirical research has proven, with specific reference to developing countries, that a 10 percent increase in broadband and a 10 percent increase in wire line Internet penetration are associated to a 1.38 percent and a 1.12 percent increase in GDP growth, respectively.57 According to an International Telecommunications Union (ITU) report in 2013, Africa was the fastest growing region in terms of mobile broadband including 93 million subscriptions, 11 percent penetration and an 82 percent cumulative annual growth rate (CAGR) between 2010 and 2013.58 Painting the picture more clearly, a decade ago there were roughly 10 million internet users on the entire African continent. Today, that number has increased to over 160 million.59 These have largely been pushed by the opportunities provided by the proliferation in the number of undersea cables connecting to Africa since 2009.
Figure 1: Undersea Cables in Africa, 2009 and 2012

Source: http://manypossibilities.net

This is shown graphically in the figure above where in 2009, there was only one undersea cable connecting the whole of Africa to the internet. However, this shot up to 10 in 2012 and is still increasing, making internet more accessible, affordable and fast for uses on the continent. This does not only portray the frightening pace at which technological advancements move into the continent but also highlights the numerous opportunities it presents for entrepreneurship and development on the continent.

The internet is the backbone of the start-up ecosystem and this has led governments such as Rwanda, Morocco and Nigeria to place internet-driven growth firmly on their agenda where they have developed ambitious plans to expand high-speed internet access to large parts of their populations. For tech start-ups, this has led to a growing wave of innovation as they launch web
based ventures, from e-commerce sites and digital entertainment platforms to mobile health technologies and online education content.

Tech start-up ecosystems are made up of various components. An understanding of the tech start-up ecosystem in Africa will not be complete without looking at the roles of the various components that drive it. In the following section, we will be looking at the main drivers of the start-up ecosystem which are the regional and national policies, tech hubs, venture capitals, big tech companies, and the pool of skills and talent.

2.5.1. Regional and National Policies

The journey towards developing a comprehensive start-up ecosystem for the African region can be said to have gained traction with the development of regional and national policies. Recognizing the important role that ICTs play in helping countries attain development goals and the multiplier effect that it has on growth and socio-economic development, the United Nations Economic Commission for Africa (UNECA) took up the challenge and launched the African Information Society Initiative (AISI). The initiative was a common vision to bridge the digital divide between Africa and the rest of the world and to create effective digital opportunities to be developed by Africans and their partners so as to speed the continent’s entry into the information and knowledge-based global economy. The AISI established the National Information and Communications Infrastructure (NICI) whose main role is to develop and implement policies and plans within the wider national socio-economic development objectives, strategies and aspirations of African states at the national level. In Ghana, an ICT for Accelerated Development (ICT4AD) policy was developed in 2003 to simultaneously focus on developing the ICT industry while at the same time using ICTs to drive other sectors of the economy. In addition, the government established the Ministry of Communication to manage the convergence
of communications and technologies to promote a viable integrated national development process within a global setting. Kenya, through its Vision 2030 policy recognizes ICT as its foundation for a knowledge economy. The government in its effort to drive the development of the ICT sector launched its first National ICT Master plan. This is meant to drive its citizen’s adoption of the vision 2030 priorities through ICT policies and initiatives. The Master plan projects that by 2017 Kenya’s ICT industry will be contributing an estimated US$2 billion (some 25 percent of Kenya’s GDP) and would have created around 500 new tier-1 ICT companies and over 50,000 jobs. A lot of other African countries have adopted similar ICT for development policies. These policies have provided the foundation needed for tech start-ups to thrive although there is still more that can be done policy-wise.

2.5.2. Technology Hubs (Tech hubs)

Technology hubs are fast becoming the main avenues to find locally developed applications and start-ups as a result of their increasing proliferation across the continent. Tech hubs provide a unique environment where tech start-ups can start up faster. They nurture a network of entrepreneurs, serving as a place from which they can work, collaborate, meet, network and learn. Their central assumption is that by serving as a hotspot connecting the right people in a physical space, good ideas and innovations will result. Within less than 5 years the number of tech hubs on the continent has more than increased 10-folds. Currently Africa boasts of more than 90 tech hubs with more than half of the countries on the continent having at least one. They are located mostly in urban centres.
Figure 2. Tech Hubs across Africa

Source: World Bank
The figure above shows the distribution of tech hubs across the region as at February 2014. Most of these were built after 2010. So many more hubs are being built across the continent that is becoming difficult to keep track. From all indications, this trend will persist at increasing rate going into the future. This is sure to spur the proliferation of even more tech start-ups across the continent in the near future.

Hubs such as MEST in Ghana, the Co-Creation Hub in Nigeria and iHub in Kenya are generally considered as models for other countries. The trend of increasing tech hubs development and the economic development potential they hold has impressed the Kenyan government so much that it has committed to establishing a tech hub in each of its 47 counties. A study shows that start-ups that are part of hubs or participate in sector events are 23 percent more likely to get funding from investors or venture capitals.

Connecting all these tech hubs in Africa is a pan African innovation hub network called AfriLabs. AfriLabs currently is a network of 36 technology innovation hubs in 18 countries across Africa and is expanding. It aims to build an innovation infrastructure by supporting the development of start-ups, technology, and innovation that will encourage the growth of Africa’s knowledge economy. This was explained further by the Executive Director, Tayo Akinyemi, where she indicated that AfriLab’s contribution to the continent’s start-up ecosystem is “investing in building tech hubs, their infrastructure and ensuring the efficient distribution of resources.” AfriLabs also provides best practices, mentoring, networking opportunities and other resources for hub managers and high-potential entrepreneurs. With more than 200 hubs springing across the continent, it is fast becoming the stamp of recognition for tech hubs in Africa.
2.5.3. Venture Capitals and Angel Investors

Financing is very important in enabling start-ups scale their operations; as such their agents are very important to any start-up ecosystem. The main agents of high growth financing in Africa’s start-up ecosystem are Venture Capitals (VCs) and Angel investors. Venture Capitals and Angel investors on the continent are very few unlike in much matured start-up ecosystems in other parts of the world. As such, there is a shortage of funding for Africa’s start-up ecosystem.

Venture capitals operate by owning equity in the start-ups in which they invest which helps them generate economic returns for themselves and their investors. For instance, 88mph, invests up to US $ 100,000 per start-up in early stage mobile and web tech start-ups targeting the African market. Other noted VCs on the continent include IntelCapital, Sawari ventures, Adlevo Capital, Jacana Partners, and Gold Venture Capital Limited. A lot of the venture capitals on the continent have come together to form the continent’s largest online community of investors called VC4Africa. Angel investors, usually referred to as angels, are high-net worth persons who offer funding for start-ups in return for convertible debt or ownership equity. Angel investing is rising on the continent with VC4Africa reporting that angel investors have invested more than $27 million through its network on the continent. Governments recognizing the important role finance plays in developing the private business sector have also established venture capitals and other financing mechanisms to boost the activities of businesses in general. In Ghana, the government established Venture Capital Trust Fund to provide low cost financing to SMEs which then went on to set up the Ghana Angel Investment Network (GAIN) - a network to provide a formalized way to attract investors to invest in start-ups. The government also launched the Ghana Alternative Market, a sort of stock exchange market for start-ups, which seeks to provide an alternative exit route for VCs and then enable start-ups and SMEs to raise
capital to support growth and expansion. Because the venture capital industry in Africa is still nascent and a lot of the affluent do not yet trust the tech start-up model, a lot of funding for African tech start-ups comes from abroad. For instance, a Silicon Valley based venture capital firm EchoVC, which has invested in Facebook, LinkedIn and Bit.ly, has committed around $30 million to tech start-ups in Sub-Saharan Africa.

