ENTREPRENEURSHIP AND DEVELOPMENT IN AFRICA: 
THE ROLE OF TECH START-UPS ON GHANA’S 
SOCIOECONOMIC DEVELOPMENT 

BY 

KODJOKUMA RICHARD ENYONAM KWAME 

(10414048) 

THIS DISSERTATION IS SUBMITTED TO THE UNIVERSITY OF GHANA, LEGON, IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF THE MASTER OF ARTS DEGREE IN INTERNATIONAL AFFAIRS 

LEGON JULY 2018
DECLARATION

I hereby declare that this dissertation was produced as a result of original research undertaken by me, with the exception of cited sources, which have been duly acknowledged. No part of this work has been submitted elsewhere for any other purpose.

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RICHARD KODJOKUMA

(10414048)
CERTIFICATION

I hereby certify that this dissertation was supervised in accordance with procedures laid down by the university

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THOMAS BUABENG  DATE

(SUPERVISOR)
DEDICATION

This work is dedicated to my parents Mr Francis Kodjokuma and Mrs Esther Yeboah-Adzimah
Kodjokuma for their support and morale.
ACKNOWLEDGEMENTS

I want to thank Almighty God for the strength and guidance he provided me to see the end of the dissertation. I would like to express my sincerest gratitude to my siblings and relatives for their prayers and motivation during the duration of my course at LECIAD.

I also wish to express profound gratitude to my supervisor Dr. Thomas Buabeng for the constant motivation and input to guide me through my research.

Kudos to all my lecturers especially Dr. Yao Gebe, Dr. Philip Attuquayefio, and Dr. Ken Ahorsu for their support and belief in me. I also express my sincerest gratitude to all the staff and librarians at LECIAD for offering their services and time to ensure my stay at LECIAD was a memorable one.

Additionally, I would like to thank David Quartey (MEST), Emmanuel Mbalam (Flippify and Farm Carp), Dr. Awal Mohammed (Min. Business Development), Frank Yeboah Okoh (iSpace), Lawyer John Kumah (NEIP), and all who took time out their busy schedules to share their in-depth knowledge and insights concerning my topic.

Lastly, I am grateful to all my friends especially those who have been supportive and have become more than family in the end.
LIST OF ABBREVIATIONS

A4AI- Alliance for Affordable Internet
AfDB- African Development Bank
AISI- African Information Society Initiative
AMD- Advanced Micro Devices
FDI- Foreign Direct Investment
GAIN- Ghana Angel Investors Network
GDP- Gross Domestic Product
GSMA- Group Speciale Mobile Association
HDI- Human Development Index
IBM- International Business Machines
ICT- Information Communication Technology
ICT4D- Information Communication Technology for Development
JICA- Japan International Cooperation Agency
MBD- Ministry of Business Development
MEST- Meltwater Entrepreneurial School of Technology
MDGs- Millennium Development Goals
MNCs- Multinational Corporations
NCA- National Communication Authority
NEIP- National Entrepreneurship and Innovation Plan
NICI- National Information and Communications Infrastructure
SAPs- Structural Adjustment Programmes
SGDs- Sustainable Development Goals
SMEs- Small and Medium sized Enterprises
SMS- Short Message Service
SOEs- State Owned Enterprises
UNBC- United Nations Broadband Commission
UNDP- United Nations Development Program
UNECA- United Nations Economic Commission for Africa
UNIDO- United Nations Industrial Development Organization
USA- United States of America
USAID- United States Agency for International Development
USSD- Unstructured Supplementary Service Data
WB- World Bank
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ABSTRACT

There is a new wave of optimism across Africa with the advent of open market and support of private enterprise by many governments after years of a tight public sector led development. Accompanying the euphoria of entrepreneurship is the phenomenon of tech start-ups. The study of tech-start-ups is still in its nascent stages in academic circles on the continent. There is limited literature on the prospects tech start-ups can have on socioeconomic development in Africa. As a result, this study was centred at finding role-played by tech start-ups on the socioeconomic development in Ghana in particular. The study employed the qualitative research methodology and relied on semi-structured interviews and observation to gain more insights into Ghana’s start-up ecosystem from major stakeholders in different components of the tech start-up ecosystem in Ghana. There was also a review of the relevant literature on the topic. The study found that the major roles of tech start-ups in Ghana are harnessing innovation, creation of jobs, and increased competition for firms. The major challenges that are obstacles to the prospects of tech start-ups were identified by the study included poor infrastructure, financial constraints, unfavourable regulations and an immature ecosystem. The study proposed recommendations which included the need to have more academic research on the significance of tech start-ups to Ghana’s development, the need for tech entrepreneurs to explore crowdfunding as a solution to their financial constraints and the need for annual reports on the state of the Ghanaian tech start-up ecosystem to help identify progress made and challenges. It is imperative to find solutions to these challenges to improve upon the ecosystem in Ghana and enhance their global competitiveness.
CHAPTER ONE

INTRODUCTION

1.0 Background to the Research Problem

Since the turn of the 21st century, Africa has been experiencing a boom in entrepreneurship. High hopes have been invested in the continent’s home-grown digital economy, envisioned to become an engine of rapid socio-economic development and transformation. Phrases such as “The Next Africa”¹, or “Silicon Savannah”² capture the sentiment that Africa is now a continent of economic opportunity and growth, driven by global entrepreneurship, a growing middle class of consumers, a well-educated and driven economic elite, and improving Internet infrastructure.

Africa is gaining more attention on the world corporate and entrepreneurship map. From being labelled as a no-go zone by most multinational corporations in the 1980s, there is a lot of focus and attention on Africa in recent times for good reasons.³ There is a rise in growth rates, decade’s old conflicts and wars are being phased out to sprout democracy and competent governance. There is a general improvement in infrastructure and internet connectivity and this is making it possible for consumer power to grow, hence promoting a sharp rise in entrepreneurship and business.

In their article on entrepreneurship, Wilhelmina Smith and Tendai Chimucheka identify entrepreneurship as a very vital component of any economy.⁴ They identify it to be a required instrument to promote economic growth, alleviating poverty and reducing it as well employment opportunities and job creation. There is no doubt that a relationship exists between entrepreneurship levels and the economic growth of any nation.⁵ Entrepreneurship has been recognised as the bedrock of economic development of all countries.
Empirical evidence available suggests that countries of the developed world utilized entrepreneurial activities to reach their heights of development. In the same vein, developing countries cannot seek to achieve their development goals without incorporating the importance of entrepreneurship. It has therefore been argued by Omoruyi et al. that the development of entrepreneurship has contributed to the assumption of economic growth of most developed countries.

The global entrepreneurial renaissance has been growing with the heaviest impact experienced in China where individuals have been able to transform the Chinese economy with their entrepreneurial ability and innovations.

Traditionally, the state is the main engine of growth and development in Ghana and as such, the government carries the burden of economic growth and employment on its shoulders. Though both the state and the private sector are engines of growth and development in Ghana, the state is the major player to this regard. The government often relies on foreign aid or assistance to spur economic growth and development. Despite the constant in-flows of foreign aid, unemployment is on the rise and majority of the population is unable to afford three square meals daily.

According to the 2013 World Development Report from the World Bank on jobs, Ghana’s graduate unemployment rate is exceptionally high and estimates that 48 per cent of 24 to 35-year olds are unemployed.

However, concerning entrepreneurship in Ghana, this trend is changing with the ever-increasing faith in the entrepreneurial ability of citizens as well as conscious efforts by the government to encourage the growth of entrepreneurship through programmes such as the National Entrepreneurship and Innovation Plan (NEIP). The Registrar General’s office in Ghana records that close to 92 percent of registered companies are micro, small, and medium sized enterprises.
Available information attribute 85 percent of manufacturing jobs and close to 70 percent of GDP to SME’s in Ghana. This has a direct effect on economic growth, income and employment.\(^\text{13}\)

Among these SMEs are tech start-ups, which qualify as SMEs. According to Lizzie Merrill who indicates that entrepreneurship is indigenous to Ghanaians and thus with an abundance of resources, swelling number of educated citizens, and access to technology, many new businesses, start-ups and social innovativeness, are emerging in their numbers to try and solve some of the challenges here.\(^\text{14}\) Ghanaians are hooked onto the prospects of solving problems in the society by setting up tech start-ups in Ghana. It is therefore not surprising that out of eight leading African countries housing over ten technology hubs, Ghana was ranked sixth, according to the 2016 Group Speciale Mobile Association (GSMA) infographic report.\(^\text{15}\) South Africa was ranked first with its 54 hubs, followed by Egypt with 28, then Kenya with 27, Nigeria with 23, Morocco with 21, Ghana with 16, then Tunisia and Uganda with 15 and 12 hubs respectively.

The proliferation of smartphones, the huge market for e-commerce as well as the desire to use technology to solve local issues have boosted the growth of Ghana’s entrepreneurial revolution in the tech start-up scene. Due to their viability and ability to make profit, the number of Ghanaian tech start-ups receiving investment has increased and two well-known start-ups meQasa.com and OMGVoice, have received over 1.5 million dollars in investment from foreign investors to expand their services to other parts of Africa.\(^\text{16}\) Recently, Logique a Ghanaian tech start-up in artificial intelligence, became the first local start-up to enjoy locally gathered investment in its innovation by attracting over 4 million dollars of funding from local entrepreneur, Anthony Akorley who owns a number of companies which includes GIG Energy and Smile Gh. 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.\(^\text{17}\)
Organisations such as the European Investment Bank in 2017 launched its funding package of over 230 million euros to young entrepreneurs and tech start-ups in Africa with Ghana being one of the beneficiaries. According to the European Invest Bank, this investment in the African tech start-up scene is due to its rising popularity and scalability of the African innovations worldwide. Moreover, International Organisations such as United States Agency for International Development (USAID), United Nations Development Programme (UNDP), Japan International Co-operation Agency (JICA), and United Nations Industrial Development Organisation (UNIDO) have collaborated with the Ghanaian government to develop and support young entrepreneurs in Ghana. This interest from international organizations is attributed to the prominence of the Ghanaian tech start-up scene.18

During their visits to Ghana in 2017, French leader, Emmanuel Macron and Dutch Prime Minister, Mark Rutte visited two tech hubs and reiterated their commitment to support tech start-ups in Ghana. These visits indicate the growing importance of the tech start-up scene to our development partners and indicates their growing interest in the ensuring the ecosystem is well supported by investing in it. Capping it all, is the completion of the Accra Digital Center, which aims at jumpstarting government’s role in the promotion of entrepreneurial tech start-ups in Ghana.

1.1 Statement of the Research Problem

Despite the proliferation of tech start-ups in Ghana, there is the growing concern that it may just be another trendy venture that would leave as quickly as it came. The phenomenon of tech start-ups has been on the rise in Ghana and Africa generally. The major question here is whether tech start-ups can contribute to the socioeconomic development of Ghana considering the attention they
have enjoyed in recent years. Little research has been conducted to find how tech start-ups can actually influence the lives of Ghanaians in their socioeconomic development.

Aside this problem, other writers and researchers have identified other problems, which they have identified with the start-up craze in Africa. Fal, for instance, observes that, in spite of the reality that the growth of entrepreneurship in Africa has indicators on par with or higher than global peers, the GDP per capita of most African countries still lags behind. Views such as this are ubiquitous with good reason but also faulty because they ignore that the contribution of tech start-ups to socioeconomic development is dependent on critical drivers of the start-up ecosystem. Regardless of this oversight, Fal’s viewpoint is important because it questions what start-ups are actually contributing to the socioeconomic development of African countries such as Ghana.

However, one key area with little research on, is the regulation of the activities of tech start-ups in Ghana. Due to their mode of operations, most start-ups do not function and are not set up as traditional businesses hence there is little policy and regulation surrounding their activities and this has proved to be a major headache for them.

Thus, the study intends to understand the existing role of start-ups to socio-economic development in Ghana considering the euphoria and media attention that it increasingly generates across the continent and the country. Thus, this is the main problem this research hopes to interrogate to help fill the gap in the literature concerning the roles played by tech start-ups on socioeconomic development in Africa.
1.2 Research Questions

In order to achieve the above research objectives, the study sought to answer the question “what is the role of tech start-ups in development”. In addressing the above research problem, the study attempts to provide responses to the under listed questions:

1. What is the nature of tech start-ups in Ghana?

2. What are the factors that account for the proliferation of tech start-ups in Ghana?

3. What are the main prospects of start-ups to socioeconomic development in Africa generally and Ghana in particular?

4. What are the main challenges of start-ups in Ghana?

1.3 Research Objectives

The main objective of the study is to identify the role of tech start-ups on Ghana’s entrepreneurship and development. Specifically, the five objectives, that guided the study, are presented below.

1. To find out the nature of start-ups in Ghana

2. To identify the factors that account for the proliferation of tech start-ups in Ghana.

3. To identify the prospects of tech start-ups to socioeconomic development in Africa generally and Ghana in particular.

4. To identify the challenges of tech start-ups in Ghana
1.4 Scope of the Study

Although the study intends to explore the role of tech start-ups in the socio-economic development in Ghana, the relevant information on the trend in other countries such as Kenya, South Africa, Rwanda and Nigeria will be used. These countries have been continually identified as the “heavy weights” in the development of successful start-up ecosystems and are considered as the most advanced in the adoption of technology in Africa. Ghana is chosen as the setting of the study due to the time and resources available to the researcher who is based in Ghana. The time period considered for this study is from 2012 to 2018.

1.5 Rationale of the Study

This study seeks to understand the growing phenomenon of tech start-ups and their relevance to socioeconomic development in Ghana. It also seeks to identify how tech start-ups generate can positive impact on Ghana’s socioeconomic development.

Furthermore, this study can serve as a foundation for further research on the impact of tech start-ups to Ghana’s socio-economic growth and development.

1.6 Hypothesis

Null: Given the necessary investment support, tech start-ups can positively contribute to Ghana’s entrepreneurial revitalisation and development.

Alternative: Irrespective of investment support, tech start-ups cannot affect Ghana’s entrepreneurial revitalization and development.
1.7 Definition of key terms

- **Start-ups**: Newly emerged fast growing innovative companies set up to solve problems with innovation and technology.\(^{20}\)

- **Tech Start-ups**: refers to new high growth companies, which utilize technology to offer new services and products as well as being innovative on older services and products. Their ability to interrupt current markets and services with innovative technology driven ideas makes them a ‘disruptive innovation’.\(^{21}\)

- **Tech Start-up Ecosystem**: is an interconnected system of interactive groups of start-ups with their support organizations. Such as, incubators, accelerators, venture builders, entrepreneurs, financial institutions, universities, research organizations, government, associations/events, service providers, mentors, customers, funding instruments, Non-Governmental Organizations and many others.

- **Tech Hub**: a physical space or region that houses start-ups and other actors in their ecosystem. Here, talent and ideas are encouraged to become one and produce results by creating an atmosphere, which targets helping young start-ups scale.\(^{22}\)

- **Technology**: the practical application of scientific knowledge in developing innovations and services.\(^{23}\)

- **Innovation**: this refers to using unique ideas to provide solutions to solve problems by using new methods or technologies to create new products or services. It also involves using new ideas to better previously existing products and services.\(^{24}\)

- **Entrepreneurship**: the process of undertaking a business venture and assuming all the risks that come with it.\(^{25}\)
1.8 Theoretical Framework

The research is framed within the context of the Competence Bloc Theory which is derived from international economic relations. The principal writers on it are Gunnar Eliasson and Asa Eliasson. The theory focuses on the contributions of every economic actor in a start-up ecosystem to economic growth and development. The competence bloc theory has a wide theory base and has roots in macroeconomics as well as industrial economics. It identifies the need to efficiently select investment projects. According to the main proponents, the stakeholders within the competence bloc are customers, innovators, entrepreneurs, venture capitals, exit markets and industrialists.26 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 basic assumption of 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.”27 In this theory, the role of the entrepreneur is highlighted as it focuses on the human competence that is gained when there is competition from international 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.

