



UNITED NATIONS
ECONOMIC COMMISSION FOR AFRICA

E-TRADE AND ECONOMIC GROWTH IN AFRICA: Opportunities and Challenges

October 2008

ICT, Science & Technology Division
United Nations Economic Commission for Africa
P.O. Box 3001
Addis Ababa, Ethiopia
Tel: +251 11 551 7200
Fax: + 251 11 551 05 12

www.uneca.org

Contents

Contents	2
Foreword	4
Acknowledgements	6
CHAPTER ONE	7
THE STUDY'S RATIONAL, OBJECTIVES, AND SUMMARY OF FINDINGS	7
1.1 INTRODUCTION	7
1.2 OBJECTIVES	9
1.3 ASSESSMENT METHOD	10
1.4 ICTS, TRADE AND ECONOMIC GROWTH: A SYNOPSIS	10
CHAPTER TWO	20
ICT AND TRADE POLICIES AND ECONOMIC GROWTH	20
2.1 REVIEW OF TRADE POLICY ISSUES IN AFRICA	20
2.1.1 Import Substitution Strategies	20
2.1.3 AISI and Inter - Regional Trade in Africa	22
2.2 REVIEW OF EMPIRICAL EVIDENCE OF ICT IMPACT ON TRADE AND ECONOMIC GROWTH	23
2.2.1 Global Evidence of ICT benefits to Growth and Trade	23
2.2.3 Commercial Practices and ICT/Trade Development	24
2.2.4 Role of Governments	26
CHAPTER THREE	27
INFRASTRUCTURE DEVELOPMENT IN AFRICA	27
3.1 INTRODUCTION	27
3.2 ICT INFRASTRUCTURE IN AFRICA	27
3.3 THE ICT SECTOR IN EGYPT	31
3.3.2 ICT and Economic Growth in Egypt	34
3.4 CONCLUDING REMARKS	35
CHAPTER FOUR	36
ICT AND TELECOMMUNICATIONS LEGAL AND REGULATORY ENVIRONMENT IN AFRICA	36
4.1 INTRODUCTION	36
4.2 ICT AND TELECOMMUNICATIONS SECTOR REFORMS	37
4.3 LEGAL AND REGULATORY FRAMEWORKS AND E-TRADE	38
4.4 ICT TRENDS, POLICY AND REGULATORY ISSUES IN KENYA	39
4.4.1 Trends in telecommunications policy, legislation and regulation 1998-2006	40
4.4.2 Implementation of the Kenya Communications Act and Associated Regulations	42
4.4.3 Convergence of computing and telecommunications and Kenya ICT Policy 2006	45
4.5 CONCLUDING REMARKS	46
CHAPTER FIVE	47
INTELLECTUAL PROPERTY RIGHTS	47
5.1 INTRODUCTION	47
5.2 IPRs AND ECONOMIC GROWTH	47
5.3 IPRs and e-Trade	49
5.4 IPRs ENVIRONMENT	50
5.5 IPR DEVELOPMENT: COUNTRY EXPERIENCES	51
Ghana	51
Egypt	52
Ethiopia	52
Kenya	53
5.6 CONCLUDING REMARKS	54
CHAPTER SIX	55
BUSINESS PROCESS OUTSOURCING FOR DEVELOPMENT: THE CASE OF SOUTH AFRICA, GHANA AND SENEGAL	55
6.1 INTRODUCTION	55
6.2 BPO & O – A SYNOPSIS	55