2.5.4. Big Tech Companies

Increasingly, big technology companies are establishing offices on the continent. Although this trend is attributable to governments becoming more stable, the growing middle class and the rise of mobile computing, their influx are leading to technological transfers and infrastructural investments that are essential for the start-up ecosystem. For instance, infrastructure-wise, Google has initiated Project Link which seeks to build a super-fast, high-capacity fibre network to enable any local mobile operator and Internet Service Provider to “connect more people to faster, more reliable internet”. It has already launched this in Kampala and is set to launch in Accra soon. Also, Microsoft has rolled out white spaces pilots in Kenya, South Africa, Tanzania, Ghana and Namibia meant to enable the delivery of broadband internet using dynamic spectrum access with unused spectrum usually used to deliver Television channels. Aside building infrastructures which creates opportunities for entrepreneurial pursuits among others, these big technology companies also invest directly in the start-up ecosystem. For instance, IBM has established innovation centres in Lagos and Cassablanca which give entrepreneurs of tech start-ups access to IBM technology and expertise as well as sales training and business and marketing support. Also, in 2013, Microsoft launched its 4Afrika program which gives grant directly to tech start-ups and partners with tech hubs and start-up incubators. Google is often noted as one
of the big companies at the forefronts of driving Africa’s start-up ecosystem. Recapping its activities over the years, its Country Manager for Ghana Estelle Akofio Sowah intimated:

…With the tech start-up community, we supported the establishment of tech hubs, so in Ghana specifically iSpace but we did this across Nigeria, Senegal, Kenya, Uganda, [and] South Africa. Our work with the developer community has resulted in the birth of many tech companies. Bringing the developer community together, providing them with the platform that they could share ideas, providing them with events where there could be trainings and networking, knowledge sharing. Many of our activities over the 6 to 7 years that Google has been intensively working in Africa has been to make the internet an integral part of the lives of the people in Africa and building a vibrant start-up ecosystem is a big part of that.  

2.5.5. Pool of Skills and Talent

The most important driver of the start-up ecosystem is the tech entrepreneur or co-founder. For tech start-ups, entrepreneurs are usually referred to as founders and it is not uncommon to find a start-up with two or more co-founders. Although it does not apply in most cases, the founders are expected to have complementary skills with the norm being one having technical skills (programming or software engineering) and the other, business skills. More importantly, tech start-ups need software engineers in order to realize their ideas. On the continent there is a lot of emphasis on the acquisition of ICT skills where aside the traditional higher education system, there are numerous private IT institutions training people to meet the demand. However, the supply and quality of software developers on the continent continues to be low and has warranted a lot of state intervention to inculcate ICT in their educational curricula. Also, the higher education system has been expanding at almost twice the global rate over the past 40 years on the continent. Even more importantly, about half of the students enrolled are studying social sciences, business and law, which are fundamental skills for entrepreneurs seeking to build a business. Also, increasingly there are Africans who go abroad and come back with skills relevant for the start-up ecosystem. For instance, the amount of Ghanaian students studying abroad more than quadrupled from 1900 students in 2007 to 9100 in 2012 and this is providing a
big pool of talents from which entrepreneurs emerge.\textsuperscript{77} Also institutions such as the Meltwater Entrepreneurial School of Technology (MEST) in Ghana, Nigeria and Kenya have structured programs solely to produce tech entrepreneurs and have graduated over 200 students since 2008.\textsuperscript{78} All these have led to the belief that Africa is building the right pool of skills and talent to support the start-up ecosystem and to boost a healthy generation of innovative start-ups which will help promote the development agenda of the continent.

2.5.6. Other Drivers: Government, Universities, Mobile Operators

Governments also form a huge part of the start-up ecosystem since organizations and institutions require a stable and good political environment to properly function. Although governments in African states are often associated with corruption, lack of vision and poor regulation which often tend to stifle entrepreneurship, there are signs of them recognizing the increasing importance of tech start-ups and taking concrete steps to encourage its development. Kenya has been lauded as the most innovative country in technology by far because of its good regulation and support from Government.\textsuperscript{79} In addition, the Kenyan government is planning a development known as Konza Techno City which will be a special economic zone aimed at attracting tech start-ups and other technological companies. In Ghana, the government cut sods for the establishment of tech parks, similar to Silicon Valley, in Tema and Cape Coast.

Universities are also ecosystem drivers. In the US, a survey done on Stanford Alumni Network revealed how former students help create jobs, revenues and social impact through enterprise, in particular start-ups\textsuperscript{80}. Universities also run entrepreneurial programs and sometimes provide funding to students with the best ideas to establish their ventures. Although this is not a big part of the operations of start-up ecosystems in Africa, some universities are beginning to take note of global trends and are initiating programs to support the advancement of tech start-ups. For
instance, in Ghana, the Kwame Nkrumah University of Science and Technology has established a tech hub which is meant to foster an innovative and entrepreneurial community building tech start-ups.

Mobile operators perform two crucial roles in the start-up ecosystem. First, since most of the products and services by tech start-ups are mobile, they rely heavily on mobile operators to distribute their products and services to customers. For lack of local payment options for applications on major app stores like the Android Play Store, mobile operators provide their own direct app stores where consumers can access the apps and pay locally for the apps. Second, mobile operators are increasing supporting the tech start-up ecosystem by directly investing and supporting their activities. For instance, Airtel run an app challenge across some countries on the continent, where winners who brought about innovative ideas were given funding and mentorship to develop their ideas into tech start-ups.

2. 6. Examples of some innovative Tech Start-ups across the Continent

Leti-Arts – A tech start-up with offices in Ghana and Kenya is redefining entertainment in Africa. It is one of the few interactive media studios on the continent and seeks to deliver entertainment content in a largely unexplored genre. It develops mobile games and digital comics which are influenced by African history and folklore.

mPedigree – Based in Ghana and lets people determine with a text message whether the medicine they bought or intend to use is genuine. The service operates in Ghana, Nigeria, Kenya, South Africa and India with pilots in Uganda, Tanzania, and Bangladesh.
Farmerline – Based in Ghana and provides farmers and investors with relevant agricultural information through voice and SMS messages directly to their mobile phones to help them increase overall efficiency. Unlike other mobile solutions for agriculture, Farmerline enables two-way communication in a variety of languages and works globally.

BRCK – A start-up based in Kenya that aims to fix Africa’s problem of spotty internet access by providing a rugged Wi-Fi router that uses cellular signals to provide mobile internet for up to 20 hours for eight hours of battery life.

Ushahidi – Founded in Kenya, Ushahidi develops software for information collection, visualization and interactive mapping. It enables local observers to submit reports (usually of crisis information) using their mobile phones or the internet, while simultaneously creating a geospatial archive of events. Ushahidi is used globally and has “mapped crisis” in Haiti, Chile, USA, Italy, Russia, Balkans, etc.

PesaPal – Founded in Kenya and having a model similar to PayPal, it is a payment platform that enables Kenyans to buy and sell on the internet using M-Pesa, Zap and credit cards.

Jumia – A Nigerian e-commerce start-up inspired by Amazon where people can purchase anything from electronics to clothes to home goods. It has a huge African presence – has a 90,000 square foot warehouse in Lagos and offices in Egypt and Ghana. It also delivers to Morocco, Kenya, Cote D’Ivoire, and Uganda.

Jobberman – A Nigerian start-up that provides increased access to job opportunities by serving as an alternative to recruitment agencies. Jobberman features jobs in Nigeria and Ghana and is the biggest employment website in sub-Saharan Africa with the exemption of South Africa.
**SMSGH** – Founded in Ghana, SMSGH offers bulk SMS solutions, SMS Gateway solutions and mobile web solutions.

**IrokoTV** – Is an African video-on-demand start-up and one of the first to stream Nigeria movies legally and generates revenue through advertising and subscriptions. It is the world’s largest online collection of African broadcast entertainment with more than 10,000 hours of especially Nigerian and Ghanaian movie content.

**Obami** – Is a South African-based social learning platform that brings people in the education system together. Students can make a profile and connect with like-minded people around the world, get news from schools and groups, and submit school work.

**MXit** – Founded in Namibia, it is a mobile instant messaging utility which offers a wide range of services including social networking, mobile voice clips, music & entertainment, banking access and community based applications.

**Dropifi** – Founded in Ghana, Dropifi is a web messaging platform which enables companies to better analyze, visualize, and respond to incoming messages from contacts. It has clients in more than 30 countries.