The major critics of the competence bloc theory are Sakari Sipola, Tuija Mainela, and Vesa Johannes Puhakka who laid out criticisms of the competence bloc theory in their conference paper titled, “Understanding and Uncovering Startup Ecosystem Structures”, which was to contribute to emerging startup ecosystem discussion that has potential to make a significant impact on future research and understanding of entrepreneurship and firm growth as well as national growth and
development.

The major criticism of the competence bloc theory is its inability to address the high rates of failure of many start-ups. They proposed critical realism as a philosophy of science suitable for understanding causality in this new contextual setting. Critical realists have rejected “naturalism” by recognizing that the social world cannot be understood in the same way at its natural counterpart.\textsuperscript{28} Whereas the causal powers of natural objects like weather systems work without human mind and any (self-conscious) sense of meaning, interpretation and intent, those of social objects, such as entrepreneurial activism displays these characteristics in abundance.\textsuperscript{29}

Many start-ups are viewed as high risk hence the rationality of investing in a venture that is likely to fail. Very few start-ups have been able to burst from the small firm bubble to become global powerhouses such as Facebook and Google. Globally, no start-up ecosystem has been able to produce results similar to the premier start-up ecosystem of Silicon Valley. As a result, integrative framework for startup ecosystem research is proposed. As many startup ecosystems are just emerging and taking first steps without a track record of creating successful start-ups, they emphasize the temporal dimension of the startup ecosystem evolution as decades long. Silicon Valley or the Israeli startup ecosystems did not happen overnight.

Regardless of the criticisms levelled, the competence bloc theory is selected purposely because it best defines the phenomenon of start-ups, and the various actors and features that enable them to contribute to economic growth and development. It also focuses on the importance of entrepreneurship, which helps explain the resurgence of entrepreneurship to economic development in Africa.\textsuperscript{30}
1.9 Literature Review

This section presents a review of relevant empirical data on the subject of tech start-ups and their role.

1.9.1 The Entrepreneurial Revitalization in Ghana

Concerning entrepreneurial revitalization in Ghana, Attuquayefio and Dieudonne in their work Tech Start-ups and the Entrepreneurial Renaissance in Africa,\(^{31}\) examine Africa’s entrepreneurial spirit and how its development can be stimulated across the continent. Using many African countries including Ghana as a case study, they show that the development of the entrepreneurial space should not be a temporary goal but rather one that should be permanent and continual. They argue that for entrepreneurship to be effective in addressing Africa’s socioeconomic development, lessons of success from inside the continent and outside it must be applied.

Tech start-ups are identified as key to driving the global competitiveness and branding of African nations, which they indicate with regard to Kenya’s “Silicon Savannah” tag. Similarly, in their article, Ghana Entrepreneurship Ecosystem Analysis,\(^{32}\) Steven R. Koltai et al identify the entrepreneurship ecosystem in Ghana is ripe for serious investment and development. They suggest that, even in comparison to other African countries with larger population size and bigger economies and GDP, Ghana seems to be in a well-positioned to utilize entrepreneurship as a tool in the quest to boost development through job creation and economic growth.

They further identify that green shoot entrepreneurs need more support to aid them succeed and dominate Ghana’s entrepreneurial space. These two articles add significantly to the field of entrepreneurship in Ghana. They make an effort to discuss the need to stimulate entrepreneurship on the continent. They however fail to emphasize on the origins of entrepreneurship in Ghana and how the role it plays in promoting socio-economic development in Ghana.
1.9.2 Entrepreneurship and Government Policy and Initiatives

The entrepreneurial landscape in Ghana is hyped as one of the best in the West African sub region and is the destination for investment from developed economies.\textsuperscript{33} However, certain factors beyond the ability of the individual entrepreneur have to be identified as crucial to the development of entrepreneurship in Ghana. In their paper, Sriram & Mersha in their work Stimulating Entrepreneurship in Africa\textsuperscript{34} sought to identify factors that lead to the birth and the successes of entrepreneurial activities on the continent.

In Ghana, despite the identification of personal traits such as competency, resourcefulness, personal drive, and charisma as the prerequisites for the commencement of a new business they realized the pressing need for effective government policies to drive successful entrepreneurial exploits.

They outline the specific role of government in their own words 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{35} Bylon Abeeku Bamfo et al\textsuperscript{36} also assert to this position in their research of entrepreneurship in Ghana by underlining the government’s policy to drive entrepreneurial tendencies and skills by establishing technical and vocational institutes such as the National Vocational and Training institute.\textsuperscript{37} They further argue that investing in entrepreneurship is a requirement for the thriving of entrepreneurial activities and advance the view that the government must support these efforts by creating the enabling environment to promote graduates and their business interests.

They establish that the institutions set up by the government in Ghana are doing a lot to support and help promote the development of start-ups as well as pushing for innovative solutions to
problems.
These articles shed light on the indispensable nature of the government in Ghana concerning nurturing and supporting entrepreneurship. They do not place priority on the importance of entrepreneurship to national development and only make assumptions on how entrepreneurship can be the engine of growth for economies but fail to answer the critical question of how this can be achieved and how it contributes to economic development in the country remain largely unanswered.

1.9.3 Tech Start-Ups as Fulcrums for Development

There is a plethora of literature and examples on the transformative nature of tech start-ups to the fortunes of many economies worldwide. The most popular include Silicon Valley in the United States and in Israel where growth of tech start-ups played a huge role in the rejuvenation of their economies. It is in this vein that, Jake Bright and Aubrey Hruby in their book, The Next Africa: An Emerging Continent Becomes a Global Powerhouse\(^\text{38}\) identify the growing tech scene in Kenya, Rwanda and Nigeria as holding the key to the transformation of the economies of these countries. They sought to see how these countries are utilizing the development of tech start-ups as a base to promote the services area of their economies, which are mostly agricultural.

They identified how a country like Rwanda has been able to rise by utilizing their tech entrepreneurs and their various start-up ideas. Rwanda found their ‘Archimedes’ moment in tech start-ups and this has been a propelling force in their economic growth and development. In their thorough work on how tech start-ups can influence development in a country, Senor & Singer in their book, Start-up Nation: The Story of Israel’s Economic Miracle\(^\text{39}\) discovered the how the young country of Israel transformed their seemingly desolate land into the regional “high tech powerhouse” that has achieved a serious level of economic growth within a span of sixty
years. In their findings, they attributed this “economic miracle” to constant innovation and entrepreneurship with emphasis of tech start-ups. They realized that the inflows of venture capitals, which is the singular, most important measure of technological promise was highest in Israel as well as the density of tech start-ups. Israel recorded that in 2008, venture capital inflows and per capita invests were two times greater than in America, over thirty times more than Europe’s, surpassed China by over with over 80 times of their inflows and 350 times greater than India. According to the authors, the political and social landscape of Israel is such that it is very conducive for innovation and entrepreneurship to thrive.

They attribute the resilience of Israeli start-ups and entrepreneurs to the rigorous military training and the constant threats they face in their hostile terrain, which they acquire as useful traits to carry into entrepreneurship. Senor and Singer also lay emphasis on the rollover effect of the government’s investment in infrastructure, which boosted entrepreneurs to play their role in promoting growth. Finally, they referred to the government macroeconomic policy of Yozma, which is a venture capital fund of about $100 million of which $20 million was invested in tech start-ups. This fund has raised over $200 million and supports new Israeli start-ups with close to $3.5 billion in investment.

These two books are major to this study because they broadly portray the contribution of tech start-ups to the economic development of states. However, they fall short in examining the situation in Ghana in particular by generalizing their findings as though the situation is the same everywhere.

1.9.4 The Tech Start-up Scene in Africa

The tech start-up scene in Africa is a new kid on the block behind the likes of Silicon Valley but has gained a lot of popularity and praise worldwide. The literature on the topic is growing and Erik Hersman’s article titled Mobilizing Tech Entrepreneurs in Africa is one of such. To him, only
six cities in Africa have been able to establish functional and operational tech hubs - Nairobi, Cape Town, Accra, Lagos, Dakar and Cairo. He attributes this to the advantage of locality, availability of talent, progressive government policies, entrepreneurial values, infrastructure development, and capital.

He adds that these are requirements for any country that wants to have operational and functional tech hubs. To send across this message, Erik draws attention to Nairobi, which is considered the premier in tech start-ups on the continent. Nairobi houses iHub, which is the first of its kind in Africa and serves as the city’s innovation centre that brings together the tech community, investors, academics, investors and policy makers to meet, contribute ideas and collaborate. He further establishes that the creation of iHub set the pace and triggered the establishment of similar hubs in over 10 countries on the continent. These include MEST and Impact Hub in Ghana, iLab in Liberia, ActivSpaces in Cameroon, EtriLabs in Benin, Habaka in Madagascar, Bongo Hive in Zambia, ccHub in Nigeria, which form a part of mother network called Afrilabs.

Hersman stipulates further that the network of hubs and increasing collaboration of in Africa would birth the next generation of African entrepreneurs and start-ups. He backs this optimism by indicating that as the turn of the millennium, internet penetration in Africa was hovering just above 1% but as at the time of writing it was steadily increasing from 36%. The same story applies to mobile phone penetration and proliferation, which is the highest in the world. In addition, he indicates that the middle class in Africa is growing hence a need for technological goods, which only bodes well for tech start-ups on the continent.

According to Erik, these developments can only predict positive returns for tech start-ups, which regularly operate using mobile phones and internet connectivity as mediums to drive innovations. Erik Herman makes mention of Africa tech exports such as Ushahidi, which was, developed in the
wake of electoral violence in Kenya, M-PESA aka mobile money that is used in a number of eastern European countries and Mxit. Hersman supports the idea that innovative ideas from Africa must go with “African solutions to African problems”. He argues that by doing so, Westerners would find it harder to copy or even flood African markets with replicas or their own version of these services. With ideas coming from Africans to solve peculiar problems, westerners would be unable to understand the African landscape and context that drives these peculiar innovations. Hersman’s work is very insightful in its description of the tech-ecosystem in Africa but has a limited scope since its focus lays on the proliferation of tech start-ups in Africa and fails to capture the role they play in economic development on the continent. 43

Nevertheless, the fore mentioned literatures present a wide view and understanding of entrepreneurship and tech start-ups in the global sense as well as Africa and Ghana for that matter. Though the literature reviewed has not covered everything, they represent the major discussions on entrepreneurship and dialogues on tech start-ups. More literature is bound to be written on this new but exciting era of tech start-ups and as such, this study can serve as one of the pioneering works in the field.

1.10 Sources of Data

This study relied on both primary and secondary sources of data as often used in social science. The primary source of data was to get first-hand information from interviews and observations. The primary sources of data comprised interviews with major stakeholders in Ghana’s start-up ecosystem and other actors. It also included first-hand experience of how the start-up scene functions by partaking in technology conferences and speaking with participants during events as well as visiting the accessible tech-hubs such as iSpace, Impact Hub and Meltwater
Entrepreneurial School of Technology (MEST). Secondary sources consisted of internet sources such as blogs, journal articles, reports, websites and other available literature.

1.11 Methodology

The qualitative approach was employed to undertake this study. This research approach was selected because of the explorative nature of the research. It was deemed appropriate because a robust qualitative research approach is important when a research seeks to define an event or a phenomenon. To this end, it was prudent to employ the use of semi-structured interviews, participation in events to observe and analysis of available literature.

For the purpose of this study, the target population was start-up entrepreneurs across the selected and available tech hubs in Accra, and other major stakeholders, which include organizations such as Hubtel, Ministry for Business Development, Ghana Angel Investor Network, and National Entrepreneurship and Innovation Plan (NEIP). In all fifteen respondents were sampled and included three tech entrepreneurs from three tech hubs in Accra namely MEST, Impact Hub and iSpace. The researcher also interviewed The Minister for Business Development, the CEO of NEIP and three other established tech entrepreneurs. Participants for the interview were based on purposive sampling due to their extensive experience and knowledge of the areas of the study and the tech start-up ecosystem in general.

1.12 Collection of Data

The data collection tools used in conducting a study include interview, focus group discussions, checklist, survey, questionnaires and observation among many others. The study employed one-on-one in-depth interview and observation. An interview guide was used to aid the asking of questions in a physical face to face manner which enabled the researcher obtain frontline
information and ask further questions to seek clarification on unclear answers during interviews. The researcher also visited tech hubs to observe the activities that go on there as well as tech events held in tech hubs visited to gather data relevant to this study.

The researcher in interviewing respondents used the interview guide, and all interviews were recorded in an audio format, transcribed into the word processor, and duly interpreted. To address any ethical issues, the consent of the respondents was sought by extensively explaining the purpose of the study to them to help them understand and be motivated to participate actively. Consent was also sought before any recording. The respondents were given adequate time to think through and respond to questions to ensure they were not coerced into answering any question, and were informed they had the right to accept or decline to respond to questions. The interview was conducted in clear simple English language to ensure there was maximum understanding of the questions asked by the researcher. During the data-gathering period, some respondents were not able to honour scheduled appointments especially the ones that were to be done electronically. Several audio and video calls made to the respondents as well as emails sent as reminders were futile. In spite of these challenges, all the interviewed respondents were very accommodating and receptive and answered questions into detail.

1.13 Arrangement of Chapters

To present an organised dissertation with consistency and focus, the chapters of the dissertation have been arranged as follows:

Chapter One constitutes the Introduction which includes the background to the research problem, the statement of the research problem, research questions and objectives, the scope of the study, rationale of the study, the theoretical framework, hypothesis, literature review, research methodology, conceptual definitions and the organization of the chapters of the study.
Chapter Two provides an overview of tech start-ups and tech entrepreneurship in Africa generally by giving a bird’s eye view of entrepreneurship in Africa, the buzzing African and Ghanaian tech ecosystem and its various components and a brief overview of development in Africa over the years.

Chapter Three is an analysis of the role of tech start-ups on development and growth in Ghana by presenting the findings from the research, which include the prospects and challenges facing tech start-ups in Ghana as well as the reasons that account for the proliferation of tech start-ups in Ghana.

Finally, Chapter Four is a summary of the research findings, conclusion and recommendations for research, policy and practice of the tech scene in Ghana and Africa generally.
ENDNOTES

5 Ibid
11 Ibid
22 Ibid
23 Ibid
24 Ibid
29 Ibid Blundel, R.K pp. 16.
30 Ibid.
35 Ibid. pp. 258
37 Ibid
38 Bright, Jake and Aubrey Hubry Op. Cit. pp. 3-4
40 Ibid. pp. 18
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CHAPTER TWO

ENTREPRENEURSHIP, TECH START-UPS AND DEVELOPMENT IN AFRICA

2.0 Introduction

Entrepreneurship has been attracting a lot of media interest within and outside Africa over the past decade. This chapter will give an overview of entrepreneurship and tech start-ups in Africa as well as the strides in development made Africa as a whole.

Enthusiasm is indeed growing hence creating a lot of hype for the promise and potential of entrepreneurship and technology driven development on the continent.¹ This view is usually reiterated by Africa’s major development partners and is evident in the programs they pursue on the continent which are mostly aimed at boosting entrepreneurship levels and private sector development.² The American government and the European Union (EU) are forerunners in this regard by promoting and advocating with intervention programs of their own aimed at increasing private sector involvement by supporting entrepreneurship on the continent.³

2.1 Overview of Entrepreneurship

There has always been a general notion or assumption that entrepreneurship is responsible for the economic development⁴ and growth of any state.⁵ Empirical evidence available from sources over the years has revealed that entrepreneurship is indeed the fulcrum behind every nation’s economic development.⁶ A critical look at the literature and studies around the world suggest entrepreneurship with special emphasis on start-ups which also fall under Small and Medium-sized
Enterprises (SMEs), are important with regards to rapid job creation, incubation of specialization and innovation, GDP growth and overall wealth creation. In the view of many scholars and the available literature, entrepreneurship is always identified as the key element in large economies of the world such as that of the USA, Japan, China, Germany and Scandinavian countries. Entrepreneurship is often linked to the presence of a booming private sector or the vibrancy of the private sector and many industrialized countries in Asia such as China, Singapore, South Korea, and Malaysia have reaped the benefits of entrepreneurship evident in their annual growth rates and GDP.