BPO&O Development Initiatives	57
6.2.2 Business Processing Outsourcing - Ghana.....	57
6.2.3 Business Processing Outsourcing in Senegal.....	58
6.3 CONCLUDING REMARKS.....	59
CHAPTER SEVEN	60
ICTs, SMMEs AND ECONOMIC GROWTH.....	60
7.1 INTRODUCTION.....	60
7.2 THE ROLE OF SMMEs	60
7.3 ICT SIGNIFICANCE IN SMMEs	62
7.4 FINDINGS FROM THE SMMEs SURVEY.....	63
7.4.1 GHANA	63
7.4.2 EGYPT	65
7.4.3 KENYA.....	68
7.4.4 ETHIOPIA	71
7.5 APPLICATION OF ICTS IN SMMEs - SURVEY RESULTS	74
7.6 CHALLENGES AND CONSTRAINTS BEING FACED BY SMMEs IN AFRICA.....	77
7.7 CONCLUDING REMARKS.....	78
CHAPTER EIGHT	80
MOBILECOMMERCEIN AFRICA.....	80
8.1 INTRODUCTION.....	80
8.2 WHY THE STUDY WAS COMMISSIONED	81
8.2.1 The Study Objectives	81
8.3 INFRASTRUCTURE	82
8.4 M-COMMERCE DEVELOPMENTS	83
8.5 FINDINGS AND RECOMMENDATIONS	85
CHAPTER NINE.....	88
CONCLUSIONS AND POLICYRECOMMENDATIONS	88
9.1 CONCLUSIONS.....	88
9.2 POLICY RECOMMENDATIONS.....	90
9.2.1 Infrastructure development.....	90
9.2.2 Human Capital development.....	91
9.2.3 Policy and Regulatory Issues	92
9.2.4 Intellectual Property Rights	93
9.2.5 SMMEs Development.....	94
9.2.6 Business Process Outsourcing and Off-shoring	96
9.2.7 Mobile Commerce.....	96
REFERENCES	97

Foreword

Advances in ICTs have dramatically changed the world economy over the last few decades. ICTs are changing economic and social activities hence providing both opportunities and challenges for developing countries. This digital economy is radically changing international trade and affecting business practices. Consequently, conducting old business in new ways is part of the economic transformation that is required to participate in the digital economy. Governments play a critical role in the creation of an enabling policy environment to support these activities in different countries.

Produced by the United Nations Economic Commission for Africa, ICT Science and Technology Division, *E-Trade and Economic Growth in Africa: Opportunities and Challenges* brings together country development initiatives and experiences, challenges and opportunities pertaining to ICTs, telecommunications, trade and economic growth in African countries. Its premise, supported by country studies from Ghana, Kenya, Egypt, South Africa, Senegal and Ethiopia, is that countries in Africa should consider embarking on creating a conducive environment in which ICTs and telecommunications can contribute significantly to trade and economic development if the continent is to remain competitive on the global market.

The report therefore deals with development strategies that focus on policies to identify, enhance and exploit opportunities through the use of ICTs and telecommunications in facilitating trade and enhancing economic growth. The report challenges policy makers to adopt new policy agendas and mindsets to help improve national growth, competitiveness, and economic welfare in a rapidly connected and globalised world. Based on country experiences and case studies from the country studies, this could only be achieved through the following policy initiatives: The development of a more efficient physical communication infrastructure such as postal and telecommunication networks and ICTs which are readily available and accessible by everybody especially in the rural areas, hence immensely facilitating e-trade processes. Countries should put in place effective legal and regulatory frameworks in order to enhance competitiveness in the sector and to address problems of validity of electronic transactions whose absence in most African countries is a significant barrier to the growth of e-trade in Africa. Countries should also enhance awareness among African countries about the significance of IPRs in order to avoid losses as a result of unprotected innovations on the world market. The study notes also that there is growing evidence of the role of the business processing outsourcing and offshoring (BPO&O) and m-commerce activities in stimulating trade and economic growth in Africa. African countries are envisaged to have a competitive advantage over European and Asian countries in the BPO&O sector due to the availability of abundant human resource, language skills, culture, time zones that chime with Western Europe, and infrastructure in some countries on the continent. In terms of m-commerce the study reveals that m-commerce or m-banking is one of the sectors that can have a significant impact on the lives of the poor in Africa if properly and effectively managed within an enabling environment. This has been exacerbated by the fact that Africa has experienced the highest growth rates in the mobile telecommunications sector in the past few years compared to any region in the world.

The study has also observed that for Africa to achieve significant trade and economic growth, more emphasis should be placed on creating a conducive environment for SMMEs as these together with the informal sector are regarded as the potential engines of growth and economic development in the information economy, as they constitute a greater percentage of

the private sector in most African countries. There is need to understand their challenges and constraints as well as opportunities in the digital economy.

Acknowledgements

This report was prepared by the ICT, Science and Technology team of the United Nations Economic Commission for Africa (UNECA), led by the Director Ms Aida Opoku-Mensah.