### 2.7. Conclusion

It is clear that there is a lot of activity on the continent in terms of entrepreneurship. At the time of putting this chapter together, the Nigerian billionaire Tony Elumelu had selected 1000 entrepreneurs across the continent to mentor and fund with a collective sum of US $100 million. Of the 1000 entrepreneurs selected, tech start-ups were the second largest group after agriculture.
It is hoped that this initiative by him, will set of other initiatives by affluent Africans and even governments so that the momentum of the entrepreneurial renaissance on the continent can be sustained. In this chapter, we sought to tell the narrative of Africa’s entrepreneurial renaissance. We saw that as more African states shift focus from a state dominated economy, a greater focus is being given to creating the enabling environment for entrepreneurship to thrive. We also sought to demystify the phenomenon of tech start-ups and tech hubs that are on the increase across the continent. Having broken down this phenomenon into components, we were able to see how its operations were ordered across the continent and also saw some examples of their innovative products. However, in spite of all these activities in the start-up ecosystem on the continent, there is still a lot that can be done to mature it. Compared to other ecosystems, it is yet to gain full maturity. As such it is prudent that we find out what its contribution to economic development is and the challenges that are inhibiting it from reaching full maturity. All these and more will be looked at in the next chapter.
ENDNOTES

4 World bank (2005); Commission on Growth and Development (2008), Danish Africa Commission (2010)
15 Ibid. pp. 21
17 Ibid. pp. 235-244
18 Ibid. pp. 235-244
21 Ibid. pp. 34-35
23 Ibid. pp. 7-8
25 Ibid. pp. 266
61 Ibid. pp. 4
63 Ibid pp. 11-12
65 Ibid.
66 Ibid.
70 Ibid.
74 Ibid.
78 Ibid. pp. 15
CHAPTER THREE

AN EXAMINATION OF TECH START-UP AS THE NEW FRONTIER FOR DEVELOPMENT

3.0 Introduction

The previous chapter gives a general feel of how the tech start-up scene is on the continent. It also touched on the surge in entrepreneurship on the continent which increasingly is leading to so much euphoria from the media and international donors and organizations. However, this entire phenomenon is still very nascent leading many to dispute such reports of an African rising and an entrepreneurial renaissance. Worsening the situation still, is the inability for scholars and stakeholders to measure the direct impact of entrepreneurship on the African continent.

Entrepreneurship as a field of study itself had always been side-lined by development scholars until recently. From the founding father of modern economics, Adam Smith, who is claimed to have “detested business men” to recent scholars like Leff who argued that “entrepreneurship is no longer a problem” or a “relevant constraint on the pace of development” in developing countries.\(^1\) Recently though, economists such as Holcombe place entrepreneurship centre-stage claiming that “the engine of economic growth is entrepreneurship.”\(^2\)

It is believed that Global development is reaching a new phase where the role of entrepreneurship will increasingly become significant. According to Win Naude\(^3\), there are at least three explanations for this phenomenon, each related to different types of countries. First, in the developed world, the managed economies of the 1970s through to the 2000s which was characterized by a heavy reliance on big corporations and mass production, has given way to what has been termed an “entrepreneurial economy”. In the entrepreneurial economy, there is a
huge reliance on knowledge-driven goods and services provided by smaller firms. Bolstering this is the emergence of an innovative class who require the state to play a more facilitative role instead of interfering in the production of goods and services. Second, in the emerging economies, particularly the BRICs (Brazil, Russia, India, and China), their “impressive growth has been driven by a veritable entrepreneurial revolution.” Innovative entrepreneurship has been emphasized in these countries due to their need to sustain economic growth through sustainable access to resources, markets, knowledge, and low-carbon industrialization. Finally, in the least developed economies, characterized by heavy dependence on aid, donors have been refocusing development cooperation towards private sector development. The population in many of these countries consists of many young people for whom the prospects of gainful employment with decent wages are very little. All these have led to the expectation that entrepreneurship will contribute to growth and job creation in developed, emerging and least developed countries alike.

In light of the above, it is easy to see why the entrepreneurial renaissance has led to a lot of euphoria and the general expectation of economic growth and development on the continent. Also since one of the main ways in which entrepreneurship contributes to economic development is through innovation, there appears to be a lot more focus on the activities of innovative firms particularly those in technology (tech entrepreneurs) on the continent. As such, this chapter will attempt to answer how this high growth firms or start-ups contribute to economic development. Further the chapter will examine some of the challenges faced by tech entrepreneurs and attempt to explain why there is a proliferation of tech Start-ups in spite of those challenges.
3.1 Tech Start-ups and Development

States have long recognized the important role that technology plays in helping them achieve their developmental goals. Particularly, with the introduction of the Information Communication Technology for Development (ICT4D) in the early 2000s, there was a lot of believe in its role to help countries attain the Millennium Development Goals (MDGs) as well as have a multiplier effect on the general growth and socio-economic development of states. To this end, the focus of state policies, international donors and multinational corporations have been to develop the ICT sector to accelerate the level of development on the continent.

Added to this appears to be the growing shift in development cooperation towards private sector development where entrepreneurship is seen as key. Here, the creation of new business firms is widely held as a panacea for the ills of the current structure of the global economy. Speaking recently to this, the President of the United States, Barack Obama, at the Global Entrepreneurship Summit held in Kenya expressed that:

...Everywhere I go, across the United States and around the world, I hear from people, but especially young people, who are ready to start something of their own -- to lift up people’s lives and shape their own destinies. And that’s entrepreneurship. Entrepreneurship creates new jobs and new businesses, new ways to deliver basic services, new ways of seeing the world -- it’s the spark of prosperity. It helps citizens stand up for their rights and push back against corruption. Entrepreneurship offers a positive alternative to the ideologies of violence and division that can all too often fill the void when young people don’t see a future for themselves...entrepreneurship brings down barriers between communities and cultures and builds bridges that help us take on common challenges together. 

Added to this, the World Bank, the UN, donor states and other developmental partners have joined the bandwagon in promoting entrepreneurship as part of the panacea to the development ills of developing countries. The Economist described this effectively, in their assertion that entrepreneurship is “an idea whose time has come.”


It makes sense then for the intersection of ICT4D and entrepreneurship to be perceived as important to the developmental agenda of African states. In fact three pillars of the fourteen pillars of Ghana’s ICT4D strategy are aimed to enhance the operations of entrepreneurs and the private sector: facilitating the development of the private sector; developing an export oriented ICT products and services industry; and developing a globally competitive value-added services sector as a regional business service and ICT hub. For Kenya, a key pillar of their Vision 2030 development strategy, which aims to maintain a sustained economic growth of at least 10 percent per annum from 2012 and beyond, is Informational Technology Enabled Services (ITES). Konza Technology City, the flagship project under the ITES pillar, aims to create more than 20,000 direct jobs and increase its contribution to the Kenyan GDP by ksh10 billion.

Tech Start-ups are right at the centre of this intersection. As we saw in the previous chapter, they have built around them a vibrant ecosystem that seeks to champion their cause and spread their goodwill. And their efforts are not going unnoticed. At the same Global Entrepreneurship Summit, President Obama praised their efforts by stating that:

...young people like you are harnessing technology to change the way Africa is doing business. And that creates opportunities for Africans and the world. It means more growth and trade that creates jobs in all countries. It's good for all of us. This continent needs to be a future hub of global growth, not just African growth.

Tech entrepreneurs, developers and other stakeholders meet regularly in events across African cities where they discuss how their activities could promote development. An example of such events is Barcamps. Barcamps, a global phenomenon of “tech un-conference” originating from Silicon Valley, has been the launch pad of some of the successful tech innovations on the continent. For example, Barcamp Nairobi was very instrumental in developing the idea of Ushaihidi and bringing its founders together. It also eventually led to the creation of the iHub, one of the biggest tech hubs on the continent. By meeting regularly at such events, start-up
ecosystems often create a strong community which champions their cause and spawn a lot of initiatives and programmes that add to their ecosystem.