Furthermore, studies have shown that increased economic growth positively affects job creation and businesses in industrialized nations such as the United States and Britain. Boom eras of the economies of developed countries are attributed to the proliferation of many business ventures in those eras. All these are indications that entrepreneurship has been on the ascendency globally and as such, Africa has in no way been left out of this global phenomenon.

In recent times, Africa is impossible to overlook. Six sub-Saharan countries have the fastest growing economies as at 2017. In fact, new mind-set known as ‘Africapitalism’ has emerged in the wake of the advances on entrepreneurship on the continent and it revolves around using private-sector investment to stimulate growth. Nigerian billionaire Tony Elumelu a big supporter of private sector stimulation and investment in Africa describes it as “private sector empowerment in Africa to better equip it in transforming the continent’s fortunes by providing long-term investments, while generating both economic prosperity and social wealth”. This has attracted a lot of traction and moulding the continent in a new light for investors from other parts of the world and even some of Africa’s own entrepreneurs.
The word entrepreneurship has quite an intriguing history concerning its origin and definition. Scholars, academics, and practitioners have long parsed what it actually is, and it should entail. Thus, controversies arise in the acceptance of a universal definition or understanding of what entrepreneurship should be. One leading and widely accepted definition is that of Richard Cantilon which explains entrepreneurship as “having self-employment with added uncertainties and activities equal to market demand”. Joseph Schumpeter explained it as “the discovery and advancement of new combinations of factors of production and a prime creative socio-economic factor.” Israel Kirzner defines it as identifying and exploiting opportunities in markets. This work will settle on a definition of entrepreneurship, which entails adding value and incorporating innovation to produce new goods and services. Larsen and Lewis believe employing creative ideas to birth products and services that are innovative, or redefining older products and services to be efficient by applying innovation is entrepreneurship. In light of this, repackaging or upgrading and the creation of original and innovative products from new ideas all require innovation. For this reason, Nafukho’s definition is ideal as he defines an entrepreneur as “an individual who undertakes new tasks and adds value to a product or service”. He explains further by adding that though these new tasks include managing an existing venture or setting up a new business, when responses to change no longer exist and there is no value added to a product or service, entrepreneurship is said to cease or end.

2.1.1 Entrepreneurship in Africa.

Just as esteemed poet and writer Maya Angelou said, “To know where you are going you must know where you came from.” Therefore, in order to fully understand the current hype and emphasis on entrepreneurship in Africa, it will be prudent to look at economic activities in Africa
during the pre-colonial era and after independence. This will aid in identifying the different forms entrepreneurship has undertaken on the continent over the years.

Thus, entrepreneurship is not foreign import in Africa and was well in existence before the arrival of colonial powers. Africa is the cradle of humankind and as such the home of any forms of economic activity and innovation before the development or rise of great civilizations. Africa has been dealt the wrong side of history, as it has always been associated with savagery, poverty while covering up the achievements of ancient Africans in areas such as food security, innovation and long distance commerce among others.\(^{22}\) It may have not been referred to as such but entrepreneurship was obviously in practice in African societies of old. Economic activity was bustling on the continent with trade from the current area of West Africa to Northern Africa then consequently in Europe through the ports of Tangier and Ceuta. These trade routes culminated into what is popularly known in history as the Trans-Saharan Trade, which was dominant before the fifteenth century.\(^{23}\)

The map above (refer to appendix) shows the various trade routes used in the Saharan trade, which lasted close to 2500 years. Subsequently, this trade gave rise to powerful African kingdoms and empires such as Jenne, Gao, Timbuktu, Kumbi and Ghana, which generated revenues from taxation and regulation of the trade especially within their borders.\(^{24}\) Large innovative craft industries also developed and flourished alongside this trade. The entrepreneurial activity involved the exchange and sale of manufactured commodities from North Africa, which included mirrors, beads, silk materials cotton yarns and commodities such as ivory tusks, kola nuts, bundles of gum, captured slaves, and gold nuggets and dust from the West African savanna.\(^{25}\) However, the discovery of the West African coast by the Europeans in the fifteenth century marked the gradual decline of the trans-Saharan trade. This contact with Europeans and trading with them alongside
the trans-Atlantic slave trade, led to decreased entrepreneurial activity on the continent. Labour was used to wage wars to capture slaves and the taste for European goods led to the abandoning of many indigenous industries hence a huge reduction in economic activity as African societies depended on Europeans for innovation and technology.

The post-independence era in many African states was characterized by the paternity of the state, in that; development and growth were mainly state driven. The economy was structured to ensure the government or public sector-controlled majority of the sectors. This structure was not indigenous but rather because of colonial rule where many economies in Africa were structured to meet demands of their colonial masters for raw materials such as cocoa beans, coffee, groundnuts, pyrethrum, and other agricultural and mineral resources. This led to many African governments controlling these industries and leaving very little space for entrepreneurial activity to thrive. With their acquired foreign exchange reserves, some African governments begun to embark on ambitious socialist advised entrepreneurial ventures which were aimed at the state owning the means of production to share the proceeds equally to its citizens.\textsuperscript{26}

Ghana was a forerunner in this type of economic structure and it was not surprising that after the rise in oil prices by OPEC countries in the 1970’s Ghana was one of the hard-hit African countries. This situation coupled with the failure of the many State-Owned Enterprises (SOE’s) threatened to end the survival of the state itself and as such called for drastic measures to be taken. Western nations and their development agencies came in to assist affected countries with the largely unpopular Structural Adjustment Programmes (SAP’s). The Bretton Woods institutions identified the low levels of entrepreneurial activity and private sector involvement in the economy as one of the main reasons for the economic troubles and as such put them on the agenda as a solution.\textsuperscript{27} Structural adjustment led to adoption policies of deregulation and privatization, which
adopted measures such as: curbs on public sector expenditure and controlling inflation by practicing fiscal discipline, eliminating controls on imports and foreign investment and privatizing corporations owned by the state. These measures were necessary for entrepreneurship and private enterprise to thrive. Though painful, gradually, the color was brought back to affected economies and the private sector begun to find its place in the formerly centrally planned economies. With greater support financially and politically, the rejuvenated private sector helped the gradual renaissance of entrepreneurship on the continent.

The rejuvenation in entrepreneurial activity led to positive reports about Africa at the turn of the millennium. The United Nations Economic report for Africa in 1999, established that Africa has the fastest and highest growth rate than every region for that year. The report, titled the ‘Economic Report on Africa for 1999’, established that, for four years running Africa’s growth rate was stable at 3.3 % per annum, despite the shocks in the global financial markets and instability with currencies, it surpassed the 2.9 % rate in 1997 and the of 2.8 % population growth rate per annum. This good performance led to the coining of the phrase ‘Africa Rising’ by the turn of the 21st century to herald Africa into a new age of rapid economic growth and development. This report also predicted Asia and Latin America to fall behind Africa as the new destinations for investments and Foreign Direct Investment by the 21st century.in the coming years of the new millennium. There was a 4.9% real GDP growth from 2000 to 2008, which was more than twice of what pertained in the 1980’s and 1990’s, thus making African economies one of the rapidly growing in the world.

The African Development Banks’ (AfDB) 2018 African Economic Outlook raises hopes about Africa’s long-awaited economic revival. According to the AfDB report, the average growth for all African economies stood at 2.2% in 2016 and 3.6% in 2017. The AfDB predicts this average
growth to increase to 4.1% in 2018. The World Bank also predicts strong growth rate figures for individual countries. It expects Ghana to grow by 8.3%, Ethiopia by 8.2%, and Senegal by 6.9%. These impressive growth rates place the countries among the world’s fastest-growing economies.\textsuperscript{31}

McKinsey Global Institute also produced a report in 2016 titled “Lions on the move II” as a update on an earlier article in 2010 which also backs Africa’s growing economies by establishing that, over 400 companies generate an annual revenue of a billion dollars and are increasingly becoming bigger and profitable than their peers globally.\textsuperscript{32} It predicts that, by 2025, Africa’s household consumer spending is to grow by 3.8% per year to reach 2.1 trillion dollars. Whereas business spending is expected to grow from 2.6 trillion dollars to 3.5 trillion dollars. These figures make a strong case for commercial vibrancy and economic pulse in Africa. The McKinsey report places a lot of faith in the role of African businesses on the world stage. African businesses are expected to take out significant chunks of the world economy by 2030. These positives reports are also indicated by the increased in-flows of Foreign Direct Investments, which reached an all-time high of over 62 billion dollars in 2009 according to a UN Economic Commission for Africa (UNECA) study.

The macroeconomic indicators and figures are not the only reason for the economic rejuvenation the continent is experiencing. Other factors such as ease of doing business and democracy are key to realizing and sustaining this economic revitalization. There is a wind of change in the way of doing businesses in Africa. According to the Doing Business reports, since 2003, the region carried out 798 reforms to making doing business much easier on the continent\textsuperscript{33}. It established that 83 reforms, making easier to transact business were implemented in 36 out of 48 Sub-Saharan economies in 2016. This is the largest number of reforms ever recorded by the Doing Business report for any region and represented 31\% of all reforms implemented globally in 2017. Relating
to the improvement of ease of doing business is the constant formalization of entrepreneurial activity on the continent. Most entrepreneurial activities are being registered, setting up bank accounts, paying taxes among other formal measures. The report also indicates that on the average in Africa, it takes eight different procedures and 29.7 days on average to start a business ahead of the Latin American and Caribbean region, which are ranked bottom. In economic terms it translates as, it costs 67.4% of per capita income on average to begin a business in Sub-Saharan Africa and a 125.7% of per capita income as paid-in minimum capital.

Collectively, the picture on average looks bleak; there are contrasts among individual countries in the report. For example, starting a business in Eritrea takes 84 days and 50.5% of per capita income; in Equatorial Guinea, it takes 135 days and 98.6% of per capita income; and in Democratic Republic of Congo, it takes 31 days and 200.1% of per capita income. Countries like Rwanda, Mauritius and Burundi appear to be more efficient. Starting a business in Rwanda takes 2 days and 4.4% of per capita income, in Mauritius takes 6 days and 3.6% of per capita income and in Burundi 5 days and 17.5% of per capita income. For Ghana, the figures are 8 days and 14% of per capita income.

Furthermore, scholars such as Olomi and Kelley et al believe the African entrepreneurial class are pushing hard to establish medium and large-scale businesses in the modern formal sector. In addition, these reforms have been crucial to the proliferation of Multinational Corporations (MNC’s) on the continent.

From these data, we witness the gradual but beneficial transitioning from a centrally or state planned economies in Africa to more active and sustainable economies with the private sector as a major player. We also observe that bureaucracy is hampering this drive towards a more entrepreneurial-based economy and other costly measures which tend to slow down the
entrepreneurial pulse and the potential of the private sector as a whole. Though Africa is on the right path towards economic revitalization, more has to be done in many key areas to ensure this revitalization is sustainable.

2.2 Small and Medium Enterprises and Start-ups

Considering all the focus on entrepreneurship in Africa as the new frontier for development. East Africa regional director at Sage, Nikki Summers argues that for efficient distribution of wealth, employment and creation of prosperity, start-ups are the way to go. Start-ups are touted as the main avenue for private sector involvement in the African economy contribute immensely to innovation and global changes in markets and technologies.

According to the UNECA, SME’s account for 70% and 50% of employment in Nigeria and South Africa, Africa’s biggest economies. In Ghana, the Registrar General’s department indicates that close to 90% of registered companies come across as SME’s and over 70% of employment in the private sector in microenterprises. Due to the importance attached to SME’s and economic revitalization in Africa, governments have passed series of bills and policies aimed at aiding SME’s thrive and contribute more to national development and growth.

The African Union’s SMEs Strategy and Master Plan 2017-2021 on SMEs Promotion and Development was developed by the AU to unleash the potential of small and medium-sized enterprises and industries (SME/Is) as well as microenterprises (informal sector) and entrepreneurs to create employment and promote intra-regional and intra-African trade by integrating African SME/Is and MSMEs into regional and global economies. The Strategy’s vision is to develop competitive, diversified and sustainable economies underpinned by dynamic, entrepreneurial and
industrial sectors that generate employment, reduce poverty and foster social inclusion.\textsuperscript{43} Individual countries such as Egypt have developed comprehensive policies and laws to improve and support the development of SMEs and enhancement by through a Social Fund for development.\textsuperscript{44}

Start-ups are defined in many ways but the key underlying attribute in their definition is their ability to grow. This growth is not limited to geography or location and this distinguishes them from small businesses, which tend to focus on their geographic areas. As such, businesses such as restaurants, bars, auto shops, and franchises do not qualify as start-ups. Start-ups are often high growth ventures with funding from venture capitalists and investors. They aim for global presence by introducing highly innovative and competitive products with high growth rate to customers. There is a hasty generalization among the public that all start-ups are technology start-ups mostly due to the prominence of Silicon Valley and its numerous technological ventures. Start-ups by definition are not expected to be technology oriented. Start-ups can be tech start-ups, biotech start-ups, social start-ups, food start-ups and many others. It is in view of this that, the research is specific by using term tech-start-ups in this work. However, any reference to start-ups in this work is supposed to be taken to mean tech-start-ups.

Among academics, policy-makers, scholars and practitioners on the field, there is the general likelihood to confuse start-ups with SME’s as well. There have been many attempts to create the linkage between the two and eliminate any differences in definition and their operations. One standout different is that unlike SME’s which are built with business models and planning to make profit and generate revenue, start-ups have no business model and take some time to find a workable business model but are able to achieve growth with the popularity of their products. Facebooks is a clear example of a start-up that begun with no business model but an idea to solve
problem of communication among university or college students. A decade after its establishment, Facebook is no longer a start-up but a profitable company that sponsors and purchases start-ups. However, this aim of this work is not to establish this difference as it goes beyond its scope. For the purpose of this work, start-ups will be differentiated from SME’s especially in the African context where they have different trajectories. Start-ups are identified as SME’s with focus on innovation and high growth. The inability to different these two reflects in the inability to develop comprehensive policies to help them develop and contribute adequately to the socio-economic development of Africa.

2.3 Tech Start-ups

Since the advent of internet and mobile phones, no other technological trend has received praise and hype like tech start-ups. From numerous reports and literature, tech start-ups are often identified as the embodiment of the global entrepreneurial renaissance. They have the capacity to experience high growth and are known for the emphasis of innovation. One great phenomenon accompanying the explosion of tech start-ups is the creation of tech start-up ecosystems worldwide with numbers increasing yearly as well as increasing contributions to the world economy.

Large cities around world are constantly evolving to become the go to start-up hub because of the injection of capital and innovation that comes along with it. In addition, tech start-ups are associated with the reshaping of the notion of a firm and industries alike. To better understand this, tech start-ups such as online shops and ride sharing and taxi hailing apps help put this in perspective. Tech start-ups such as Uber which is the world’s largest ride hailing company owns no commercial cars, Facebook does not create any of its content but has the largest media collection, Airbnb which is the single largest global provider of accommodation owns no real
estate, and Alibaba is the world’s most valuable retailer has no inventory. It is amazing to note that these tech start-up firms began operations less than a decade ago and have redefined the operations of firms, which traditionally performed similar functions. Hotels, taxicab companies and big retailers followed these innovative models to help them redefine their own operations.

Finding a single working definition for tech start-ups has proved elusive for over a decade since they exploded onto the scene. Steven Blank defines tech start-ups as organizations “formed to search for a repeatable and scalable business model”. Tech start-ups then use technology as their innovation to improve on existing services and products to attract customers. Facebook, which began operations over a decade ago faced fierce competition from rivals in the social media space but by constantly offering new technological additions such as video calls, instant messaging, gaming, photo sharing and tagging outshone its major rivals to become the most used social media platform globally with the most active members as well. By so doing, Facebook found a business model to advertise based on advantage of the data they had on user preferences.