We are grateful the Africa Node of the Global ePolicy Resource Network (ePol-NET) and the Canadian ePolicy Resource Centre (CePRC) for both the technical and financial support. We are also grateful to the consultants for the various countries identified for the study. This report is a result of a synthesis of country studies carried out by consultants covering countries which include Egypt by Dr Nagwa Elshenawy, Kenya by Dr Mbui Wagacha and Prof. Meoli Kashorda, South Africa by Dr. Marcia Socikwa and Natalie Sunker, Senegal by Diossy Santos and Ablaye Cissé, Ghana by Kofi Larbi, Dr. Godfred Frempong and Prof. Clement Dzidonu, and the Ethiopian study report by Dr. Assefa Admassie and Woubalem Taye.

CHAPTER ONE

THE STUDY'S RATIONAL, OBJECTIVES, AND SUMMARY OF FINDINGS

1.1 INTRODUCTION

Advances in the Information and Communication Technologies (ICTs)¹ have dramatically changed the world economy over the last few decades. ICTs are changing economic and social activities and in turn providing opportunities and challenges. ICT are making businesses more competitive and economies more productive and most of all are empowering people and organizations with knowledge. Access to information and knowledge has now become increasingly important and necessary in the global economy, which is becoming increasingly knowledge based. This has given impetus to social and economic developments and have opened up new opportunities and perspectives through a wide range of applications. Today, ICTs are being diffused into almost all spheres of human activity. This has led to the development of business processes and activities such as, e-trade, e-commerce and recently m-commerce, which involve the use of ICT tools and processes internally and externally in conducting day-to-day business process operations.²

The digital economy is radically changing international trade, affecting business practices and introducing new business intermediaries. Consequently, conducting old business in new ways and embracing new business opportunities is part of the economic transformation that is required to participate in the digital economy. Governments play a critical role in the creation of an enabling policy environment to support these activities.

In Africa, e-trade can offer new opportunities to export-oriented companies, especially small, medium and micro enterprises (SMMEs). Using electronic networks, SMMEs can source production inputs more efficiently, eliminating intermediaries, shortening supply and export-distribution chains and effectively reducing business transaction costs. In addition to lowering business costs, ICTs in trade allow enterprises to strategically reposition themselves in the international marketplace and reduce or eliminate the cost of corruption. However, while ICTs give SMMEs the potential to compete globally, lack of infrastructure and unfavourable policy regimes hinder progress in most developing countries.

The e-policy environment – critical to successful use of ICT tools in business – can act either as an enabler and enhance adoption, or act as a barrier and stifle the development of e-trade practices. In Africa, management practices of telecommunications and transportation

¹ For the purpose of this study, Information and communication technologies may be defined as 'electronic means of capturing, processing, storing, and disseminating information (Heeks, 1999). ICTs are not the only 'technology' that handles information. ICTs comprise computer hardware, software and networks, Internet services, e-mails, fax, broadcasting and web-casting. Other information-handling technologies include intermediate' technology, still based largely on analogue information held as electro-magnetic waves such as radio, television and telephone.

² E-commerce implies the processes and tools that allow an organization or a person to use Internet-based technologies and infrastructure, to conduct business process operations, whereas e-trade is an activity that carries out international goods and services trade transactions electronically and information-intensively by utilizing IT means, including the Internet. E-Trade improves trade processes for import and export related goods and services through electronic exchange. And m-commerce is the buying and selling of goods and services through wireless technology, i.e., handheld devices such as cellular telephones and personal digital assistants (PDAs).

infrastructure, ineffective customs processing, lack of intra-governmental coordination and a lack of strategic policy frameworks, have been identified as characterizing the government barriers to e-business adoption and use.

In the knowledge economic system, inadequate raw materials or physical capital is no longer a barrier to the development of a poor country as it was in the traditional economy. The new economy is significantly different from the old since knowledge has replaced traditional productivity inputs, such as labour and natural resources as the primary ingredient for economic growth. A country's ability to accumulate, use and diffuse knowledge determines its competence to succeed in the knowledge economy. Countries that have succeeded in harnessing the potential of ICTs can look forward to expanding their economic growth significantly and dramatically improve their human welfare. Within the new knowledge based economy, development policies are expected to recognize and incorporate this new reality and focus on achieving knowledge-intensive development.