From interviewing tech entrepreneurs and other stakeholders in the start-up ecosystem on the continent and relevant literature, this researcher finds three main contributions of tech start-ups to the economic development of African countries. These are enhanced competition (productivity), innovation and job creation. It should however be noted that these might have overlapping properties and as such are not mutually exclusive.

3.1.1 Innovation

Innovation is often cited as the most important contribution of tech start-ups to economic development in Africa. Innovation involves the translation of an idea into an application. Often a lot of tech entrepreneurs claim to be innovative which usually involves bringing new-to-the-world ideas into a technical, market or business model domain. It also involves the entrepreneur’s awareness to build a competitive advantage which comes about as a result of taking today’s resources and doing something distinctive with them – what Schumpeter calls “new combinations.”\textsuperscript{11} Technology, process, business model, and more are some of the various ways in which innovations are manifested. This is to say that, it is not only by producing a particular technology that innovation is born. Varying the process and business models could also lead to innovation.

According to Wim Naude, entrepreneurs in developing countries have a “much greater propensity for innovation than is often recognized in the literature or by policy makers.”\textsuperscript{12} This can be attributed to the fact that tech entrepreneurs on the continent often try to use technology to find localized solutions to localized problems and also attempt to solve problems of global
The often cited story of MPESA (known popularly in other parts of the continent as mobile money) is still very relevant in this context. MPESA – an SMS based money transfer system that allows individuals to deposit, send and withdraw funds using their mobile phones – could not have started in the West. This is because they have a well-structured formal financial sector unlike that of Africa where a majority of the population is in the informal sector. Faced with this unique problem, it only makes sense that the solution will come from the continent. Currently, more than 45 percent of Kenya’s GDP flows through MPESA and since 2009, access to formal financial services has increased to 67 percent from just about 41 percent of adults.\textsuperscript{13} It is this phenomenon that people refer to when they emphasize the potential for economic development by tech Start-ups. The ability of the solutions of tech start-ups to have rippling effects to other industries and create indirect employment has often been cited as the reason to promote the activities of tech entrepreneurs.

This sort of localized solutions to localized problems can be found in other sectors of the economy. A famous example in the entertainment sector is the solution by IROKOtv. IROKOtv often called the NetFlix of Africa is a web platform that provides paid-for Nigerian and Ghanaian films. Charging a subscription fee as low as US $ 3 per month, it has proved popular with people in the diaspora and has become a medium for film makers to get dividends from their toils helping to ease the effect of piracy on their revenue.\textsuperscript{14} Another innovative tech Start-up in the entertainment industry is Leti Arts. In the CEO’s own words:

\textit{We are in a very unique spot in terms of entertainment, especially in video games. We want to use technology to make entertainment fun. In that way, we leverage on African history and folklore and use technology to present it in a format that younger generations of today can relate [with]. We are creating an industry too, since it’s a new space, we want more people to dive in…what we are trying to do is what the Japanese did with their culture, Naruto games and comics.}\textsuperscript{15}
He goes on to explain with a lot of enthusiasm that the game industry in Africa has a lot of potential which is underserved especially since in other parts of the world like the United States the game industry generates more revenue than the movie and music industry combined.

In agriculture, there is Farmerline, which uses voice SMS to provide agricultural extension services to farmers using mobile phones. And then there is eSoko which provides a market place for farm produce, making farmers and customers know the current price of a commodity before going onto the market. In health, the tech start-up, GiftedMom uses low cost technology to help mothers and pregnant women access medical advice in rural communities. This start-up has set itself the ambitious goal of solving one of Africa’s biggest and oldest problems – that of maternal and infant mortality – starting from Cameroun. Further, one of the often touted success stories in health is that of mPedigree which is credited with having come out with a novel innovation that is spawning its own line of industry. In their own words:

We are in the business of ultimately saving lives, building systems, and empowering consumers. We are trying to create a brand new industry where we seek to authenticate products, where we seek to ensure that customers buy goods from the legitimate producer. Before we came into operations, counterfeit medicines and counterfeiting in general were a major concern for countries on the continent and beyond. It still is but now we are taking major steps with our solution to ensure that it soon becomes a thing of the past.16

From all these examples, it is almost aweing how widespread the reach and how grand some of the problems start-ups are attempting to solve. At the basic level, what is evident is that their solutions increase the welfare of a lot of people. By solving a problem unique to the African geography, which will have most likely remain unsolved if left to others, they are at a threshold of bringing increased development to the African continent.

Critics argue that some of the products put forward by tech start-ups from the continent cannot be classified as being innovative. They posit that those start-ups mostly replicate innovations from developed countries that have worked and as such are not coming out with anything
original. They explain that this is as a result of two main factors. First, unlike in developed start-up ecosystems like Silicon Valley, a lot of the innovations developed on the continent are not based on research and development. Very few tech hubs, not to mention start-ups, have research facilities. As such, most times, no serious research is done in attempts to tackle the myriad of challenges facing the continent. This could probably lead to half-baked ideas and cause the solution or innovation not to have the desired impact. Second, there appears to be a disconnect between tech start-ups and universities. Whereas universities like Stanford and MIT play a huge role in the start-up ecosystems in the United States or other developed countries, the idea of tech entrepreneurship is yet to fully hold in African universities. Tech entrepreneurs believe however that universities on the continent should be a necessary part of the ecosystem as “making relevant innovations start from those educational institutions” and with all the existing research lying on their shelves, they should have the ability to “license some of their research as innovations.” However this appears to be improving as some universities are having tech hubs of their own. Kwame Nkrumah University of Science and Technology (KNUST) in Ghana and Strathmore University in Kenya all have very functional tech hubs that are helping in building tech start-ups right from the universities.

In spite of these criticisms, others are of the view that the act of adapting innovations from other parts of the world to suit the local context is itself an innovation. This is because certain solutions although available in the developed countries might not be readily available in developing regions like Africa. However since such software’s appeal and tendency to enhance productivity is universal, it becomes necessary for start-ups here to create local versions that can be easily accessed on the continent. For example, the start-up called Rocket Internet has been very successful in replicating and adapting innovations from the developed countries that have
worked into the African context and has been operating with offices in Nigeria and Ghana. Some of their products are Jumia, which is adapted from Amazon, and Kaymu, adapted from E-bay. Even more there are clear examples of start-ups on the continent coming out with novel innovations that are being exported to the rest of the world. The best known examples of this are MPESA, mPedigree and BRCK. This has become the case because the start-ups are producing solutions to local problems that are obvious from the African context. As such it is almost impossible for any other individual without the right African context to come out with such innovations even in spite of research. Hence by solving problems unique to the continent and sometimes beyond, start-ups are helping raise the welfare of people living on the continent.

3.1.2 Job Creation

A lot of studies point to the fact that start-ups or small companies create jobs in the communities that they operate. A study by Vosloo lists the general advantages of small firms in developing countries as having a higher propensity of innovations per employee, greater flexibility, higher growth and job creation rates as well as being better suited to servicing local market needs. Further, studies by Audretsch et al have concluded that countries that have gained a greater share of smaller firms often tend to experience higher economic growth and development. Even more, a study of job creation in Sweden by Anderson and Delmar define start-ups as the top ten percent of job creators in absolute numbers. In November, the Ewing Marion Kauffman Foundation released findings that “start-ups and young firms account for nearly all net job creation in the United States.” Summarizing all these, Enrico Moretti in the *New Geography of Jobs* posits that:

Innovative industries bring good jobs and high salaries to communities where they cluster and their impact on the local economy is much deeper than their direct effect. Attracting a scientist or software engineer triggers a multiplier effect, increasing employment and salaries for those that
provide local services. In essence, a high tech job is more than a job...research shows for each high tech job, five additional jobs are created outside the high tech sector.\textsuperscript{21}

Inferring from these studies, it is expected that start-ups and SMEs on the continent will report a similar level of job creation on the continent. Evidence found on the continent and opinions from interviews point to a similar trend.