The proliferation of tech start-ups has been attributed to the technological advances made in internet speed and computing technology i.e. faster computers, and smart phones. According to the Economist aside the improvements in technology and the availability of codes and “application programming interfaces” (API’s), the increase in sizeable startup colonies or “ecosystems”. They accommodate hundreds of startup schools known as accelerators. Almost every capital and big city in the world is home to an ecosystem.

Africa is no exception to this and the number has been growing exponentially in the past ten years. The improvement of internet and mobile phone proliferation on the continent has helped in this growth because these are the platforms, which tech start-ups usually operate and design their products to run with them. Africa has the highest proliferation of mobile telephony globally. The
GSM Association’s (GSMA) 2017 Mobile Economy Report established that mobile subscribers in Sub-Saharan Africa total 420 million with a mobile penetration rate of 44%.51 Africa is expected to be the fastest growing mobile market by the year 2020 with numbers totaling over half a billion.52 According to the data gathered, Africa’s total of 731 million SIM connections are expected to rise to a billion by 2020. Smartphone ownership in SSA is over 200 million people and this is double the number from two years ago. Countries like Ghana have seen over 100% increment in the penetration of mobile phones.

The National Communications Authority in Ghana estimated mobile phone penetration to be over 127.63% at the end of 2015.53 The mobile subscriber base climbed up from 34 million to over 35 million subscribers from November to December hence the 127.63% increase.54 This increasing number of connected Africans is opening up the market size for tech start-ups to thrive and grow.

2.4 Start-up Ecosystems in Africa

Start-ups are unique in many ways and contributing to this uniqueness are the availability of ecosystems, which serve as support systems to provide necessary logistics and encouragement to promote growth and survival of start-ups of various stages. These ecosystems are interconnected just like a biological ecosystem where organisms interact with each other in a physical environment. The start-up ecosystem serves as a community to educate, inspire and prepare start-up entrepreneurs for their next challenges. This ecosystem can be either physical or virtual in nature but regardless of the form it takes, the components are the same. The start-up ecosystem community comprises of inventors, ideas, start-ups (at different stages), entrepreneurs, mentors, service providers, government representatives or policy makers, and other facilitators. Silicon Valley in California is world’s premier and top ranked ecosystem and is often regarded as the
ultimate and mother of all ecosystems globally. Naturally, the aim of all ecosystems worldwide is to gain prominence like Silicon Valley though sporting their unique characteristics. Silicon Valley is the birthplace of some of the top tech companies in the world today which begun as start-ups in that ecosystem and it continues to produce top ranking start-ups which have high potential. Silicon Valley derived its name from the 1960’s space race era when a semiconductor producing company, Fairchild Company was located in San Francisco, which is in California. This company led to birth of semiconductor companies of the modern era such as AMD, Texas Instruments, NVDIA and Intel. Semiconductors are made from silicon hence the name Silicon Valley. The successes chalked by Silicon Valley over the years has compelled countries to help develop ecosystems in their countries to better equip them to rival Silicon Valley.

Start-up Chile, a program by the Chilean government to attract early stage start-ups to begin their businesses in Chile with some level of support. Start-up Brazil does similar whereas Asian countries such as China and Singapore make grants of various amounts available for research and university system to develop close to the Silicon Valley structure where the universities and industry are partners in development.

With all these developments going on, African countries are also doing its best to take a bite out of the global phenomenon by developing their own ecosystems. These efforts are no in vain because Africa house the next promising start-up ecosystem and probably the most publicized ecosystem in the world after Silicon Valley is Nairobi’s Silicon Savannah. Robust ecosystems can be located in Kampala, Kigali, Lagos, Cape Town, Accra, Dakar, Johannesburg and Cairo, which are all African cities. Overall, there are among the many factors that contribute to the rise of start-up ecosystems in Africa, the improvement in internet connections with the introduction of broadband as well as 4G internet has been critical to the fast growth of these start-up ecosystems.
Broadband services in Africa are penetrating at a greater rate as compared to their western counterparts. According to the 2018 annual digital report by We are Social and Hootsuite, Africa is experiencing the fastest growth rates on internet usage and internet penetration despite having a slow start compared to the world. The report found out that, there was a 20% increase in internet subscriptions, which represented close to 73 million new users from January 2017 to January 2018. In clearer terms, Africa’s internet subscriptions and penetration double annually and this was made possible with the increase in the number of undersea cables in 2009 to help boost the old connections and to introduce broadband and 3G internet connections on the continent. There were installations of seven fibre optic undersea cables between the years of 2009 and 2012 along the coasts eastern and West Africa. Refer to appendix

This is displayed vividly in the first figure (refer to appendix) where Africa was connected to the internet via one undersea cable from the 1990’s until 2009. By the end of the first batch of installations, African undersea cables increased to 10. As of 2017, the number of undersea cables connecting Africa to the internet have doubled to 26 and still increasing. These developments are evidence of the quick pace at which technological advancements are making their way into Africa and portrays the countless opportunities it presents for entrepreneurship and development on the continent.

Governments in Africa are aware of the potential good internet connection provides for stirring up entrepreneurship and development and as such are tailoring policies to help develop and promote investment in the internet infrastructure in their countries so as to make internet access to majority of their populations. The governments of Morocco, Ghana, Nigeria and Rwanda are front-runners in this regard. Rwanda, which seeks to become the first cashless society in Africa, is pushing hard to achieve this goal among many others by inviting private sector investment in their internet
infrastructure. All these developments are incentives for tech start-ups as it opens up the space for them to be much more innovative with the development of internet-based projects, which include financial technology applications, fashion, educational and digital entertainment platforms as well as the fast-growing e-commerce sector.

The next section will shed more light on the main components of the start-up ecosystem in Africa to give a holistic understanding of the tech start-up scene in Africa. It will look at tech-hubs, national policies and the investment i.e. venture capitals in African tech start-up ecosystems.

2.4.1 Technology Hubs (tech hubs) in Africa

Tech hubs are normally open-access physical places or spaces, which serve as grounds to foster tech start-ups to develop as well help aiding in their designs. Tech hubs are the most popular places to find indigenously developed apps and start-ups as well as budding technology entrepreneurs across the continent due to their proliferation. Tech hubs provide an accommodating and peculiar environment and atmosphere where tech start-ups can scale faster. They help train entrepreneurs by providing them with a space or spaces where they can meet, work, learn, share ideas and work together. This is made possible with the availability of actors such as mentors, university lecturers, business and government leaders, and WIFI access while entrepreneurs come together to brainstorm on ideas to find solutions to indigenous problems. The central idea behind tech hubs is that with the right company and like-minded people, there will be the development of great ideas and bright innovations. Tech hubs are popular across other regions in the world and Africa though new to the party, has made some monumental strides in this regard. Figures from the current GSMA infographic report of 2017 suggests there are 442 active technology hubs in Africa. Tech hubs can be found in almost all the countries on the continent and are mostly situated in urban areas.
The distribution of tech hubs across Africa is displayed in the figure (refer to appendix) and the numbers are increasing daily thus indicating that the proliferation of tech hubs of the continent is going to be a regular phenomenon even into the future. Ghana has experienced an exponential growth in the number of tech hubs working in Accra and other urban centres since 2010.

In addition, it is estimated that Ghanaian ecosystem has increased by 50% from 2016 to 2018. Leading hubs in Africa such as the Meltwater Entrepreneurial School of Technology (MEST) in Ghana, ccHub in Nigeria and iHub in Kenya are considered as pioneers and such new tech hubs are modelled around them. Tech hubs are very crucial for the development of start-ups because studies have indicated that start-ups, which were nurtured in tech hubs, are more likely to receive investment and scale up.58

Tech hubs in Africa also give recognition to their host countries and attract big name policy makers and investors. For instance, in 2016, Barack Obama and Mark Zuckerberg visited iHub to see progress for themselves with their own eyes. Zuckerberg also visited Lagos to find new start-ups to invest. Similarly, Ghana found itself hosting President Emmanuel Macron and Dutch Prime Minister Mark Rutte on their visits to iSpace and Impact Hub and the list goes on with Alibaba’s Jack Ma and Google’s Sundar Pichar making visits to tech hubs across the continent. All these help contribute to the soft power Africa states can use to attract investment opportunities to help speed up entrepreneurship and development.

2.4.2 Regional and National Policies on Tech Start-ups in Africa

The upward trajectory of start-ups and their supportive ecosystems have been supported by comprehensive efforts by governments and Regional bodies such as the AU to use entrepreneurship and technology to boost and drive development on the continent. ICT has been identified as a key instrument in aiding Africa to achieve socioeconomic development as well as
attaining development goals. UNECA has been very crucial in the development of comprehensive ICT policies for Africa, which often serve as a blueprint for national policies developed by African countries. ICT4D refers to the integration of technology into national development and poverty reduction schemes of a country.

There is application of ICT in the health, natural resource extraction, education, agriculture, tourism, governance sectors of the country. The African Information Society Initiative was a policy designed and implemented by the UNECA and this was the main initiative at the regional level towards Information Communication Technology for development in Africa. This was the first comprehensive ICT policy developed at the regional level for Africa and its role was to help build information societies in African countries as well aiding them in using ICT to accelerate socioeconomic development on the continent. The work of the AISI laid the foundations for National Information and Communication Infrastructure (NICI), which was also the brainchild of the AISI and was focused on building the information structure in African countries by developing policies specific to the needs of African countries and the use of ICT to attain socioeconomic goals at the national level.

In Ghana, the government in 2003 implemented Information Communication for Accelerated Development (ICT4AD) strategies. This was to equip ICT to help achieve the long-term vision of improvement of the Ghanaian citizens’ quality of life via the enhancement of their socioeconomic and cultural wellbeing through the rapid development and modernization of the economy and society by ensuring sustainable economic and social development through ICT. In light of this, the Ministry of Communication was established to promote and provide viable projects to help achieve the agenda.
To achieve a prosperous Kenyan society driven by ICT, The Kenyan governments developed its Vision 2030 agenda where ICT is to become the engine of growth in their economy to help generate prosperity for its citizens. Under this agenda, the National Master Plan\textsuperscript{61} was drawn and its vision is to transforming Kenya into a leading regional ICT hub and a globally competitive digital economy to create wealth and a better well-being for all Kenyan citizens.\textsuperscript{62} It projects that ICT will be able to add $2 billion in revenues and create over 70,000 jobs for Kenyans by 2030.\textsuperscript{63} Other national policies have been developed by different African countries to aid in the development of ICT to promote their socioeconomic development. In spite of these developments there is more to be done to realize the full potential and capacity of leveraging ICT for African development and growth.

2.4.3 Investment in Tech Start-ups

Availability of finance is critical for the survival of any business and tech start-ups are no exception. In their ambition to scale up, tech start-ups require financing from huge injections of capital to small pockets of financial assistance. Financing is very important to the activities of any tech start-up because it drives innovation and scalability. Empirical research has identified that 25\% of the successes of small businesses is dependent on financing. Tech start-ups require sustainable sources of capital to keep them functioning and there work hard to attract investors to their ideas and innovations. African start-ups face a much difficult task in acquiring funding and investment as compared to start-ups in much established ecosystems globally. Many African entrepreneurs are often deterred and frustration by the stress in obtaining funding for their projects. African start-ups in the words of Victor Asemota a tech start-up entrepreneur, African start-ups are “fish in the desert” due to the hostility of the environment on their operations.
The main investors in African tech-start-ups are venture capitalists and angel investors. Venture Capitals and Capitalists are companies and individuals who invest high sums of money in start-ups to generate some revenue for themselves and their investors. Their investment models are often high risk and involve huge sums of investments in innovative and potential latter stage start-ups. Prominent and popular venture capitalist firms in Africa include Fusion Capital, Gold Venture Capital Limited, eVenturesAfrica Fund, Matamba Anoka Technology Holdings (MATHS), Africa Media Ventures Fund, Intel Capital, Adlevo Capital, Jacana Partners and Sawari Ventures among many others. In Ghana, the government acts as a venture Capitalist by providing financial support to start-ups through a number of agencies it has set up. The Venture Capital Trust Fund was set up to finance SME’s at a low cost and went on to formalize the attraction of private investors to invest in start-ups by setting up the Ghana Angel Investment Network popularly known as GAIN.

In 2017, Ghana’s president Nana Akuffo Addo announced a $100 million-dollar financial package for SME’s and start-ups via the National Entrepreneurship and Innovation Plan. The NEIP was to serve as a link between venture capitalists and budding entrepreneurs. The African venture capital scene is still lagging as compared to other parts of the world because local investors are still sceptical about the tech start-up model of entrepreneurship and as such, majority of the funding for African start-ups come from foreign sources mostly from Silicon Valley investors and tech firms such as Google, Facebook and Intel.

2.5 Overview of Africa’s development

Development as a concept is multifaceted in its definition. There are many dimensions to the concept of development. Generally, development is thought of as improving upon the existing state of something. The concept of development has undergone several revisions and additions
since the 1950’s as to what it should mean with new ideas such as human development among others. Thus, making development a broad concept that encompasses aspects such as social, economic, political and human development. There are over 700 citations on the concept of development in its focus, applications and aspects. According to Nobel laureate Myrdal Gunnar, social system’s ascendency should be understood as development. This social system comprises of economic and non-economic factors such as education and health, power distribution in society, or the economic, political and social factors in a more general sense. Amartya Sen describes development in terms of freedoms and capabilities and using them to enhance the overall quality of life for people. Todaro identifies development as “a process which is multi-dimensional in nature and involves the reorientation and reorganization of social and economic systems entirely”. He makes further arguments that development occurs both in a physical manner and in the mind and can be achieved when socioeconomic and political processes are combined.

The United Nations Development Programme (UNDP) explains development within the well-being of human beings. Development in this sense should not only be economic in nature but also transcend into the lives of people directly in order to improve upon their quality of life.

Many African countries are identified as developing nations. Many African nations are characterized by low living standards, Very low or undeveloped industrialized base, and low Human Development Index (HDI). African countries are now trying to achievement better social and economic advancement by adopting and implementing proper policies. After independence as indicated earlier, African countries made a dash for economic development with focus on the state but that only resulted in plunging them into debt. This turn of events killed the wave of optimism that swept across the continent after independence and left a fog of pessimism, which seemed to have stayed until the turn of the 21st century. African countries are praised for making strides
towards holistic development with focus not only economic but also human development. This shift in focus led to freedom of citizens to engage in activities, which enhanced their standards of living. Easy access to education, citizen freedoms, health facilities amongst others have helped drive the development agenda of African countries. This progress has been aided by the intervention of development partners such as the UNDP, UNICEF and donor countries, which helped, tailor the road to recovery through the Millennium Challenge Goals and recently, the Sustainable Development Goals. The MDG’s were established in 2000 to help eliminate the threat of extreme poverty\textsuperscript{72}, which was rife in Africa and threatened the human development of many African countries. The deadline for developing countries to attain the goals set by the MDG’s ended in 2015. However, though there were considered successful to an extent, the achievements were not fairly distributed in the region, with some citizens of African countries living in extreme poverty and conditions unfit for human development.

This led to the establishment of the SDG’s under the auspices of the UNDP to promote a much holistic approach towards human development schemes proposed by the MDGs. The SDG’s were launched in 2015 for all countries regardless of their economic status or describing in the global system. The SGD’s are expected to better place developing nations at par with developed nations in some aspects of development such as education, poverty alleviation and gender quality.

For the purpose of this work, focus will be laid upon using development to promote the digital inclusion of citizens in African countries. Advancements in ICT technologies open up doorways to ensure the Sustainable Development Goals (SDGs) are implemented successfully. Time and money is not wasted but saved because there is efficiency, transparency and effectiveness of adopted measures and processes. Avenues for cooperation and dialogue are opened. Access to knowledge is open to allow them maximize it to promote innovativeness and advancement of their
countries and themselves. There are new opportunities created for economic growth and development by industrialized countries with the expansion of digital infrastructure. Broader access to information can, not least, promote development policy goals in areas such as good governance and rural development, as well as education, health and the development of financial systems. The elimination of differences is not only between developed and developing countries but also within the rural and urban centers in African countries.