Business practices in global markets are changing because of the growing use of ICTs as a medium for business information storage, processing and exchange. ICTs have enabled people to exchange large amounts of information quickly and cheaply. Those who can best receive, process and innovate become the winners. Those who have access to ICTs are also closely connected to a virtual network regardless of geographic location, race and gender. The digital economy is radically changing international trade, affecting business practices and introducing new business intermediaries. The information revolution has transformed the way modern businesses are conducted.

Although there is an increasing realization of the potentials that ICT can offer to human and economic development, ICT induced productivity and growth are still confined to the developed world leaving the developing world behind, hence creating a knowledge gap. This gap can be narrowed if appropriate ICT policies as well as appropriate legal and regulatory frameworks are put in place to develop basic ICT infrastructure, skills and information resources to be utilized in a sustainable manner.

In recognition of the critical role being played by ICTs in Africa, several development initiatives have been implemented especially focusing on priority areas such as basic infrastructure development, strengthening of institutional and regulatory systems, regional integration activities (i.e. interconnection of countries and the region), capacity building at country and regional levels and resource mobilisation to support ICT development.

While much progress has been made with regard to recognizing the importance of the sector and its contribution to the national development in different African countries, not much is known about the application of the technology in facilitating domestic and international trade. The main goal of this study is therefore, to assess the utilization of ICTs to facilitate domestic and international trade. The study attempts to identify the required public sector policies for the formulation and implementation of e-strategies in support of trade and economic growth. The goal of this project is to build African capability and capacity in creating enabling policy frameworks and e-strategies to create the pre-conditions for use and adoption of ICTs in all sectors of the different economies. These goals will only be achieved if the elements upon which the foundation of the African Information Society Initiative (AISI)³ are successfully implemented by the different countries. These include the appropriate framework for the

³ UNECA (2008), The African Information Society Initiative (AISI), A Decade's Perspective, ECA, Addis Ababa.

sustainable development of the Information Society which encompasses suitable legislative and regulatory environment; reliable physical infrastructure; relevant human resource development and the establishment of proper institutions dealing with coordination and implementation of policies, hence contributing to the overall objective of the AISI.

This report is a synthesized version of 6 e-trade country reports: Trade and Economic Growth in Kenya, The Strategic Role of ICTs, Dr Mbui Wagacha, April 2007; The Economic Impact of ICTs on Trade among SMMEs in South Africa, Dr. Marcia Socikwa and Natalie Sunker, 2006; TIC, Commerce et Croissance au Senegal Par Diossy Santos et Ablaye Ciss, September 2007; ICT role in trade facilitation in Egypt, Dr Nagwa Elshenaw, 2007; The ICTs, Trade and Economic Growth Study – Ghana, Kofi Larbi, Dr.Godfred Frempong and Prof. Clement Dzidonu, September 2007; and The Role of ICTs in Enhancing Trade and Economic Growth in Ethiopia, Assefa Admassie and Woubalem Taye, April 2007. The outcome of these studies necessitated the mobile commerce study as some countries identified mobile telephony to be vital in poverty reduction issues as they facilitated trade and some economic services directed towards the rural poor in different countries. This being the case, UNECA commissioned the following studies: Status of Mobile Commerce and Mobile Banking in Kenya - Professor Meoli Kashorda, April 2008; Etude sur le m-banking/m-commerce au Senegal - Par Mme Fatimata Seye Sylla, April 2008; and A view of M-commerce in South Africa - Dr Simon Batchelor, June 2008.

1.2 OBJECTIVES

The genesis of this study was the Forum on ICTs, Trade and Economic Growth, which was organized under the auspices of the Africa Node of the Global ePolicy Resource Network (ePol-NET) in partnership with the Canadian ePolicy Resource Centre (CePRC) from 14-16 March 2006 at the United Nations Conference Centre (UNCC) in Addis Ababa, Ethiopia. The focus of the Forum was to assess the economic significance of ICTs and telecommunications and determine the nature of expected economic effects on African countries. The Forum aimed to combine learning, expertise sharing (South-South and North-South), interactive dialogue, networking and business matching as the launching pad for the African ICTs, Trade and Economic Growth Initiative.

One of the follow up activities agreed upon was to undertake country level research on ICTs, Trade and Economic Growth in Africa. Egypt, Ethiopia, Ghana, Kenya, Senegal and South Africa were identified to be part of the country level studies. This project was designed to contribute to the work of the AISI and build on the groundwork of the Pan-African Initiative on e-Commerce (2001) which is also supported by the findings of African Development Forum (ADF)' 1999³ and the World Summit for the Information Society – (WSIS) (2003, 2005).

