ADDIS ABABA UNIVERSITY

SCHOOL OF GRADUATE STUDIES

ICT INVESTMENT IN AFRICA: A COMPARATIVE STUDY OF ETHIOPIA AND KENYA USING A POLITICAL ECONOMY APPROACH

LULU DIRIBA YADESA

A THESIS SUBMITTED TO THE CENTER FOR AFRICAN AND ORIENTAL STUDIES

PRESENTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF ART IN AFRICAN STUDIES (HUMAN AND ECONOMIC DEVELOPMENT IN AFRICA)

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Advisor

Zerihun Berihane (PhD)

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School of Graduate Studies

This is to certify that the thesis prepared by Lulu Diriba, entitled: "ICT Investment in Africa: A Comparative Study of Ethiopia and Kenya Using a Political Economy Approach." is approved for the degree of Master of African Studies (Human and Economic Development in Africa).

Signed by the Examining Committee:

Advisor:	signature	Date
_____	_____	_____
Internal Examiner	signature	Date
_____	_____	_____
External Examiner	Signature	Date
_____	_____	_____

Chair of Department of Graduate Program Coordinator

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ACRONYMS AND ABREVATIONS

ASP	Application Service Provider
CIDA	Canadian International Development Agency
COMESA	Common Market for Eastern and Southern Africa
CSP	Content Service Provider
EICTDA	Ethiopian Information and Communications Development Authority
ETC	Ethiopian Telecommunication Corporations
EthERNet	Ethiopian Education and Research Network
GDP	Growth Domestic Per Capita
GNI	Growth National Income
HF	High Frequency
ICT	Information and Communication Technology
ICTD or ICT4D	Information Communication Technologies for Development
IDI	Information and Communication Technology Development Index
IMF	International Monetary Fund
ISP	Internet Service Provider
ITU	International Telecommunication Union
MOIC	Ministry of Information and Communication Technology
NFP	Network Facilities Provider
NORAD	Norwegian Agency for Development Cooperation
NRI	Networked Readiness Index

NSTP	National Science and Technology Policy
PADIS	Pan African Development Information System
PASDEP	Plan for Accelerated and Sustainable Development to End poverty
PC	Personal Computer
RASCOM	Regional Satellite Network
SDPRP	Sustainable Development and Poverty Reduction Program
SSA	Sub Saharan Africa
TPF	Total Factor Productivity
UHF	Ultra High Frequency
ULF	Technology-neutral Unified licensing Framework
UN	United Nations
UNECA	United Nation Economic Commission for Africa
UNESCO	United Nations Education and Scientific Organization
VHF	Very High Frequency
VSAT	Very Small Aperture Terminal
WB	World Bank
WEF	World Economic Forum
WITSA	World Information Technology and Service Alliance
WSIS	World Summit on the Information Society
WTO	World Trade Organization
ZTE	Zhongxing Telecom Corporation

Abstract

Investing in Information and Communication Technology (ICT) is becoming an integral part of political economic development of African countries. Given opportunities it provided for the holistic development, studies have investigated the role of ICT in the political economic development of the continent and regarded it as a means to catch up the developed nations. On the other hand, ICT is presupposed to be an instrument of the capitalist nations and even marked as it aggravates neocolonialism. As a consequence, the aim of this study is to examine political economy of ICT investment in Africa, with the especial consideration to comparative study of Ethiopia and Kenya. By using critical realism theoretical framework as a lens, the present study assessed the political, ideological and policy consideration of the respective countries in order to invest in ICT. This study is mainly descriptive qualitative research while quantitative method is used as supplementary to show the trends of ICT development. At the same time as secondary sources are exhaustively used, the primary data were also collected by in-depth interviews particularly for the case of Ethiopia. The findings of the study show that understanding the opportunities provided by ICT, many of African countries have developed ICT policy to promote investment in the sector, however, the level of ICT development in these countries varies. In view of that, compared to Ethiopia, the Kenya's ICT development is by far better. State ownership of Ethio telecom, implementation of policy instruments, challenges related to institutional capability and absence of participations by different stakeholders in the sector are mentioned as the main factor for the low status of ICT development in Ethiopia. Unlike Ethiopia, the success story of Kenya's ICT development is attributed to the country's ICT policies and implementation strategies that allow participation of different stakeholders such as civil society organizations and private companies. In conclusion, potentials and opportunities provided by ICT investment is well acknowledged by African countries, but policy instruments, political and ideology considerations are highlighted as an obstacle to advance the development of the sector and further exploit the opportunities.

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Chapter One

Introduction

1.1. Back ground of the Study

The notion of Information and Communication Technology's (ICT's) role in economic performance of a given country is initially accounted by the American economist Robert Solow. According to Solow, achievement of US's economic growth by 1950s and 1960s was mainly associated with technological change as opposed to traditional factors of production functions like capital and labor (Solow, 1957 cited in Okogun et al., 2012). Following that ICT has been started to be considered as engine of economic growth and labeled as one of production functions like capital, labor and land in the process of development. Taking into account its role in economic performance of given countries, ICT is also predicted to replace natural resources like oil and land.

On the other hand, in view of ICT as part of development discourses, according to Castells's (2010) argument, countries lacking ICT access would be remarked as fourth world. By understanding to what extent lack of access to ICT exacerbates the economic performance of developing economies, as Stiglitz emphasizes, "what separates the developed from the developing countries is not just a gab in resource but a gab in knowledge" (Stiglitz, 1999 cited in Stiglitz & Greenwald, 2015, p.202). This gave rise to information communication technologies for development (ICTD) or ICT4D discourses in which ICT is perceived as part of the development discourses (Thomson, 2004).

In this regard, during 1990s by using ICT in its economic performance, US government has been able to increase its economic productivity and inspire EU countries to use ICT sector. Similarly, by using ICT in their economic performance, countries such as Singapore, India, Taiwan, China, Korea, Malaysia, Ireland, Israel and Finland have been able to claim success stories that inspire a number of developing countries to invest in ICT and take its advantage (Hana, 2003).

In response to success stories witnessed by the use of ICT, a significant number of governments, donor and aid agencies have been inspired and tended to develop ICT policies and programs in order to invest in this sector and harness the opportunities of the sector. According to Hana's argument, for a number of governments, formulating ICT policies and strategies are taken as a

priority towards development of ICT with the intention that developing economies could benefit from the sector. Provided that, Rezaian (2007) asserts that in the middle of 2005, while about 30 African countries had already issued their own ICT policies and strategies, at that time about 15 countries were in the process of developing their own ICT policies. By this speed, as Rezain argues, almost all of African countries were predicted to have the first generation of their national policy within the few years. In Rezaian's account, in Africa, though ICT policy making process differ across the countries, the primarily goals and main concerns of these policy documents are similar to one another.

In the same way, different "donors and aid agencies responded by piloting a variety of ICT applications for specific sectors or target groups, by including ICT components in development projects, by dealing with telecommunications infrastructure as a free-standing sector, and most recent" (Hana, 2003, p. 8).

However, the policies and initiatives that are thought to increase ICT's contribution to the national economy of developing economies may not be as triumphant as expected because of ranges of factors. For instance, although study by Samimi et al. (2015) has shown stronger impact of ICT in enhancing economic growth of developing countries, literature review of the authors and several empirical studies have confirmed as ICT has more positive impact in economic growth of developed nations than of developing countries. Accordingly, for most of developing economies particularly Africa, the contribution of ICT on economic growth may be insignificant or minim as result of most African's being at low status in ICT investment (Okogun et al., 2012). It is not easy to empirically measure the role of ICT investment in economy performance as the required data are unavailable in most sub Saharan African countries.

Ethiopia and Kenya both belong to developing economies that endeavor to improve their economic performance. According to World Bank's statistics, by 2014 both GDP and growth rate of Kenya and Ethiopia are $60 billion and 5.3% and $54.80 billion and 9.9% respectively. Recently, as Kenya's National Bureau of Statistics indicates that contribution of agriculture, infrastructure, financial service and ICT to economic growth are increasing as opposed to the manufacturing and tourism sectors that show a decline (World Bank, 2015; Kenya National Bureau of Statistics, 2015). But in case of Ethiopia, service and agriculture sectors happen to be

the main contributing sectors to the economic growth of the country, and contribution of ICT is not measured in the growth (World Bank, 2015).

1.2. Statement of the problem

Given its positive effect on economic growth and human capital development, ICT has been regarded as promise for African countries so as to catch up or "leapfrog" the so called developed world. In this contemplation, ICT began to entrench itself in developing countries in the 1980s and 1990s in the name of embracing ICT for diversified economic growth and rising up from the underdeveloped conditions (Hasan, 2012).

Following that ICT for Development (ICT4D) has become a "catchphrase" for the economic attributes of developing countries in the prospect that it accelerates their economic performance and becomes remedy to poverty and underdevelopment (Heeks & Molla, 2009 ; Unwin, 2009 ; Avgerou, 2010). However, information is regarded as a commodity like other consumer products that can be bought and sold and ICT has efficiently developed this market of information (Garnham & Fuchs, 2014). Thus, politically and economically advanced countries are benefiting from the greater access to information and communication technologies. Whereas the poor, who are struggling with basic needs and do not possess the ability to pay for ICT services fail to benefit from ICT. This implies that ICT does not reduce the gap between the rich and poor rather than perpetuating the existing economic inequalities (Ya'u, 2004 ; Rosenberger, 2014).

Above all, the solutions sought to address unequal access to ICT by foreign actors is meant to focus on ICT services and goods not on investment in ICT that assures ICT infrastructures and resources ownerships (Rosenberger, 2014). This raise the question that the motives of these foreign actors are mainly to look for market and embed their neoliberal beliefs in developing countries by promoting the role of market or private sector in ICT and discouraging the role of government (Ya'u, 2004).

As Harindranath and Sein (2007, p.2) stated, "The extent of success or failure of ICT interventions to enable development will depend on how national and local governments, national and international development agencies, non-governmental organizations and public agencies conceptualize ICT and development."

In this regard, to accelerate political economic development of developing countries, effective investment in ICT is started to get attention of developing economies including Africa. African Internet Summit which was launched in the Gambia in 2012 is a new development in Africa as it recognizes ICT infrastructural development; the summit becomes platform to discuss on the continent's challenges and opportunities for investment in ICT. For instance, in 2014 during African internet summit, ICT is considered as one of Africa's programme for infrastructure development and it is meant to achieve "greater information society and integrated digital economy promising affordability through: transformation into an e-society, meet broadband demand, increase penetration uniformly accessible service" (Nyirenda-Jere, 2014, p. 3). This increase the inquiry to examine ICT infrastructural development in African countries and its contribution to economic growth as these counties could have different experiences either failures or successes.

One of the success stories in ICT is Kenya. As it promotes investment in ICT, Kenya's national economy is started to rely on ICT infrastructures and innovations. Mobile banking is one of the Kenya's innovations that facilitates and assists financial transactions in the country (Njenga, 2010). On account of this, Njenga argues as Kenya alleged to be one of Africa's succeeding country in its ICT status. On the other hand, Ethiopia seems to be lagged behind in investing in ICT. According to Adam (2007), Ethiopia's lower status of ICT investment is mainly as a result of policy and regulatory challenges that discourages competitions and private sectors. However, Ethiopia's Ministry of Communication and Information Technology claims that ICT investments are progressively taking place in the country. For example, as digital opportunity trust asserts, by establishment of Ethiopia's Digital Opportunity Trust (DOT) in 2005, ICT is started to be utilized in some way for communities and people of the country. Besides that following "Ethiopia's ICT village", which was launched in 2015, it seems that the present incumbent government has inclined to provide opportunities for the ICT development by opening up the door to a world class business environment to make Ethiopia as IT hub of Africa (MoCIT, 2015).

Though there are ranges of studies conducted on the role of ICT in enhancing Economic growth, only few studies have been done in relation to political economy of ICT investment in Ethiopia and Kenya. Regardless of certain similarities that Ethiopia and Kenya have in terms of geo-political and socio-economic backgrounds, the two countries pursue different development

policies. While Kenya has taken the footsteps of neo-liberal doctrine of development, Ethiopia has been emerged as developmental state that has tendency to follow the same path as East Asian countries paradigm of development. Considering the difference of development policies of the respective countries, the researcher is initiated to conduct a comparative study of political economy of ICT investment in Ethiopia and Kenya. The difference of development policy does not necessarily stand for the difference in ICT policy. While the policy differences become reasonable grounds for this study to undertake the comparison between the two countries, overall political economy of ICT investment in the continent, especially in the two countries is explicitly lacked in the previous studies.

Studies on the subject matter can be categorized into three. The first, studies by Matambalya and Wolf (2001), Yasin Ali (2012), Ncube and Ondieg (2013) have attempted to assess the contribution of ICT to the economic growth of the two countries. In the case of Kenya, the study by Ncube and Ondieg (2013), "Silicon Kenya: Harnessing ICT innovations for Economic development", attempts to show the significance and role of the ICT industry to Kenya's economy. On the other hand, the study by Yasin Ali (2012), "Role of ICT for the growth of Small Enterprises in Ethiopia", examines the benefits of using ICT for the growth of Ethiopian small enterprises. As Yasin Ali's research finding, "small enterprises in the country are on a very low level of utilizing ICT and e-commerce due to several reasons among which are scarcity in infrastructure development and expertise in the area coupled with barriers from government policy and bank regulations" (p.2).

The second category of studies, by Sirak (2012) and Mungai and Vundi (2015), attempt to examine the process of ICT diffusion, or penetration, adoption and development in Ethiopia and Kenya respectively. In case of Ethiopia, as Sirak argues that the development of ICT infrastructure or human resources capacity in the country is insignificant as the current regime does not encourage private competition in this sector (Sirak, 2012). Similarly Mungai and Vundi (2015) assert as ICT penetration in Kenya is reliant upon a high level of openness to the global economy, as it enables technology transfer across the border. The third category of study discusses the dynamics of ICT driven change process in Africa, especially in Kenya (Njihia, 2008). According to Njihia, the failures or successes of ICT for development in developing

countries is dependent on different determining factors such as political leaders and development agencies.

Thus, the current study could be different from the previous studies as it is intended to examine comparative study of ICT investment in both Ethiopia and Kenya and political economic concerns to invest in this sector. Therefore, bearing in mind ICT policies of Ethiopia and Kenya that indicate the role of ICT in socio economic activities of their respective countries, this study attempts to examine the similarities and the difference of ICT investment in the two countries and examine the contributing factors that situate the two countries on different level of ICT development.

Considering this, the present study attempts to assess how lack of ICT infrastructure broadens the gap between the developed and developing countries and also endeavor to question to what extent African countries' ICT policy and its political economy, especially governance and power relationships, incentives and motivation of different actors, has been considered as determining factors to the effectiveness of ICT investment to promote economic growth.

1.3. Objectives of the research

General objective

The overall objective of this study is to assess political economy of ICT investment in Africa, with special emphasis on comparative study of Ethiopia and Kenya. More specifically, the study is intended to make a comparison between the two countries in terms of ICT development and political economic considerations to invest in the sector.

Specific objectives

The specific objectives of this study are aimed to:

1. Review ICT investment in Africa in general, and Ethiopia's and Kenya's status of ICT development and policies as particular
2. Compare ICT status, and policies and ICT initiatives between Ethiopia and Kenya.
3. Examine political economy of ICT investment in Ethiopia.

1.4. Scope and delimitation of the Study

The scope of this study covers only the following two central aspects, which include political economy of ICT in Africa and the contributing factors that have an effect on the investment in the sector. As Africa is a large continent that has 54 countries, this study only focuses on the comparative study of two African countries: Ethiopia and Kenya. Information and Communication technology investment is a broad concept that encompasses any communication devices or applications, including radio, television, telecommunications, computer and networks, software and hardware, satellite systems and so on. This study mainly focuses on the "new ICTs" that includes telecommunication, internet and software.

1.5. Significance of the Study

As one of infrastructural development, investing in ICT is currently taken as engine of economic performance. With the intention that, studying the political economy of ICT investment in Africa countries will have significant contribution to the body of knowledge and the policy makers as well. In addition to substantive policy recommendations it is aimed to give, this study will also raised different questions that require further researches.

1.6. Organization of the paper

This study consists of six chapters. The first chapter of the study is an introduction. The second chapter reviews conceptual and theoretical literatures concerning political economy of ICT investment. The third chapter introduces the research design and methodology. Chapter four and five focus on results and discussion. While chapter four is an overview of political economy of ICT investment in Africa by giving greater emphasis on comparative study of Kenya and Ethiopia, chapter five mainly focuses on challenges and opportunities of ICT investment in Ethiopia. The last chapter summarizes the main conclusion drawn from the study. Finally, the researcher attempts to give recommendations for Africa as a general and Ethiopia in Particular.

Chapter Two

Literature review and theoretical framework

The chapter tries to shade light on the concepts of ICT development movement and discuss the prevailing ideological debates and policy implications of those debates with regards to ICT for development discourse.

2.1. Operationalization of concepts

2.1.1. Political Economy of ICT

To understand what is meant by the political economy of ICT, initially giving conceptual definition of political economy is thought to be important in this section. Political economy could be defined differently by different scholars. Over a period of time, the term "political economy" has happened to have different meanings as it is stated by Weingast and Wittman (2006: 3).

> For Adam Smith, political economy was the science of managing a nation's resources so as to generate wealth. For Marx, it was how the ownership of the means of production influenced historical processes. For much of the twentieth century, the phrase political economy has had contradictory meanings. Sometimes it was viewed as an area of study (the interrelationship between economics and politics) while at other times it was viewed as a methodological approach…. we view political economy as a grand (if imperfect) synthesis of these various strands. In our view, political economy is the methodology of economics applied to the analysis of political behavior and institutions.

In the study by Graham (2007: 494), political economy is defined as "the study of how values of all kinds are produced, distributed, exchanged, and consumed (the economic); and how power is produced, distributed, and exercised (the political); and how these aspects of the social world are related at any given place and time". On the other hand, for Mosco (1995:25) as cited in Adera et al (2014), political economy is "the study of social relations, particularly the power relations that mutually constitute the production, distribution, and consumption of resources, including communication resources".

Studies by Leye (2009), Gillwald (2010) and Adera et al. (2014 have mentioned ICTs in their political economy conceptual meanings. By taking into account ICTs as central

subject in the conceptualization of political economy, these studies have tried to include the dynamic relationships among the state, markets, and institutions in order to give details on the nature of reforms in the ICT sector and the results. This indicates to what extent political economy appear to be useful to understand and explain effects of policies in the exclusion or inclusion of individuals, groups, or communicates in ICT system.

Accordingly, to realize how ICT policy and regulation reforms determine the ICT development of the countries, applying political economy approach is useful. Understanding definitions of political economy from different perspective, Adera et al. (2014, p. 63) have attempted to provide conceptual meaning of political economy of ICT.

> The PE of ICTs looks at how ICT policies and regulations designed within a political context influence ICT markets (supply and demand), and how these eventually explain the contribution of ICTs to people's livelihoods. This acknowledges both the political and economic dimensions of ICT policy reforms and regulations in explaining outcomes of the deployment of ICTs in poverty reduction. While policy and regulatory reforms and links will be examined at a macro-level, outcomes of ICT reforms will be examined in terms of how the PE plays out at a micro-level.

2.1.2. ICT Investment

Understanding ICT as fuel of social and economic development, investment in ICT is rapidly growing from time to time. As Bankole et al (2010) stated that, expenditure on ICT is becoming central element of the world economy because it enhances global economies by easing the ups and downs of the economic cycles. As a result of this, to bring about economic changes and improve quality of lives, access to ICT is taken as solution and become good justification for both developing and developed countries increasing expenditure on ICT. Though the scale of ICT investment differs from country to Country, almost there are visible activities on ICT investment in all countries,

Unlike first order investments that intended to meet the urgent needs of the individuals such as provisions of food, clothing, housing, education and health; ICT investments are second-order investments that are aimed to develop the capabilities and mechanisms for the people to get out of poverty and marginalization.

According to Kaiser (2003) ICT investment includes expenses in physical ICT capital such as hardware, software and telecommunication equipment; expenditure involved in providing ICT skills for personnel such as workers and ICT professionals; spending on foreign ICT –services; and expenditure for non-specified items. Accordingly, expenditures on computers, software, telecommunication equipment and semiconductors are regarded as ICT investments. According to account of International Telecommunication Union, ICT investments refer to the total expenditure on telecommunication equipments. On the other hand, as is described by World Information Technology and Service Alliance (WITSA), ICT investments are the total value of information technology spending and telecommunication equipment and services (Bankole et al., 2010). In general, while total annual expenditures of hardware for office machines, data processing equipment, data communication, software and services are commonly considered as information technology investments, total annual investment in telecommunication could be referred as telecommunication investment (ITU, 2007 & WITSA, 2008 cited in Bankole et al., 2010).