To start with, high levels of unemployment remain a chronic problem to the development efforts of most developing countries. In the particular case of Africa, this is compounded by the continent’s burgeoning youthful population which makes up more than 60 percent of the continent’s population and accounts for about 45 percent of the total labour force.\textsuperscript{22} In spite of this trend, most African countries in complying with the conditions of the Bretton Woods institutions to structurally adjust have retrenched large numbers of public sector workers. For instance, in early 1995, the Zimbabwean cabinet ordered all government ministries to reduce their staff by 40 percent, which translated to about 10,000 people losing their jobs by the middle of the year.\textsuperscript{23} Currently, in complying with directives from the IMF, there has been a freeze on employment into the public sector in Ghana. All these have compounded the unemployment situation in countries with the result being mass complaints of university graduates being unable to get jobs popularised in Ghana by the term “graduate unemployment.”

This has led states to look for ways to enhance employment and job creation. In Ghana, on April 15 2015, the government launched the National Employment Policy which in sum puts the onus of job creation on the private sector. It states that:

\begin{quote}
...government policy on employment generation will emphasize the provision of a favourable environment for private investment and job creation. Government will continue to maintain stable and favourable macroeconomic policies, pursue vigorous human resource development, provide basic infrastructure and additional incentives to support a vibrant private sector as the engine of economic growth and job creation in Ghana.\textsuperscript{24}
\end{quote}
The National Employment Policy also goes on to acknowledge tech Start-up as the fastest job creators in the country at the time. It states that:

Information Technology/Business Process Outsourcing firms [Tech Start-ups] are the fastest employment generators in Ghana today. Affiliated Computer Services (ACS) which was established in the country in November 2000 with 85 workers employed 1400 persons in early 2004 with an end of year projection of 2000 persons.25

Further, the worsening unemployment situation on the continent especially among fresh graduates is leading most of them to want to start their own businesses after leaving school. Often they create businesses by identifying problems in societies and adding a commercial model to it creating a lot of jobs in the process.

Start-ups are also uniquely placed to employ fresh graduates where most traditional business will require years of experience. This is because tech entrepreneurs are usually young people and most of the skills required by start-ups such as writing codes or computer software are mostly found in particular with the youthful generation. Alex Adjei Bram, the Co-founder of SMSGH, put this in greater perspective by emphasising that “start-ups have employed fresh graduates, given them a chance into new employment that traditional companies will not. People [that] traditional companies will treat as interns, start-ups will treat as full time employees and pay them the commensurate salaries.”26 As such it is an observed trend that young people build start-ups and create a lot of jobs for their peers in the process.

Technically, traditional large companies, agriculture and the government remain the biggest employers on the continent. However, like in other parts of the world, it is becoming clear that SMEs and start-ups are the fastest growing employers on the continent. This is partly due to their nature for high growth and proliferation. Also, start-ups are reportedly to indirectly have a 10-fold multiplier effect on employment. Explaining further, Cecilia Guilford, an ICT Innovation
Specialist at the World Bank was of the view that “start-ups need people, they need services, they create services and there’s employment attached to that.”27 That is to say, the solutions provided by start-ups often tend to have spin-offs through which others are able to build or provide further services.

3.1.3 Increased Competition

One of the ways that innovative entrepreneurship promotes economic growth and development of states is through increased competition. This is summarised by a study by Geroski which concludes that “…competition plays a significant role in stimulating productivity, with both new firms and new ideas provoking movements to, and outwards movements of, the production frontier which, the data suggest, would not have occurred in their absence.”28 This means that the activities of start-ups often tend to enhance productivity and efficiency among their firms and other industries. A classic example of this phenomenon can be found in the 2015 annual letter to shareholders of America’s biggest bank, JP Morgan Chase. In the annual letter the CEO, Jamie Dimon, warned that “there are hundreds of Start-ups with a lot of brains and money working on various alternatives to traditional banking” and assured the shareholders however that they should be “rest assured, we analyse all of our competitors in excruciating detail – so we can learn what they are doing and develop our own strategies accordingly.”29 The competition is not restricted to the financial sector alone however. Telecommunication companies are facing competition from instant messaging start-ups like WhatsApp, Skype, and SnapChat; Traditional taxi drivers and taxi companies are facing competition from start-ups like Uber and EasyTaxi; the hospitality industry like hotels are facing competition from AirbBnB, Hotels.ng and so many others. These start-ups are threatening to drive traditional companies out of business such that their only option is to compete or be forced out. As have been widely acclaimed, competition is
always good for any economy as it often means increases in welfare and development. Competition pushes companies to deliver better goods and services faster and at cheaper rates. This does not only benefit the firms themselves but also make consumers better off.

The tendency for tech start-ups to disrupt industries and increase competition among firms is resonating in Africa too. According to the CEO of Rancard, Kofi Dadzie, “start-ups invariably contribute to innovation and their innovation may provoke and drive the rest of the market to compete to respond. So they don’t just develop innovation from within but then provoke a broader market to innovate.”30 In other words, some of the innovations that start-ups come up with are further built on by others thereby causing the existing market to come out with better solutions to address those problems. For instance, the mobile money services are attracting a lot of attention from the traditional banks. In Kenya, Equity Bank has also acquired a license from the Kenya Communications Authority in order for it to use SIM overlay technology to give it reliable access to the mobile channel through which it will directly serve customers without relying on mobile operators like Safaricom, something similar to MPESA but being done by a traditional financial institution.31

Further, competition among start-ups on the continent is usually to prove the market as very few start-ups have managed to be overwhelming successes like Google and Facebook. In the e-commerce space especially, there has been a lot of Start-ups competing for the market share. In just Ghana alone there are Tonaton, OLX, TISU, Kaymu and Jumia. These competitions have caused them to enhance their innovative strategies with some enabling home delivery of bought goods, payment on pick-up and promoting the adoption of online payment platforms. It is believed that this would increase the productivity of the entire production spectrum as the ease of transacting in an online market place will release resources for other productive ventures. As
start-ups drive competition from the broader market, one can only expect it to lead to an increase in the welfare of people thereby promoting economic growth and development on the continent.

3.2 Challenges of Tech Start-ups

Despite all these economic development prospects and the euphoria surrounding the tech Start-up scene in Africa, the troubling reality is that they are faced with so many challenges that will make any critical observer doubt their ability to realize this potential. Due to these challenges a lot of start-ups on the continent fail or fold-up and are unable to grow their ideas or innovation for it to have its desired impact. This trend is not unique to Africa however. A study by a Harvard professor on the success rate of start-ups in Silicon Valley revealed that 75 percent of start-ups fail. This figure is sure to be greater on the continent as Africa’s start-up ecosystem is not as developed as that of the West. It is therefore necessary to identify the challenges facing start-ups on the continent so that we can curb this worrying trend to ensure that they deliver on their promise of economic growth and development. The researcher found the following to be the greatest challenges facing tech Start-ups on the continent: finance, skills and talent, infrastructure, access to market, immaturity of the tech start-up ecosystem, and government regulations.

3.2.1 Finance

Almost every single entrepreneur that the researcher interviewed complained of finance as the major hurdle it faces running a start-up. For instance, Alex Adjei Bram, CEO of SMSGH, summed it up neatly by painting the picture that “in places like the Silicon Valley there is a lot of cash available for good ideas. You only have to come up with a good idea and show that you have the team to build up that idea and the capital will follow you. It’s not like that here. We can improve our access to capital.” Supply and access to capital are very essential ingredients for
any entrepreneurial ecosystem. Currently, the main sources of capital for new entrants and growing start-ups are retained earnings, credit cards, and investments from family and friends. Sometimes tech start-ups also get funding by winning competitions and by pitching their ideas at tech events. Access to capital from formal avenues - like banks, venture capitals, angel investors, incubators, and big corporations - have proved the most difficult. For banks, the entrepreneurs complained that they charged a high interest rate such that it impeded their profitability. Even more, some banks require 150 percent of the borrowed amount as collateral, which effectively rules out many tech start-ups from being eligible for funding.