The overall objective of the study was to assess the use of ICTs in facilitating domestic and international trade in Africa with special emphasis on SMMEs. More specifically, the study was aimed at addressing the following objectives:

- To assess the ICT and trade policy environment (including intra-African trade);

³ <http://www.adf/99>

- To demonstrate the potential for economic benefits of ICT utilization in the enhancement of trade in Africa;
- To assess the awareness and usage of ICTs by SMMEs in Africa; and
- To propose policy recommendations to governments.

1.3 ASSESSMENT METHOD

A combination of several methods is used to achieve the above stated objectives. Primarily, the studies attempted to review the policy environment and identify the policy gaps by systematically analyzing and reviewing the various trade and ICT related policy documents in the selected countries. Existing ICT and trade statistics were also reviewed and analyzed. Information gathered from interviews undertaken with technical, political and scientific personalities, the business community and persons in charge of regional and international institutions was also assessed for the study. Roundtable discussions and focus group discussions were also used to collect data from stakeholders in local businesses and ICT service providers. In some cases, researchers generated primary data from firm level sample surveys that were conducted on randomly selected export category SMMEs in these countries. These case studies were organized to complement the research findings from the study itself.

1.4 ICTS, TRADE AND ECONOMIC GROWTH: A SYNOPSIS

The relationship between trade, ICTs and economic growth is built around what is now termed e-trade or e-commerce. E-trade as indicated earlier is a way of real-time business transactions via ICT networks, when the customer and the merchant are in different geographical places. Major types of e-trade/e-commerce are business-to-business (B2B); business-to-consumer (B2C); business-to-government (B2G); consumer-to-consumer (C2C); and mobile commerce (m-commerce)⁴. M-commerce is a relatively new term in technology and Japan is a global leader in m-commerce. As content delivery over wireless devices becomes faster, more secure and scalable, there is a belief that m-commerce will surpass wire-line e-commerce as the method of choice for digital commerce transactions in places where there are more mobile phone users than there are Internet users, which is the case in most developing countries in Africa.

E-commerce and e-business⁵, although sometimes used interchangeably in certain circumstances, are distinct concepts. Due to a paradigm shift, public and private organizations are starting to give efficient services to their customers through e-commerce. Exemplary public institutions in implementing e-services in African countries are mostly associated with the offices of Immigration, Customs and Excise or Government Revenue

⁴ M-commerce is the buying and selling of goods and services through wireless technologies, i.e., handheld devices such as cellular telephones and personal digital assistants (PDAs).

⁵ Electronic business (eBusiness) describes the use of the Internet to conduct business both internally and externally. The term is more broad than eCommerce because it includes business activities such as marketing, support, research, communications and collaboration. E-commerce uses ICTs in B2B & B2C transactions. E-business is the use of ICTs in automating business processes to bring about efficiency. It includes any process that a business organization conducts over a computer-mediated network.

Authorities and Ministries' of Trade and Industry license registration systems in different African countries. Examples include the trade facilitation e-services in Ghana through the GCNet System and through Tunisie Trade Net in Tunisia.

ICT and e-trade applications provide many benefits across a wide range of intra-and inter-firm business processes and transactions. ICT applications improve information and knowledge management inside the firm and can reduce transaction costs and increase the speed and reliability of transactions for both B2B and B2C as well as B2G transactions. In addition, they are effective tools for improving external communications and quality of services for established and new customers.

Businesses have gradually recognised the positive impact that ICTs, such as computer terminals, e-mail, the Internet and their applications can have on their operations. Many types of business software are envisaged to improve information and knowledge management within the firm, leading to more efficient business processes and better firm performance. Communication via e-mail and the Internet can help to improve external communication, in either B2C or B2B contexts and may reduce transaction costs, increase transaction speed and reliability and extract maximum value from each transaction in the value chain.

E-trade/e-commerce offers benefits for a wide range of business processes. At firm level, ICT and its applications can make communication within the firm faster and make the management of the firm's resources more efficient. Seamless transfer of information through shared electronic files and networked computers increases the efficiency of business processes such as documentation, data processing and other back-office functions (e.g. organising incoming orders and preparing invoices). Increasingly, sophisticated ICT applications such as Knowledge Management Systems (KMS) and Enterprise Resource Planning (ERP) allow firms to store, share and use their acquired knowledge and know-how efficiently.