Despite all these efforts by aid agencies, donor countries and development partners, African countries are still considered the bottom feeders in the global system lagging behind Latin America and parts of Asia. Hence, the need to better incorporate the development agendas into national policies to promote the well-being of people across the continent.

2.6 Conclusion

It is obvious that entrepreneurship hold the key to unlocking the potential of the continent. While some affluent Africans like Tony Elumelu is doing wonders with his belief in Africapitalism by setting up the Tony Elumelu Foundation to help boost entrepreneurship on the continent by identifying and providing 10000 African entrepreneurs annually with $10,000, create a million jobs, and add $10 billion in revenues to Africa’s economy. This initiative has led to tech start-up entrepreneurs being beneficiaries of this financial package. In this chapter, entrepreneurship was discussed and narrowed down to entrepreneurship on the continent and identified why there was a shift from states dominating economies to open economies where entrepreneurship was given the freehand to thrive and develop. In addition, to answer the research questions in an effective manner this chapter discussed the phenomenon of tech start-ups were explored and the main components of their activities identified. Some innovative tech start-ups were identified across the continent in
that section. Finally, we delved into development on the continent to give us a peek into the promotion of human development in African countries. This gives us a clearer understanding on the role of entrepreneurship because human development allows individuals to have freedoms, which helps boost their innovative, and problem-solving abilities to better place them in the national development of their countries and continental development of Africa.
ENDNOTES

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CHAPTER THREE
TECH START-UPS AND SOCIOECONOMIC DEVELOPMENT IN GHANA

3.0 Introduction
The previous chapter gave an overview of entrepreneurship on the continent and described the tech start-ups phenomenon on the continent by identifying the major components of their ecosystem. This chapter will make an effort to understand the roles that these tech start-up firms play in the socioeconomic development of Ghana. Furthermore, it will examine why despite the challenges faced by tech start-ups there is still high proliferation in Ghana. The phenomenon of tech start-ups is still very young in Ghana despite the growing attention in the media and within government circles. In addition, inability to measure the impact of or bring the roles played by these tech start-up firms on socioeconomic development in Ghana worsens matters.

Until recently, tech start-ups had not been considered as important to the development of African countries. The focus was always on large-scale industrialization, which was seen as the panacea to the development woes of many African countries with Ghana being no exception.

However, the global bandwagon of the 21st Century that emphasized entrepreneurship as a way out for the slow development of countries prompted African countries like Ghana to rethink and lay more emphasis on entrepreneurship. Entrepreneurship is now linked with global development because not only does it contribute to macro level development but also empowers citizens to use their own abilities to make meaningful changes in their lives and the lives of people around them. The growing significance of entrepreneurship to global development according to Win Naudé¹ can

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¹ Win Naudé is a professor and entrepreneur who is known for his work on entrepreneurship and development.
be linked to three main explanations, which are specific to different countries. Firstly, the failure of the state-level corporations in the government-controlled economies of developed countries from the 1970’s to the end of the 20th century was phased out to what he terms “an entrepreneurial economy”. In an entrepreneurial economy, small firms are relied on to provide services and “knowledge-driven goods”. Supporting this is a generation of a highly innovative class who expect governments to play facilitating roles rather than acting as the producer of goods and services.

Secondly, fast growing emerging economies such as the BRICS (Brazil, Russia, India, China and South Africa) were driven mainly by an entrepreneurial revival led by their innovative class not by government playing the lead role. Innovative entrepreneurship was identified as the key to sustained growth in these countries in order to have sustained access to markets, resources, knowledge and industrialization with little focus on the use of hydrocarbons.

Finally, in less developed economies, which are aid dependent, donors have shifted the focus and target of their aid towards private sector development. This shift is thought to stimulate entrepreneurship among their highly unemployed and inadequately remunerated youth. All these lead to the anticipation that entrepreneurship will spur up employment opportunities and growth in economies of emerging and less developed countries alike.

In light of this, a key component of entrepreneurship is innovation and this consist of innovative firms such as technology start-ups. This explains the growing focus on these tech start-up firms in the Ghanaian economy. As such the attempt made in this chapter is to examine the role-played by these technology firms on the socioeconomic development in Ghana.
3.1 Tech Start-ups as the new frontier for development in Ghana

Countries worldwide have identified technology as the new wave of development and as such are doing everything possible to leverage technology in achieving their development goals. Ghana is no exception to this trend. Over the past few years, Ghana’s tech start-up scene has gained worldwide prominence and attention as one of the top tech start-up ecosystems on the continent. This was made possible by the implementation of the Information Communication Technology for Development (ICT4D) in 2003 by the government to help development of the ICT landscape in Ghana at that time. This was also to help the country to achieve its Millennium Development Goals (MDG’s) to promote socioeconomic development in the country. In light of this, state policies, developmental partners and donors have focused their attention on developing and supporting the technology sector to aid in the accelerating of development on the continent.

The Ghanaian government under President Akuffo Addo underscored the importance of innovation and technology in helping to solve the socioeconomic problems that have plagued Ghana for far too long. Alongside technology, he reiterated the need for entrepreneurship to go in hand with innovation and technology to help close the gap between Ghana and much more advanced countries. Speaking on Ghana’s 61st Independence Day celebrations, President Akuffo expressed that

“…at its core, the poverty gap is a technology gap. The mastery of technology at the end of the day is what separates developed countries from developing countries, or rich from poor countries. …In the years ahead, the principal thrust of national development policy must be to ensure that science,
technology and innovation drive all sectors of the economy”.²

Combined with the views of Ghana’s developmental partners such as the World Bank, USAID, and other donors, it is prudent to identify tech start-ups as important to the development agenda of Ghana especially in view of Goal 8 and Goal 9 of the Sustainable Development Goals which are; Decent work and economic growth for the former and Industry, Innovation and Infrastructure for the latter. The World Bank for example recognizes the importance of innovation and entrepreneurship to tackle developmental challenges such as sustainability, inclusion and shared prosperity of the citizens in developing countries. In light of this, the World Bank Group continues to invest heavily in innovation and entrepreneurship around the continent where countries such as Ghana benefit.

In fact, the core mandate of the National Entrepreneurship and Innovation Plan, which was set up to boost tech start-ups, and entrepreneurship in Ghana, has as its core mandate to empower start-ups to scale and become successful. This is to help place Ghana on the path to achieve its long-term vision of consolidating its status as a middle-income country by building an economy that is over-dependent on state intervention but a sustainable economy that supports the private sector cable of providing jobs that are appropriate and viable for national development. This is similar to Kenya’s key pillar of development in its Vision 2030 development strategy to leverage technology and innovation to build its Konza Technology City and create jobs in the excess of 20,000 as well as contributing over 10 billion Kenyan shillings to the Kenyan GDP.

In the middle of all of innovation, technology and entrepreneurship are tech start-ups, and as mentioned in the previous chapter, start-ups in Africa generally have surrounded themselves with vibrant ecosystems, which seek to champion their cause.
In Ghana, major stakeholders in the tech start-up ecosystem such as tech entrepreneurs, venture capitalists, developers and other stakeholders meet regularly in events in Accra and sometimes in other African cities to have discussions on how to ensure their activities play a positive role on socioeconomic development in Ghana and Africa as a whole. One of such events is the Ghana Tech Summit, which brings together all these stakeholders to discuss, and share ideas on how to enable start-ups contribute and play bigger roles in the development of Ghana. Such meetings can only generate positive results such as creating a strong and unified start-up community to help advocate for tech start-ups and birth great initiatives to better their ecosystem.

Interviews conducted by the researcher from tech entrepreneurs and other stakeholders in Ghana’s start-up ecosystem and relevant literature revealed three main roles played by tech start-ups on Ghana’s socioeconomic development. These are innovation, creation of jobs and increasing productivity by generating competition between firms. Other roles included connecting the citizens to technology to make their lives easier especially those in rural areas and inviting investment in the country by exporting innovation to enhance Ghana’s global competitiveness.

3.1.1 Harnessing Innovation to drive socioeconomic development.

Tech start-ups are best identified with their innovation, which is also touted as the most important role they play in the socioeconomic development of countries. Innovation involves transitioning an idea into practicality and application. This is the claim by most tech entrepreneurs who like to see themselves as “innovative” because they tend to introduce new ideas into a market, business model or technical domain. According to Schumpeter\(^3\), an entrepreneur’s awareness to take current resources and do something distinctive with them in order to build a competitive advantage is what he terms “new combinations”.

\[^3\] University of Ghana  http://ugspace.ug.edu.gh
Innovations are not only characterized by distinctive technology, business models but also varying a business model, or process can birth innovation. In light of this, available literature argues that, developing countries such as Ghana are more likely to use technology to help find indigenous solutions to indigenous problems and eventually tackling problems on a global scale. These indigenous solutions to indigenous problems tackled major problems in sectors such as banking/finance, agriculture, energy, healthcare, entertainment and fashion.

From the general outlook in Africa, the most popular example for this is the story of M-PESA, which is an SMS based money transfer system that allows subscribers to deposit, withdraw and transfer funds electronically with their mobile phones. This system would never have originated from a developed country because they have more established and formal banking sector unlike the largely informal financial sector of many African countries. As a continent faced with this peculiar problem, it was only logical that such as solution was borne here to tackle this issue. Though M-PESA originated from Kenya’s Safaricom, it has spread to other African countries such as Ghana where all the major Telcos provide money transfer services. According to the bank of Ghana, mobile money transactions across all networks at the end of December 2017 totaled Gh₵155.8 billion.4

This technology has increased the access to formal financial services to individuals in the informal sector hence promoting social development among Ghanaians. People often refer to such phenomenon when they want to reiterate the potential tech start-ups can have on socioeconomic development in Ghana. The ripple effect of the activities of tech start-ups into other sectors and industries to create employment and generate wealth give more credibility and validity to the calls to support and encourage the activities of tech entrepreneurs.
Aside mobile money, the indigenous solutions to indigenous problems can be found in other sectors of the economy. In the Ghanaian e-commerce industry, Jumia, a Nigerian e-commerce startup is leading the way in Ghana. Jumia overtook even Ghanaian ecommerce sites to become the favorite ecommerce site for the average Ghanaian with an estimated 70,000 visitors to its website daily. Jumia came to fill a gap in the Ghanaian economy, which was the easy online purchasing, and delivery of goods ranging from fashion to even fresh food. Similar to mobile money, Jumia has had a ripple effect into other sectors such as the delivery services and increased online transactions for local business by helping them find customers without having to go through the stress off incurring huge advertising bills.

The creative arts and entertainment industry in Ghana have benefitted from another innovation from a tech start-up, which is IROKO TV. Often compared to American born streaming site Netflix, IROKOTV is very distinct from Netflix in many ways. It provides a platform for subscribers to stream or download Ghanaian and Nigerian movies of their choice. This has resulted in giving many Ghanaian movies an international platform to display their movies and make profit while doing this.

Such developments were unheard off when movie producers had to produce volumes of video disks at high costs and often at a loss because of poor sales and high advertising costs. In an interview with Socrates Sarfo, the creative director of the National Commission on culture was full of praise for this innovation which had had curbed pirating of movies and given more exposure to Ghanaian culture via the movies. He also indicated that the international platform also ensured that Ghanaian producers were investing more monies in their movies and actors to producer movies that were of higher quality to be enjoyed globally.
Leti-Arts, a Ghanaian tech start-up in the entertainment industry uses African characters for games and cartoons, which are sold, over the world to established game producers and comics such as Marvel and DC. CEO of Leti Arts, Eyram Tawia was very passionate about the role his company was playing to in Ghana’s socioeconomic growth. He said

“Concerning Leti Arts, we are very special when it comes to African entertainment with respect to gaming and comics. We want to use infuse technology with entertainment to market African folklore and history to younger generations of Africans and the world. By so doing, a new industry is being born in Ghana and Africa as a whole. We expect it to blow up in a few years and just like what Japanese manga has done for Japanese culture, Leti Arts will do for Ghanaian culture… Imagine a Kweku Anansi comic of original Kweku Anansi stories being circulated around the world and the interest that will be generated in Ghana”.

The agriculture sector in Ghana has also benefitted from innovations of tech start-ups hence proving the roles they play in the socioeconomic development of Ghana. Farmerline is the most prominent of agritech start-ups in Ghana. It uses USSD functions on mobile phones to provide farmers in Ghana and outside Ghana agriculture extension services at a subscribed cost. Farmerline also has a platform, which serves as a market place for farmers and suppliers as well as retail customers hence erasing barriers of space, which have plagued Ghanaian farmers for a long time. CEO of Farmerline Alloysius Attah, had this to say
“We need food and Ghanaian food production has a lot to offer aside the cash crops, which are mostly grown for export. We want to engage all Ghanaians in bringing up the agriculture sector with less people at the bottom. It is our aim to create sustainable businesses for our Ghanaian and African farmers by leveraging on technology to bring them the best practices, customers and prices right on their mobile phones. You can imagine the numbers when a large percentage of the population is not only buying but investing in farms as well. I do believe tech start-ups in various sectors have identified problems and are playing key roles not only to solve but also to ensure there are positive impacts both socially and economically for Ghana.”

Other Agrictech start-ups such as OneAcreFarms hopes to create farmer field schools in Ghana, which have been successful in India and other countries by integrating them with the digital tools of this technological age. The farmer learns by active participation and as such the solution is tailor made for the needs of a particular farmer the CEO of OneAcreFarms says, “Anytime human beings belong to creating a solution for themselves, they are in a position to better adopt that particular solution.” This he says helps create a ripple effect where other farmers will employ successful solutions once a colleague has adopted them. eSoko is a Ghanaian agrictech that serves as a market place or an ecommerce for agriculture where it informs both farmers and customers about prices of produce before they enter the market to prevent any unnecessary inflations in prices. Agrictech
start-ups strive to better farmer produce yields, their standard of living, create respect for the agriculture industry and help them increase their income.

The healthtech start-ups in Ghana have developed numerous innovations to help improve on the health services in the country especially among rural dwellers who tend to suffer the most when there is poor healthcare delivery. FindHospitals hopes to break the myth about private healthcare being expensive by providing a platform, which unlike traditional websites goes beyond listing private hospitals. It gives the ability for users to book appointments, find out prices and the proximity of the hospital and gives the option of available transport services to reach the healthcare facility chosen. It seeks to reduce the burden on public hospitals due to the perceived low cost hence the daily trooping of patients who cannot be properly catered for by these overwhelmed hospitals.

GiftedMom is focused on maternity and one goal, to help curb the age long problem of high infant and maternal mortality in Africa. It uses mobile phones to help pregnant women access free antenatal and post-natal services to help them avoid complications later. Tech start-ups are always available to solve problems peculiar to a locality and healthtech mPedigree is doing just that. Cases of proliferation of counterfeit medicines have plagued Ghana and other African countries and mPedigree is leading the battle against this by cataloguing authentic medicines both locally produced and importing to help unsure customers verify medicines with unique codes provided to them by mpedigree’s service to help avoid such counterfeit medicines.

All the examples stated above are evidence of the lengths to which tech start-ups go in finding innovative ways to solve problems, which in turn help to promote socioeconomic development by positively affecting individuals and the sector as a whole. The welfare of people is greatly affected by the innovations put forward by tech start-ups. Tech start-ups in Ghana are solving problems
indigenous to Ghana with indigenous ways to ensure we keep up the face technological with the rest of the world. These problems would have been persistent if they had been left in the hands of others to solve. Solving them help increase socioeconomic growth in Ghana.

There are dissenting views, which argue that many of the “innovations” brought forward by tech start-ups are in fact “copied and pasted” into Ghana from other parts of the world. They argue by claiming majority of the innovations lack originality and are mostly replicas, and give two reasons for this situation. Critics cite the disconnect between Ghanaian universities and the tech start-up ecosystem.