A further explanation for the dearth of financing on the continent is the difference in expectation from investors and tech entrepreneurs. Entrepreneurs are of the view that investors, particularly Venture Capitals, come in with very strict measures and revenue expectations which are often very difficult to prove. Eyram Tawia CEO of Leti Arts, a game development start-up based in Ghana and Kenya, explains this point further that “if VCs come in expecting not to make any money in 10 years, yes…those are the sort of VCs we want. People to come and invest truly…to help you prove and validate the market because the market might exist…you go through a lot of challenges to monetize fully and generate revenue.”

However, the investors expect the entrepreneurs to prove why they are better than the others competing for the same limited pool of funding. This means that the entrepreneur should be able to demonstrate that they are profit-driven, interested in maximizing returns for themselves and the investors, and have a potentially profitable business. Ironically, while tech entrepreneurs cite a short supply in finance, investors complain about a general dearth of fundable business plan, often citing issues ranging from the quality and feasibility of the business idea to the commitment of the entrepreneur and his/her team. The tech entrepreneurs further posited that local African investors do not fully understand
the tech start-up model and as such shy away from investing in it and instead put their funds in
the tried and tested sectors, like agriculture.

3.2.2 Skills and Talent

Africa is noted for having a very high informal sector as a significant amount of its
entrepreneurial activities are informal. As such, there is a shortage of skilled labour. For tech
start-ups, it is a big problem – “you have so many great ideas, but there are not enough skilled
people to help bring that idea to light.”35 Also, tech entrepreneurs often tend to have technical or
ing engineering backgrounds, or have received very little to no business management training. In
order to scale their start-ups, there is the need for experienced managerial talent to complement
the technical talent. However, start-ups face severe competition from well-established
corporations that have the means and security to hire those talents. While 86 percent of tertiary
institutions in Sub-Saharan Africa offer a course in entrepreneurship, only 7 percent have an
entrepreneurship centre dedicated to entrepreneurial development; 28 percent offer courses
specializing in entrepreneurship; and 10 percent offer a course in innovation and technology.36
This has led to the situation where the culture of innovation is lacking in schools on the
continent. For tech start-ups the level of technical skills on the continent is said to be inadequate.
Neal Hansch, the managing director of the Meltwater Entrepreneurial School of Technology
(MEST) asserts that “not having enough software developers in the ecosystem that when our
companies are growing they can hire” is a major challenge.37 The quality of the technical skills
is also an issue of contention: Osborn Adu Kwarteng the CEO of PaySail makes the point that
there is not “enough talent here. People can code, build stuff, etc. but looking at what people are
building in the West and you use and feel good about them, it’s not happening here but we are
trying.”38 Further, the continent is unable to develop strong entrepreneurial skills base due to the
general culture and support system from society. On the continent, there are very few avenues for one to discover his/her passion as well as build the confidence required to turn the passion into a business. Instead, parents and guardians pressure their kids into studying more professional courses. This situation has created an environment on the continent where entrepreneurship is not encouraged, so much so that people are tagged as “crazy” when they decide to work for tech Start-ups or develop their own business.

3.2.3 Infrastructure

For tech entrepreneurs, the poor state of infrastructure in Africa serves as a major challenge to the growth of their start-ups. The poor state of infrastructure on the continent severely affects the entrepreneur’s cost, market access and efficiencies. The biggest of these infrastructural challenges to tech start-ups are access to constant electricity power and the high cost and low speed of internet. Aside South Africa, the rest of the three countries surveyed – Ghana, Nigeria and Kenya – have serious issues with the adequate and reliable supply of electricity. This is however more prominent in Nigeria and Ghana, where the use of diesel generators to supplement the national grid has become a necessity adding to the already burdensome cost of running a start-up. Speaking to this, Alex Adjei Bram of SMSGH, opined that “typical start-ups will start off from a home with very limited and basic resources like electricity, internet and some basic tools. But if homes are struggling like what we are experiencing in Ghana, Nigeria, Kenya and other parts of Africa where there are problems with power, then it’s a big problem.”39 Further, although the internet situation is improving across the continent, Africa still has some of the lowest speed in the world. Compounding this situation is its very high cost to the tech entrepreneur and the average user. A 2014 Alliance for Affordable Internet (A4AI) report which surveyed 51 emerging and developing countries found that “not a single country can claim to
meet the affordability benchmark set by the United Nations (UN) Broadband Commission of broadband priced at less than 5% of monthly income for those potential users surviving on less than $2 a day.”

The high cost of the internet presents another undesirable situation to the tech entrepreneur; because most of their products rely on the internet to function, the high cost of the internet discourages its adoption among users.

Further, there have been investments in the infrastructure of the internet by both governments and the private sector in the recent past meant to ultimately make the internet more affordable. However, many tech entrepreneurs and users of the internet complain of not feeling any drastic reduction in the cost of broadband as anticipated. In explaining the reasons for this from insights gained from investing in high speed fibre optics networks in Kampala, the country manager of Google Ghana, Estelle Akofio Sowah, confided that “whereas the network cost must have come down due to our investments, most of [the] other operating costs for African businesses continue to go up. And for many of the ISPs [Internet Service Providers], this does not necessarily translate to profit just because they are saving on some costs.”

3.2.4 Access to Market

Another major issue that tech entrepreneurs have to contend with has to do with the tech savviness of the market which they are serving. Although there is a proliferation in the adoption of mobile phones on the continent, a recent PEW research finds that texting and taking photos and videos are the most common activities that Africans use their phones for with an average of 15 percent owning smartphones across the continent. Although this comes with a lot of opportunities, it also comes with problems as a lot of the innovations of tech entrepreneurs require the use of smartphones or the internet. The culture of use of the internet even among the very elites is yet to catch on like it does with the West. Whereas start-ups have provided
solutions for getting directions or classifieds for contacting business or shops, it is still a common culture even among the “tech savvy” to instinctively ask those around them instead of check with the solutions provided. Although there appears to be an attitudinal shift towards using more technology, signified by the mass adoption of mobile technology across the region, the present state of developments put a significant strain on the success of tech start-ups.

3.2.5 Immaturity of the Tech Start-up Ecosystem

The tech start-up ecosystem in Africa is still very nascent. As such so many of the parts that come together to make ecosystems flourish are yet to fully develop. The start-up ecosystem in Nairobi, which appears to be the most developed on the continent, is still developing its components. Most of the various components especially the tech hubs are still trying to figure out their business models. Also the ecosystem depends on donor funding, and struggles to find a sustainable model of funding itself. More importantly, start-up ecosystems thrive by having others with experience serve as mentors, guiding and leading new entrants to the ecosystem to succeed. However, this is often not the case in ecosystems on the continent. Speaking to this, Neal Hansch of MEST intimated that there is little to no “second, third and fourth time entrepreneurs...which usually is an important part of an ecosystem for mentorship and angel funding which also leads to venture funding.” Also, there are not enough success stories to inspire and motivate upcoming entrepreneurs like exist in matured start-up ecosystems in other parts of the world. However, players in the ecosystem are optimistic that this will soon be the case. Ben White, the Co-founder of VC4Africa observed that “we are half way there. A number of entrepreneurs are starting to achieve a level of success [by which] they are able to invest in a new generation of entrepreneurs coming up. This is when we come full circle.”
3.2.6 Government Policies

Most African states have been doing a lot to support the development of entrepreneurship on the continent. A look at their development policies reveals a lot of emphasis on strategies to promote private sector participation. However, programs proposed are often mass-scale designed with a one-size-fits all kind of approach to all forms of entrepreneurship. Because start-ups are not the usual traditional kind of businesses, the policies offered by government sometimes tend to inhibit their performance. This is because tech start-ups, especially at their nascent stage, are often trying to figure out their business model and fine-tune whatever innovation they have for the market. As such, subjecting them to the same level of requirements and “bureaucracy” as a regular SME tends to stifle their innovation. Commenting on this Eyram Tawia was of the view that:

…tech start-ups are treated as traditional companies. How do you start taxing a start-up right from the day that it registers? Because there a lot of challenges on the way, it is not a guaranteed market like selling a product in the market in the traditional sense of it. Instead of guiding a start-up that has potential to make GHs 70 billion in 3 years and tax that 70 billion, they start taxing the GHs 1 and GHs 2 that we are making immediately which is very discouraging. Policies would have to be geared towards growing the start-up space.