As Karagöl and Erdil (2012) argue, in response to the growing economic value of ICT, huge amount of investments in ICT sector are taking place in both developing and developed countries. According to assessments made by Bankole's et al. (2010), in some countries, the scale of ICT investment is exceeding the GDP or population growth rates. For example, "South America, Asia and Eastern Europe have been the fastest growing ICT investment markets with annual growth rates of 14.5%, 13.6% and 9.5% respectively between 1992 to 1997 (WITSA, 2008). African countries have also responded to increased investment in ICT infrastructure since 1995" (p.8).

As is mentioned in statistics portal, since 2005 global IT expenditure has increased almost every year. By 2015, about 3,517 billion U.S. dollars spent on IT, 912 billion U.S. dollars was spent in the IT services industry and 310 billion was spent on enterprise software. By 2016, ICT expenditure is predicted to increase more. According to the projection, the software enterprise expenditure is expected to increase to 326 billion U.S. dollars; the telecom service sector expenditure is expected to fall to 1,454 billion U.S. dollars by the end of 2016.

Worldwide ICT spending accounted for $1.8 trillion in 1997; this is 6% of the aggregate global GDP and 40% larger than in 1992. The growing rate was 27% faster than the overall GDP which

had been 5.5% annually (WITSA, 1998). An average growth increase in total factor productivity (TFP) of 1/3 % per annum based on ICT investments in industrial countries during 1995 to 2000 was estimated (Lam & Lam, 2005).The United States ICT investment recorded TFP of ½ % per annum during this period. It was also demonstrated in African countries that ICT investments increased TFP (Bollou & Ngwenyama, 2008).

The cumulative annual growth rate of investment in ICT in developed countries was 6% and 12% percent in developing countries between 1993 to 2001 (Zhen-Wei Qiang et al., 2004).The global annual growth rate of ICT investments peaked in 2004 at 12.3 % following a slowdown in 2002. ICT growth was moderated to 7.9 % in 2006 (WITSA, 2008).

There was a transition in global ICT investment in 2007. The economic recession in the US and other developed countries affected the ICT sectors. ICT investments during the period of 2007 to 2008 grew by 10.3% at considerably above economic growth rates in many countries (WITSA, 2008).The increase in ICT spending will enhance ICT production and use thereby contributing to economic growth (WITSA, 2008).

The increased global ICT penetration will support growth in ICT investments by 2011(WITSA, 2008).The demand for ICT products will decrease in developed countries due to slowing economies and the weak US dollar will encourage the exportation of ICT goods from US to emerging economies (WITSA, 2008). The total global ICT investments will be $ 4.4 trillion in 2011 compared to $2.1 trillion recorded in 2001 at a compound annual growth rate of 7.7% (WITSA, 2008). It is clear that ICT investment is an important element of the global economy. The ICT sectors are contributing significantly to the overall economic health of the global economy. The positive impact of ICT investments on global economic growth in developed and developing nations has been established in most literature.

ICT policy

Policy is through which government takes ranges of decisions and measures to tackle the problems of its country or its society **(**Orasanu, 2013). As Hasan (2012) argues that, policies can be considered as an uncompromising action, an ideological orientation and political issue that make a comprehensive body of a specific public policy. As ICT policy is part of public policy, it can be defined in public policy context. Accordingly, ICT policy is "an integrated set of

decisions, guidelines, laws, regulations, and other mechanisms geared to directing and shaping the production, acquisition, and use of ICT" (Marcelle, 2000, p.39 cited in Hasan, 2012). According to EU and ITU (2005), lack of sound ICT policy lead to the development of inadequate infrastructure development and a misuse of resources. As a result, in principle, national ICT policy formulation requires participation of different stakeholders such as ministries of government, civil society, the science and technology community and different representatives from private sectors. ICT policies are supposed to go hand in hand with other development policies of a country, including telecommunication policies, media policy, technology policy and industrial (Hasan, 2012).

Understanding the general concepts of ICT policy, this study has chosen ICT policy definition that has been given by Hasan (2012). Accordingly, ICT policy can be defined as "a specific statement, a guideline, a set of principles, an authorized decision taken by the government for the development of ICT and the telecommunication sector in order to advance the benefits of using ICT for national development" (Hasan, 2012, p. 17).

2.2. Theoretical Perspectives

The notion of ICT for Development has become a central subject and points of debate for political economic development process in developing countries. Development is derogative word and the same is true for ICT for Development as it assumed to bring progressive change for developing countries through the use of ICT. Initially, ICT for Development is proposed by foreigners to improve economic performance of the developing countries, and progressively it becomes a movement that absorbs various stakeholders. As Nijihia (2008: 26) states, "ICT4D and E-Governance are widely championed by international development agencies as important avenues out of poverty for faster integration into the modern global economy". Likewise, as mentioned in Thompson's work, the increasing perception of ICT as the components and driver of development has led to high level of investment in ICT by major development donors, often at the expense of other alternative initiatives (Thompson, 2004).

In view of that, the main explanation to consider ICT as tool of development is that development process requires communication channels to convey information concerning development issues and activities (Hassan, 2012). As Unwin (2009, p.40) cited in Hasan (2012) further explains,

"Information and communication are central to the implementation of 'development'… This is true not only in connection with the ideas about 'information' and 'communication', but also with their practical use and delivery. In undertaking any 'development' activity it is essential for information about the activity to be produced and for communication between participants to occur".

On the other hand, Schech (2002), Cline-Col and Powell (2004) and Ya'u (2004) seem to be skepticism about effectiveness of the ICT for development initiatives and movements. By examining the promises and threats of ICT revolutions, Schech (2002) attempts to find out a more appropriate way of analyzing the contribution of ICT in power-knowledge nexus. In the same way, Cline-Col and Powell (2004) become skeptic to accept ICT as promise to achieve development of the developing economies, and prefer to re-examine "the potential consequences of the nature and dynamics of the increasing use of Information and Communication Technologies (ICTs) for the political economy of Africa deserve considerably more critical attention than they have thus far received" (p.5). Ya'u (2004) also critically observed as ICT for development initiatives are mechanisms through which developed countries are accessing markets in developing countries to sell their ICT goods and services. For Ya'u, access to ICT should not be an end by itself, rather it should be considered as a means to address developing countries' development problems. Accordingly, it is possible to use ICT for development purposes particularly in education and healthcare services. As Ya'u (p.26) argues, "it is important to realize that it does not make sense to have hospitals connected to the internet when there are no drugs in the hospitals, or for schools that have no chairs to be connected to the internet. We need to deploy ICTs creatively and appropriately to address our development needs".

Considering the above mentioned different viewpoints, studies by Thompson (2004), Sein and Harindranath (2007) and Hassan (2012) have attempted to show different theoretical approaches that explain about ICT for development discourses. For instance, based on the main actors and roles in ICT for development process, Sein and Harindranath (2007) propose four approaches, which include functionalism, social relativism, structural radicalism and neo-humanism. The first two approaches are the modernization view of ICT for development as the main actors or roles in the two approaches happen to be from foreign experts of donor agencies who are either the main

driver or the facilitator of ICT intervention. Whereas, the last two approaches are the alternative development viewpoints and the actors can be either from outside or within the country. Unlike the modernization theory, alternative development approach becomes skeptic towards the potential of ICT in development process, and appears to consider ICT as a commodity. Instead of being dependent on ICT for development initiatives that come from foreign donor agencies, alternative development approaches, particularly neo-humanism perspectives advocate local or South-South ICT initiatives such as knowledge networks, e-democracy, locally developed software by local personals.

Before elaborating critical realist theory approach as will be applied in this particular study, it is better to outline briefly the two main theoretical approaches of ICT for Development such as Liberal and Critical schools of thought.

2.2.1. The Liberal approaches

Following the thought of modernization and liberalization theories of development in 1960s and 1990s, liberal approach has started to dominate the development paradigms. As Hasan (2012) argues, both modernization and liberalization theories have very optimistic and deterministic views concerning the potential of ICT in political economic development. But, the two theories have different assumptions towards the role of government in the ICT sectors. The modernization theory believes that the government's involvements in adopting and using ICT for socio-economic development is positive, whereas liberalization theory is against government's control and regulations over the ICT sectors, especially telecommunication sectors, in the assumption that government involvement in ICT investment has negative effect (Hasan, 2012 & Kunst, 2014).

Modernization theorists are keen to advocate the economic promise of ICT for the developing countries with the intention that they could "leapfrog" some of the stages of development which the industrialized countries got through. Thus, for modernization theorists, ICT is considered as tool to enhance the efficiency of business, and also as an industry in itself, which could potentially make better economy (Kunst, 2014). As Granqvist (2005: 286) also attempts to indicate the deterministic viewpoints of liberals concerning access to ICT, "the technologies are argued to possess in themselves qualities that will enhance the well-being of their users, through

amazing communication opportunities and a never before experienced access to information and knowledge" (p.286).

Following the liberal approaches position and policy implications of ICT for development, the importance of ICT in development arena is growing and attracting different stakeholders. As Granqvist (2005) describes, most foreign aid agencies and many NGOs are integrating ICT strategies into their development programs. With the help of development banks and multinational corporations, governments of poor economies have also given an attention to access to ICT assuming it could give them a chance to improve their backward economies. The priority concern of liberal approach is access to ICT which is taken as an end by itself and a road to a better life for the economically poor countries (Granqvist, 2005 and Rosenberger, 2014).

According to Kunst (2014:6), "By evidently assuming that ICT will drive the economic progress of poor states in a deterministic way", supporters and advocators of liberalization theories, especially western agencies such as the UN, World Bank or ITU, appeared to compel and shape the ICT market of developing countries by actively participating in the liberalization of the developing countries' telecommunication markets. Hasan (2012) also asserts as World Bank and ITU are key actors in pursuing the liberal approach's thought of ICT's potential in enhancing economic growth. In the liberalist assumption, it is possible to achieve economic development by liberalizing telecommunication markets of global south, and investing in ICT through an open and competitive market, and foreign and domestic stakeholders (Hasan, 2012 and Kusnet, 2014).

Liberals are very deterministic, an idealist and technophobic in their standpoint towards ICT for development, particularly concerning the relations between ICT and society and ICT and power.

However, as liberal approach looks like evolutionary and follows linear direction of development, it happen to have limitations as it does not take into account the specific problems such as cultural and local contexts (Sein and Harindranath, 2004 cited in Hasan, 2012) . This means liberal approach only describes the many-sided potentials and positive role of ICT in development rather than the problems and risks related to it.

2.2.2. Critical approaches (Marxist)

Regarding ICT for development discussion, as usual critical approach appears to address important viewpoints that challenge the dominant views of the liberal approaches. As Critical social approach is established on philosophical account of the traditional development thoughts such as dependency theory, Marxist and world systems theory, it has brought critical challenges to the discourse of ICT for development (Granqvist, 2005). By relying on the progress of alternative forces, critical approach has attempted to involve social dimensions of technology.

According to Grantqvist, critical theories have significant contribution both in development and technology studies. In field of development, critical theory approach has challenged the field of development arguing that it has insignificant attribution to progress of the developing countries as development theories and practices happen to strengthen both Western domination and 'Third World 'marginalization". In technology study, critical theorists have attempted to observe the political nature of technology and the role of technology in distribution of power. Accordingly, critical theory has been able to indicate the ways in which technologies form part of societal power structures and political struggles.

As critical approaches arguments, liberal approaches are simply giving an explanation and justification for western domination over developing countries through ICT. Accordingly, ICT for development paradigm projected by liberal viewpoint is not a new phenomenon; rather it is a continuation of the past domination with new dimension and role played by developed nations in developing countries (Rosenberger, 2014). Using development as a pretext, as stated in Hassan (2012: 26), "international agencies are spreading Western knowledge; culture and values; and pushing technology down to the local level of developing countries, i.e., it seems like a mission of extending the global market of western products that has resulted in an economic, political, and cultural dependency on developed countries".

In contrast to Liberal approach that assumes reducing digital divide and increasing access to ICT as an end by itself, critical approach believes that access to ICT is simply a means and it argues against prevailing development economic policy that has been dominated by the west (Granqvist, 2005). Granqvist continue arguing that critical approach tries to associate the current digital

divide with the existing political, economic and cultural relations of developing and developed countries.

Considering digital divide, which refers to uneven global distribution of technology, as the most challenge to improve development process in developing countries, liberal approach has played a leading role in ICT for development discourses. However, for critical approaches, technological divide is simply a continuation of the already existing social and economic divide (Rosenberger, 2014). Thus, for Rosenberger, the existing social and economic inequalities could be aggravated by ICT.

According to critical approach, as information and communication technology resources are owned by the richer countries and few multinational corporations, ICT can be considered as a tool for the capitalist and it simply serves the interest of the advanced nations at the expense of the poor nations (Hasan, 2012). As is again argued in work of Hasan, unlike the liberal approaches that perceives ICT as a plus for developing nations to catch up the developed nations, in the view of critical approach such assumptions seems to be misleading as "commodification" of information, which is a central subject in ICT for development, is mainly for the advantage of the advanced nations (Hassan, 2012; Fuchs, 2014). For these authors, though information plays a prominent role to deal with the challenges of access to local and foreign markets, partaking in decision-making and improvement of education in developing countries, it is barely available to the developing nations. As is further argued, for some critical approaches, ICT is "potential enablers, not just as determinants, of particular cultural, organizational, social, political, or economic outcomes" (Mansell et. al., 2007, cited in Hasan, 2012).

As critical approaches consider the linkage between ICT and power as techno structural, their policy implication is to pursue proper and innovative public policies and strategies by designing social inclusive ICT projects that go with the local settings (Hasan, 2012).

2.1.3. Critical Realist Approach

Recently, critical realism is becoming an alternative approach in the study of political economic development and information system. More specifically, in the study of political economic development of developing nations, critical realism approach turns out to be very relevant as it provides precedence to "social centric-development" as opposed to materialistic concern of

western development approach (Njihia, 2008). For Njihia, as compared to developed nations, developing countries appear to have more distinctive historical, social and institutional features which in turn influenced them to have more multifaceted milieus. Due to this, critical realism approach is assumed as an appropriate approach to examine ICT for development in developing countries (ibid.).

Considering philosophical foundation of critical realism arguments that underline mechanisms and structures behind phenomena, studies by Zachariadis et al. (2010), Njihia (2011), Bobulescu (2011) and Peter (2014) have attempted to assess the importance of critical realism approach in political economy, in African development policy, also and in information system.

According to arguments by Zachariadis et al. (2010, p. 6), "critical realism is often seen as a middle way between empiricism and positivism on the one hand and anti-naturalism or interpretivism on the other, thus, reinventing a new and more sophisticated version or realist ontology". For the authors, critical realism seems to be pragmatic approach as it takes into account both natural and social science fields of studies. Accordingly, the authors assert as there is a growing demand to apply critical realism in the study of information system because of its applicability in natural science as it has technological nature; and also applicable in social science because it is appropriate in genuinely human situations such as organizations.

As Easton (2009) put it, critical realists argue that in the real world there are entities, such as organizations, which have powers to act and are liable to be acted upon by others. These entities can also have internal structures, such as departments and individuals which in their turn, have their own powers. Entities have relationships among themselves which are defined as necessary in terms of our understanding of their powers, for example buyers and sellers have necessary relationships by virtue of the designations that are given to those who act by buying or selling.

In order to assess the critical realist assumptions concerning political economy of developing economies, Strange (1994), Lawson (1999) and Bobulescu (2011) have also indicated features of critical realism approaches such the structure-agency relationship, power structural relations and history and time as central theme in the study of political economic development of the developing nations. In Strange's (1994) critical realist assessment of state and market, the concept of structure-agency relationship is clearly shown. For Strange, it is authority such as

IMF, WTO and National governments that have influential role in shaping the rules of the market. Considering essential partners of states that include trans-national actors such as firms, financial organizations, religious organizations, universities and scientific communities, Strange has identified power relations between authority and market in which authority is given higher position in deciding the place of markets and under what rules to let them function. Strange has also attempted to indicate how structural power, which is another concern of critical realist approach, becomes very important in shaping the global economy conditions for states, for organizations, for companies, for professionals and scientists (Strange 1994 cited in Bobulescu, 2011).

On the other hand, using critical realism as a lens to assess Africa's development research and policy, Nhijhia (2011) has also pointed out three opportunities that could be gained by the use of the critical realist approach in Africa's development. One of the main opportunity is that as opposed to the mainstream approach and explanation that happen to serve the interest of developed countries, critical realism has an inclination to serve the interests of the marginalized by giving them a chance to take on the establishment and challenge existing power relations (Nhijhia, 2011). In view of Njihia, the problems of development in developing countries including Africa are associated with positivism that dominates academia and policy formulation. This means that the methodology in use does not go with African realities which in turn lead to poor development project performance. Most often these failures are considered as caused by the implementing government agency although the main causes are mainly deep-rooted in epistemological and ontological assumptions. In order to solve this problem, Njihia suggests that a critical realist causal analysis of such failures would give an indication of underlying mechanisms that generate failure, and provide a starting point for querying any unexamined ideologies in operation through various discourses of development.

The other advantage of using critical realism approach is that unlike the mainstream explanation like positivism, critical realism has the propensity to consider history and time in order to understand complex social realities and contexts that help describe the structure of international relations. In Nijhia's argument, as critical realist approach accepts the positivist's rigorous mathematical analysis, and as is also fully informed with history, it seems to be a promising for socio-economic studies in Africa.

Finally, Nihjia (2011) points out the challenge related to Africa's development research and policy that often happens to be prescribed for Africa. Most of the time, as Emmerij (2005) cited in Nijhia (2011) argues, Africa's development policy guidance that gives the orientation how to develop appear to be from international development agencies such as the World Bank and the IMF. For instance, modernization, import substitution, industrialization, structural adjustment, poverty fighting, and the comprehensive development framework are few of development plans that have been suggested by WB and IMF. Many of these development projects are not successful as they do not take into account African contexts. For Nijhia, in order to achieve development, African policy makers need to formulate proper policy that goes in line with internal contexts of the continent as well as they need to evaluate what the foreign experts suggest before putting in practice all assumptions they suggested. According to Nijhia, African policy makers should develop confidence and self-awareness by freeing themselves from ideological orientations that bring them under control of foreign experts. In this regard, as Nijhia (2011) argues that, critical realism is a mechanism through which African policy makers could become more confident to develop proper development policies that contextualize the internal contexts of the continent without external pressures.

To conclude, liberalism approaches are techno-deterministic or techno-centric perspective which view ICT as it is an end by itself and alone would lead to development. Whereas, critical approaches including neo Marxists and dependencies theorists assume ICT as is an instrument of capitalist world that serves mainly the interests of the advanced nations. Unlike liberals, the later views ICT as social-deterministic that presumes ICT itself as fairly petty and views as the end results of using the sector is prearranged mainly by pre-existing social structures. On the other hand, critical realist approach becomes a middle way of the two extreme approaches. Unlike Marxist and dependency theorists, critical realist approach views ICT as it could be a tool to achieve the socio-political and economic development. And also not like liberalism approaches, it recognizes as there are many factors that determine the success of the sector. As Lee et al. (2008, p.3) state, ICT is "surrounded by a shell of people and processes within a context of social, economic and cultural factors. … Explains the failure of some ICT4D projects in terms of am is match between the technology design and the social context ".

Based on the above mentioned facts, this study has selected critical realist theory to examine the political economy of ICT investment in Africa by giving particular consideration on comparative study of Ethiopia and Kenya.

Chapter Three

Research Methods

3.1. Research Design

This study mainly followed descriptive and explorative approach. As the general objective of the present study is to critically examine the political economy of ICT investment in Africa by taking comparative study of Kenya and Ethiopia, qualitative strategy has been mainly used. Unlike quantitative research, qualitative approach allows the researcher to look at the performance, perspectives, views and understandings of people and what lies at the heart of their lives (Holloway & Wheeler, 2010). As a result and bearing in mind the central theme of the study that happens to examining political, ideological and policy considerations of the respective countries, the present study mainly used qualitative approach over quantitative method. Additionally, quantitative approach was also used as a supplementary to make a comparative analysis and show the trends of ICT development in the two countries.