Many tech entrepreneurs are of the view that universities should be breeding grounds for tech start-ups, which is not the situation in Ghana. Universities are quite disconnected from the tech start-up ecosystem; they do not even have a presence in any of the tech hubs across the countries. Critics believe universities should be championing the activities of tech start-ups because they are built to support research and as such must harness all the years of research to bring out practical technologically innovative products and services. By producing these innovations, they can “patent” them and raise for money for research to help drive innovations. Despite the disconnect, graduate tech entrepreneurs believe the Kwame Nkrumah University and University of Ghana are taking bold steps and have established tech-hubs in their computer science and engineering departments to help create an environment for students to come together to find novella ways to solve problems in the Ghanaian society.

Another school of critics are of the view that most African and Ghanaian tech start-ups are not borne from research. Despite the noble cause of trying to solve societal problems, most of them do not engage in in-depth research and development before launching and this causes myriad of problems for many of them later. Unlike in developed ecosystems, Ghanaian tech hubs do not
possess research and development labs for tech start-up entrepreneurs to properly go through the rigors of research to churn out fully baked ideas and products that can efficiently play roles to help solve challenges and drive development. As such, these ideas or solutions end up not having the desired impact and this affects development process since the challenges will still exist.

Criticisms levelled against tech start-ups for being replicas of other products used in developed countries is a view not shared by everyone. Others are of the view that challenges and problems are universal. One tech entrepreneur cited inventions such as automobiles, which have improved transportation in all places, but due to bad roads in developing countries and unavailability of spare parts, some cars are not suitable for our terrain. He goes on to add that inasmuch as some innovations are replicated, they are replicated within the context of the Ghanaian challenge that it seeks to solve hence redesigning them to better suit the needs of the Ghanaian and African. Jumia, IROKO TV, and other local start-ups were built based on ideas from other parts of the world but were designed to suit the needs of the Ghanaian users and ecosystem as well as the availability of technologies such as internet and gadgets.

There are also cases of African innovations with novel products and ideas being exported to other parts of world. Mobile money technology, mPedigree and countless other innovations have successfully launched in several developed countries and are gaining popularity and huge investments. Due to their ability to think and produce contextualized solutions to African challenges, it’s quite unthinkable for non-Africans or individuals who haven’t felt the brunt of the challenges the continent faces to come out with localized solutions to help solve them. Thus, solving problems peculiar to the Ghanaian and African society are not only improving the welfare of Ghanaians and other Africans but also, people in other developed and developing nations. Thus indicating that by harnessing innovation, tech start-ups are playing a key role in promoting
standards of living, quality of life and generally, improving the welfare of many people in the Ghana, which thus shows their importance to the socioeconomic development of Ghana.

3.1.2 Creating increased competition for sector development.

Another role innovative tech start-ups play in Ghana’s socioeconomic development is by generating competition between firms in the sector. Tech entrepreneurs interviewed agreed that without competition, there is low productivity and hence competition is key to stimulate productivity and churn out innovative products and services. In light of this, it can be said that start-ups are key to stimulating productivity and promoting efficiency in their firms and industries around them. A practical example of this is seen in the financial sector of the Ghanaian economy, which saw drastic transformation with the introduction of mobile money and fintech apps. Mobile money technology helped revitalize the economy by injecting competition between telecommunication networks in Ghana. This prompted traditional financial institutions to take a cue and invest in their own financial services to rival that of the telecommunications and tech start-up entrepreneurs who were providing financial services to the Ghanaian public. Currently almost all Ghanaian commercial banks have their own mobile apps to help their customers’ access mobile banking via either the app or USSD short codes.

This competition is also rife in other sectors such as telecommunications where traditional calls and messaging are being phased out by messaging and video call platforms such as WhatsApp, iMessage, WeChat, Viber, Skype, FaceTime and many others. In the transport sector, taxis’ and rental companies are facing strong competition from Uber, Enrout, and Dropn among many others. Accommodation and hospitality industry are facing competition from Airbnb and MeQasa, which are helping people find cheap accommodation wherever they find themselves and making rental agents increasingly obsolete in the Ghanaian industry. The traditional companies are learning the
hard way and are forced to adapt, by investing to find innovative products to maintain their existing customers and attract new ones as well. Some have no choice but to fold up due the inability to keep up with progressing times.

The increased competition in the Ghanaian market has prompted many firms to build upon earlier innovations to bring about new products. Mobile money moved from just transferring money to providing insurance, savings and loans, buying stocks among many others. This has brought all these services to the doorstep of Ghanaian citizens who would have been left out by traditional institutions that serve this purpose. By so doing tech start-up promote inclusiveness in development by making sure no one is left behind in this technological age.

Customers are the main beneficiaries when there is increased competition between firms because they get to choose from a wide range of different products to. In addition, firms are motivated to produce better goods at cheaper prices. It is a widely held notion that increased competition is beneficial to the increment of the welfare and development of a country and its citizens. The successes of many tech start-ups in the Ghanaian ecosystem is due to the increased competition in a small market. The Ghanaian market is very small hence, the attention given to the type of products they bring out. This is very evident in the e-commerce market where there is a proliferation of tech firms providing the same solutions to online shopping. This has helped improved services such as delivery, processing of orders, and payment upon delivery. Analysts believe this will have a ripple effect to ensure productivity is maximized to release resources to be invested in other sectors.

3.1.3 Tech Start-ups and job creation in Ghana

Studies and reports on job creation have identified small firms and start-ups as very important to solving problems of unemployment and limited jobs in many countries. It is argued that
proliferation of small firms tends to promote socioeconomic development and growth in countries. This view is supported by research undertaken by Audretsch et al., which specifically indicates that there is higher development and growth in countries that have a greater market share of small firms and start-ups. Because of their innovation driven focus, start-ups keep on creating employment in order to maintain their innovative edge by bringing new minds onboard. In the United States, start-ups and small firms are responsible for creation of new jobs in their economy.

In line with the numerous researches on start-ups and their effect on job creation and employment are interviews and opinions gathered from tech entrepreneurs, which are supportive of the findings. Unemployment in Ghana is on the high and has been a chronic headache for governments for many years. The government has alluded to the reality that the days of it being the topmost employer are long gone. With a huge youth bulge, unemployment is very rampant among the Ghanaian youth both literate and non-literate. The public sector according to Awal Mohammed, the minister for Business Development in Ghana, has the capacity to employ only about 5 percent of graduates from the tertiary institutions yearly and most of these jobs are not well paying enough for them to fend for themselves properly given the difficulties.

The levels of unemployment among Ghanaian university graduates is so high to warrant them a term “graduate unemployment” and they have an association for unemployed graduates.

This situation has led to many frustrations among Ghanaian youth who are yet to graduate and graduates who are searching for jobs. The frustrations lead most of the youth to create jobs for themselves by creating business models around solving challenges they identify in society. By doing they create jobs for not only themselves but others as well.

As a result, the government over the years has looked for ways to help tackle this issue of high youth unemployment. This led to the realization that the mantle had to be shared with the private
sector, which was identified by the Ghanaian government as very capable of helping to turn things around. This agenda was begun in 2006 when the government launched the National Youth Employment Program, which sought out to help provide youth with jobs, necessary skills to create their own jobs and experience in different job capacities to better equip them in their job search. Though it was very laudable, this program was hugely in the hands of the public sector and could not find graduates the necessary jobs that they wanted. This called for the National Employment Policy, which was launched in 2015 by the government to include the public sector in actively helping to curb the rising rates of youth unemployment in the country. The statement of the National Employment Policy is that

“…the policy seeks to lay emphasis on job creation by creating an environment conducive for private investment and job creation in the Ghanaian economy. The government will continue pursuing appropriate macroeconomic policies; investment in human resource development, infrastructure development and other incentives to ensure the private sector remains vibrant and continues to increase its capacity as an engine for development and job creation.”

Other interventions such as the earlier mentioned National Entrepreneurship and Innovation Plan have stressed on private-public partnerships to alleviate the situation of unemployment in Ghana. Tech start-ups in Ghana are playing a major role in reducing the number of unemployed graduates because most tech start-ups require young vibrant minds to help them carry out their innovative ideas into practicality. The youth are better adapted to think of novel ways of solving problems to
fit the modern context because of their exposure to modern technology and ways of thinking. In addition, most tech entrepreneurs are youthful individuals who can better relate with their fellow youth and as such tend to hire them in their firms to help drive their start-ups forward.

Moreover, the required skills of computer coding and computer software design are mostly ubiquitous in the youth and ideas of branding and disruptive thinking are mostly found in the younger generations who do not “go by the book”. David Quartey, head of administration and programs manager at MEST gave context to this by indicating that majority of start-ups employ large numbers of fresh university graduates and entrust them with positions that traditional companies will require several years of working experience before hiring them. He went on to add that whereas young graduates best shot in traditional companies was to work as interns or contract workers, start-ups give them full time opportunities with good salaries as well. Such treatment encourages them to work harder to help these start-ups to expand. Finally, he observed that most young people establish or set up start-ups to provide employment opportunities for their peers because they are apathetic towards their plight.

Despite the large number of employees in agriculture, public sector and large traditional companies, it is becoming evident that start-ups are the fastest employing businesses in the country due to their ability and nature to scale quickly and their proliferation into the economy of the country. Significant employment opportunities are created when there is a boom in the tech start-up ecosystem. Tech start-ups such as MeQasa, Jumia, Flutter wave, and tech hubs in Ghana have contributed to job creation by opening opportunities for many Ghanaians to be employed directly and indirectly. This is also because start-ups have the ability to create entire industries or spur up activities in formal industries and this has a ripple effect on job creation as observed with e-commerce start-ups and revival of the dispatch delivery industry.
3.2 Challenges of Tech Start-Ups in Ghana

Despite the growing relevance of tech start-ups to the Ghanaian economy and the general welfare of citizens, most tech start-ups are faced with daunting challenges that have the ability to hamper and block their chances of realizing their full potential. This situation has negative impacts on start-ups in Ghana in the sense that these challenges leads to many start-ups failing and not making the desired impacts on socioeconomic development in Ghana. Nevertheless, many of these challenges are not peculiar to Ghanaian start-ups but are universal problems with all start-ups globally. Research conducted in Silicon Valley established that two-thirds of tech start-ups fail for various reasons.\textsuperscript{15} This situation is much serious in Ghana due to our much nascent ecosystem hence larger numbers of start-ups fail for different reasons. This situation dents hopes that start-ups can play active and major roles in the socioeconomic development of Ghana. Therefore, it is prudent to identify the challenges that hamper them in achieving this objective so that they can be addressed or tackled to allow start-ups play effective roles in Ghana’s socioeconomic growth. The researcher identified the following to be the most pertinent challenges of tech start-ups in Ghana: financial constraints (finance), lack of available management skill and talented individuals, poor infrastructure, unfavorable government regulations and an undeveloped immature tech start-up ecosystem.

3.2.1 Financial Constraints

Entrepreneurs always require financial capital to get their business running and ideas working and tech entrepreneurs are no different. Financial constraints are always the biggest hurdles tech start-ups face in globally and it was not surprising that almost every entrepreneur interviewed by the researcher cited finance as the major roadblock to scaling up their activities and motivating their staff. The CEO of FarmCarp, Emmanuel Mbalam indicated that in Ghana, getting investors to
invest in ideas is very difficult and as such, start-ups face an uphill climb from the inception of their ideas to their launching stages. He puts this in perspective by comparing the Ghanaian ecosystem to that of Silicon Valley where there is a lot of funding for ideas unlike Ghana where tech-startups find it hard to access funding to scale up their activities. He further indicated that inadequate funding in the ecosystem was causing a large number of start-ups to fold up or scale down their operations.

In order for start-ups to thrive and play effective roles in ensuring sustainable development in Ghana, the must be supply and easy access to funding or capital in our ecosystem. Tech entrepreneurs in Ghana have informal and formal ways of obtaining funding. Some of the popular informal means included soft loans and grants from relatives and close friends, personal savings, and funds from credit cards and funds obtained from participating and winning competitions, pitching ideas and innovations at tech events. The major hurdle they face is accessing funds from formal avenues such as banks, venture capitals, private investors, tech hub incubators, and investment corporations. Many tech entrepreneurs expressed displeasure at the banks in particular concerning high interest rate, which tend to have an effect on the profit that they make in the end. Another requirement from the banks, which tech entrepreneurs complained bitterly about, was in relation to the collateral requested from banks. Most banks they posited, requested that tech start-ups use over 100 percent of the money to be borrowed as capital and this was a requirement most of them could not match up to hence ending all hopes of getting money from the banks.

Investors and Venture capitals interviewed had a different perspective about the struggles tech start-ups have to endure in order to receive funding. In an interview with the Ghana Angel Investors Network (GAIN). They revealed that investors in Ghana are not frugal with their money but are just not willing to incur losses when they could have been avoided. The main point raised
was about start-ups having great ideas but no concrete business plans attached. As noble, as the ideas may seem investors want to see start-ups that are focused on making profit so that they are ensured returns on their investments. Many Ghanaian investors are not focused on tech start-ups and invest in other promising ventures as well hence the lack of support for tech start-ups. Tech start-ups take some time to find appropriate business models to support their innovations and churn out profits.

Furthermore, Leticia Browne, the lead Investments Officer at GAIN posited that tech start-ups in Ghana find it hard to access funding due to the unfeasibility and low quality of some of these tech start-ups. At times when tech start-ups are invited to pitch to investors, they come with poorly executed ideas because they do not have good team members working around and investors use this as a yardstick to disqualify many tech start-ups from accessing funds from them.

A response from tech entrepreneurs to the claims made by investors concerned a lack of understanding by investors about the start-up culture in general and a lack of focus on tech start-ups alone by investors. They indicated that this is why investors in Ghana are reluctant to fund tech start-ups. According to Eyram Tawia, the CEO of Leti Arts that is based in Ghana and Kenya, “venture capitalists in Ghana must have a different mindset because the market is small and profit cannot be as huge as they want.” They should be able to give breathing space of about 5 to 10 years to allow tech start-ups grow and try different business models and settle on the right one so that they can make investors happy”. He further made it clear that the stringent standards set can only be met by bigger tech companies hence leaving young incubator stage tech start-ups little room to access these usually “heavy” funds.

Tech entrepreneurs indicated that the tech start-up ecosystem in Ghana is still nascent unlike well-established systems such as agriculture and small and medium scale enterprises that are often
begun with business plans and projections. Thus, local investors must take time to understand the ecosystem to appreciate it and by so doing, will be able to invest wholeheartedly in tech start-ups.

3.2.2 Scarcity of dedicated teams with skills and talent

Tech start-ups revolve around good teams and individuals with talent and as such require human capital with the relevant abilities in order to succeed. In Ghana, there is a scarcity of talented individuals trained in computer sciences and engineering for tech start-ups to employ. Many tech start-ups are unable to properly execute their innovative ideas because they cannot find the skilled people to help them achieve this. Aside technical talent, tech start-ups also find it hard to come by experienced managers to help them with the daily management and scaling of their firms. Large traditional companies that can offer them bigger salaries and job security snap up the available technical and managerial talent or human resources.

The scarcity of entrepreneurial talent and computer skill is attributed to the educational system of Ghana where these practical skills are not taught until the tertiary stage. Tech start-ups in Ghana cite the scarcity of technical skills with computer technology such as coding and software engineering as one of the challenges they face. The tech start-up scene is growing in Ghana and there are not enough developers and coders to serve this growing sector. Isaac and Setrako developers at the MEST incubator in Accra were of the view that “there are not many coders and developers to go around in Ghana and as such many developers find themselves working for different tech companies at a go”. This often has a negative effect on the quality of work done since many tech start-ups do not have the financial muscle to hire permanent developers but temporary ones who have other jobs to do.

Another challenge tech entrepreneurs highlighted was about the quality of coders and software developers in the country. Emmanuel Kpabitey, founder of Mocominds and Mocominds
Innovation of Talent and Technology (MITT), explained that though there are good coders and software programmers in Ghana, people do not really trust them because of the time they were exposed doing these things. He posited that in the west, children begin coding and programming at younger ages hence giving them the exposure and immense talent. This is why he set up Mocominds to introduce children to computers and courses such as robotics, artificial intelligence, software programming and coding.