This is understandable considering most successful start-up ecosystems including Silicon Valley enjoy such government assistance. Complicating the operations of start-ups are the complex tax regimes making it hard and impossible for start-ups to navigate and fully scale. This is because the nature of start-ups often makes them unaware of the numerous tax codes existing in any particular country. Commenting passionately on this, the CEO of SMSGH was of the view that:

We need to look at taxes; there are so many tax laws that you’ll always fall foul. In Cameroon for example, there are quite a number of successful [companies] or companies that could have been successful but they just don’t want to come out because of the tax regime. They fear the tax regime will take away everything they have and that’s a real threat. Also, if let’s say you do something to reward society and society rewards you, and then another person comes and says you have to pay up to 50% of that reward back to society, I don’t think it’s fair…it needs to be looked at again. Because the reason that people will want to solve social problems is for the reward, its age old wisdom.
This passionate call for changes to the tax regime is not far-fetched however; other countries have gone a long way to provide special tax breaks and incentives to nurture their start-up ecosystems. If countries in Africa want to fully benefit from tech start-ups, then taking a second look or creating policies suited to their survival and growth will be in the right direction.

**3.3 Reasons for the Proliferation of Tech Start-ups in Africa**

In spite of all the challenges faced by tech start-ups on the continent, there are more of them springing up every day. A brief look at the number of tech hubs that have spread across urban centres on the continent might lead one to conclude that the rise is just beginning and that there are still more to be seen. Championed by competitions known in the tech cycles as “hackathons”, winning ideas or prototypes are promised mentors and sometimes incubating space to build and grow their start-ups. The main reasons for this proliferation are that the phenomenon is trendy now, ease of entry, unemployment, new market opportunities and attitudinal shift.

**3.3.1 Start-up Phenomenon is Trendy**

Stories of people building multi-million dollar start-up companies from their parent’s garage have filled the media around the world for some time. The West and especially Silicon Valley abounds with stories of tech start-up firms that are solving some of the World’s biggest problems and making a lot of money in the process. This has aroused a strong interest in the phenomenon of start-ups across the continent. Explaining it further, Osborn of Paysail comments that the proliferation of tech start-ups is because it is “the new cool, people like the whole Silicon Valley hype and want to be part. Then we realise in Africa there is not much around, there is still a lot to be done even though people are doing stuff. …it’s because of the trends in the West, what people are seeing happening in the US and other places; they feel they can replicate it here.”

Even more, it has become very fashionable for a lot of entities to attribute start-up status to their outfit.
Even some large corporations and international organizations claim they are restructuring their operations to run with the start-up model. All these is increasingly making the start-up “catch-phrase” increasing popular on the continent and as such we are sure to see more start-ups build up in the near future.

3.3.2 Ease of Entry

Becoming a tech entrepreneur appears to be easy. They do not need a lot of initial investments to start, although they require a lot more investment to sustain and expand their start-up, which is the challenge. Believing the adage of starting a business right from your garage (the Google and Apple story), most young Africans start their companies with the very basic assets – often a laptop and a good internet connection. After having started their start-up with basic assets, they then go on to seek investments and mentorship to grow. At numerous tech events that the researcher attended, it was common to find tech entrepreneurs and developers demoing their latest offering to those present. Often most of them do not have physical office spaces nor have other employees aside themselves but are already fully fledged tech start-ups.

3.3.3 New Market Opportunities

Across the continent, investments in ICT infrastructure appear to be growing especially with the adoption of ICT for Development policies by most countries. These investments are increasing the adoption and use of the internet and mobile phones. These, coupled with Africa’s growing middle class, present new opportunities of how entrepreneurs could reach a wide range of people with their offerings. Ben White, Co-founder of VC4Africa summed up this thought by arguing that in Africa there is the potential for “1 billion people to be connected to mobile networks and the internet. There is a growing middle class and increasing stability. These factors work to unlock a market opportunity previously untouched.”48 Further, as more and more Africans come
online, they will need a lot of local content and services. As such, it is said to be a natural response for a lot of tech start-ups to develop to fill those needs.

### 3.3.4 Unemployment

As already indicated, unemployment remains a massive canker to the growth and development of societies on the continent. A lot of people are of the assertion that Africa’s burgeoning youthful population is a time bomb waiting to explode especially in the face of the pervasive unemployment situation of African countries. Compounding this situation further is the phenomenon of “graduate unemployment” where graduates from universities are unable to get jobs. It is observed that more and more graduates passing through the tertiary education system on the continent are exposed to computer education and this makes the pursuit of entrepreneurship in the field of technology a viable option. They are often said to have been “born with a computer chip in their brains and as such it makes sense for them to increasingly look to technology entrepreneurship.” As such, many opt to start their own businesses and increasingly in the tech start-up space mainly for its ease of entry.

### 3.3.5 Attitudinal Shift

One of the biggest reasons tech entrepreneurs on the continent give for starting their own start-up companies is the desire to make an impact by solving some of the most pressing problems facing society. This changing mind-set has resulted from growing distrust of leadership especially among the African youth in their ability to effectively tackle the numerous problems facing the continent. To this end, a lot of Africans have taken the mantle into their own hands to solve some of the continent’s most pressing problems. Especially, with members of the millennial generation, there is the belief that a lot of the problems facing the continent can be solved with
science and technology. As such, you will find a lot of them across the various tech hubs of the continent tinkering on ideas and products in attempts to tackle problems.

3.4. Conclusion

Innovation and the creation of jobs are very necessary conditions for any country to develop especially in the face of the global unemployment pandemic. This means that tech start-ups could be the next frontier for development on the continent as the world increasingly sees entrepreneurship as the root of development. It is no secret that the nature of the international system favours capitalism and entrepreneurship as a means for development. Adding globalization to the equation means countries would have to compete to attract investments to build their start-up ecosystem. The onus then falls on African states and private stakeholders to be deliberate about solving the challenges facing the start-up ecosystem on the continent so as to enhance their competitiveness and appeal to investors.
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CHAPTER FOUR

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

4.0. Introduction

This concluding chapter provides a summary of the research findings, draws conclusions from the study and proffers recommendations.

4.1. Summary of Findings

This study was conducted for the purpose of determining the contribution of tech start-ups to the economic development of Africa. The study used the qualitative method of research and used unstructured interviews, desk research and observation techniques for gathering data. The interviews were directed at stakeholders in the start-up ecosystem drawing on their experience and insights gathered over their years of involvement with the ecosystem. As such, participants in the interviews for the research ranged from successful tech entrepreneurs on the continent to Google, Afrilabs, World Bank, MEST, iSpace and VC4Africa. Also the researcher gathered data by observing and participating in tech events like TechCamp West Africa organised by the US Embassy, Negawatt by the World Bank, and Google IO Extended Accra, and visiting tech hubs in Accra. The following research findings were made:

- There is a surge in entrepreneurship on the continent.
- African economies are gradually moving from being organized around State-Owned Enterprises (SOEs) to increased private sector participation.
- Despite advances, the business environment on the continent is still not conducive enough to enable business achieve their full growth potential.
• Tech start-ups are a global phenomenon of high impact tech businesses that have the potential to grow rapidly internationally and solve some of society’s most pressing problems.

• Start-up ecosystems built mainly around tech hubs are found in most major cities across the continent and are proliferating rapidly.

• Africa’s start-up ecosystem is driven by national and regional policies, tech hubs, entrepreneurs and/or innovators, venture capitals and angel investors, and large tech companies. Other drivers include governments, universities and telecom operators.

• Tech start-ups contributions to economic development on the continent include innovation, creation of jobs and increased competition.

• The most significant contribution of tech start-ups to economic development on the continent is innovation where they use technology to solve problems unique to their local environment and beyond.

• Tech start-ups are one of the fastest growing employers on the continent as they create jobs with their rapid growth and proliferation.

• The innovation from tech start-ups serves as competition to existing firms and provokes the broader market to innovate increasing economic development.