Though qualitative research has its own limitations, it has also strong sides, particularly to studies that require exploring the behavior, perspectives, experiences and feelings of people and emphasizing understandings of these elements. To this effect, in addition to collecting secondary data from different sources, in-depth interviews are also conducted to obtain deeper understandings of the subject of the study from professionals that have rich experiences and knowledge. In-depth interview is perceived as one of qualitative method strategies through which primary data is collected.

According to Savenye and Robinson (2001) qualitative researchers select their analysis methods not only by the research questions and types of data collected but also based on the philosophical approach underlying the study. Thus, by making use of critical realist theory approach, this study has attempted to analyze to what extent political ideologies and policy implications of the respective countries have an influence in the process of ICT development. Critical realist theory approach is selected in this particular study as a lens to see the structural power relations between Africa and the rest of the world, and furthermore, it helps to have a look at the internal contexts of the countries so as to analysis ICT development. By the use of critical realist theory approach as a framework, it is possible to review critically the policies and ideologies of these countries and identify whose stance appears to allow participations of different actors in ICT development.

The data collected by interview method and secondary source are analyzed by using thematic method.

3.2. Tools of Data Collection

The data sources of this study constituted both primary and secondary sources. In fact reviewing the documented data is placed as more significant to examine the essential subject matter of the study. Seeing that, this study has exhaustively used secondary sources such as academic books, journals, policy documents, internet sources, newspapers, and policy documents, relevant statistical databases including the World Bank, World Economic Forum, UNISCO and International Telecommunications Union are used. Whereas, the primary source of this stud was collected from in-depth interview by selecting few key informants on the subject of the study.

Additionally, to collect primary data, this study has conducted in-depth interview with key informants whom the researcher purposefully selected by considering their educational backgrounds, their professions and experiences they have in relation to political economy of ICT in Africa at large and Ethiopia and Kenya in particular.

As Boyce and Neale (2006) suggest that, in-depth interview is to conduct intensive individual interview with a small number of respondents to explore their perspectives on particular issues as a result there is an advantage of getting detailed information that cannot be obtained through other data collection methods. This is one of the main reasons why the author has used in-depth interview as the main data collection method.

3.3. Participant selection (Interview Process and selection of Key informants[1])

Purposive sampling method is employed to find participants**.** The researcher had initially planned to conduct an interview with ten key informants from both Ethiopia and Kenya. But, because of time constraints and unwillingness from respondents, except William[2] who is a foreign, all of the researcher participants are Ethiopians. By realizing the challenges of selecting research participants from Kenya, the current study has attempted to fill the gap by selecting knowledgeable and experienced key informants about the two countries. As far as the author of

[1]For all key informants Pseudonyms are given

[2] Leading ICT Policy Specialist at the World Bank an author of the 2016 report, in Africa (Comoros, South Sudan and Somalia)

this study knows about the key informants, almost all of the research participants have substantial knowledge about the respective countries.

The researcher has used different techniques to select the research participants. To start with, the researcher contacted William through World Bank representative for Africa whom the researcher has already made communication during "the Digital Dividend meeting" which was held in Addis Ababa University. This meeting was organized by World Bank and by coincidence the researcher was one of the attendee. This conference was a remarkable occasion for this study as it gave the researcher a chance to ask certain questions that related to the study. In fact, on one way or another, the researcher has received important information that can be considered as valuable to the current study. Additionally, the conference was also the means through which the researcher took the addresses of ICT professionals and expertise. Following the meeting, the researcher started to contact ICT professionals by email. After a frequent communication the researcher made via email, William was recommended as the right person specifically for the current study. William is a well experienced professional as he has worked for a long time on ICT and telecommunication policy at different international institutions such as International Telecommunication Union and currently World Bank. As the researcher is informed about him via email, William is currently working for ICT policy for Kenya and Ethiopia by representing World Bank. The researcher tried to contact William physically and make an interview but According to the researcher's interview schedule, William told the researcher as he could not be in Ethiopia. Considering the interview schedule, the researcher agreed with William to make the interview via Skype. Accordingly, the researcher made the interview with William on Wednesday, January 27, 2016, 10:01:47 PM.

The other Key informant is Yibeltal[3] whom the researcher has known him for long time by his interesting articles he has published on Addis Fortune newspaper. Among the articles by Yibeltal, "Which way Ethiopian Telecom Monopoly: Privatization or breakup?" is one of the moving article that took the attention of the researcher. Considering his strong debate he discusses frequently on newspaper, the researcher is highly interested in his insightful ideas as a result the researcher decided to make him one of his research participants. By taking his email address from Addis Fortune newspaper, the researcher emailed him unfortunately he could not

[3] Managing consulting and commission on investment (Plc)

give active response to the email on time. As he mentioned the message was not in his inbox and eventually by chance he found it in spam. The good news is that the moment the researcher forgot and became hopeless about it, by chance, Yibeltal was able to see the message in his spam and as soon as he found he wrote a message that shows his curiosity on the subject of the study, and his decision to contact the researcher after he came back to Addis Ababa from London. Following his arrival, the researcher contacted him and made the interview on Tuesday, February 9, 2016, 7:30:08 PM.

Dr Yibekal[4] is one of the research participants who the researcher was able to contact at his office, Ministry of Communication and Information Technology. He is a knowledgeable person on ICT issues as he happens to be a senior adviser of the ministry. He is also thought to be one of the masterminds of the current Ethiopia's ICT policy. From the initial contact with the researcher, he has given his consent to discuss on the issue. Before the interview schedule, the researcher sent to him the interview guideline. However, the researcher could not get any response to his email for a long time. As a result, the researcher tried to reach him through telephone call so as to arrange the proper time for the interview. After the researcher tried to reach him through email and telephone calls, finally the researcher decided to look for him at his office but still could not find him in office. After the researcher tried to reach him through different means, eventually the researcher got him at his office on Monday, February 19, 2016 at 5: 20: 30 AM. He told the researcher as he has busy schedule. Therefore, considering the high probability not to reach him again, the researcher decided to use this fortunate time to make an interview. During that time, the researcher was informed to make the interview very quick as the research informant had scheduled program to give enough time for the interview.

Cherinet[5] is a very critical and knowledgeable person so far as the researcher closely knows him. The researcher has known him for a long time, and to make him as one of the research participant, there was no challenge. The reason why the researcher selected Cherinet is that he is a leader of Center for Cyber Policy and Strategy, and he has also related academic background to the study, including Political Science and International Relations (BA) from Addis Ababa

[4] MoCIT technical Advisor

[5] Leading Cyber Policy and Strategy Team at INSA

University, Political, Economic and Law (MA) from Leuphana university of Luneburg in Germany, and Computer Science (BSC) from Microlink.

In general, the research participants are by chance Ethiopians except William. Apart from William who was interviewed via Skype, the others participants are interviewed physically in Ethiopia. As these research participants happened to be from different organizations, they were purposefully selected considering that their viewpoints represent their organizations. Additionally, the selection of these key informants is also aimed to reduce redundancies of ideas. Accordingly, four are from government ICT professionals; William is an expert from International financial institutions who is expected to have different viewpoints from that of government; and Yibelta is an Ethiopian who has different viewpoints from both government and World Bank. The other key informants are Taye[6] and Tizazu[7] who have a management position in INSA and Ethio telecom respectively. As the researcher asked the consent of the two key informants, they were very interested in discussing about the issue.

The other four participants are from academic institutions**.** The researcher selected these four key informants from Addis Ababa University considering their deep knowledge about the subject of the study. The two key informants Furtuna[8] and Mihiretu[9] are both from School of Information Science. The other two key informants are Dagu[10] and Robale from Economic department. Apart from Robale[11] who the researcher contacted by email, three of key informants were contacted at their office. When the research asked their consent to make an interview, they have no reservation to provide the researcher the data he wants from them. However, it was not easy to make an interview with Robale as he had a very busy schedule. Finally, the researcher succeeded in getting Robale for the interview.

3.2. Method of data analysis

In this study, both thematic and descriptive statistical analysis is employed. More specifically, by using thematic analysis, the gathered data were identified, organized and analyzed. Thematic

[6] Deputy director of legal and policy issues at INSA
[7] Ethio telecom manager
[8] Professor of Information Science at Addis Ababa University
[9] Professor of Information Science at Addis Ababa University
[10] Professor of Economics at Addis Ababa University
[11] Professor of Economics at Addis Ababa University

analysis is one of the qualitative data analysis methods that categorize, analyze, and reports the arguments within data (Braun & Clarke, 2006). Thus, using thematic analysis, the collected data can be simply structured and illustrated. According to the authors, the major usefulness of using thematic analysis method is that it gives the chance to use diverse forms of information in systematic manner, it entails theoretical flexibility and also enables to synthesize data from numerous sources (ibid.).

Thematic analysis has different phases. The first step of thematic analysis process starts with creating knowledge about the themes and issues during data collections in which initial pattern of behavior and discussions have been identified (see appendix IV). Then, the next step is to label all data collected according to their patterns and, produce codes sorted in to sub-themes. Finally, explaining the story of each pattern, code and theme from all perspectives is the task of the researcher (Braun and Clarke (2006).

Descriptive statistics were used to show the trends of ICT development in the continent and make comparison between the two countries as well. Thus, statistical data collected from Global Economic Forum has been used to measure networked readiness index of the two countries. Additionally, the data collected from International Telecommunication Union has been used to measure African ICT status. Particularly, to measure the ICT development in the two countries, average of the major three ICT indicators such as mobile subscription per 1000, fixed telephone subscription per 1000 and individual internet users per 1000 have been collected from International Telecommunication Unions.

3.3. Writing and presenting the findings

By thematically analyzing the data obtained by in-depth interview, the researcher dedicated to write and present the findings. As Burnard et al. (2008) state that, there are two approaches followed to write and present the findings. **"**The first is to simply report key findings under each main theme or category, using appropriate verbatim quotes to illustrate those findings. This is then accompanied by a linking, separate discussion chapter in which the findings are discussed in relation to existing research (as in quantitative studies)" (Burnard et al., 2008, p.431). This way of writing and presenting finding is considered as a traditional approach. The second approach is somehow similar to the first approach but the difference is that the second approach integrates

the discussion into the result chapter. Thus, as the current study combined the findings and discussions in the same chapter, the researcher used the second approach.

3.4. Limitations during data collection

The researcher went through different challenges in the process of collecting data from key informants. He tried to contact several ICT academicians and practitioners, and also scholars from economic development and other related academic backgrounds. Many of these professionals and experts did not have willingness to take part in such discussion. The other very challenging and miserable situation the researcher faced is from some organizations such as ECA and ITU for regional Africa. During data collection, it was not only by telephone calls that the researcher tried to communicate, the researcher personally went to these big institutions repeatedly assuming that he would get the necessary data for the study. The research did not get data from these institutions.

Chapter Four

Results and Discussion

The aim of this study is to provide critical assessment on political economy of ICT in Africa particularly in Ethiopia and Kenya. This chapter starts by giving overview of ICT investment in Africa in general and Ethiopia and Kenya in particular. This chapter also critically discusses ICT policy in the continent, with special emphasis on Ethiopia and Kenya; and finally, the chapter compares political economy of ICT development in the two countries by comparing their ICT status, ICT policy and ICT for development initiatives in Ethiopia and Kenya.

4. 1. Political Economy of ICT investment in Africa

4.1.1. An Overview on ICT Investment in Africa

Before a decade ago, Adeya (2001) have attempted to examine the status of ICT in Africa. By identifying large differences among the African countries, the author has pointed out the limitations of ICT development process, sectors in which many African countries appear to be successful with ICT applications, and also compared Africa's ICT development with the rest of the world by discussing positive and negative aspects of different types of ICT initiatives in the continent. To mention some challenges of ICT developments in the continent, as Adeya states, include lack of infrastructure, absence of ICT policy and poor implementation, and also few human resources that have ICT skill and uses.

However, following ICT policy and telecommunication reforms undertaken in many of African countries, some visible improvements are witnessed (ITU, 2011). As is discussed in ITU document, countries that have pursued policies of privatization, market liberalization and independent regulation assumed to be more successful in transforming low level ICT status in their countries. Although the speed of ICT investment in Africa continent is very slow as compared to the otherworld, Chavula and Abebe (2010) argue as ICT development in the continent has started to show a positive change in last few years. As the authors assert, mostly following the liberalization of ICT sector in many of African countries, more than ever there is a good start in investment in mobile technology as it continuous growing. According to Adeya (2001) regardless of the problems associated with ICT development in Africa, there have been successful stories of ICT in many African countries in different sectors such as banking, air

travel, software development, and provision of health care. Similarly, Chavula and Abebe (2010) appear to be optimistic concerning significant contributions achieved by few changes in ICT developments. According to the authors, particularly, the beginnings of ICT applications in wide ranges of sectors including health, education and agricultural services have become in some way a window of opportunity for the poor people living in rural Africa. For the authors, besides that ICT development in the continent is started to support the banking and trade sectors by facilitating the transactions and accelerating market information flows within and across the countries.

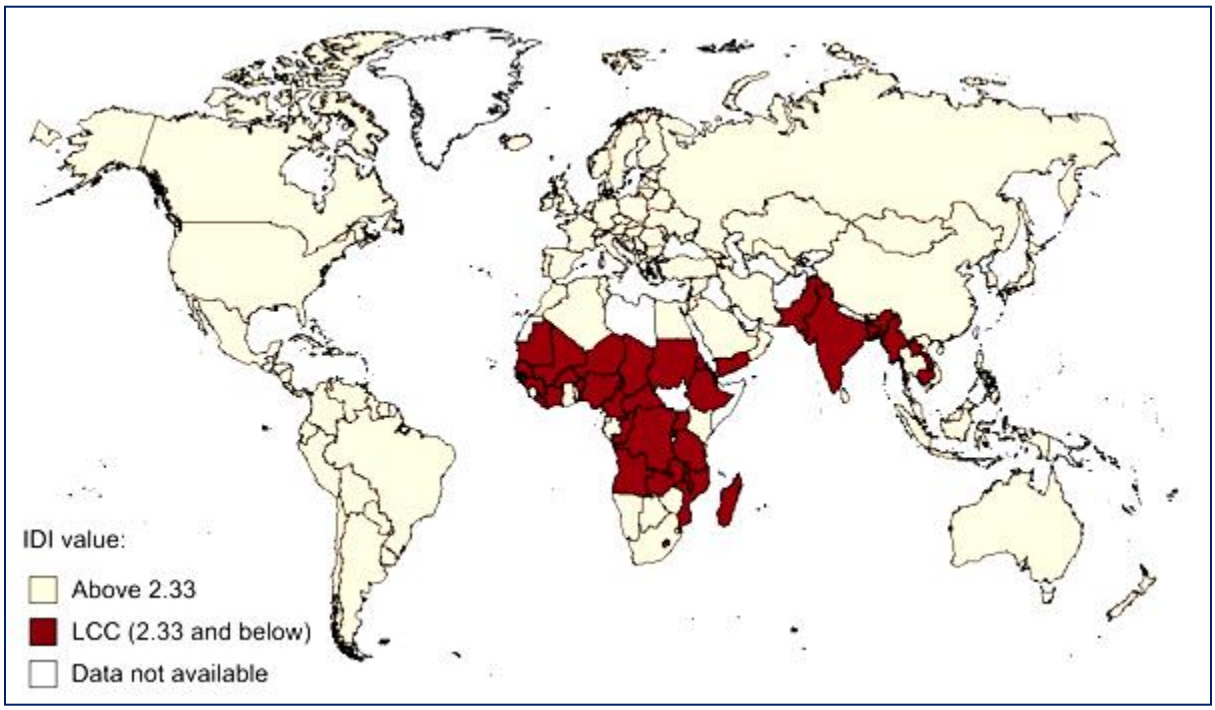
In general, status of ICT development in African countries is appraised to be the lowest when compared to the rest of the world, and as well huge disparity is observed even within the continent. Comparing African ICT development with the other world and within itself, Rezaian (2007) argues that ICT development in sub Saharan Africa can be described as uneven development, with noticeable general patterns spread with exception. According to Rezian (2007), three most important trends that can be highlighted from his empirical study include: the higher performance of middle-income sub-Saharan countries in ICT industry as compared to lower income countries, countries with higher population size are found to be the lower competitive in ICT sector as compared to countries with smaller population size, overall sub-Saharan African countries are lagged behind in terms of ICT infrastructure and ICT applications in both public and private sectors when compared to the other world.

As the author argues, based on World Bank‘s data that annually measures gross national income of the countries, many of African countries are grouped as the low income by 2004. Sub-Saharan African countries that found to be at higher level in ICT development are countries that are grouped as middle-income countries. As compared to the low income sub-Saharan African countries, the middle-income countries such as Botswana, Mauritius, Namibia, and South Africa have relatively well advanced status in terms of telecommunications infrastructure, personal computers (PCs), internet hosts, fixed telephone and mobile phone subscriptions (ibid). According to Rezian, these countries economic performance is directly correlated with their educational and infrastructural development including the capability of ICT access and afford for public and private applications.

Based on Rezian's assessment concerning uneven development of ICT in sub-Saharan Africa, "between 1 to 9% of population of every middle-income SSA country uses the Internet. Among the smaller middle- income SSA countries (both in terms of size and population), Cape Verde and Seychelles stand out in terms of the number of telephone mainlines and personal computers per capita" (p.27). Consequently, when overall ICT development in sub-Saharan African countries is measured, South Africa would have a lion share in all aspects of ICT categories including personal computers and the average number of internet hosts (ibid.).

Furthermore, according International Telecommunication Union report of 2013, Africa's ICT status seems to be lagged behind as compared to the other world (ITU, 2013). By ranking 157 countries according to their ranks of ICT access, use and skills, ITU (2013) attempts to compare African continent with the other world and the result of the comparison indicates that there is a visible difference between Africa and the otherworld as ICT Development Index by ITU clearly signifies. Though there is some change in terms of internet access and mobile-cellular penetration, the majority of African Countries are still among the Least Connected Countries (LCC) in the world.

Figure: 1. Comparing Africa's ICT Status with the Other World



Source: Information Telecommunication Union, 2013

The above figure shows that countries mentioned as least connected countries are mainly countries that have been listed as countries lagged behind in terms of Millennium Development Goal (MDGs) as well. The figure shows that apart from few African countries, almost all of sub-Saharan African countries are in the category of least connected countries (LCC).

4.1.2. Reviewing ICT policy in Africa

This section attempts to review the ICT policy of African countries by taking into account the external pressures and roles. One of the main issue mentioned as a challenge for Africa's ICT development process happen to be absence of policy and implementation challenges (Rezian, 2007).

The fundamental contribution of ICTs in facilitating and accelerating socio-economic development has undoubtedly gained acknowledgment across the world. For this reason,

numerous countries including both developed and developing countries have introduced ICT policies and strategies in order to exploit political economic potential of the sector to the maximum. For example, Dzidonu (2002) mentions that countries that are able to transform their economies into information and knowledge based-economies by developing and properly implementing ICT policies and plans consists of USA, Canada and a number of European and Asian countries. For Dzidonu, these countries can be considered as a yardstick for the rest of the world like African countries to pursue their own ICT policy.

ICT policy development in Africa has been inspired by different initiatives over a long period of time. Wangwe (2010) states that in early 1980s the Pan African Development Information System (PADIS) which was founded by UN to promote information management in the Africa, and the United Nations Education and Scientific Organization (UNESCO) were the pioneers in the process of initiating national information policies. Following the promotions made by these two branches of UN organizations, Africa began to be interested in such initiations and to facilitate communications and access to information by introducing its own regional satellite network (RASCOM).

According to Adam and Gillwald (2007), the other watershed in ICT policy making in African countries happen to be the establishment of African Information Society Initiative in 1996, which supports African countries to formulate their comprehensive national ICT policy. Additionally, for Adam and Gillwald, the two summit of information society that held in 2003 and 2005 became another turning point in the history of ICT policy development as these summits mentioned policy and regulatory issues including telecommunication sector reforms, internet governance and so forth. Understanding the usefulness of different stakeholders in the development of ICT policy, these summits also challenged exclusive sphere of influence of government policymakers by indicating the importance of civil society and private sectors in the process of ICT policy making (ibid.).

Based on different initiatives mainly from external, African countries have pursued their own ICT policies. Currently almost all of African countries have developed ICT policies although each country tends to have different internal contexts in the process of agenda setting, policy formulation, decision making, policy implementation and evaluation. For example, according to Adam and Gillwald, in the process of developing their ICT polices and strategies, African

countries follow different models including model laid down by African Information society Initiative National Information Infrastructure, and Incremental and Organic approach to ICT policy. Several African countries follow the former one as it concerned the development of detailed policy framework and implementation plan through consultative process. And few of African countries follow the later one which focuses on building blocks such as national educational capacity, infrastructure, content and public sector service delivery through ICTs.