In addition, the exposure to entrepreneurship and business management is often low in Ghana and despite students learning economics and business from the secondary level to the tertiary level, there are not enough opportunities for them to polish these skills. Furthermore, most parents advice their children to take up courses that can assure the jobs and security rather than honing their entrepreneurial and managerial skills, which they believe, involve too much risk. This phenomenon has created a talent gap because people aspire to become employees with good salaries, job securities and good pension plans. Tech start-ups often want people to help them “think outside the box” with crazy ideas to help them scale quickly and make profits.

Tech entrepreneurs interviewed by the researcher mentioned the lack of dedicated team members and volunteers in helping them with their ideas as a challenge. Charity Ofosuhene, founder of MuqaAriq.com an online marketplace for Ghanaian and African handicrafts placed the lack of dedicated teams ahead of financial difficulties because with undedicated team members, a founder’s dream can die and motivation is lost. With likeminded individuals, she believes start-ups can attract more investment.

3.2.3 Size of Market and access to Markets.

Market size and the access to markets is another challenge that tech entrepreneurs face in Ghana. The available market to tech start-ups in Ghana is not a large number. The market ideally is to
cover mobile phone users. However, unlike western countries, most mobile phones used in Ghana are not smart phone hence reducing the market size of potential customers for tech start-ups. However, despite the fact that tech start-ups can have access to these markets with some innovative products that do not require the use of internet and phone applications, most modern innovations require internet access and applications.

Large market sizes are very crucial to the operations of tech start-ups because large number in sales and subscriptions allow the fixed costs incurred to be repaid and easily offset. Also small market size deters many tech start-ups from providing services to a wider group of people because they fear it will not be patronized well. Most tech start-ups are based in Accra, which is highly urbanized unlike regional capitals of the remaining nine regions of Ghana. This sets a limit on the ambitions of tech start-ups in Ghana because they are fixated on the small population of Accra and compete with other tech entrepreneurs for this small market.

The available market is not tech savvy enough to fully utilize their phones to enjoy and subscribe to the many innovations that tech start-ups have to offer them in Ghana. In addition, most smart phones are used for social media among Ghanaians who own them. There is less interest in the other functions that the phones can offer. For instance, despite the proliferation of tech start-ups which have online classifieds of goods and services as well as directions, Ghanaians with smartphones are most likely to ask for directions to a food joint or ask around for the best places to find certain goods and services. Nevertheless, there is a shift in this attitude especially among the Ghanaian youth who use services such as food delivery and e-commerce to serve their daily needs. The adoption of smartphone technology and its utilization is key to increase the market size to provide easy access to markets for tech start-ups. This is bound to impact positively on their success and scalability.
3.2.4 Poor state of Infrastructure

In order for tech start-ups to flourish, there is a need for the ecosystem to have an enabling infrastructure. In order to fully harness their innovative capacity to better contribute to socioeconomic development in Ghana, there is the need to have a strong infrastructure to support operations of tech start-ups. Poor infrastructure has adverse effects on the costs incurred, their efficiency, productivity and market access. On the other hand, efficiency, lower costs of transactions, sustainable growth and productivity are some of the benefits tech start-ups can gain if the infrastructure in Ghana is good and reliable. The most infrastructural challenges faced by tech start-ups in Ghana include; uninterrupted electrical power supply and slow but expensive internet. Ghana just like most sub-Saharan African countries struggles to provide constant electrical power to its populace and this situation is a fundamental challenge to most tech entrepreneurs. Tech start-ups rely largely on electricity to power up most of the technologies they use in providing their goods and services. Most start-ups have to incur huge costs to purchase petrol and diesel generators or power plants to augment the power supplied by the national grid. This means they have to incur costs on buying fuel and maintenance, which further drives up the high costs of operating a start-up. FarmCarp and Flippify CEO, Emmanuel Mbalam was of the opinion that “the rising costs as a result of paying for generators is one of the costs not factored in by most tech entrepreneurs hence it is always a struggle when there are frequent power outages because it slows down operations and customers are lost”.

The internet connectivity issue was cited as a big infrastructural challenge because as a developing country, internet connectivity is very crucial because second to electricity, most tech start-ups require internet to function. However, the internet situation in Ghana is better than five years ago, with the introduction of fourth generation (4G) and fibre optic broadband, internet speeds are still
behind that of many countries. The high costs of internet worsens the situation and this affects both users and tech entrepreneurs who have to bear these huge costs. According to the 2017 Alliance for Affordable Internet, Ghana ranked 26th out of 57 countries surveyed and this position was not an improvement on the 2015/16 rankings where Ghana placed 26th. This lack of movement indicates the slow pace at which internet prices go down in the country. Daily internet bundles for one gigabyte of data range from Gh₵ 10 to Gh₵ 20 across all the telecommunication networks and Internet Service Providers (ISPs) in Ghana. This is very high because it translates into almost 2 dollars for a gigabyte of internet and is high above the affordability benchmark set by the United Nations Broadband Commission of less than a dollar for a gigabyte of internet data in emerging and developing countries. Frank Acquah founder of Djara, an ecommerce site opined that “the rising costs of internet subscription and data scares away most potential customers from using our services and this doesn’t help because the market size in Ghana is not encouraging”

Most tech entrepreneurs are positive that despite the slow pace of adopting regulations and measures, Ghana is making the right moves to ensure internet is easily accessed and affordable to all Ghanaians. Progress is being made to especially regarding shared internet infrastructure to allow networks share their infrastructure among themselves to prevent the need to mount new towers and lay new cables, which tend to drive up costs of internet for telecommunication networks and ISPs.

3.2.5 Government Policies and Regulation

The Ghanaian government has identified the need to support growth of entrepreneurship in the country as a way to promote sustainable development. This support extends to tech start-ups as well as a variety of other business. Despite the efforts by the Ghanaian government to increase private sector participation in the Ghanaian economy, they are not fully beneficial to tech start-
ups. This situation is because the phenomenon of tech start-ups is still nascent in Ghana and most of the programs rolled out by the government are umbrella like to cover all types and forms of businesses once they are in the private sector.

In the view of tech entrepreneurs, the generalization does not allow these programs to address peculiar needs of tech start-ups in the Ghanaian ecosystem. Tech start-ups are often viewed in the same lens as traditional companies such as SMEs, which have their own business models and products ready for the market. Tech start-ups on the hand especially in their early stages, are still trying to figure out an appropriate business model to use and how to make their products more attractive to make profits. As such using the same policies and levels of bureaucracy for tech start-ups only ends up in hindering their innovativeness and scalability. Charity Ofosuhene posited that

“...the problem we (tech start-ups) are facing in Ghana has to do with policy. Why must the government regard start-ups, as traditional companies and it is very frustrating for most tech entrepreneurs because we are expected by the law to register out companies even when we have not identified how to make money without innovations. We have to taxes similar to what existing companies pay even though they have better structures in place. Instead of taxing the little tech start-ups make in let’s say the first 3 years, they should be taxed on the bigger profits they can make after 3 or 4 years and this will lift the spirits of tech entrepreneurs across Ghana. The government has to do more to ensure that tech
start-ups do not choke in Ghana because we have so much potential to help our country”.

Many tech entrepreneurs share this view because it is what pertains in much more mature ecosystems such as Silicon Valley where there is constant government support for tech start-ups. Regulations such as complicated tax regimes and bureaucracy, which prevent many start-ups from scaling and attaining their full potential. Most start-ups do not begin as businesses and as such through no fault of theirs are aware of the numerous tax codes in the country. Alex Bram of Hubtel was very vocal on this issue with the opinion that

“The tax code in Ghana has to be examined. The multiplicity of the taxes in this country is such that no matter how hard you try, you will be found wanting. There are successful tech start-ups that can launch big but are acting in the shadows for fear of big taxes, which can take everything away from them. Taxes should not be a threat to tech start-ups especially if that is one of the ways in which we can contribute our quota to development in Ghana.”

The Ghanaian government in view of the many issues’ high taxes cause for tech start-ups announced tax incentives for up to 5 years for start-ups in Ghana run by people below the age of 35 in 2017. This is to be done for start-ups, which have gone through the NEIP, and it is unclear if this policy applies to the already existing tech start-ups as well. Regulations must be made flexible enough to ensure tech start-ups incur lesser costs to and to adapt to the Ghanaian start-up ecosystem. Many tech start-ups have the ability to scale and grow bigger and as tough regulations and unfavorable policies stunt their growth. In order for Ghana to reap the full benefits of tech
start-ups existing policies and regulations have to be revisited and revised and if need be new policies and regulations must be put in place to promote the growth and sustainability of tech start-ups.

3.2.6 Inceptive tech start-up ecosystem

The Ghanaian tech start-up ecosystem is still in its early stages and as such, most of the problems that tech start-ups face in Ghana are because of this factor. The Ghanaian ecosystem like other African ecosystem is yet to form fully with all the constituent components that make a tech start-up ecosystem. Most of these components are yet to come into fruition and the nascent nature of the tech start-up scene in Ghana is evident in how tech hubs are run. Most of them are still trying to run profitable modules. The entire ecosystem is not running on adequate funding and resources hence the problems that the tech start-ups face with funding. The ecosystem has to find sustainable means of funding itself and this is sure to spill over to tech start-ups and tech hubs in the Ghanaian ecosystem.

Furthermore, the lack of predecessors to serve as mentors and reference points to younger start-ups is a challenge associated with the immaturity of the tech start-up ecosystem in Ghana. In more developed ecosystems, there are third and fourth generation of tech start-ups, which have been crucial to the success of their tech start-up by acting as, mentors, venture capitals and angel investors. It is much easier for them to invest and mentor tech entrepreneurs because they understand the terrain and the issues tech start-ups face. This ingredient is missing from the tech start-up ecosystem in Ghana. Neal Hansch of MEST shared his view on this by saying “the Ghanaian tech start-up ecosystem lacks second, third- and fourth-time entrepreneurs…, which is very essential to the ecosystem to lead to venture capitals and angel investment.”

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Tech entrepreneurs across the various tech hubs in Accra bemoaned the lack of enough motivational and inspirational stories from the Ghanaian ecosystem. They indicated that though there is no shortage of motivation from tech entrepreneurs in the Kenyan and Nigerian ecosystem, the Ghanaian ecosystem is rather sluggish when it comes to this. Despite this, they admitted the situation was improving because of the recognition Ghanaian tech start-ups have been receiving recently. They were optimistic because they believe at the current rate; Ghanaian tech start-ups will begin to act as venture capitals and as such push the tech start-up ecosystem towards completion.

3.3 Creating an enabling environment for start-ups in Ghana

In line with the research objectives, the researcher sough to identify some government policies which had been initiated to create and enabling environment for tech start-ups to thrive in Ghana. As mentioned earlier, successive Ghanaian governments in the Fourth Republic have identified entrepreneurship and private sector development as the way to go. However, policies tailored for tech start-ups are rather few due to the nascent nature of the ecosystem and the phenomenon in general.

Government policies that were identified include; the National Entrepreneurship and Innovation Plan, Presidential Pitch and the School Entrepreneurship Initiative.

3.3.1 The National Entrepreneurship and Innovation Plan (NEIP)

The NEIP is a government initiative by the Ghanaian government, which was launched on July 14, 2017. This initiative has its core mandate to promote and provide for tech start-ups in Ghana to enable them scale quickly and provide employment for Ghanaians. This initiative was also put
in place to attract investment opportunities for start-ups and the country as a whole. The CEO of the NEIP, Lawyer John Kumah opined that

“The NEIP is here to provide support for tech start-ups in the country ranging from financial support, training and incubation support, access to markets, help with government intervention policies such as tax holidays, providing business advisory services and technical support where necessary. The NEIP will be the Ghanaian government’s machinery to consciously facilitate the environment for tech start-ups to be successful. The goal is to develop the ecosystem here in Ghana to make it sustainable.”²⁴

The NEIP was set to provide four key services to Ghanaian tech start-ups namely; providing access to funding, provide access to markets, influence government policies and providing advisory services on how tech start-ups can be formalized with less bureaucratic bottlenecks. These are all deliberate interventions by the government to ensure that the start-up ecosystem thrives and benefits the country’s socioeconomic development in the end.

The NEIP though a new establishment, trained close to 7000 tech entrepreneurs in its incubators and via the available tech hubs in Ghana and out of this number, 500 were given financial support ranging from GHC 1000 to Ghc ₵5000 to help them offset some early costs they will incur after launching. Tech entrepreneurs who benefitted from the NEIP believed it was a step in the right direction because it gave hope to young start-ups that the government has plans in place for them
and to make the ecosystem much better. The NEIP has become a go to place for all tech entrepreneurs in need of governmental support in one way or the other.

3.3.2 The Presidential Pitch

The Presidential Pitch is an initiative launched by the Presidency of Ghana in conjunction with the Ministry of Business Development to serve as a platform where tech entrepreneurs can obtain capital funding by pitching their ideas to the president and a panel of judges who chose the winner. This competition is to help tech start-ups obtain huge finding for their ideas and innovations on better terms than most formal avenues can give them. This initiative was launched on July 4 2018 and the first edition concluded on July 17 2018. The ten finalists were presented with cheques ranging from Gh₵ 30,000 to Gh₵ 50,000. This is to help fill up the funding gap in the Ghanaian tech start-up ecosystem. With adequate funding innovative ideas can help the Ghanaian tech start-up scene. Dr., Mohammed Awal, Minister of Business Development commented on the Presidential Pitch in an interview and posited that

“…there is a deliberate agenda to encourage start-ups to thrive by creating an enabling environment for them. The Presidential Pitch is here to ensure that start-ups get the required exposure and funding to encourage them contribute to our development as a nation by providing jobs and inspiring people.”

The funding obtained from the Presidential Pitch is interest free and is to be repaid after three to five years. Tech entrepreneurs believed if such terms were made universal for start-ups seeking funding, it would go a long way to solve the funding challenge that tech start-up entrepreneurs
face. The Presidential Pitch is set to encourage tech start-ups find business models to support their ideas so that they can also get opportunities to pitch.

3.3.3 The Schools Entrepreneurship Initiative (SEI)

This initiative was launched to tackle the issues concerning a lack of entrepreneurial skills in the start-up ecosystem of Ghana. It was launched on July 14 2018. This initiative is set to transform senior high schools across the country into entrepreneurship hubs to nurture business talent and ideas in students before the tertiary level. It is expected to provide training for 1000 students in its first year then scale upwards to 2 million students in the next five years after its launch. The initiative will establish entrepreneurship clubs in senior high schools, which will then compete yearly among themselves to produce two finalists. The finalists will be given the opportunity to visit tech hubs such as Tech City in London and Silicon Valley in San Francisco.

Most importantly, the prime aim of the SEI is to arm Ghanaians with entrepreneurial acumen from an earlier stage so that they can provide solutions to the issues on low private sector development and unemployment as well as developing the skill and talents to effectively run businesses. A program for the tertiary level is still being developed but is dependent on the success of the secondary level initiative.

3.4 Factors that account for the proliferation of tech start-ups in Ghana

Despite the numerous challenges encountered by tech start-ups in Ghana, there is a huge proliferation of new start-ups into the tech start-up scene. This phenomenon is just beginning and there is more to be seen regarding this proliferation. From observations and personal interviews, the factors identified for this proliferation included; ease of entry, trendiness of the tech start-up
culture, and unemployment. These factors were the most popular identified from tech entrepreneurs as to why they started their own tech firms or developed their own tech ideas.

3.4.1 Ease of Entry

It is widely known that most the world’s biggest tech firms begun in university form rooms and garages with only a computer, internet access and an idea. This fact has stuck with many people who have great ideas and as such believe with anything little they can build their ideas into giant empires. It makes becoming a tech entrepreneur look easy despite the serious investments needed later. Ghanaian tech start-ups start no differently and begin with their laptops and good internet connection mostly in their tertiary institutions. The ease of entry is also attributed to the fact that tech start-ups do not often require the need for huge physical spaces until they have scaled up to employ many people directly. The researcher observed that many tech start-ups even fully functional and developed ones lacked physical spaces and mostly because work could be done remotely and was often outsourced.