• The study found that the main challenges for tech start-ups are finance, skills and talent, infrastructure, access to market, immaturity of start-up ecosystems and government policies.

• Supply and access to formal capital such as banks, VCs, Angels, etc. is very limited on the continent. The main sources of capital particularly for new entrants and growing start-ups are retained earnings, credit cards, family and friends.
● There are not enough skilled talents to fully execute and implement innovations as a start-up grows.

● The state of infrastructure especially the lack of access to constant electricity and the high cost of internet continues to be a major challenge to tech start-ups.

● Access to market for tech start-ups continues to be a hurdle as the level of tech savviness and societal culture inhibits large-scale adoption of innovations.

● Africa’s start-up ecosystem is immature as it lacks the level of experience, mentorship, and venture capital involvement present in start-up ecosystems in other parts of the world.

● Government policies sometimes work against the success of tech start-ups.

● Tech start-ups continue to proliferate across the continent due to the trendiness of the phenomenon, ease of entry, new market opportunities, unemployment and a gradual attitudinal shift towards a bottom-up approach to problem solving.

4.2. Conclusions

The surge and focus on entrepreneurship in recent times in Africa is leading a lot of people, especially the youth, to see entrepreneurship as a viable option. This is particularly induced by the restructuring of African economies away from state-owned enterprises to an emphasis on private businesses. Although this is leading to a lot of initiatives by states and international organizations to promote entrepreneurship on the continent, the business environment on the continent is still one of the harshest. Typically, an African entrepreneur tends to go through a lot more frustration than his peers on other parts of the globe.
The global phenomenon of tech start-ups although very nascent on the continent is spreading across the region at a very rapid pace. This is boosted by the increasing calls by international organizations, western states, MNCs and other stakeholders to see entrepreneurship as the way forward for economic growth and development on the continent. The start-up ecosystems on the continent are still maturing and as such are very sluggish. This is as a result of the wider context within which they find themselves. The inadequacy of finance, skills and talent, infrastructure, access to market, and government policies is reducing the vibrancy and competitiveness of start-up ecosystems on the continent. This directly affects the individual tech start-up as investors typically look at the vibrancy of an ecosystem before feeling confident enough to invest in it.

Also tech start-ups are going to be proliferating across the continent for some time to come. This is because aside its trendiness and the ease of entry it presents, the unemployment situation of most African economies make it a viable option for people especially fresh graduates. Additionally, investments to the continent, particularly for start-ups continue to increase. This will eventually lead to more success stories coming out of the continent such that other stakeholders like governments and universities will begin to actively engage with tech start-ups.

Consequently, African start-up ecosystems need to realise that they are not just competing with themselves but with ecosystems from all over the world to attract the same resources and investment. Across the globe countries are taking steps to position themselves to better take advantage of this new era of start-ups and entrepreneurship. Countries in Africa need to be more strategic and deliberate about the development of their start-up ecosystems or risk falling behind on one of the few sustainable opportunities to develop the continent.
Although entrepreneurship requires a lesser role from the state, African states have a lot to do to ensure that the entrepreneurial ambitions of its citizens reach fruition and contribute its quota towards economic growth and development. The state has a responsibility to create the enabling environment for start-ups and entrepreneurship in general to thrive. No matter the good intentions and hard work of entrepreneurs on the continent, their efforts will often come to not if the larger macroeconomic environment is not supportive.

Finally, tech start-ups and entrepreneurship in general are the next frontier for growth and development on the continent. Being essentially a bottom-up approach to development, it puts the power in the hands of the people and enables them to solve societal problems for a reward. These innovations aside solving the problems faced by society also serve to create jobs and provoke the broader market to innovate to compete. These put into perpetual cyclical motion the process for further job creation and innovation often leading to unintended rippling effects for the economy. Solving the myriad of problems for the continent and creating jobs for the very youthful population of the continent is most needed to lift the continent from poverty and put it on the path to sustainable growth and development. There should be more focus on tech start-ups and entrepreneurship to ensure that this is realized.

4.3. Recommendations

4.3.1 Recommendations for Research

The following recommendations are recommended for related research in the field of start-ups and entrepreneurship on the continent.

- Academic research into entrepreneurship on the continent is very low treading on the thresholds of insignificance. Universities and research institutions should seriously
research into entrepreneurship and its varying dynamics as viable options for growth and development on the continent. It is important that the research is organized with an understanding of the African context else insights and perspectives gathered could be easily misrepresented.

- As integration and regionalism gets to the fore of research on the continent, juxtaposing it with entrepreneurship could reveal ways to increase the reach of innovations in the region entrenching integration further. Such research could help lower the barriers to the use of intellectual property, patents and laws on the incorporation and operation that currently slows the growth of entrepreneurship on the continent.

- Although this research focused primarily on tech start-ups, there are other types of start-ups which are less talked about. Research on them could lead to a proper documentation of their contribution to economic growth and development on the continent.

- Further, academic research into why technology entrepreneurs believe in the promise of entrepreneurship should help determine their motivations and help draft policies to encourage the promotion and adoption of entrepreneurship on the continent.

### 4.3.2 Recommendations for Stakeholders and Practitioners

The following recommendations are offered for stakeholders and practitioners of the start-up ecosystem in Africa.

- States should endeavour to create the enabling environment for start-ups to flourish. Some of the ways to do this include institutionalizing proper means of venture capital financing, making taxation “start-up friendly”, and creating a conducive environment for start-ups to flourish by improving macroeconomic indicators and improving infrastructure such as internet and power on the continent. A more specific example will
be to give tax incentives for research and development so as to spur a lot more innovation from the ecosystem.

- More importantly, there need to be more efforts to promote entrepreneurship in general on the continent and the acquisition of relevant skills. For tech start-ups, more Africans need to be encouraged to pursue computer science and this should start at an early age.

- Often, although not in all cases, innovations created by tech start-ups could serve the entire African region due to some similarities in the African geographic landscape. To this end, the various regional groupings including the African Union should put in place appropriate policies to enhance collaboration, scaling and adoption of innovations across the region. This should include the opening up of the local market to start-ups and could take the form of enabling start-ups to access procurement contracts as done in Kenya.

- Entrepreneurs on the continent need to put in place better accountability or governance structures to hold them accountable to their goals so as to enhance the success of their start-ups. Insights gathered from the most successful start-ups revealed that they held themselves accountable to a governance system, either a board or people who they respect, where they regularly measure and ensure that they are on the right course.

- Entrepreneurs and other stakeholders such as VCs and universities must help to build the start-up ecosystems in which they find themselves. Often investors and customers buy the vibrancy of the start-up ecosystem before buying the idea or innovation offered by a start-up no matter how good. In general, entrepreneurs are expected to be the leaders of their start-up community.

- Foreign investors should make more effort to understand the context within which start-ups in Africa operate. This will enable them have realistic expectations of the start-up
ecosystem on the continent and minimize some of the frustrations they face when they newly move into the African market. This can be done through further research and a general understanding of the entrepreneurial culture of Africans.

- Tech hubs are still trying to figure out a particular incubator/accelerator model to enhance the growth of start-ups. Although more cost-intensive, the MEST model has proved to be the most viable seen by the researcher as it guides the entrepreneur through the entire business spectrum and ensure they come out with viable ideas. Any tech hub looking for a sustainable model to work with could look to the MEST model as somewhere to start from or aspire to.

4.3.3 Recommendations for improving this Research

- This study could benefit from a first-hand experience of the start-up ecosystem of other countries. Although more cost intensive, further research into this study should fall within a larger time scope, involving first-hand experience of the start-up ecosystems of other countries.

- Also, this research should be done periodically to assess the growth and maturity of the African start-up ecosystem and assess its competitiveness and effectiveness to the global start-up ecosystem. This is because as the start-up ecosystem evolves its needs and challenges changes.

- With the benefit of time and resources, this research should be broadened to include the impact of tech start-ups to the various sectors of the economy and their specific quantifiable contribution to growth and development. This would probably require a study at the PhD level.
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A. Books


B. Journal Articles


C. Reports/Documents


D. Internet Sources