For Adam and Gillwald, so as to evaluate African countries ICT policy failures and success, it will be suffice to examine both internal and external factors that have direct and indirect involvement in the development and implementation of ICT policy. Externally, the tendency to give policy prescription without having full-fledged understandings about the political dimensions of governance in the continent, the power relations, incentives, context and capabilities of the national and regional institutions could be considered as a challenge. On the other hand, internally promoting ICT development in the country depends on the type of government system happen to be on power. As Adam and Gillwald (2007, p.25) attempt to mention that "the more authoritarian the state, the less its interest in internet diffusion or taking the policy process forward".

Africa as a region has a different contexts as there are wider ranges of factors that affects the ICT policy making process. Overall, policy making process has certain procedures, and also it requires participation of different stakeholders including public and private sectors and civil society. In this regard, what makes Africa region different from the rest of the world is that many of African countries ICT policy making procedures are not transparent, and in large numbers of the countries the participation of different stakeholders are absent as well (ibid.). On top of that, South Africa's communication department (2012) has pointed out the reason why exceptional consideration needs to be given to ICT sector over the other sectors in the process of policy development. According to the department, it is because the sector requires high standard regulation and managements, albeit domestic and foreign investment is still highly encouraged in the sector.

In history of African development policies, there could be policies that come into being simply for formality either to attract the attention of external powers, or to show their commitments for certain ideologies. On other word, policies may be sometimes regarded as an answer for the

requests and policy suggestion that come from the external powers such as development assisting countries and agencies. Such problems are very evident in most of developing economies including African countries. May be this reality is well documented in different studies (Teunissen, 2005 and Martin, 2005). Teunissen (2005) argues that African countries do not only lack budget to finance their developments but also lack the freedom of formulation and implementation of development policies. The author continues arguing that "here we see another constraint to good policy making in sub-Saharan Africa: the policy conditionality imposed on African policy makers by western donor countries and international institutions such as the IMF, World Bank. Even though the IMF and World Bank and other donor countries assert that they do not interfere in Africa policy making, or only do so with good intention, the reality is that they do interfere – and not always with good (say, altruistic) intentions*"* (p. 2).

Martin (2005) also attempts to provide empirical evidences that indicate to what extent development policies of poor performing African countries are controlled through excessive conditionality. The author attempts to support this assertion by evidences from previous development policies such as Poverty Reduction Strategy Paper and some other policies including PRGF loans, PRSC form the World Bank, multi-donor and lenders that have been practiced almost across the continent. For Martin, policy advices associated with lending has negative message for African countries as the end result happened to be costs in terms of low growth, increased indebtness, rising poverty, weak institutions, and the inability of countries to diversify their economic base. .

In supporting partly the above mentioned facts, Adam and Gillwald (2007) and Wangwe (2007) have examined the political economy of ICT sector in Africa by looking into both domestic and external contexts that affects policy making process in the continent. Understanding the existence of external push, Wangwe (2007) states as the first initiative to design ICT policy in Africa come from external actors, and through time domestic power relationships and some other interested groups started to take part in the projects considering political economic implication of such initiatives.

In the same way, Adam and Gillwald (2007) asserts the existence of external pressures that urge African ICT policy makers to privatize, liberalize and free the air waves, and eager to implement wide-ranging ICT policies in Africa. According to the authors, "policy and ICT programme

ideas in Africa frequently emanate from international actors or generalists that fail to appreciate the complex socio-technical, capacity, resource and governance challenges that make or break ICT programmes" (p.22). Though Adam and Gillwald have examined the contribution of external influences, policy choices and domestic power relationships to the political economy of the ICT sector reform in Africa, they also have recognized to what extent African internal contexts and challenges are increasingly shaping the reform process and policy outcomes in the sector.

On the other hand, for some researcher like Gerster and Zimmermann (2003), ICT policy in Africa could not be effective unless it considers Africa's internal situation. In order to develop ICT policy in the developing world including Africa, the authors suggest that policy maker need to think about the poor. For Gerster and Zimmermann, ICT policy of a given country has to be based on its internal contexts such as national vision of challenges, approaches and priorities that are vital to success. Accordingly, a country that prioritized poverty reduction is expected to clearly mainstream pro-poor ICT policies. Gillwald (2010) also contends that ICT policies that simply based on the pressure from external pressures including major narratives in the literature on ICT for development and poverty alleviation lack political economic approaches that examines the interaction between state and market. For Gillwald, policy that disregards internal political economic approach leads to poor ICT outcomes in Africa. Thus, Gillwald suggests that in order to deploy ICTs for poverty alleviation, African ICT policy makers' need to take into account political dimension of policy reforms and economic regulation.

Adam and Gillwald (2007) mention that currently many of African countries have made national ICT policies and strategies that aspire to realize contribution of ICTs in development to attain comprehensive socio-economic development objectives including poverty reduction, health and education sectors. And they attempt to critically examine failures of such policies by looking into power relations as a main factor. Adam and Gillwald (2007) argue that like other development policies, ICT policy developments including telecommunications reforms in Africa have been outlined by internal and external contexts such as social, economic and political contexts. According to the authors, internally, ICT policy development is influenced by governments, market demands and those intended to give response to global ICT rules. Externally, ICT policy development in Africa is pressurized by international financial institutions such WB and IMF.

These institutions have made an influence on the African governments and policy makers in the process of ICT policy development by providing policy recommendations, particularly by encouraging liberalization of telecom sectors in the continent (ibid.). For Adam and Gillwald, on one hand, the initiations made by the institutions have brought positive outcomes in the sector. On the other hand, such liberalization and privatization process made by these institutions has implications for the continent as it indicates the continuation already existing power relationships between the continent and the developed nations.

4.1.2. Political Ideology of ICT for Development in Africa

Given political and economic opportunities that can be attained by the use of ICT, considerable attention is not yet offered to political economy of ICT in Africa (Cline-Cole & Powel, 2004). According to Cline-Cole and Powel, taking into account the potentials of ICT in political economy of Africa, currently enormous studies have assessed the place of ICT for democratizing political participations and policy development; redressing very old division North-South, regional , rural-urban and gender imbalances; and redefining the parameters of development thinking and practices. Above all, the introduction of "ICT for Development initiatives and projects" has helped foreign stakeholder use such initiatives as political and ideological strategic moves to developing countries including Africa (Cline-Cole & Powel, 2004, Rothenberg-Aalami & Pal, 2005; Ayonka, 2010).

The concept of ICT4D happened to be more familiar in the late 1990s at the height of telecommunication boom. In the believe that ICTs could transform the world, different stakeholders including government and international development organizations have started to undertake liberalization, privatization, policy reform and a drive to expand markets (Easterhuysen, 2007). However, the formal movement of ICT for development initiatives was originally started by the G8 countries meetings at Osaka, Japan, in 2000. As Cline-Cole and Powel argue, "while much of the world waited for, and expected significant initiatives aimed at addressing the debt crisis, the G8 meeting chose instead to redirect attention to the role of ICTs in global economic restructuring and socio-economic change" (p. 5). Following the Osaka's meeting, a Digital Opportunity Task Force (DOT Force) was commenced in 2001 in order to offer a strategic framework for both public and private stakeholders to exploit ICTs for development goals. In addition to G8 meeting, by calling for interested participants from

different stakeholders such as government representatives, international organization, nongovernmental organizations and industry, UN general assembly also held the "World Summit on the Information Society" (WSIS) in Geneva in December 2003 (Rothenberg-Aalami & Pal, 2005) .

According to Aalami and Pal (2005), eventually the meetings have resulted in the establishment of the platform that put together a set of concrete goals related to the strategic framework formerly created by the G8 DOT force. In general, for Aalami and Pal, ICT4D movement includes a host of interested public and private players, including every agency of the United Nations, the World Bank Group, and the International Monetary Fund (IMF), development donor aid governmental agencies including Canada (CIDA), the Netherlands (NORAD), and the United States (USAID), governments at all levels, grassroots and international non-governmental organizations, private organizations with the express purpose of bridging the digital divides and business leaders who are increasingly acting as development agents like their partners listed above. As the authors argue, most of these stakeholders have spent large resources to the development of rural information kiosks as places that provide access and training to first time ICT users and a direct conduit to the Information Age.

Though, for Cline-Cole and Powel, the reason why Africa is urgently required to be part of the current information age remains to be a mystery seeing that there are some urgent issues like debt crisis and unfair trade relationships that required immediate responses from such global actors. According to Ayonka (2010), political ideology is the main driving factor for the high engagements of major actors in ICT for development initiatives. Particularly, ICT for Development initiatives run by G8 and EU may be associated with the continuation of historical influences that disregard internal circumstances of the continent and structural power relationship they have with Africa both as a region and individual countries. As Njhia (2013) explained, African context is complex, characterized by interlinking of actors, agencies, and agendas of political, public, private, and third sector institutions, civil society, and foreign and global players. Considering the failures of ICT for development initiatives run by UNISCO, Leye (2007) similarly contends that the operation of technology is determined by economic, political, institutional and social factors, and this context has to be taken into account. According to Leye, UNESCO's principled vision can be condemned for not taking attention to structural

political economic inequalities in the ICT sphere. Based on Ayonka's (2010) review, the current ICT for development initiatives in Africa can be categorized into two as Table 3 indicates.

Table 1: Types of ICT for Development Initiatives

ICT4D Actors	Examples		General Characteristic features
Major actors	G8, Dot Force Initiatives	Dot Force initiative contains conditions and provisions that bear a striking resemblance to what has been known as the conditionalities that exemplified the Structural Adjustment programme.	Such initiatives and projects have the propensity to operate in the country that fulfills their ideological requirements. These initiatives are mainly in line with ideological orientations and based on the existing structural power relationships.
	Vodafone	Vodafone is one TNC actively involved in African acquisitions, joint partnerships and ground breaking new service developments particularly tailored to the African market.	
	EU,for development projects	The EU includes former colonial powers that share a history of economic and political relationships with Africa. EU's ICT4D project in Africa is in line with ideological motivations.	
Alternative Actors	AfriGadget	AfriGadget is locally developed website that provides home-grown craft and technology from across the African countries.	Homegrown or initiated from grassroots level and mainly run by civil society, such projects can be also perceived as bottom-up approach.

Source: Own adaptation from Ayonka, 2010

For Aynoka, a bottom-up approach that appears to be alternative ICT for development initiatives for developing countries can be taken as the proper strategy that Africa need to pursue. As is argued that, "minor local actors, in seeking to confront livelihood problems through adaptation of ICTs, presented a significant weakening of both the optimist neoliberal standpoint and pessimist Neo-Marxist attitudes towards ICT4D. Their ICT4D initiatives showed that not only

were ICTs necessary in a pragmatic way, but were critical tools for resolving some of the constraints of individuals and communities through their capacity for adaptation"(Aynoka, 2010, p. 62).

The author argues against ICT for Development global actors and their Neo-Marxist critics for their mere ideological assumptions, and also contends TNCs that exclusively inspired by profits. Alternatively, the author, appear to suggest home-grown and grassroots level ICT for development initiatives such as non-profit organizations and individual innovators that merely driven by norms, culture or particular local contexts.

4.2. ICT Investment in Ethiopia

4.2.1. ICT development in Ethiopia

As one of this study's respondent mentioned, Ethiopia has a long history of telecommunication services though it is currently left behind the rest of the world, even this sector is not developed as many of African countries. To mention some of the problems associated with ICT development in the country, the main challenge is taken as the policy instrument and implementation. As the number of respondents described the ICT development gabs in Ethiopia, in history of telecommunication practices in Ethiopia, two things are commonly understood on one hand the sector is monopolized by the government, and on the other hand it is merely owned by government. According to these respondents, such control from government cannot give an opportunity for the sector to develop as expected. Competition is one aspect of requirement that contribute to the development of the sector as it is naturally ICT development in Ethiopia is growing by promising changes year by year.

One of the turning points for the progressive improvement of the sector is the establishment of the Ethiopian Information and Communications Development Authority (EICTDA) in 2003. By the initiative of this newly founded government institution, several ICT projects including a Schoolnet program, the Woredanet network, and Agrinet project are launched in 2004 at national level to connect around 560 secondary schools, link 61 districts to regional and central government, and connect agricultural research institutions respectively (Adam, 2007). Along the above mentioned ICT projects, the government also started to focus on development of ICT skills and knowledge by introducing ICT vocational training and higher education at college and

university level. Following the establishment of EICTDA, Adam (2007) mentions that degree programmes in computer sciences, electronics, telecommunications and information theory, software engineering and programming, technical management and management information systems are started to be taken. In general, as Adam argues, these projects have brought a progressive change in the development of ICT sector by constructing knowledge about the potential of ICT for development.

The other land mark for Ethiopia's ICT industry seems to be the strategic agreement that made between Ethiopian government and China in 2007. ETC made an agreement with China's state company called Zhongxing Telecom Corporation (ZTE) assuming that this company could expand telecommunication infrastructure by vendor-financing soft-loan agreement that amounts about US$1.9 billion. The vendor-financing plan was then used as the basis of the ETC's 2007–2010 targets. However, this project was not successful as it was planned. According to Adam (2010, p.7), "it is evident that the incumbent operator will not be able to meet the self-imposed targets, in particular in the area of mobile and internet subscription, where it was about 60% off the target in 2009. Although two-thirds of the fiber network and rural village access had been accomplished by end of 2009, it is unlikely these would be fully attained by 2010. The major problems cited by the ETC include difficulties in securing the right of way, vandalism on its fiber network, inadequate supply of the electric power and difficulties with the civil works".

ICT development in Ethiopia is mainly undertaken by government involvement. Balcha (2015) argues that currently the government has made great effort to change low status of ICT development in the country. Among improvements done by government, as Balcha argues, Ethio telecom, which is under the control of the government, has expanded telecommunication services across the country by enabling access to fixed, mobile and internet. According to Balcha's explanation, among ICT developments in Ethiopia, e-government, ICT village and private sectors promotion is taken as major improvements in the country. For Balcha, the e-government strategy that came into effect since 2011 has brought improvements by visualizing the implementation of 219 e-services comprising of 79 informational and 140 transactional services over a five-year period. Additionally, Ethiopia's first information technology park which is named as "Ethio ICT Village" is also inaugurated and started operation recently. The IT Park has several functional zones like business, assembly and warehouse, commercial, administrative

and Knowledge Park. The primary focus of the park is to attract IT manufacturing, development of the IT services industry and Business Process Outsourcing (BPO).

Regardless of some improvements that government has made to change the status of ICT status in Ethiopia, the country remains the lowest level according to different international ICT standards and measurements. For example, Adam (2012) argues that a review of the International Telecommunication Union (ITU) ICT Development Index (IDI) and the World Economic Forum (WEF) Networked Readiness Index (NRI) indicates that, despite marginal improvement, Ethiopia remains one of the least connected countries in the world. The World Bank also ranked Ethiopia 111th out of 183 countries for "ease of doing business" in its doing business report 2012.

4.2.2. Ethiopia's ICT Policy

Though Ethiopia is striving to exploit opportunities that could be attained by effective use of ICT, for a long, the country has faced a challenge to meet the growing interests in the ICT due to the failures in policy and regulatory instruments available to enable its development (Adam, 2010). To assess the policy and regulatory failures in the process of ICT development in Ethiopia, Adam attempts to review Ethiopia's successive development programs that consider ICT as an instrument of development. For example, in Ethiopia's Sustainable Development and Poverty Reduction Program (SDPRP), ICT is taken as a major component. Similarly, in Plan for Accelerated and Sustainable Development to End poverty (PASDEP) that run over 2005 to 2010, this development policy has mentioned five central plans that directly related to ICT. Adam (2010) has mentioned the PADEP's ICT related plans such as supporting human resource development in the ICT field; giving a main concern to the use of ICT sectors in different aspects of the economy including in the administration of government institution; developing the essential telecommunication infrastructure; promoting research and development through ICT; and creating enabling legal and regulatory framework.

Above all, Ethiopia's national ICT policy document which comes into effect by 2009 is thought to be very comprehensive as it attempts to consider wider issues that need to be included in the ICT policy making process (Ethiopian National ICT Policy, 2009). Assuming objectives of ICT policy as essential components of the broader country's socioeconomic development goals and objectives, the focal point of the policy is happened to be: 1) ICT infrastructural investment, 2)

human resource development, 3) ICT's legal systems and security, 4) ICT for governance (E-Government), 5) ICT industry and private sector development, and 6) ICT for research and development (Ethiopian National ICT Policy, 2009).

As Ethiopia's ICT policy gives considerable attention to ICT investments, its objectives seem to be flawless and very impressive. However, Adam (2010) argues as there is a clash between government policy objectives for improving affordable access to ICTs to individuals, households, businesses and institutions and regulatory and policy instruments available to enable it. Considering Ethiopia as one of the few countries that has maintained a government monopoly over its fixed, internet and mobile markets, Adam argues as the current low status of ICT development in the country is mainly attributed to the well entrenched market monopoly structure by public sector. For Adam, Ethiopia's ICT policy objectives contradict with instruments that government uses to attain such objectives. His argument can be stated as follow:

> The sector is characterized by incongruence between the broad policy objective of increasing access and the instruments the government uses to achieve that. Although the public monopoly is often regarded as an instrument for expanding the core network due to the capital investments and economy of scale that makes a single provider more effective, analysis below shows that Ethiopia's adherence to a natural monopoly has been detrimental to the development of its ICT sector (Adam, 2010, p. 3 & 4).

4.3. ICT Investment in Kenya

4.3.1. ICT Development in Kenya

According to Peake's (2013) assessment of Kenya's ICT development, this sector has witnessed a dramatic change and has done better than all other segments of the economy, by growing 23% over 2000 to 2011. For Peake, success stories or achievements of ICT sector in Kenya is mainly attributed to the success of mobile penetration and innovation of new services associated with mobile phone, particularly mobile money banking and apps that are highly connected with Kenya and even such innovations become as source of reputation for the ICT status of the country.

Kenya's Ministry of Information and Communication (2006) has also indicated that the country's ICT sector has demonstrated a considerable growth. Such change is clearly observed particularly by the expansion of the number of telephone lines, Internet Service Providers (ISP), the number of internet users, broadcasting stations, and market share of each one of them. As general rule, Kenya's progressive improvement in ICT sector is mainly as a result of government's intervention through liberalization of the mobile cellular market (ibid.).

Following Kenya's announcement of implementing a technology-neutral unified licensing framework (ULF) in 2004, the country has started to exploit the opportunities that come out of technological advancements (Waema & Ndung'u, 2012). For Waema and Ndung'u, the principle of technological neutrality is meant to allow any form of communication infrastructure to be used to provide any type of communication service as Kenya has licensed operators and service providers based on three types of provisions to ICT market. According to the authors, the three types of provisions include network facilities provider (NFP), which provides infrastructure systems for long-distance transmission and for local access; application service provider (ASP), which provides all forms of services to end-users, using the network services of an NFP provider; and content service provider (CSP), which provides services such as broadcast (TV and Radio) content, and other information and data processing content services. Apart from content service provider, in exceptional case separate license has been given to internet service providers (ISPs) to offer voice over internet protocol (VoIP).

In general, Waema and Ndung'u (2012) argue that following the implementation of unified license framework (ULF), Kenya's ICT development has moved a step forward as it has simplified licensing procedures, encouraged development of new applications, and has contributed to rapid growth of penetration and availability of mobile internet as well as increased infrastructure. It has also allowed the mobile telephone operators to also become Kenya's biggest providers of Internet services.

With the implantation of unified license framework (ULF), several companies are started to operate in Kenya's ICT sectors including in the mobile service sector such as Safaricom Kenya, Airtel Networks Kenya, Telkom Kenya (Orange), and Essar Telecom Kenya (Yu); in the fixed services like Telkom Kenya and Popote wireless ; and in internet and data services, there also four mobile operators, the two network operators and ISPs such as Kenya Data Networks

(KDN), Jamii Telecom, Access Kenya and Wananchi Online (Waema & Ndung'u, 2012). Apart these companies, there are also numerous ICT initiatives and projects in Kenya that operate across the country. These ICT initiatives and projects include the laptop programme, Digital Inclusion Projects (Pasha centers/Digital Villages, Wezesha intiative), Business process out sourcing, local Content Programme (Tanda Digital Contenet Grants, Open Data Portal), information security and other initiatives (Konza Technology Park, Zero related taxes on imported ICT hardware, e-Government, Skills programmes) (IST-Africa, 2014).