3.4.2 Trendiness of the Tech Start-up phenomenon

The success of many young Silicon Valley tech entrepreneurs have gained media attention globally therefore giving it great hype especially among the youth. The idea that simply identifying a problem and solving it without any need to invest too much initially has caught on with Ghanaian youth as well. This has generated a nationwide interest in the trend and by so doing attracting thousands of Ghanaian youth to “try their luck” on this venture. Tech entrepreneurs admitted that they got involved in tech entrepreneurship because it was “cool”. The coolness of the trend is also popular because of the want to enjoy the flashy luxuries that can be obtained if a tech start-up is able to scale and become profitable eventually. Established corporations have been caught up in this trend because some of them are now attaching the start-up status to their businesses just for
the fun of it. Nevertheless, the term tech start-ups is becoming a catch on phrase that is inviting more Ghanaians to venture into the tech start-up scene.

3.4.3 Unemployment

As indicated earlier, unemployment is a major reason why individuals identify problems and find innovative and technologically based ways to solve them. Given the youth bulge in a country such as Ghana, there is bound to be high unemployment because the formal sector cannot absorb all the graduates being churned out annually by the tertiary institutions. The exposure to computer technology and entrepreneurship at the tertiary level pushes graduates who are unable to find employment use this knowledge to begin entrepreneurial in the technological field. They find this much easier to do because of the ease of entry and the plethora of problems, which surround them and need innovative solutions.

3.5 Conclusion

This chapter highlighted the role tech start-ups play in Ghana’s socioeconomic development by harnessing innovation, promoting increased competition and job creation among others. Moreover, the chapter indicated some of the challenges that tech start-ups faced in Ghana as in line with the research objectives. Finally, the chapter concluded by identifying some government initiatives and policies to help create an enabling environment for tech start-ups as well as reasons that account for the proliferation and increasing population of tech start-ups in Ghana.

Innovation and creation employment opportunities are all crucial to the development of Ghana especially in this era of global unemployment. Tech start-ups can be key to seeing Ghana out of this situation if they are properly managed and supported by a thriving ecosystem. Tech start-ups
signify entrepreneurship, which is touted as the way to go for countries such as Ghana. Thus, promoting and supporting tech start-ups to play effective roles in national development has to fall on a collaboration between the private sector and government to achieve this goal.
ENDNOTES


5 Eyram, Tawia. (July 4 2018). Personal Interview

6 Alloysius, Attah (July 4, 2018). Personal Interview

7 Mensah, Philip (July 4, 2018). Personal Interview

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CHAPTER FOUR

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

4.0 Introduction

This concluding chapter presents a summary of the research findings, conclusions drawn from the findings and recommendations for policy, practice and future research.

4.1 Summary of Findings

This study was conducted to identify some of the roles played by tech start-ups concerning socioeconomic development in Ghana. The qualitative method of research was employed for this study using first hand observation techniques, unstructured interviews, and desk research to obtain data. The stakeholders in the start-up ecosystem were interviewed to tap into their experience over the years and draw in on their thoughts on the subject matter. Interviewees ranged from founders of success tech start-ups in Ghana to tech hubs and international tech firms such as MEST, Google, IBM, Jumia, iSpace, and Impact Hub. First-hand information was obtained by engaging and participating in tech conferences and events like the Ghana Tech Summit, Tech in Ghana Conference by the Ministry of communication and visiting tech hubs across Accra. The research findings included:

- Entrepreneurship is on the rise in Africa in general.

- There is a shift to more involvement of the private sector in the economy of African countries.
• The ease and environment for doing business is not favourable to allow businesses achieve full potential.

• Tech start-ups are technology-based firms that solve pressing problems and have the potential to achieve astronomical growth.

• Start-ups require running ecosystems to thrive and are often located in cities and urban areas.

• Major components of Africa’s tech start-up scene are institutional and governmental policies, tech entrepreneurs, venture capitalists, angel investors, big tech firms, universities, tech hubs, incubators, accelerators and universities.

• Some of the roles tech start-ups play in Ghana’s socioeconomic development center around innovation, increasing competition and job creation.

• The most important role tech start-ups play is issuing technology to solve local problems that are peculiar to Ghana and Africa as a whole.

• Due to their scalability or propensity for high growth, tech start-ups are among the fastest employing businesses in Ghana.

• Tech start-ups provide the opportunity to develop technology locally as well as adopting and incorporating foreign technology so solve local problems.

• Tech start-ups spur innovation and act as competition to big traditional firms by disrupting traditional and outdated systems in Ghana especially in the banking sector.
• From the study, some challenges that tech start-ups faced in Ghana were identified to be financial constraints, scarcity of skill and talents, inadequate infrastructure, a nascent tech start-up ecosystem and unfavourable government policies and regulations.

• Constant supply and easy access to formal channels of funding such as banks, and private investors is very limited and difficult to come by.

• There is a scarcity of skilled labour with the required skills technologically and managerially to help start-ups scale and improve on their innovations.

• Inadequate and low-quality infrastructure such as poor internet connectivity and irregular power supply has adverse effects on the operations of tech start-ups.

• Market size and access to markets are hindered by a lack of a very tech savvy populace and culturally inhibited populations.

• The tech start-up ecosystem of Ghana is still nascent and is a long way from maturity.

• The nascent nature of the tech start-up ecosystem is the major cause of most of the challenges experienced by tech start-ups in Ghana due to the unavailability of mentorship and industry venture capitalist.

• Government regulations sometimes are not specific enough and do not benefit tech start-ups.

• The Ghanaian government has implemented initiatives to focus on entrepreneurship and developing Ghana’s tech start-up ecosystem.

• The trend of tech start-ups is going to enjoy increased popularity in Ghana due to the ease of entry, unemployment and the hype surrounding them.
4.2 Conclusions

The study hypothesized that tech start-ups have role to play in Ghana’s socioeconomic development given the necessary investment support. In drawing evidence from the phenomenon of tech start-ups on the continent and specifically in Ghana, to support this claim. Based on these findings, the study in chapter three focused on the some of the roles tech start-ups play in Ghana’s socioeconomic development.

Entrepreneurship is on the rise in Ghana and as such, many people especially the youth are turning to it as the only viable option around to make money or to be employed. This is because the government has realized the need to engage the private sector in a bigger capacity to help turn the employment deficit as well as the slow development. Though the atmosphere for doing business is improving, Ghana is still regarded as one of the most difficult places to do business. There are so many barriers, which frustrate the Ghanaian entrepreneur.

Despite the fact that tech start-ups are a recent phenomenon in Ghana, it has a high rate of proliferation owing to constant efforts and attempts by government, international organizations, developed countries and other stakeholders to support entrepreneurship as the way forward. The immature nature of the tech start-up ecosystem renders it incomplete and sluggish, as the required components are yet to fully develop or emerge. Challenges such as inadequate funding, lack of quality infrastructure, skills and talent, market size and unfavourable government regulations is taking a toll on the vibrancy and effectiveness of tech start-ups in Ghana. A lack of vibrancy is bad news for a tech entrepreneur as investors are not interested in putting their funds into such tech start-ups and ecosystems.

In addition, the proliferation of tech start-ups in Ghana is going to continue into the near future and hence the need to properly address some of the pressing challenges of tech start-ups. The youth
identify tech start-ups as their way out of unemployment and an easy way to make money. An increase in funding and investment for start-ups in Ghana will lead to the success of start-ups and this will motivate budding and green tech entrepreneurs to strive hard to get there.

In the end, there has to be a conscious effort to brand the Ghanaian ecosystem by equipping it to be better placed to challenge other ecosystems across the continent and globally. Ghana has to take bold steps to ensure this phenomenon is not left to die but rather, ensure it is used as an engine to achieve sustainable development.

Though entrepreneurship is a private venture, the state must not leave it to itself. The state has to ensure the entrepreneurial drive is alive among Ghanaian citizens in order to ensure it plays its role in contributing to socioeconomic development in Ghana. The state must ensure that the climate and environment for doing business is smooth and free of unnecessary bureaucracy and roadblocks. This will help start-ups thrive and scale because without the right climate or good ease of doing business, any efforts put in by tech start-ups to scale will be in vain.

Also, from the research hypothesis, the necessary investment support can help start-ups contribute positively to Ghana’s entrepreneurial revitalization and development. The findings from the research, especially interviews from the field identified investment in tech start-ups as a huge requirement to help them achieve their goals and also driving development and entrepreneurship in Ghana. This affirms the hypothesis by identifying investment as key to achieving this goal.

Finally, entrepreneurship and technology are two of the main drivers of growth and development in economies globally. They allow people to have the ability to effect change in the communities because with entrepreneurship and technology they can solve problems without the need for governmental interventions. By doing this, they tend to create jobs and open up the economy to new industries and sectors while making a difference in the lives of the citizenry as a whole. Thus,
there has to be a greater focus on tech start-ups and entrepreneurship more than ever to ensure that the benefits that can be accrued from their operations and successes can be fully recognized in Ghana.

4.3 Recommendations

4.3.1 Recommendations for further research

The recommendations below are recommended for research related to the field of tech start-ups and entrepreneurship in Ghana and Africa in general.

- Academic and scholarly work on tech start-ups and their significance to development in Ghana is very low. Tech start-ups must be explored as an option to drive development in Ghana. This research has to be done with an understanding and insights of the African perceptive and Ghanaian context else the risk of misinterpretation the findings.

- There has to be research done on other start-ups aside tech start-ups in Ghana. There are other types of start-ups, which do not gain enough recognition. Hence the need to research further on them to provide adequate documentation on the roles they can play on socioeconomic development in Ghana.

- There should be further research on tech start-ups and their benefits to help government draft policies to encourage the promotion and adoption of entrepreneurship in the country.

4.3.2 Recommendations for policy makers and other stakeholders

The under listed recommendations are suggested for policy makers and other stakeholders in Ghana’s tech start up ecosystem.
• Policy makers must put in more effort in addressing the challenges faced by start-ups such as infrastructure and stringent regulations. The environment for tech start-ups must be improved further in Ghana by improving on key ingredients as internet access and electricity supply. This will cut costs and help channel more funds into improving the innovation of tech start-ups.

• There should be an integration of policies concerning start-ups across the region to ensure that improvements in national ecosystems will have a ripple effect as increased collaboration and adoption of local technologies can help promote development and further improvements on local technology as observed with M-Pesa.

• Tech entrepreneurs need to form vibrant communities to serve as support systems to inspire and motivate themselves to achieve more. The lack of mentors and mentorship programs among in the tech ecosystem makes it difficult for tech entrepreneurs to get the right direction or needed support when they do not seem to be getting things right.

• There is a need for coordination between policy makers and other stakeholders in Ghana concerning the way forward for tech start-ups and how to ensure their scalability and promotion. Developed ecosystems such as Silicon Valley and Tech City have developed variety of coordination mechanisms among stakeholders often spearheaded by policy makers and actors.

• The Ghanaian ecosystem can benefit from including traditional industries and this was one of the main reasons for the success of Silicon Valley. The merging of the traditional industries and tech start-ups can help solve issues pertaining to ignorance and immaturity of business practice associated with most tech start-ups in Ghana. The result of this
inclusion can be specialized tech start-ups with in-depth knowledge about market niches and lead to increased competition in all sectors of the economy such as finance, advertising, media and fashion.

- Policy makers must expand practical education from the early stages of schooling until the tertiary level to support the theoretical education given. Aside schools there can be a private sector involvement to increase this practical training to address the skills gap in the Ghanaian ecosystem. The can also be public education to ensure the less privileged and less educated can benefit from these public programs such as coding boot camps. By so doing, they gain basic skill sets which can go a long way to increase the market size and serve the needs of the tech start-up ecosystem.

- Local and foreign investors must take time to study and understand the environment in which Ghanaian start-ups operate so that they can have realistic expectations for their investments. Local investors must understand the start-up module so that they do not see them as a high-risk venture.

- Tech entrepreneurs must be innovative in finding other means of financial support such as crowdfunding to obtain funds and scale up their operations.

- The issue of few mentors can be addressed by following the model set up by Chile to invite budding and experienced tech entrepreneurs from all around the world who are from well-established ecosystems and as such possess the required practical acumen and expertise needed by our rather nascent ecosystem.

- Tech hubs must find sustainable business models to keep afloat and find sustainable methods to ensure that they churn out well-incubated tech start-ups. The hubs must not
only provide a space for tech start-ups but also advisory services and access to pitch events and funding.

4.3.3 Recommendations for improving upon this research

- This research can be improved by further research into the other established ecosystems in Africa first such as South Africa and Kenya, which have passed the nascent stage. Though it will be cost intensive, a comparative study of the Ghanaian ecosystems with the ecosystems of the aforementioned African countries can give a much more detailed account of progress being made by the start-up ecosystem in Ghana.

- In addition, there should be a periodic research maybe annually or bi-annually to give a detailed assessment on growth rates and maturity levels of the Ghanaian tech start-up ecosystem. This is very important to ensure the Ghanaian ecosystem does not become sluggish in its development and scalability. This will allow for needed adjustments and inputs to be made when the effectiveness and competitiveness of the ecosystem is not up to global standards or levels.

- Finally, there is a need to undertake a quantitative research to capture the actual figures behind the impact start-ups are making to socioeconomic development in Ghana. This will provide detailed quantification of their contribution to development in Ghana. This will probably be best done at the Ph.D. level given the availability of funds and time.
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APPENDICES

APPENDIX I

Figure 1: Interactive map displaying the various trade routes used in West Africa from 1100 to 1600

APPENDIX II

Figure 2: Undersea Cables in Africa, 2009

APPENDIX III

Figure 3: Undersea Cables in Africa, 2012

APPENDIX IV

Figure 4: Undersea Cables in Africa, 2017

APPENDIX V

Figure 5. Tech Hubs across Africa

Source: gsma.com. 1000 Tech Hubs are powering Ecosystems in Asia Pacific and Africa.
APPENDIX VI

INTERVIEW GUIDE

This interview is conducted to obtain information on “Entrepreneurship and Development in Africa: The role of Tech Start-ups on socioeconomic development in Ghana. This is purely for academic purposes in fulfillment of an M.A degree at the Legon Centre for International Affairs and Diplomacy. You are assured of confidentiality of any information that you may provide. I hope you kindly grant me your outmost cooperation and assistance

Name ........................................................................................................................................

Institution ................................................................................................................................

Office Position ...........................................................................................................................

GENERAL QUESTIONS

1) What is entrepreneurship?

2) Why is entrepreneurship on the rise in Ghana?

3) What are the most common types of entrepreneurship in Ghana?

4) What are tech start-ups?

5) Do believe there is a need to differentiate tech start-ups from SME’s?

6) Do you believe the two have different roles to play in promoting socioeconomic growth in Ghana?
7) What is unique about Ghana’s tech start-up ecosystem?

8) In light of this, do you have any suggestion as to how to make Ghana’s tech start-up ecosystem distinct from others.

9) What roles do tech start-up entrepreneurs seek to play in Ghana’s development?

10) What roles do you believe tech start-ups are playing in Ghana’s socioeconomic development?

11) What policies have the government put in place to promote the upscaling of tech start-ups in Ghana?

12) Do you believe tech start-ups hold the key to propelling Ghana and Africa into the next phase of digitalization?

13) How often do Ghanaian tech start-ups make it out of tech hubs into the ‘real world’?

14) How exactly can tech start-ups empower or make an impact on the Ghanaian economy and directly into the lives of the citizens.

15) What are some of the main challenges faced by entrepreneurial tech start-ups in Ghana?

16) Do you have any recommendations for major stakeholders in government to help the activities of tech start-ups in Ghana? With regards to

   a) Funding or investment opportunities

   b) Regulation of tech start-ups i.e. fintech

   c) Infrastructure

   d) Taxes

   e) Any other recommendations.