4.3.2. **Kenya's ICT Policy assessment**

Before reviewing the current ICT policy of Kenya, it will be important to examine critically what was the political implication of ICT in Kenya's political history. To start with, it was Moi administration that observed ICTs with great suspicion throughout 1990s. Such distrust towards ICT was developed in the assumption that the anxiety that computers might cause loss of state secrets or pose a threat to national security. On top of that computers were assumed to increase unemployment by taking away jobs. However, such suspicious could not stop the growing demands of using ICT in the country. Following the internal and external pressures, the government was forced to change its governance policies and introduced multiparty system by 1991. In fact one of main factor that influenced Moi administration to change Kenya's political landscape was from within, the growing skills and knowledge of the opposition to use new technologies so as to mobilize the Kenyans (CIPIT, 2015). And finally, Moi regime also witnessed the introduction of new technologies such as the computer and internet. This gave rise to greater political and press freedom including the liberalization of the media and communication sectors that would occur under President Kibaki.

However, officially, the 2006 policy development process was started in 2003 with the intention that it addresses the perceived lack of direction on ICT. This is clearly stated in the country's national development policy, the Economic Recovery Strategy for Wealth and Employment Creation (2003-2007), in which the role of ICT is well recognized in all aspects of development including in social and economic aspects. At that time, three main factors were mentioned as crucial factors to formulate the 2006 ICT policy of the country. These triggering factors include "the fast and haphazard growth of information technology that lacked direction and regulation; the desire to develop the national ICT policy guidelines to steer development of ICTs in order to

address the disorder; and the readiness of UNESCO to fund the process" (Waema, 2005, p.25). The intention of the planned policy is to assist sustained economic growth and poverty reduction; to encourage social justices and equity; mainstream gender in national development; enable the youth and disadvantaged groups; inspire investment and innovation in ICT; and attain universal access.

Initially Kenya has developed ICT policy by 2006 and it was made public through unusual issue of the Kenya Government Gazette (MoIC, 2006). As is stated that, Kenya's vision of National ICT Policy in 2006 is "a prosperous ICT-driven Kenyan society", and to that effect its declared assignment is "to improve the livelihoods of Kenyans by ensuring the availability of accessible, efficient, reliable and affordable ICT services" (Waema & Ndung'u, 2012, p.4).

In order to develop Kenya's National ICT policy (NICTP), the country's policy makers have relied on globally accredited standards and models as bench mark, especially the COMESA Model which was developed by the COMESA Council of Ministers in March 2003, is used as the best practice (Kenya's National ICT Policy, 2006). Accordingly, the NICTP is premised on four guiding principles: 1) infrastructure development 2) human resource development 3) stakeholder participation 4) appropriate policy and regulatory framework (ibid.).

Understanding a growing digital divide between its country and the other world and as well as between the rural and urban areas of the country, Kenya's government has given a prior attention to the sector and put an effort to bridge a digital divide and harness an opportunities provided by the sector. To put this into effect, under the supervision of Ministry of Information and Communication, four committees have been established to undertake the ICT policy formulation process (Kenya's Ministry of Information and Communication, 2006). The policy formulation process was in form of consultations that followed a three-tier approach at the national, provincial and district levels with stakeholders that included the Private Sector, Civil Society, Development Partners and local communities. This approach led to the formation of a National Steering Committee of stakeholders charged with the responsibility of spearheading consultations and ensuring inclusion at all levels; and chaired by Minister for Information and Communication. Also involved in the process were Kenya's development partners; civil society representatives and government officials. The government has implemented ICT policy reforms between 1999 and 2006 which resulted in a number of structural changes in the ICT sector.

The Kenya ICT policy was approved and published in 2006. The publishing was followed by implementation of the strategy that was faced by various challenges. The Kenya ICT policy was approved and published in 2006. The publishing was followed by implementation of the strategy that was faced by various challenges. Like other developing countries, Kenya's major challenge of exploiting opportunities provided by ICT is that the problem of implementation of the policy and ineffectiveness to use the sector for economic growth and poverty reductions. As Kenya Gazette (2006) notes, detailed challenges of Kenya national ICT policy may consist of lack of a all-inclusive policy and regulatory framework, lacking infrastructure, and inadequate skilled human resources. From these weaknesses and challenges, Kenya saw a need of reviewing the policy to address the observed weaknesses and challenges, synergies in ICT policies and harmonize regional policy framework in order to achieve the set objectives (ibid.).

Waema et al. (2010) state that following the 2007 review of Kenya's ICT sector, considerable changes have been viewed in the telecommunication sector of the country. In terms of policy issues, the progresses that have been witnessed in the country include the "establishment and implementation of the interconnection guidelines in 2007, the strategic positioning of the ICT sector in Kenya Vision 2030, the passing of the Kenya Communications (Amendment) Act, 2009, and the introduction of new regulations in 2010 that address the interconnection issues, anti-competitive practices and dominance issues" (p.36). More specifically, the remarkable change that happens in the ICT development of the country is the landing of three maritime fiber-cables at the coastline of Mombasa in 2009 and 2010. These fiber-cables have contributed to the reduction of price of ICT services and become the main factor for the opening of further value added services that could benefit all clients (ibid.).

Understanding the ICT status of the country in different aspects, the Waema with his co-authors have highlighted the details of weaknesses in relation to the ICT policy, legal framework, ICT institutional framework, broadband infrastructure and services, ICT funding, regulation and anti-competitive behavior. For example, in terms of national ICT policy of the country, the authors have indicated how much the ICT sector is very dynamic and complex that could not be well addressed by the country's national ICT policy developed by in 2006. Thus, the authors suggest the need to evaluate the existing ICT policy and institutional framework in order to sketch the new policy formulation and implementation that can go in line with the country's ICT vision

2030. Furthermore, the authors have pointed out that ineffectiveness and absence of transparency in the process of accessing spectrum, prevalence of high ineffective tariff regulation, absence of accurate ICT data availability and weakness of the Kenya's government to provide enough e-services to business and the public.

4.4. ICT Investment in Ethiopia and Kenya: Comparative assessments

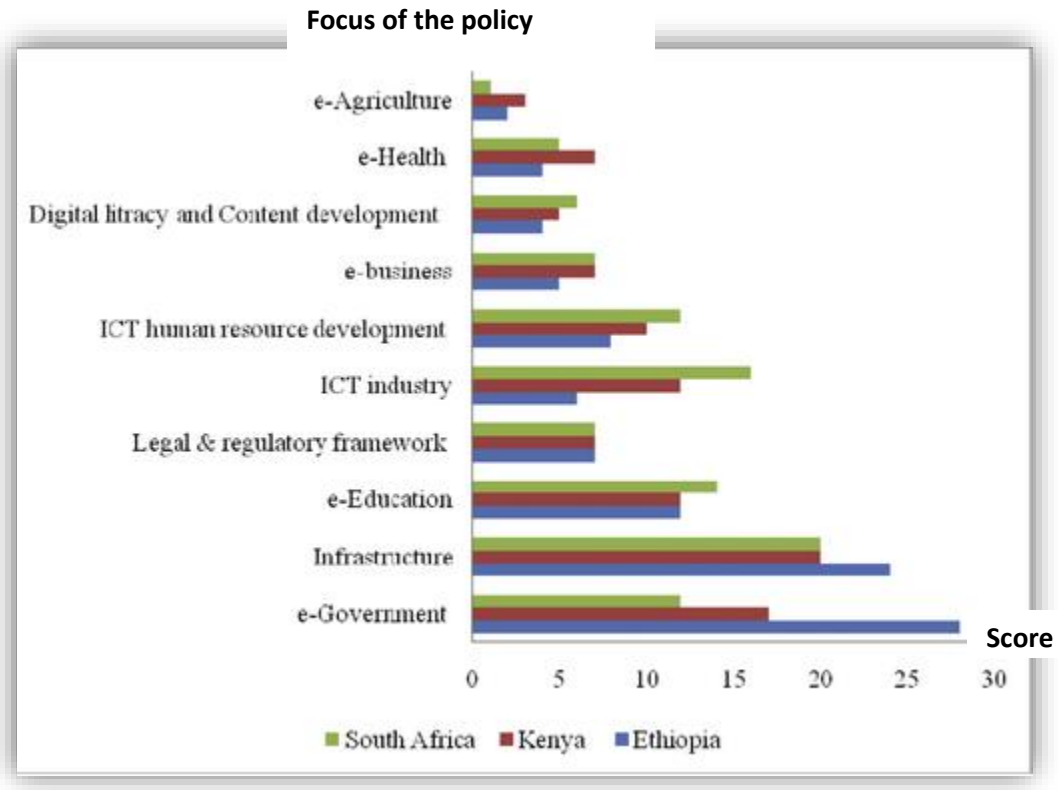
In this section, the study attempts to examine and compare ICT policy of both Kenya and Ethiopia and it also compares the ICT status of the respective countries on different aspects of ICT initiatives and investments including infrastructure and services.

4.4.1. Comparing ICT Policy

Labelle (2005) suggests that in order to make an effective ICT policy that assures the maximum possible investment or diffusion of ICT, the following requirements need to be met: 1) the objectives of the policy has to match with national needs, ambitions, specificities and concerns, 2) the policy makers need to have a complete knowledge about unique characteristic features of the sector by using the best information and intelligence available, 3) in the policy making process, participation of all stakeholders are required, and finally, 4) the intended policy has to take into account local, national and international issues, on top of the sectoral concerns. Based on Labelle's set of requirements in ICT policy making process, the present study has assessed the national ICT policies of Ethiopia and Kenya.

By identifying the main focuses of the respective countries ICT policy, Rufeal (2009) has attempted to use basic ICT policy review criteria in order to compare the case of three African countries including South Africa, Ethiopia and Kenya. Based on the areas of considerations given by each country's ICT policy, Rufeal has attempted to compare as it is shown in the following figure.

Figure 2: Comparing ICT policy of the three countries



Source: Adapted from Rufael Fassil (2009, p.124)

As figure 2 has indicated, as compared to Kenya and South Africa, the focuses of Ethiopia's ICT policy is on e-government and infrastructure. Whereas, Kenya's ICT policy has given more attention to ICT human resource development, ICT Industry and E-education as compared to Ethiopia. As shown in the figure 2, ICT policy of the three countries has relatively less focus on the e-agricultural as compared to on the other sectors. By this figure, Rufael attempts to show to what extent the ICT policy of the three countries are pro-poor.

As general rule, though different stakeholders are required to participate in ICT policy making process, in case of both Kenya and Ethiopia not only the participation of different stakeholders but also ICT policy formulation process is not clearly mentioned (Kenya's National ICT policy, 2006 and Ethiopia's National ICT policy, 2009).

Rufael (2009) has tried to compare the ICT policy of two countries in terms of implementation mechanism, monitoring and evaluation mechanism and the state of ICT regulatory environment. As Rufael argues, Ethiopia's ICT policy implementation mechanism is fully centralized as the central government has taken the responsibility to define and implement the policy. In this case, the Ethiopian Information and Communication Technology Development Agency has been assigned to implement, monitor, evaluate, regulate, and verify ICT activities on a constant basis. According to Rufael, EICTDA operates under the direction and management of the prime minister offices. On the same way, Adam (2010) argues that apart from consulting, and on occasion making coordination with a few key stakeholders, country level programs that appear to advance ICT development in Ethiopia is still under the control of EICTDA. On the other hand, according to Rufael, Kenya's ICT policy tends to have a decentralized implementation structure in which different government ministries, agencies, the private sector and civil society are responsible for defining and implementing parts of ICT policy and strategy. with the belief that successful ICT strategy will depend on the active participation of all sectors of society and the economy, including the beneficiaries, Kenya's national consultative forum is established from different stakeholders including academia, government, the private sector, and civil society. Implementation partnerships are termed at the provincial level, where the ministry of information and communications are responsible for implementation of the ICT policy and strategy.

Rufael has also used monitoring and evaluation mechanism as one of ICT policy review apparatus in order to evaluate the results and assess the impacts of ICT initiatives in enhancing the capabilities of the end users. In this regard, according to Rufael, though Kenya and Ethiopia have used different approaches in both structure and budgetary aspects of monitoring and evaluation, performance of the both countries are taken as better even as compared to South Africa. For example, Ethiopia's ICT policy lays out in explicit detail institutional responsibilities for monitoring and evaluation and how monitoring and evaluation activities are to be integrated in the implementation process. On the other hand, Kenya has created projects that focus on data gathering and analysis as separate initiatives of its larger strategy.

The other important and valuable comparing mechanism used by Rufael (2009) and other studies such as Esselaar et al (2007) is that the state of ICT regulatory mechanism. In terms of ICT regulation environment, as compared to Ethiopia, Kenya's performance is rated far better than

Ethiopia. As Esselar et al (2007) argued that, Ethiopia's current ICT status is attributed to its poor regulatory environment. Esselaar et al (2007:32) has stated the case as: "Ethiopia's poor showing appears to result from its continued monopoly in fixed, mobile and internet services. Recent initiatives to introduce competition in the internet market did not bear fruit, despite international pressure to liberalize that market segment. It also faces a significant capacity challenge in the allocation of scarce resources".

4.4.2. Comparing ICT for Development Initiatives

As is stated in the previous section, national ICT policies of both Ethiopia and Kenya are directly or indirectly influenced by external powers such as developed countries, international organizations and international financial institutions. However, this does not mean that these countries have not taken into account their domestic political economic contexts. One way or another, these countries have attempted to consider their respective countries internal political economic contexts in their national ICT policy. Additionally, as is discussed in political ideology of ICT for development movements in Africa, the major actors of ICT for Development initiatives are mainly from external, which are neither from the continent nor from the individual countries. Based on these assumptions, this section attempts to examine the existing ICT for development initiatives in these two countries by giving an emphasis on stakeholders involved in such initiatives, project duration, and geographic scope, and finally evaluates failures and success associated to such initiatives.

Currently there are several ICT initiatives in both in Kenya and Ethiopia. For example, as IST-Africa mentioned, ICT initiatives and projects that are currently undertaking in Kenya such as the Laptop Programme, Digital Inclusion Projects (Pasha Centres/Digital Villages, Wezesha Initiative), Business Process Outsourcing, Local Content Programme (Tandaa Digital Content Grants, Open Data Portal), Information Security and Other Initiatives (Konza Technology Park, zero-rated taxes on imported ICT hardware, eGovernment, Skills Programmes). On the same way, IST-Africa points out a number of ICT initiatives in Ethiopia including the National Data Set; National Enterprise Service Bus (NESB); Public Key Infrastructure (PKI); Ethio ICT-Village; WoredaNet; Integrated Financial Management Information System; ICT Business Incubation Centre; EthERNet (Ethiopian Education and Research Network) and SchoolNet.

Based on the current ICT status, failures and success of these initiatives in both countries, relatively ICT initiatives in Kenya is far better than that of Ethiopia. Understanding the huge difference between the two countries' ICT status, may be, trying to put Ethiopia by the side of Kenya seems to compare the incomparable. These led to hot debate among ICT professionals and other academic circles such as political economists. For example, as the research participants mentioned, in Ethiopia almost all of the ICT for development initiative is run by government and, as a result, such initiatives have limited amount of funds from external. In contrary, in Kenya the role of civil society and private organizations is very strong as compared to the government. Almost all of the ICT for development initiatives are run by civil society organizations, private sectors and public-private partnership.

One of the research respondents has mentioned the challenges of comparing ICT status of the respective countries provided that the two countries have their own contexts. As is directly quoted,

> On the basis of its internal contexts, Kenya's ICT policy and strategy allows foreign companies in its telecommunication industry. It is impossible to compare Kenya's ICT development with that of Ethiopia as they have their own internal contexts. Kenya and Ethiopia differs from one another in terms of population size, geographical landscape and size, illiteracy rate and, also historically, Kenya differs from Ethiopia (Tizazu [12], personal communication on April 6, 2016).

This argument leads to the assumption that Kenya was under the colony of UK for a long as a result it may not be as challenging as the case of Ethiopia, in order to engage foreign companies in telecommunication sector. For example, as language is one of the big issues in the ICT development, almost all of Kenyans happen to be fluent in English provided that it was under colonial history. But when it comes to Ethiopia, it has no such exposure in its history.

4.4.3. Comparison of ICT status in Ethiopia and Kenya

There are wide ranges of international standards and measurements that have been used to compare the ICT status of the countries. The main ICT status measurements and standards consist of ICT development index, ICT opportunity index, Digital opportunity index and

[12] Ethio Telecom manager

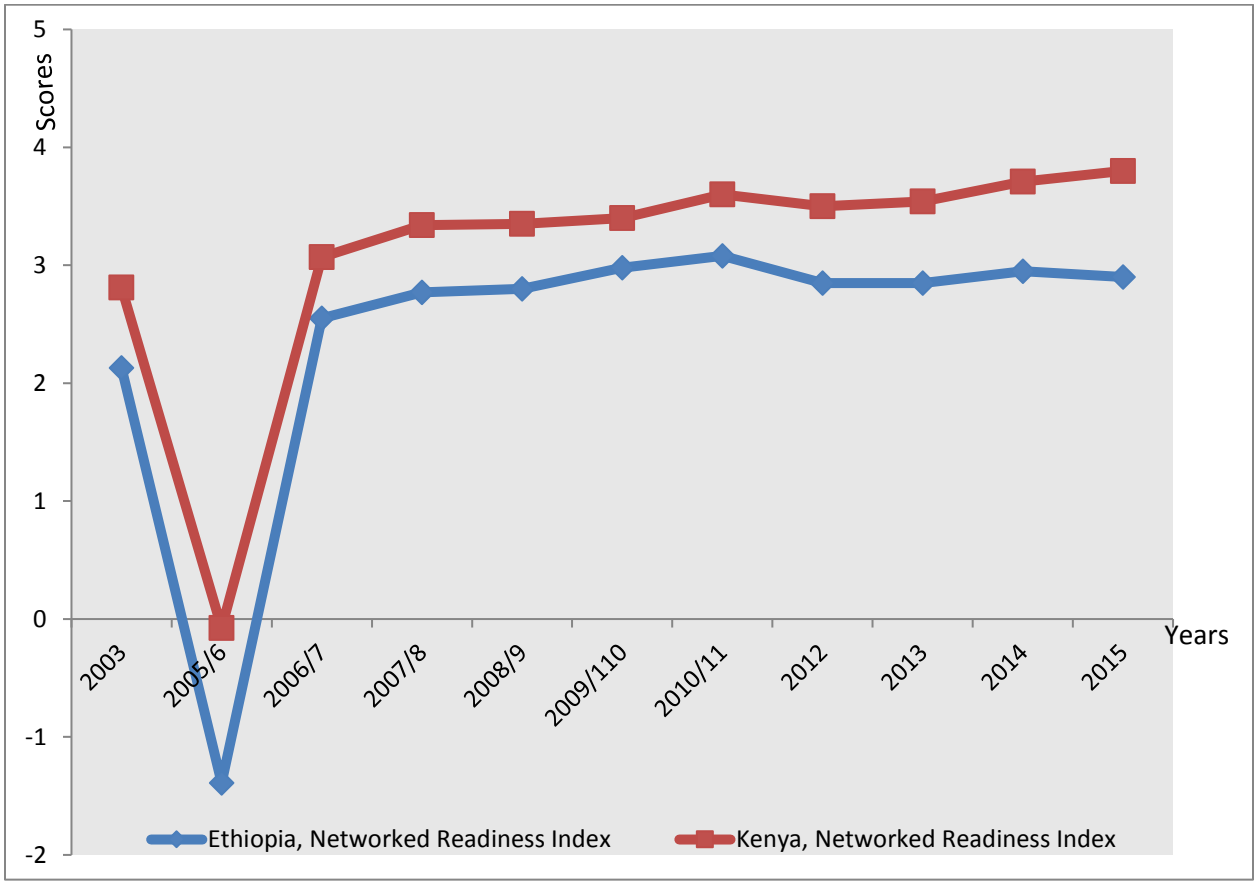
Networked readiness index. These standards and measurements have their own weaknesses and strengths and they also differ from one another based on their focus and ICT indicators intended to be used. For example, ICT development index (IDI) is a standard tool developed by ITU to measure the digital divide and compare ICT performance within and across the countries. IDI is currently used by different stakeholders including governments, operators, development agencies, researchers and others (ITU, 2009).

On the other hand, Networked Readiness index (NRI) framework that has been introduced and developed by The World Economic Forum in collaboration with INSEAD measures the tendency and readiness of the countries to harness the opportunities gained by ICT (GEF & INSEAD, 2001). As the main objective of the current study is to examine the political economy of ICT investment, NRI seems to be the proper standards to measure and compare the ICT status of Ethiopia and Kenya.

As the major objective of Networked Readiness Index (NRI), which is originally developed by World Economic Forum, is aimed at evaluating the effects of ICT on the social, political and economic readiness of the countries across the world, the focus of NRI measurement include environment, readiness, usage and impact (IGI Global, 2016). To explain the significance of using Networked Readiness Index that help measure the status of ICT across the countries, IGI Global (2016) has discussed the four components of NRI as follow. In terms of environment, political and regulatory systems are measured to understand to what extent they have a contribution in promoting the economy by using ICT and creating suitable business environment which in turn encourages creativity and innovations. Whereas, readiness evaluates the capacity of having an infrastructure and the benefits obtained through access to ICT. Additionally, it quantifies the expenses of accessing ICT and also measures the capacity of manpower and skilled labor so as to use effectively the accessed ICT services. The other components of NRI is measuring usage, which aims to assess to what extent different sections of the community is putting an effort to use ICT in their day to day activities. From government point of view, usage can be also recognized as a mechanism through which effectiveness of ICT policy implementation is measured. The last components of the NRI are measuring the impact, which aimed at examining the role of ICT in social and economic aspects of the country.

As general rule, "The Networked Readiness Framework and its components provide not only a model for evaluating a country's relative development and use of ICT, but also allow for a better understanding of a nation's strengths and weaknesses with respect to ICT" (Duta et al., 2004, p.4). This indicates how much NRI has become an internationally well accepted standard of measurement that gives inclusive and well established assessments with reference to the ICT development of the countries across the globe.

Figure 3: Comparing Ethiopia & Kenya by Networked Readiness Index (Scores)

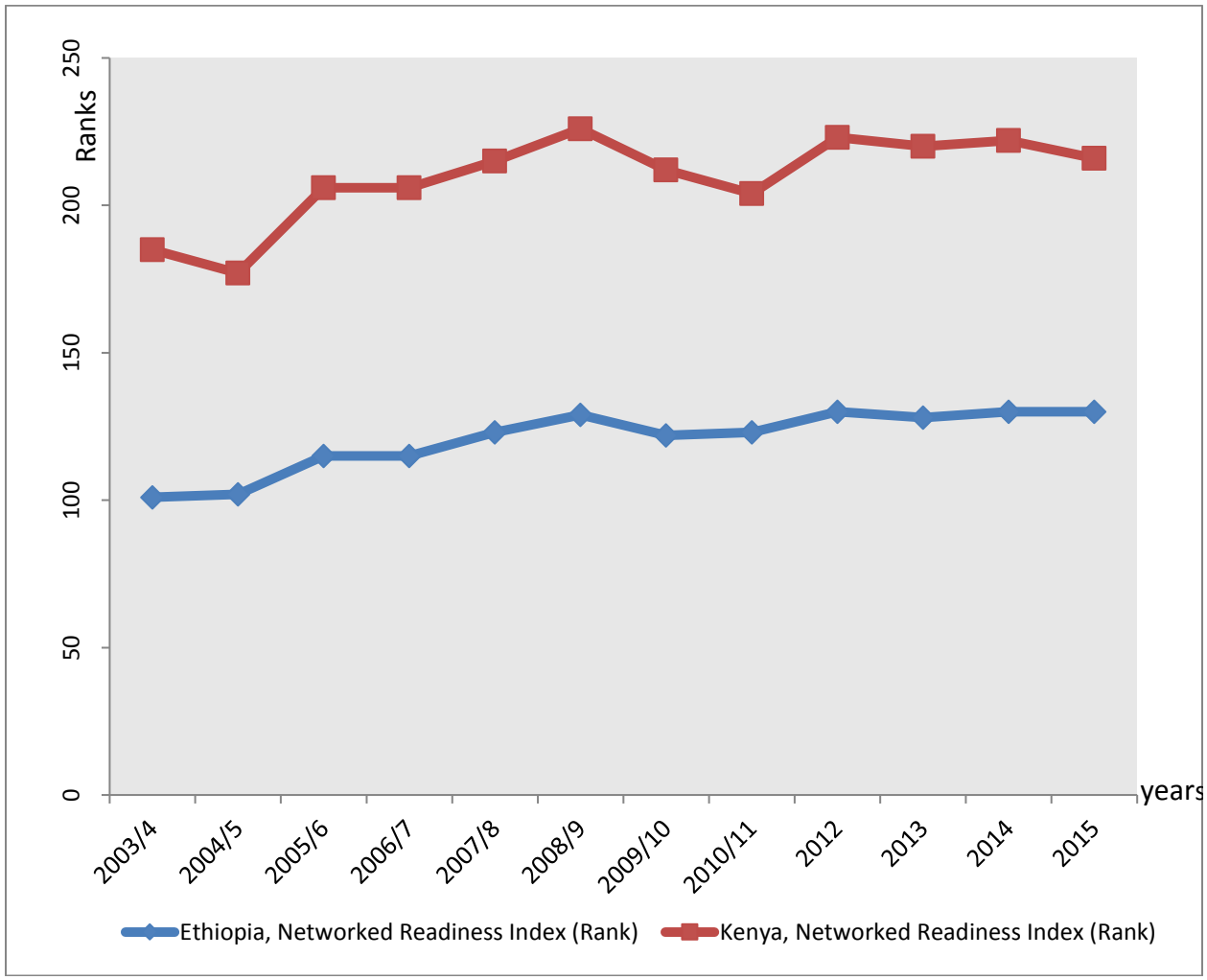


Own computation from World Economic Forum and INSEAD (2016)

As figure 3 illustrates, Ethiopia's NRI score is lower when compared with Kenya. As Ethiopia is lower than Kenya with respect to ICT competitiveness, the figure implies that Ethiopia need to make improvements on some of the inadequacies with regard to the sector. This evaluation also suggests Ethiopia to take the advantage of ICT by scaling up investment in the sector and

encouraging policy issues for the advancement of telecommunication infrastructure and the allocation of ICT applications in all sectors.

Figure 4: Comparing Ethiopia & Kenya by Networked Readiness Index (Rank)



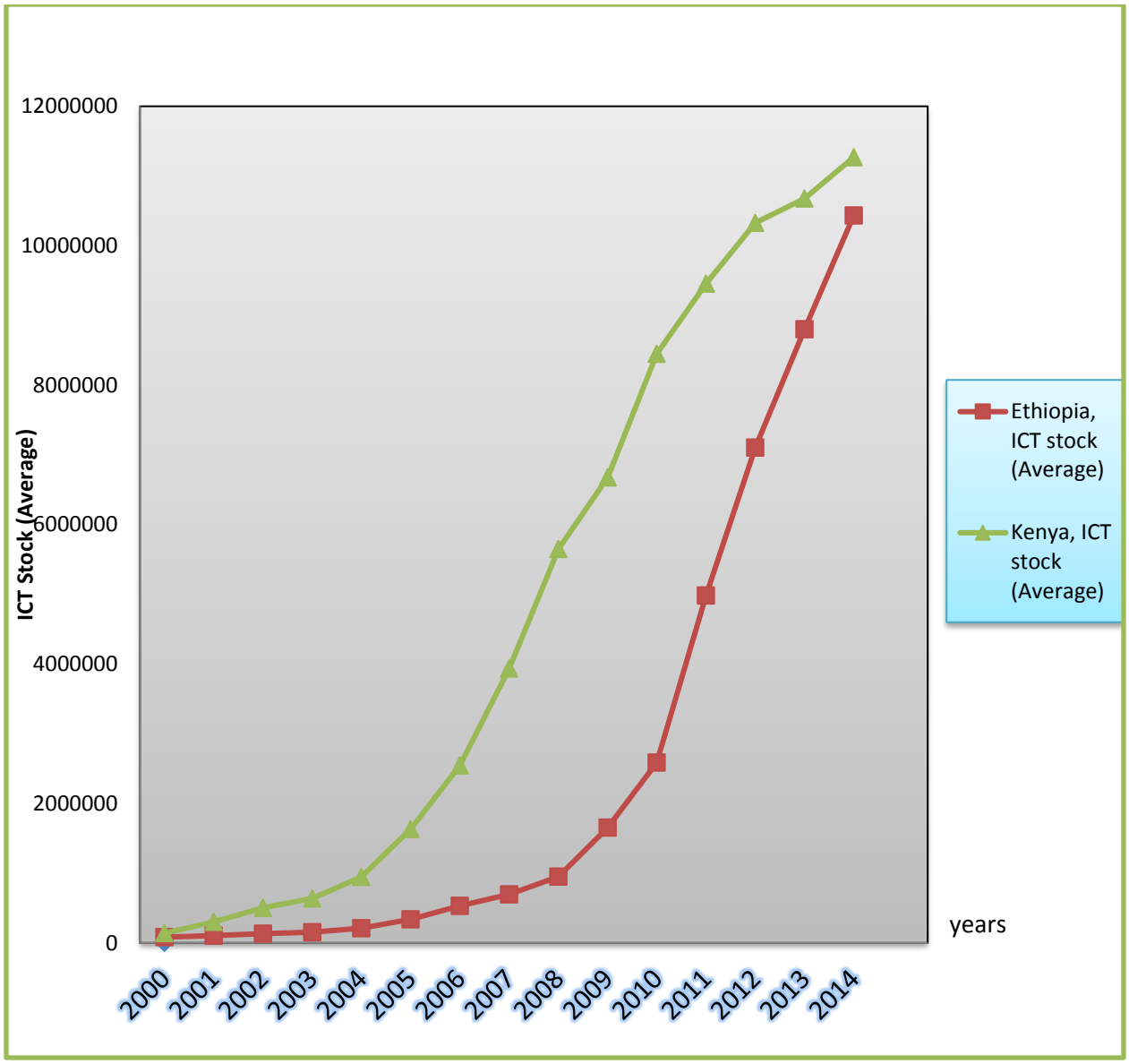
Own computation from World Economic Forum and INSEAD (2016)

Figure 4 indicates to what extent Ethiopia lagged behind Kenya in terms of ICT development. According to the figure, as compared to Kenya, Ethiopia is behind many of developing countries and its competitiveness to harness opportunities provided by ICT is less than Kenya. The figure also indicates as Ethiopia should improve its rank of economy readiness and policies to accelerate productivity or development using ICT by facilitating the country's environment for

ICT, the readiness for society for ICT, actual usage of citizens or society and the readiness of the society for ICT.

Additionally, by taking the average of the three commonly known ICT indicators such as mobile subscription per 1000, fixed telephone lines per 1000 and individual internet users per 1000, this study attempts to measure the ICT status of Ethiopia and Kenya. The three ICT indicators are assumed to be significant to measure ICT investments of developing countries. Thus, by taking a data from annual reports of ITU over the period of 2000 to 2014, the following figure shows comparison of Ethiopia's and Kenya's ICT investment.

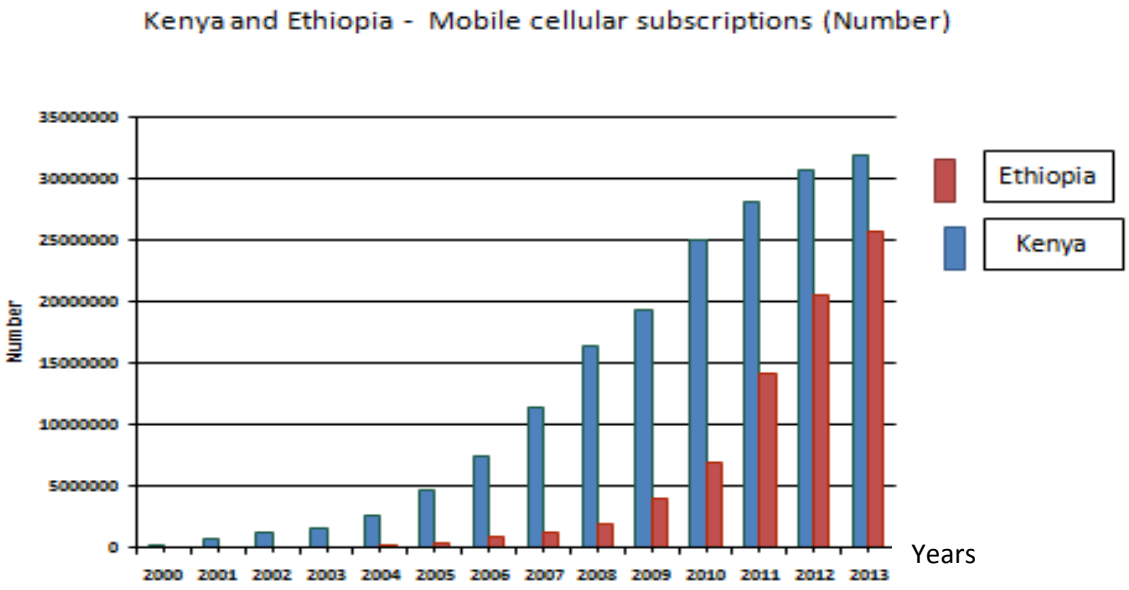
Figure 5: comparing Ethiopia & Kenya by three Key ICT indicators (Average)



Own computation from ITU (2016)

Figure 5 shows to what extent Ethiopia's ICT status is lower than Kenya. As is observed from the figure, the average of the three ICT indicators is rapidly growing in both countries. However, there is a considerable difference between Ethiopia and Kenya. As compared to Ethiopia, Kenya's status in the average of the mobile subscription, fixed telephone subscribers and individual internet users is very high. This indicates to what extent Kenya's taking the advantage of ICT in its political economic performances. On the other hand, the figure clearly shows as Ethiopia is still behind to harness an opportunity provided by the three ICT indicators.

Figure 6: comparing mobile cellular subscriptions



Own computation from ITU Global Telecom Indicators (2016)

Figure 6 shows that in terms of mobile cellular subscription Kenya is by far better than Ethiopia. Like Kenya, over a few years, the trend of mobile usage in Ethiopia shows the rapidly growth over a few years.

Table 2: The comparison of infrastructural capabilities between the two countries

Comparing ICT/Telecommunication status		
	Kenya	Ethiopia
Telephone system	**general assessment:** inadequate; fixed-line telephone system is small and inefficient; trunks are primarily microwave radio relay; business data commonly transferred by a very small aperture terminal (VSAT) system **domestic:** sole fixed-line provider, Telkom Kenya, is slated for privatization; multiple providers in the mobile-cellular segment of the market fostering a boom in mobile-cellular telephone usage with teledensity reaching 65 per 100 persons in 2011 **international:** country code - 254; landing point for the EASSy, TEAMS and SEACOM fiber-optic submarine cable systems; satellite earth stations - 4 Intelsat (2011)	**general assessment:** inadequate telephone system with the Ethio Telecom maintaining a monopoly over telecommunication services; open-wire, microwave radio relay; radio communication in the HF, VHF, and UHF frequencies; 2 domestic satellites provide the national trunk service **domestic:** the number of fixed lines and mobile telephones is increasing from a small base; combined fixed and mobile-cellular teledensity is roughly 15 per 100 persons **international:** country code - 251; open-wire to Sudan and Djibouti; microwave radio relay to Kenya and Djibouti; satellite earth stations - 3 Intelsat (1 Atlantic Ocean and 2 Pacific Ocean) (2011)

Broadcast media	about a half-dozen large-scale privately owned media companies with TV and radio stations as well as a state-owned TV broadcaster provide service nation-wide; satellite and cable TV subscription services available; state-owned radio broadcaster operates 2 national radio channels and provides regional and local radio services in multiple languages; a large number of private radio stations broadcast on a national level along with over 100 private and non-profit provincial stations broadcasting in local languages; transmissions of several international broadcasters available (2014)	1 public TV station broadcasting nationally and 1 public radio broadcaster with stations in each of the 13 administrative districts; a few commercial radio stations and roughly a dozen community radio stations (2009)

Source: adopted from CIA factbook, 2016

Chapter Five

Political Economy of ICT Investment in Ethiopia

As one of the objectives of this study is to examine the political economy of ICT investment in Ethiopia, this chapter attempts to assess to what extent ICT investment of the country depends on the political economic contexts of the country and external contexts as well. This chapter also provides explanations the reason why Ethio telecom has been kept under the control of government, highlight the main attributing factors for low status of ICT development in the country, and describe significance of cooperation in ICT sector, and finally explore challenges and opportunities of ICT Investment.

As is informed by theoretical and empirical research review, three main viewpoints from different schools of thought such as liberals, neo Marxists and critical realist have dominated in the ICT for development field of study. Understanding the theoretical stances and empirical evidences, this study attempts to use critical realist theory approach as a lens to examine the political economy of ICT investment in Ethiopia. In relation to the challenges of ICT development in Ethiopia, there are different arguments from different side. Almost many of the arguments that associate with the low status of ICT investment in the country are directly or indirectly related to government policy of telecommunication and ICT sector. Considering such debates, the researcher attempts to collect data from different participants of the study that are thought to have different perspectives pertaining to the challenges and opportunities of ICT development in the country.

5.1. Political economic contexts

This section attempts to present discourses about the current Political Economy of ICT in Ethiopia by looking into the internal contexts such as the government policies, institutional capability and historical incidents as internal contexts.

In the political economy of ICT investment in Ethiopia, the main debating issue happens to be whether Ethio telecom should be run by public sector or private sectors, or by public -private partnership so as to fully harness the opportunities from the company. Such arguments are inconclusive as study by Tewdros (2014) attempts to specify. While Ethiopian government

argues against allowing private sectors to invest in telecommunications towers, international financial institutions such as IMF, WB and WTO and other external actors and internal actors contend as state ownership and monopoly of the sector has led to low level of ICT development in the country. For emphasize, as Dagu notes, the process of Ethiopia's accession to WTO is extended to the next unknown years due to the failure of the country to allow the private sector and civil society organizations in telecom industry (Dagu[13], personal communication on April10, 2016).

The respondents of this study have been provoked by the issue raised, and they reflected their perspectives by arguing against and pro state ownership and monopoly in ICT/telecommunication sector. Yibekal argues against privatization of Ethio telecom have mentioned wider ranges of reasons why government has to retain telecom sector at least for a limited period of time (Yibekal, personal communications on February 19, 2016). Whereas, many respondents are against state ownership and monopoly of telecom sectors arguing that it is the main cause for the low status of ICT development in the country. For such problems, many of respondents suggest the public-private partnership as a remedy in Ethio telecom sector. Regardless of different lines of arguments highlighted by respondents of the study, the researcher attempts to synthesize the points of arguments by taking the central themes of the discussions.

5.2. Explanations for State Ownership of Telecommunication sector in Ethiopia

On the whole, the respondents of the current study have inconclusive implications pertaining to state ownership of Ethio telecom. Despite the contradicting views about state ownership of the sector, the main factors why telecommunication sector should be mainly run by government are elaborated separately. Respondents of the study have brought to light the reasons why telecommunication sector remains under the control of the government. As the respondents suggest that, the explanations why Ethio telecom is kept under the control of the government consists of: economic concerns, security perceptions and controlling political landscape, consideration of internal context of the country, government's enthusiastic inclination to ideology, and dedication to become "a big government", and giving priority to reduce digital divide.

[13] professor of Economics at Addis Ababa University

5.2.1. Economic issue as a pretext

One of the main reasons why Ethio telecom is controlled by government is mentioned as for economic value of the sector because it is assumed to be the main source of revenue. Economically, it seems that Ethio telecom is the backbone for the ongoing development in the country since it is also one of the requirements for the development. It accelerates other development projects. The Ethiopian national policy (industrialization policy) says that telecommunication sector should be under government monopoly for economic and development reasons. For many years, as respondents suggest that, the Ethiopian government takes a firm stand not to open up its telecommunications sector because the telecom sector is the primary source of income to finance mega projects such as the railway and telecommunication infrastructure development in high-cost rural areas. The government also claims that privatization of the sector will not go in line with the government's development program which aims to expand access to the under-served and marginalized populations.

On the other hand Robale[14] have challenged incumbent government's claims of huge amount of revenue generation from the sector, by signifying economic parameters in which the profitability and efficiency of the sector would have been much better if it was/is privatized.

5.2.2. Security perceptions and controlling political landscape

Respondents have pointed out political and security issues as the main reasons to control the Ethio telecom sector as well. With the assumption that controlling the sector is controlling the "state power", Ethio telecom is kept by the government for political and security reasons. Foreseeing how filtering and censoring communications would become challenging by the participation of non-state actors in the investment of telecommunication infrastructures, respondents mentioned as the incumbent government prefer to maintain the sector under its control in order to make use of it for political and economic security issues including to control and censor opposition groups including legally known parties.

Respondents of the study highlight that ICT is used by advanced countries and companies to make political and sentiment analysis, especially to know market potentials. Understanding such

[14] Professor of Economics at Addis Ababa University

global contexts, they have shown their assertiveness as political and security issues could be the main reasons to control Ethio telecom sector as well. Almost all of the respondents suggest that the significance of using technology for national and social security purposes. For example, as one respondent mentioned, "very recently Ethio telecom has revealed that by controlling technology device contrabands, it plans to prevent mobile frauds and steals, which seems to be for benefit of the society" (Mihretu [15], personal communications on April 10, 2016).

Apart from respondents from government institutions, all of the respondents have associated filtering communications with human rights violation, violation of individual privacy and freedom of expression and narrowing of political landscape. The respondents suggest that censoring and filtering communications of opposition groups, particularly legally known political parties may impose a challenge on democratization process of the country. People consider as government is watching over them through censorship mechanisms. May be, it is also a source of social insecurity that turn out to create disinterested society in any forms of political participations.

5.2.3. **Consideration of internal circumstances**

As respondents from government institutions highlight, internal contexts of the country is regarded as a good reason for a government not to allow participation of private sectors in the telecom industry. To mention some of internal contexts for ICT development in the continent, as one of the respondent of the study mentioned that, "all the 54 countries have their own needs, priorities, policies… depending on the circumstances and realties in the ground" (Taye[16], personal communications on April 7, 2016). Understanding their internal circumstances such as political and socio-economic factors, African countries could have different attentions towards ICT development. In this regard, the internal contexts of the country including history, population size, geography and level of development are emphasized as the main reasons to keep Ethio telecom under the control of the government.

Furthermore, to privatize the ICT sectors including telecommunications, at least the ICT status of the country is thought to be on certain level of development. In a country where, like Ethiopia,

[15] professor of Information Science at Addis Ababa University
[16] Deputy director of legal and policy issues at INSA

more that 80% its population lives in rural area, uneducated, with no access to infrastructure, low income and so on, suggesting the private sector would work better than the public sector is assumed to be unlikely.

5.2.4. Ideological enthusiasm and "a Big Government"

Ideology seems to be one of the triggering factors to control the telecom sector. Almost all of the respondents have emphasized that the development policy of the country is well informed by developmental state with the intention that huge sources of government revenues such as telecommunications, financial sectors and all that are required to be controlled by government in order to support the overall development of the country.

Such ideological implications could be also extended to political and security issues. Ideologically, in Ethiopia, there is a tendency to build a big government where the government portion is very strong as compared to private sectors and civil society wings. To this effect, holding sensitive and resourceful sectors like Ethio telecom appear to be very sound for a government. To elaborate further, as developmental state is supposed to be a proper ideology to achieve holistic development in the country; government is expected to play a prominent role in such activities by leading infrastructural developments.

5.2.5. Reducing digital divide within the country

Reducing digital divide within the country is supposed to be as one of the main factors why government needs to control the ICT sector. Though there is no conclusive suggestion drawn from respondents on such arguments, some of the respondents suggest that government feels responsible and accountable for its citizens and is a proper actor in bridging digital divide in the country as compared to private sectors. As this is further elaborated, the private sectors often need profit and do not care to serve the interest of the poor and remote areas. As private sectors only run after profit and look for market, they do not want to take any risks including losing profits and markets and they only interested in investing in some section of the society where profit supposed to be generated. Such practices could not bridge digital divide rather increase the inequality among the citizen. In order to make the service inclusive for all by providing telecom infrastructure and services to remote areas like pastoralists, the government is expected to interfere and take the responsibility by maintaining the ownership of Ethio telecom sector.

To elaborate this issue further, some of the respondents mentioned as huge amount of money has been spent by government so as to expand telecom infrastructures and services in the remote areas including in pastoralist. In general, at this moment giving telecommunication sector to the private sectors and foreign stakeholder is sought to be detrimental as the sector is not on the right stage.

5.3.Causes of low status of ICT development

As is argued in the review of literatures, most of African countries are still lagging behind in terms of ICT development. Wide ranges of reasons are mentioned as the cause for such low status of ICT in the continent. Given Ethiopia's low level status of ICT as remarked by different international standards, the researcher mainly intended to collect view points and explanations about the current status of the country in terms of ICT investment. Conclusively all of participants mentioned as Ethiopia ICT status happen to be at the low level even though they tend to give different explanations for that.

As respondents put forward, the reason why Ethio telecom remains to be at infancy may be goes along with the kinds of the government regimes and development policies that have been practiced by those regimes. In history of Ethiopian political economy, by different regimes and even within the same regime, different economic policies have been followed. For instance, before Derg came into power Ethiopia happened to follow feudal system and also it seemed to be the market oriented economy, during the derg regime it was fully centralized economic system as it was informed by socialist system (Alemayhehu, 2007).

In the history of EPDRF regime, Ethiopia happened to follow different development policies, including developmental state which has been introduced in 2002. Various studies by Teshome (2012) and Messay (2011) have presented different viewpoints to such changes. Teshome (2012) argues that Ethiopia changed the development paradigm after evaluating the impacts of structural adjustment over the period from 1991 up to 2002. On the other hand, Messay (2011) pointed out as developmental state has come into being in Ethiopia's political economy as a strategic move towards silencing the opposition parties and "to create the conditions for a long-term rule of Meles and his party by siphoning off popular support from opposition parties to the point of

making them irrelevant" (Messay, 2011, p, 3). On the same way, arguments forwarded to the current ICT status of the country appear to be an extension of different explanations with reference to Ethiopian development policies. On the whole, explanations for the low status of ICT development in Ethiopia is presented as follow.

5.3.1. State ownership and "monopoly" of the sector

As informed by diverse review of literatures, different stakeholders including government, private sectors, civil society organizations and even international actors involvement in the investment of the sector is presupposed to achieve ICT development. Respondents of the current study have mentioned as state ownership and monopoly have discouraged innovation and competitions in particular and ICT development in general. For example, as William argues, African countries that retain telecom sector under the government monopoly have less GDP per capita as compared to countries that allow competition in telecommunication sector (William, personal communications). In order to see well developed ICT/telecommunication sectors, as respondents highlight, the government has to consider three essential ingredients including market competition, private participation and effective regulation.

In Ethiopia, state ownership and monopoly of telecom sectors is stated as the main cause for the current low status of ICT development in the country. Unlike mining, railway and irrigation sectors, state ownership of telecommunication sector is suggested as not appropriate strategy to achieve ICT development. Respondents of the study emphasize as ICT sector is unique and very dynamic that requires to be supported by continuous innovations and various ways of dealing with everyday problems. As respondents suggest that, only competition encourages innovation. If there are competitions among sectors, there will be always innovation, and if there are innovations, there will be high level of ICT development in the country. Thus, absence of competition in the telecommunication sector is accounted as the main reason why Ethiopia is lagging behind in terms of ICT development.

To give further explanations, respondents like William and Yibeltal highlight that the contracts to companies from China's state company like ZTE has not particularly benefited the development of telecommunication in Ethiopia as it lacks competitive procurement procedures that tend to work better. In this regard, as one of the respondents of the study points out that, "at

the expense of its own procurement rules that require competitive bidding, the Ethiopian government has given the contracts to companies from China. Rather if it has given to privately owned telecom companies, it would have contributed more to the development of Ethiopia's ICT sector" (William, Personal Communication on January 27, 2016).

On the same way, French telecom orange that took Ethio telecom management contract for five years was mentioned as a monopoly. By monopoly, maximum profit could be extracted even in the absence of innovations. The primary driver of innovation is profit; people have to innovate to make things better, faster and cheaper. If they get profit easily without all trouble, they keep maintain their monopoly and extract profit, technically as has been said this is rent seeking, which means they control the market and they charge whatever they want without doing anything, without innovating, without improving service and customer satisfaction. In this regard, while Ethiopia's telecommunication sector was under France orange company, it was not fruitful as it was once more monopolized by the company, without any effort the company was able to extract huge profit. As one of respondent of the study has emphasized that, "France orange company's management of Ethiopian telecom industry was really the worst as it was on one hand a private company, which basically motivated by profit, and on the other hand it had monopolized the sector, which means it was able to generate profit without putting an extra effort (Yibeltal, personal communication on February 9, 2016). This implies that if government let any company to monopolize, the company does not have the reason to put extra efforts as long as it could get the chance to extract maximum profit easily.

5.3.2. Institutional challenges (weakness)

One of the main hindrances for ICT development appears to be lack of institutional capability in Africa as general and Ethiopia and Kenya in particular. Institution refers to organizational structures, process, and rule of law, accountability and transparency. In most cases it is a managerial issue. Lack of institutional capability like corruption is mentioned as the main factor for the low status of ICT development in Africa. Accountability and transparency is the core principle of democratic state. The success and failures of political economic development of a certain country may be relied on such institutional capability.

One of the issue mentioned as institutional weakness is that organizational issues including accountability and transparency. Concerning the accountabilities and transparency of Ethio telecom sector, the respondents tend to have contradicting viewpoints. For example, few of the respondents mentioned as Ethio telcom is based on process, each and every decision is made according to the delegation matrix. In order to make an accountable and transparent, the organization employs different mechanisms such as internal and external auditing, applying wide ranges of management tools such as Balanced Score card, Kaizen, and son on to boost continuous improvement and enhance efficiency. Additionally, in order to audit the process, it has a process department. To fight corruption, the organization has its own ant-corruption office and for issues beyond the department, there is federal anti corruption commission at national level.

On the other hand, the respondents have revealed lack of transparency and accountability in the sector. Respondents also mentioned as there is always lack of transparency when there is high level of government intervention in the sector. To elaborate lack of transparency and accountability in Ethio telecom sector, one of the respondents takes the case of Tunisia before Arab spring in which the Beni Ali family has an upper hand in both private and public sectors. As the public administration was less transparent, the Ben Ali family manipulated investment laws and concentrated in sectors that are subject to entry restrictions. Similarly, to mention institutional capability of Ethio telecom sector, the other respondent mentions that "the government which undermine people and consider itself as better than the other should be an authoritarian government and in such situations there could not be transparency and accountability" (Yibeltal, personal communications on February 9, 2016).

Overall the respondents are susceptible about the accountability and transparency of Ethio telecom sector which in turn gave rise to low status of ICT development. Majority of the respondents mentioned as ICT sector in the country is highly discouraged by the absence of institutional capability of the organization.

5.4.The significance of cooperation in ICT sector

There are wider ranges of reasons why cooperation from different stakeholder is sought to be important in Africa's ICT sector, especially in Ethiopia. Of all the reasons mentioned, the main

reasons why Ethiopia's ICT sector requires cooperation of different stakeholders consists of bridging digital divide between Ethiopia and the rest of the world, and overcoming the challenges and harnessing opportunities that could come as a result of the dynamic nature of the sector. As well as to make effective regulations that enables the African countries to protect their national and social security. Since technology is a neutral entity as the one goes a head takes the advantage, on the same way, Ethiopia should be neutral from ideology and employ any mechanisms that encourage ICT investment in the country and achieve ICT development. Respondents bring to light wider ranges of the reasons why Ethiopian government alone is not capable to bridge digital divide between the country and the other world by monopolizing the sector.

5.4.1. Bridging Digital divide with other world

The main arguments predominantly discussed in the ICT development is that bridging digital divide which refers to the growing gap between the have and have not. Africa as a continent and Ethiopia and Kenya as poor economies are lagging behind the rests of the world in terms of ICT status. Like ICT for development initiatives, bridging digital divide is also one of the initiatives that are ongoing by diverse foreign stakeholders such as WB, IMF, UN organs and developed nations in developing countries. With the assumption that Africa can catch up the developed nations by making use of ICT, bridging digital divide between Africa and the rest of the world becomes a big agenda by nations of the world.

As review of literatures indicated that as compared to Ethiopia, Kenya's ICT status is by far better. Respondents of the study also highlight that Kenya is dealing with the problem of digital divide by allowing different stakeholders including private sectors from both domestic and foreign companies and civil society organizations. Unlike Kenya, respondents have pointed out that Ethiopian government's effort to bridge digital divide of its country with other world seems to be limited as a result of its monopolistic tendency in the sector. Such monopoly has no manifestation of innovation and development of new technology as it simply aimed to extract revenue at the expense of the future generation. Ironically, as one of the respondent of the study mentions that, the current state of monopoly in Ethio telecom lead to broaden digital divide instead of bridging. This has negative effect not only on the current political and socio-economic

of the country, it has also negative effect even for the future generations. The participant is quoted as follow:

> Government is currently generating huge amount of money from telecommunication at the expense of future generation. If government continues monopolizing the sector, there will be no progress as monopoly does not encourage an innovation. There is a concept of digital native that refers to those grown up by using internet and technology. Ethiopia's current generation and the future generation is missing the opportunity to become digital native as digital divide between the country and the rest of the world is getting broader as a result of monopolization of Ethio telecom by government (Yibeltal, personal communications on February 9, 2016).

This implies as the future generation becomes more digital natives than the current generations, and the digital divide between Ethiopia and the other world will continue if Ethiopia remains behind the rest of the world in terms of ICT status. It also implies that Ethiopian government cannot achieve ICT development in the country without cooperation from different stakeholders.

5.4.2. Overcoming the dynamics of the sector

One of the main features of ICT sector is dynamism. In order to harness an opportunity that can be provided by the sector and address the challenges caused by the sector, cooperation among different stakeholders including governments, international development agencies, donors, private sectors and civil society organizations are required. As the respondents have mentioned that, ICT has unique features including its neutrality to any actors (let it be a terrorist, authoritarian, or democratic government), which means that the one that goes a head of the other always takes the advantage of the sector.

Considerable numbers of participants suggest that as time goes, technological change is always inevitable across the world. For Ethiopia, in order to cop up with such changes, instead of consistently buying new technology by rejecting the obsolete one, respondents show up the need to promote innovation by using any existing mechanisms regardless of ideological worries. This keeps the country from the high expenses on ICT products and services from external by developing ICT infrastructures that provide services and products in the country. For example, as one of the respondent stresses that, from black box assembling to 3g, from 3g to 4g, Ethiopia expends billions of money as one outdated after the other. Even for minor ICT products and services, the country continuously dependents on technology imported from external. Thus, to

overcome such challenges of dependency on the ICT products and services from external and of the dynamic nature of the sector, respondents note the significance of promoting competition and innovation in the country.

As compared to infrastructural developments such as road, electric power, and bridges and the like, respondents suggest as the role of the government in ICT investment should be very minimum because the sector requires continuous innovation that could not be managed by government alone. Technology needs specialization and the technology professionals know the details, state knowledge is very general and it is what is called '*a mile wide and an inch deep*', government cannot have all knowledge on specific details. However, areas in which government can have an upper hand are underlined, for example, in allocation of resources, in effective regulations of the sector by formulating laws that oblige the private companies to cooperate with public law enforcement agencies.

Overall as time goes, the complexities and dynamic nature of ICT will keep increasing. Therefore, to overcome such challenges, cooperation of different stakeholders are sought to be significant.

5.5.Challenges of ICT sector

Financial constraints, human resources problems and management issues are highlighted as the main challenge to invest in ICT sector in developing countries like Ethiopia and Kenya. Apart from such challenges, with the peculiar feature of ICT's neutrality to any actors, the controversies between national and social security issues on one side, and privacy issues on the other side, remain to be the puzzle not only for the developing and but also for the developed nations. Additionally, given historical power-structural relations between the developed and developing nations, though ICT is still neutral, ICT more favors the developed nations as compared to the developing countries. Accordingly, for developing countries like Africa, the challenges of ICT sector can be viewed as internal and external challenges.

5.5.1. External Challenges

Structural power relationship between the developed and the developing countries is often mentioned as the main contributing factor for the under development of the developing countries

including Ethiopia. As a result, the direct and indirect involvement of external powers in the political and economic activities of the developing countries assumed to be detrimental.

In terms of politics, using ICT for Development as a pretext, there could be the possibility of eroding the national sovereignty of African states. If African governments give the chance to the foreign companies in their critical ICT infrastructures, particularly e-government initiatives, the respondents highlight as the sovereignty of these countries could be under questions. One of the participants is quoted as follow:

> ICT for development initiatives from foreign stakeholders has a challenge for developing countries like Africa. For example, if you take most the Arab world, their e-government is installed by the West. The Western countries have their own unending interest to control each activity of the world particularly Arabians. So, sovereignty of the developing nation is in danger as a result of technology. Especially, if it is run by foreign stakeholders, it could be the worst. Whether we like it or not, the West's invisible hand is still in the developing countries (Miheretu , personal communications on April 10, 2016).

As the respondents suggest that, technology is neutral and has not got nationality or citizenship. According to the respondent, the state has to protect its citizens. As is mentioned, most of foreign companies want to protect and maximize their interests and profit. When foreign companies get an opportunity to invest in the ICT sector, they require well managements in countries where they plan to invest. According to the respondents, most of African governments lack knowledge based management to regulate ICT investment undertaken by foreign companies in their countries. Respondents also note that if government is unable to manage, the foreign companies can upgrade their profit at the expense of national interests of the countries. In addition to that, intentionally by being agents of their home countries, the foreign companies could do for their home countries national interests.

The other challenge mentioned by the respondents is that content of ICT particularly contents of internet that does not go along with African socio-cultural conditions. Considering some countries including China, Turkey and even USA as benchmark for their effective monitoring some specific websites in order to protect their citizens, internet contents such as fraud, deceptions, child abuse and pornographies are also emphasized as the main challenge for African countries.

In general, external stakeholder have a positive role in ICT investment of developing countries like Africa, if the government is capable of regulating and treating their interest, they can do for the wellbeing of the society.

5.5.2. Internal Challenges

Though challenges of ICT investment in developing countries like Africa happen to be financial constraints, skilled human resources in the sector and problems related to managerial issues, participants mentioned as the sector could also have the risks. Especially, the controversial issues in ICT sector remain to be on one hand the surveillances undertaken by government in the pretext of safeguarding national and social security of the country, on the other hand protecting the privacy of individuals.

For some participants, technology is mentioned as neutral it does not take in particular directions by itself as it cannot do anything by itself; it is rather the actors who do with technology that determines. By taking the case of FBI and Apple arguments concerning privacy and state security, few respondents highlight as nation states are using ICT for surveillance so as to hunt the terrorism. As is stressed, with the advancement of technology, there is a growing uncertainty provided that technology is neutral. Particularly, as one respondent suggests:

> Following the Wicklicks and Edward Snowden regulations that put a challenge on US government's monitoring the communications of suspecting individuals; there was growing perceptions as there could be a dramatic change. However, there is no such big shift in opinion per se. In fact, such developments really brought about a big change in attitude particularly in the company such as Apple, Google, and face book as subsequently they decided to apply strong encryptions particularly to non sensitive personal issues (William, personal communication on January 19, 2016).

Though some of the research respondents draw attention to the researcher the use of social Medias such as facebook, twitter and so forth to result in forced democracy, many respondents suggest that using national security as pretext; developing countries tend to employ ICT as mechanism to maintain the existing system by weakening the other contending powers. This shows to what extent ICT could impose challenges on democratization process if it is used by authoritarian leaders. As is mentioned, ICT can be also used for destruction by terrorist organizations.

5.6. Opportunities of ICT sector

By using ICT as a means, not only Ethiopia, developing countries including Africa as a whole can use the sector to accelerate their political economic development. Particularly as some respondents highlight that ICT has the potential to transform the political economy Africa. As compared to hardware aspects of ICT, Web development is particularly mentioned as could be a comparative advantage for Africa.

By witnessing the success story of Kenya in terms of its mobile banking innovation that conveys considerable contribution to the economy of the country, respondents bring to light opportunities that Africa can exploit by the use of the sector. As some of respondents mention that, very recently Ethiopia has started different ICT for development initiatives such e-government, e-education, e-agriculture and e-health though there are some challenges of using such services because of lack of awareness.

As respondents note, in the case of Ethiopia, though there is no interest of privatizing Ethio telecom from government side, currently some indicatives are viewed as the country starts to learn from the other countries like from China. By following the footsteps of China, step by step some parts of ICT is taken for private sectors, for instance, computer and computer related devices including mobile phones.

To conclude that, there are challenges and opportunities in investing ICT as is premised on political economic contexts of the country and external contexts as well. The central theme of the chapter is that why Ethiopia's ICT sector, especially Ethio telecom is retained under the control of government. Economic value of the sectors as the main source of revenue, perceptions of security and controlling politics, obsession to ideology and insisting to become a big government, the need to give response to internal contexts and to bridge digital divide within the country are highlighted as the main factors to keep hold of Ethio telecom sector under the control of government. This chapter also explained the causes of low status of Ethiopia's ICT development as compared to Kenya. In view of that the main causes for low status of ICT development in Ethiopia are emphasized as state ownership and monopoly of Ethio telecom and as well as problems related to institutional capability of the sector. Moreover, by considering distinctive features of the sector and external and internal challenges of ICT development, the

chapter has exhaustively discussed the significance cooperation in investing in ICT among diverse stakeholders and the opportunities that ICT provides for Africa in general and Ethiopia and Kenya in particular.

Chapter Six

Conclusion and Recommendations

This chapter is aimed at providing concluding remarks concerning the Political Economy of ICT investment in Africa with particular emphasis to comparative study of Ethiopia and Kenya. And then, finally, the researcher attempts to give recommendation for the continent as general and for the individual countries Ethiopia and Kenya in particular.

6.1. Conclusion

As reviews of literatures and many of research respondents have mentioned, ICT development in Africa is progressively growing. Almost all African countries have recognized the role of ICT in their political economic development. In order to harness the opportunities that can be obtained from the sector, most of African countries have included ICT development in their ICT policy and other development polices. To take the advantage of the sector more, for example, most telecoms in Africa are liberalized, some are partially liberalized and few are under public monopoly.

Despite some progress and changes witnessed in the ICT sector, Africa as a continent has still low status of ICT development as compared to the rest of the world. There is also a digital divide within the continent, as is argued, sources of such digital divide and level of ICT developments in African countries mainly premised on its internal and external contexts, including political economy of the countries. For most of Africans that were under the colonial powers, relatively they have good status of ICT development as compared to the other states. As review of literatures and many of research participants have stated, countries that have allowed the private sectors and civil society involvements in telecommunications sectors have good economic performance as compared to countries that retain telecommunication sectors under the control of the government. Consequently, internal and external contexts can be considered as the main factors to the investments of ICT in the continent.

As the findings of the study indicate, there are various ways of external involvements in ICT development of African countries. Such involvements in the sector are followed by different impressions from within and outside the continent. One side of the argument is against the

external involvement in ICT for development assuming that it as another mechanism to control African countries by putting their invisible hand in the continent. The argument from this side can be rated tough when it is supported by evidences from the historical and structural power relations of Africa with its traditional development partners, including the western countries and donors such as IMF and World Bank.

On the other side, foreign stakeholders' participation in the sector is taken as significant and inevitable so as to achieve ICT development. According to the review of literatures and key informants of the study indicates, the involvement of foreign stakeholders in ICT investments in African countries have a considerable significance because technology is neutral and it works for all regardless of any difference in political and ideological stances. For this point of view, in order to accelerate their development and advance their economy, developing countries are expected to use all means that enable them to bridge the digital divide and catch up the development of the developed nation by taking the advantage of ICT, which is neutral. In fact, ICT is neutral as it can works for terrorists if they use for destruction, it can also works for autocratic leaders to continue their repressive rule, it can also be used for democratic and developmental states to achieve their socio-political economic development. This side of the argument is mainly dominated by the World Bank, the IMF and some studies that have neo-liberal doctrine inclinations.

African countries that allow the participation of different stakeholders in the sector assume to be taking more advantages than countries that do not. Regardless of ideologies of development policies they have, some countries see the sector as an exception, and allow participation of different stakeholders in ICT development. At the same time, there are few countries including Ethiopia that have the propensity to limit the participations of different stakeholders in their ICT development by the allegation that it does not go along with their development policy and ideology, especially in the telecom infrastructural development.

However, some African countries have put ideology behind and started to harness opportunities that can be obtained by the use of ICT. It seems that for some countries, ideology is not a matter what matter is rather political economic change that can be attained by making use of any mechanisms that thought to be a way out. Going after the principle that says, "No matter what

the color of the cat is as long as it catches the rat", some countries appear to be on the right track to achieve development through the use of ICT.

According to the findings of this study, it can be fair to label the ICT status of Ethiopia and Kenya differently. Consequently, ICT status of Kenya is by far well advanced as compared to Ethiopia. Reviews of literature and many of the respondents argue as the difference is attributed to ICT policies of the respective countries. Whereas, few of the respondents attempted to associate the difference between the countries with internal contexts including historical, geographical and population size of the two countries. Based on arguments from different side, the current study has examined political economy of ICT investment in respective countries and identified the differences.

The two countries are under the category of low income economies that happen to be in the same region, East Africa. Historically, Kenya was for a long under the colony of UK and after independence the country's political economy is more or less a liberal, on the same direction, despite the political economic crisis the country experienced as many of African countries. As one of liberal country that believe in free market, Kenya's economies including telecom sector has been privatized and run by foreign companies, and civil society wing is also strong in the telecom sector as well. As many of respondents of the study suggest, it is the fierce competition among these companies that brought change in ICT development in Kenya.

Like Kenya, Ethiopia is a poor country that has experienced political turmoil and poverty in its political economic history. However, unlike Kenya, Ethiopia was not under colony at least for a long. There are many ups and downs in political economic performance of Ethiopia as it is highly based on changing policy of the regimes in country. Introduction of telecommunication sector in Ethiopia is assumed to be an early stage, however, the development of sector still found to be at low level.

The current debates about Ethio telelom and low status of ICT development in the country seem to be an extension of arguments pertaining to Ethiopian development policies. As is argued that the reasons why Ethio telecom is retained under the control of government is for political, economic and security reasons. This claim is also supported by study by Workneh (2014) that

reveals the censorship practices by Ethiopian government in order to protect national security of the country and also use as mechanism to control opposition groups.

As fair number of respondents highlights, incumbent government perceives Ethio telecom as the main source of revenue generation for the country to accelerate the overall development process in the country. Assuming that revenue that could be generated from Ethio telecom would be in turn used as expenditure for government to expand infrastructural developments in the country, retaining telecom sector under the government seems to be understandable. In addition it seems that government senses more responsible to address the problem of ICT access in the rural and remotes areas as compared to the other actors. For these respondents, the concern of the government in the process of ICT investment in the country is equity and bridging digital divide within the country.

However, the finding of the study points out that in name of the revenue generation controlling telecom sector has the disadvantage in the long run as monopoly does not encourage innovation to assure ICT development which in turn accelerates socio-political economy of the country. ICT development in the country transcends domestic issues as its implications on one way or another determine the place of the country in the global political economy. This argument can be supported by Castells's (2010) way of grouping countries according to their connection status by ICT, which means that countries that are disconnected by ICT appear to be categorized as the fourth world. By and large, it is possible to generate revenue by monopolizing Ethio telecom sector, but in long run, this monopoly negatively affects the ICT development in the country which in turn have negative effect on the future generation as it widen the digital divide between Ethiopia and the rest of the world. As native technologies are continuously grown up, across the world, Ethiopia as a country and its citizens remain poor in ICT use, skills and accessibility if government does not make an adjustment to allow competition in the ICT sector.

In general, very conclusively, the finding of this study shows that the role of ICT in political economic development of Africa in general and Ethiopia and Kenya in particular as positive. Additionally, internal and external contexts including domestic policies and political ideologies of the continent and of the two countries appeared to be necessary in the ICT development process and status of the continent and the two countries as well.

6.2. Recommendations

This section is aimed to provide strategic policy recommendation for African ICT policy makers as general and for Ethiopia as particular. ICT policy making is one of the mechanism through which investment in ICT is promoted, ICT development is attained, and also it is through which problems that comes as a result of ICT is addressed. However, the mere fact that having policy is not by itself an end, it is simply a means to attain ICT development in a certain countries. It is true that the policy that considers internal and external contexts of the states can be taken as the best way of dealing with problems that arise by technological developments on one hand, and the best way of achieving ICT development on the other sides. Bearing this in mind, the researcher attempts to give recommendations that consider internal and external contexts of Africa in general, and Ethiopia and Kenya as particular.

Africa

Africa as a continent or as individual countries, the continent and individual countries have their own historical, political and economic realities that can be perceived as opportunities and challenges for its/their developments. And on the other hand, the continent has likewise structural power relations with the other world that could be considered mainly as challenges for political economic development of individual countries of the continent.

Understanding Africa's internal and external realities in the process of ICT development, the researcher suggests the following recommendations.

1. **The African countries should work on ICT use and skills not only access to ICT goods and services**.

African countries have to transcend from ICT services and goods costumer-hood to ICT owners, users and skills. This can only happen if there is competition that encourages innovations. ICT sector is very peculiar from other sectors as it is neutral and highly based on innovation. No matter how and who the actors are to compete, creating competition environment is sought to be a good strategy to achieve ICT development. For that matter, the competition could be among the state companies like the case of China. Considering the huge advantages of ICT in political economic development of the continent, it is necessary not only reducing the digital divide

within the countries, but also necessary to bridge the digital divide across the world by creating competition.

2. **To harness the opportunities that can be obtained by the use of ICT, the continent should be very selective and identify wherein it could have a comparative advantage.**

For example, web development is sought to be very advantages for Africa as it can be easier and cheaper as compared to hardware devices. By web development, Africa could have its own Google, facebook and so on. For African countries, having their own social Medias like facebook, Twitter and yahoo and all that seems to be very profitable. It is possible to generate huge amounts of money. This could have also its own advantage from social aspect, as it could enable the continent to use its own content, its own language and the like.

3. **African countries should develop and implement pro-poor ICT policies that consider their own countries contexts.**

African countries have to formulate a policy that considers the internal contents and contexts of their countries. For example, for countries that rely on Agriculture like Ethiopia, e-agriculture has to get more attention to advance its own development. Particularly, expanding mobile services like mobile banking is also sought to be profitable for the developing countries like Africa.

4. **In the process ICT applications, African countries should focus on local content development as well.**

The rapid technological advancements have not brought only opportunities that can be exploited, the development of this sector has also brought national and social security challenges that have to be dealt with. As a result of technological development, most of developing countries' sovereignty happens to be in questions. Additionally, ICT contents such as pornography, child abuse and extra challenges need to be regulated by the African governments with collaboration other stakeholders.

5. **African countries should give the highest priority to the local companies when they want to invest in ICT sectors, especially pertaining to e-government and the like.**

In order to take into account African countries socially embedded contents, local companies has to be encourage and supported by government. This has three advantages, first, when it is local companies, capital flight can be reduced, and secondly, if it is local companies, national interests and sovereignty of the country can be well protected, and thirdly, local ICT companies can consider the social values and culture of the countries as compared to the foreign companies. So, there is a tendency to reduce ICT contents that may be against social values of the country. In such cases, ICT should not be treated as a mechanism to control the poor Africa; it rather serves the interest of the continent.

Ethiopia

As the reviews of literatures and key informants indicate, Ethiopia is lagged behind the rest of the world in ICT sector. Ethiopia will have a lot of assignments to work so as to achieve its ambition of ICT development, which is stated in its ICT policy**.**

1. **Ethiopia should review its institutional framework for ICT policy formulation and implementation strategies.**

Technology serves whoever goes ahead of the other regardless of the identity of the actors. As the technological advancement continuously grown up, the complexities and challenges will also parallel increase. Consequently, the government should review consistently its ICT and related policies to deal with the problems.

2. **Encouraging partnership and cooperation with internal and external stakeholders**.

There are different stakeholders in technology that can have more capacity as compared to the government. In order to achieve ICT development, government should be expected to have the cooperation of such ICT stakeholders that could work together for the betterment of the country**.** Internally, by promoting participation of private sectors, civil society organizations and creating forums for ICT professionals and any concerned body. Externally, the country should actively participate in regional ICT initiatives.

3. **Fishing out the invisible political hand from ICT investment process.**

Most of the time in Ethiopian political economic history, ideology has become and remains the big deal in the country's development polices. And these development policies have been mainly initiated by political motives of the regimes. In order to bridge digital divide between Ethiopia and Kenya, it could be helpful for Ethiopian leaders and policy makers to reduce their ideological mania and become practical in the policy making process.

4. **Allowing competition in the sector either within government owned companies, or by local companies.**

If the local companies have no capability to run such sectors, initiating the local companies to make joint ventures and run the sectors, or by making use of public-private partnerships in the sector, it will be easy to advance the sector. Competition is the engine of innovation, and where there is an innovation there is ICT development.

5. **Reducing lack of awareness among the costumers to use the available ICT goods and services**

The problems associated with ICTs development in the country are not limited to the supply side as it could be also viewed from costumer point of view. There is minimum demands and awareness to use the ICT services and goods that are available. For example, government has provided wide ranges of ICT services, such as e-governments, e-tax, and e-agriculture, e-health, e-education and so on, but all these services are not in use by many of Ethiopians. The other typical example could be, there are insignificant numbers of Ethiopians who are using the Ethiopian country domain name ".et", which could have huge economic benefit for the country. Instead of using domains like, .com, .org, and so on, if the Ethiopians have the awareness to use ".et" domain, it could have economic value for the country. As this may be lack of awareness, working on the advertisement is sought to be a solution. To make it very effective advertisement, it may be fruitful to give to the private sectors.

6. **Making effective regulations by creating partnership with different stakeholders.**

By taking the leadership role, the government should collaborate with different stakeholders in order to effectively regulate the sector. As it has been said repeatedly, technology is neutral. It can be used by terrorists for destructions, and by autocratic leaders to control the competing powers in the country, by democratic government for the betterment of its citizens**.**

7. **Working on institutional development of the sector, especially on accountability and transparency.**

When government wants to filter the communications, it should reveal as the filtration is for social security and other else. For example, by the perceptions that "government is watching over us", Ethiopian society may refrain itself from political participation and peaceful way of activism. To avoid such perceptions, the government is expected to be accountable and transparent by creating the system and forums that addresses such confusions and problems.

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Appendix I

Guide lines for interviews of research on ICT Investment in Africa: a Comparative Study of Ethiopia and Kenya using a Political Economy Approach

January, 2016

General elaboration about research for volunteer participants for consent to take part in research

Dear Research Participant,

My name is Lulu Diriba, a master student in Centre for Africa and Oriental Studies in Addis Ababa University. I thank you for taking time to take part in this interview. Currently, I am working on my MA thesis for the partial fulfillment of master's of African Studies (Human and Economic Development in Africa). My study is ICT Investment in Africa: a Comparative Study of Ethiopia and Kenya using a Political Economy Approach. To do this study, I purposefully selected *knowledgeable and rich experienced key informants*. The data I want from you is solely for academic purposes and will not be used for other purposes. Dear participants, your identity will be kept confidential and I kindly request you to participate voluntarily in this study. Since the quality of the study depends up on your genuine response', so, I would like to ask your consent. As we progress in the interview, I shall be taking notes. I shall appreciate your comments on all issues, but incase, if you feel uncomfortable to comment on some questions, kindly feel free to indicate your objection in order that we shall proceed to other issues. Furthermore, your participation in this interview is on your free will even you can take out at any time if you feel uncomfortable.

Thank you in advance of your kind cooperation!!

Confirmation statements of consent from Key participants of this Study

I certify that I have read and understand this consent form and agree to participate as a key informant in the research described. I understand that any information obtained from me for this research will be kept confidential. To further ensure privacy, I have the option of using a pen name. I agree that all known risk to me have been explained to my satisfaction and I understand that no compensation is available from Addis Ababa University, its employees and the researcher for any injury resulting from my participation in this research. I understand that participation is voluntary, refusal to participate will involve no penalty or loss of benefits to which the subject is otherwise entitled and the subject may terminate participation at any time without penalty or loss of benefits to which the subject is otherwise entitled.

Signature ----------

Date ----------

Appendix II

Interview Guiding Questions <u>for purposefully selected key Informants</u>

Background Information

Educational status……

Your position in the organization_____

1. ***What is your view on African countries' telecommunication sector? Between public sector and private sectors, which sector do you think is better for Africa? Explain your line of argument!***

2. It is argued that as compared to public sector, private sectors and civil societies role in investing in ICT is more efficient and effective in rapid introduction of new ICT products and services. Whereas, some argue that public sector is more accountable and transparent than private sectors as the former has more concern to its citizen, it is expected to expand infrastructure to remote areas as compared to private sector.

   Which sector do you think meet the growing demand of ICT (telecommunication services? Which is your viewpoint? Explain the reason why?!

3. As is argued, for a long Ethiopia's telecommunication sector is under the control of government. For some, the reason why telecommunication is mainly run by government is that because this sector is the largest source of government revenue. And also there are who assume that controlling telecommunication sector is purposefully used for political and security issues. Particularly, as critics suggest, telecommunication sector is an instrument of incumbent on power through which activities of opposition parties are censored and controlled.

   What is your opinion on such comments? In relation to this question, what do you think of the opportunities and challenges associated with telecommunication sectors that run by public sectors? How do you see from political economic and security perspectives?

4. For some, controlling telecommunication sector by government is thought to be a guarantee for security issues, especially to contain terrorism acts. However, the rapidly growing technological development particularly high tech software developments are changing this situation and taking the role of telecommunication sector.

   How do you see the challenges and opportunities of such developments in the long run?

5. As it can be safely used for terrorist activities like disrupting connections and avoiding telephone networks around targeted areas, some skeptics associate high tech software developments with security issues considering that if terrorist individuals or groups are able to own such software, it could be a series challenge for national securities of the state. On contrary, there are some who argue that terrorist groups have no capability to

own such high tech software as it could be very expensive and most of the time produced and owned by multinational corporations, and the owners of such kinds of software do not sell to terrorist organization; rather they do it for the states.

What do you think about the challenges and opportunities of high tech software developments from political economic and security perspectives?

6. Assuming that developing countries could catch up the developed nations through access to ICT, currently different stakeholders are getting involved in *ICT for development projects and bridging digital divide initiatives* in developing countries, particularly in Africa. On the other hand, considering historical structural power relations between Africa and its development partners, critics suggest that the foreign stakeholders focus is mainly on access to ICT goods and services, and not on ICT mega projects. As is argued, for example, Africa is limited to get a necessary benefit from internet ecosystem as it lack infrastructure.

   How do you see the role of ICT for development projects undertaken by foreign stakeholders such as WB, IMF and etc. Do you think Africa will get benefit from internet ecosystem?

Appendix III

Profile of the research participants[17]

False Name	Title	Organization	Date and duration	Actors type
William Int. 1	lead ICT policy Specialist at Word Bank	World Bank	Via Skype, N 40 minutes	International Organizations
Yibeltal (MA, MSC) Int.2	Managing Director at YHM Consulting and Commission Agent Plc	YHM Consulting and Commission Plc	1 hours	NGO
Yibekal (PHD) Int.3	Chief adviser of MCIT	Ministry of Communication	1 hours	Government

[17] For each respondents, pseudonyms are given

		and Information Technology		
Cherinet (MA) Int.4	Center for Cyber policy and strategy, team leader	Information Network Security Agency	Unknown	Government
Tiezazu (MA) Int. 5	Ethio telecom manager	Ethio telecom	Unknown	Government
Furtuna (PHD) Int. 6	Associative Professor of Information Science	AAU	Unknown	
Taye (MA) Int.7	Deputy Director of Legal and Policy at INSA	INSA	Unknown	Government
Dagu (PHD) Int. 8	Associate Professor of Economics	AAU	Unknown	
Mihiretu (PHD) Int.9	Associate Professor of Information Science	AAU		Academic Institution
Robale (PHD) Int. 1o	Associate Professor of Economics	AAU		Academic Institution

Appendix IV

Phases of Thematic Analysis[18]

Phase	Description of the process
1. Familiarising yourself with your data:	Transcribing data (if necessary), reading and re-reading the data, noting down initial ideas.
2. Generating initial codes:	Coding interesting features of the data in a systematic fashion across the entire data set, collating data relevant to each code.
3. Searching for themes:	Collating codes into potential themes, gathering all data relevant to each potential theme.
4. Reviewing themes:	Checking in the themes work in relation to the coded extracts (Level 1) and the entire data set (Level 2), generating a thematic 'map' of the analysis.
5. Defining and naming themes:	Ongoing analysis to refine the specifics of each theme, and the overall story the analysis tells; generating clear definitions and names for each theme.
6. Producing the report:	The final opportunity for analysis. Selection of vivid, compelling extract examples, final analysis of selected extracts, relating back of the analysis to the research question and literature, producing a scholarly report of the analysis.

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