At inter-firm level, the Internet and e-commerce have great potential for reducing transaction costs and increasing the speed and reliability of transactions. They can also reduce inefficiencies resulting from lack of co-ordination between firms in the value chain. Internet-based B2B interaction and real-time communication can reduce information asymmetries between buyers and suppliers and build closer relationships among trading partners hence reducing transaction costs and increasing transaction speed and reliability.

In the B2C context, the Internet and e-commerce can be effective tools for better communication. A corporate web site that provides information on products, services or technologies can enhance the quality of a firm's services to customers and attract new customers. By collecting information on customers' needs, it can contribute significantly towards product innovation and development. A home page with a direct link to the corporate e-mail account provides an easy-to-access contact point. For those in different time zones, 24-hour availability of the contact is especially attractive.

The Internet allows global businesses to be connected inexpensively and promptly to share information using a common set of protocols. The Internet is an enabler for e-business as it allows businesses to showcase and sell their products and services online and gives potential customers, prospects and business partners access to information about these businesses and their products and services.

The Internet also assists ICT enabled service-providing enterprises by allowing them to operate more efficiently and providing specific services directly to customers globally. Information technology (IT) enabled services are beginning to be perceived as the new growth frontier. The rise of this segment is driven by the rapid growth of global outsourcing/offshoring. Participation of SMMEs in the developing world in Business Process Outsourcing (BPO) is one area that demonstrates the benefits that the Internet can offer to developing countries. The Indian government and the ICT SMMEs in India are enjoying the fruits of their engagement in BPO since 1985. African countries like Egypt and Tunisia have shown notable progress in developing e-commerce. These success stories are due to the respective governments' commitment to enable firms to use ICTs in their businesses. Countries such as India, Philippines, the Czech Republic and Ireland have completely transformed their economies by adopting IT and BPO segments as the engine that drives their economies in an accelerated mode in a relatively short time. Only 10 percent of the addressable market for global offshoring is estimated to be realized so far although this is expanding as organizations continually expand what can be further outsourced and offshored.

ICTs are also important to the diffusion of modern farming technology and are fundamental in ensuring diversified production capacities in rural areas. They provide opportunities for the development of information systems to monitor natural resources, food storage and transportation as well as crop-disease control. ICTs also improve marketing practices by widening the opportunities to sell agricultural products locally and internationally. By increasing the flow of agricultural market information, farmers' income can considerably improve. In view of the above, the rural and agricultural development policy acknowledges that the expansion of rural infrastructure, including telecommunications services down to the rural areas, is very useful in achieving economic growth. However the agricultural policy has yet to provide a specific direction on the use of ICTs in the system of production and in the distribution of agricultural products.

It is possible to access on-line information on markets, market regulations, prices, potential buyers and import-export data using the Internet in some African countries. In addition, the use of computer technology for business processes would speed up delivery time by improving the internal and external networks, export-servicing facilities, customs operations, and reduce transactions costs. Nevertheless, the trade policy does not explicitly recognize and appreciate the role of ICTs in facilitating trade, except in the compiling and dissemination of trade related information using modern communication systems in some countries. There is little government commitment expressed in the trade policy, explicitly recognizing the role of ICTs to support firms or entrepreneurs in export trade in most African countries.

The results of this study reveal that what constitutes an enabling environment for e-trade is the reliable physical infrastructure i.e. telecommunications networks, supported by the relevant telecommunications policy, legal and regulatory environments conducive for e-trade and the abundant availability of a critical pool of the labour force with requisite technical skills.

1.5 SUMMARY OF FINDINGS

This section presents a synopsis of the outcomes of the study in the countries involved in fulfilling the study's objectives. These countries are Ghana, Egypt, Ethiopia, South Africa, Kenya and Senegal.

Ghana

The study revealed that there were a number of development challenges, which need to be addressed in the emerging information age if Ghana is to register a significant contribution in economic development from using ICTs. For example, it is evident from the findings that although the requisite policies for ICT and trade development have been formulated, they are however, yet to be implemented. This includes the important legislations on electronic transactions, telecommunications and the National Information Technology Agency, which by the time of this study had not been passed. These are vital laws in the development of an e-trade environment in the country. The study also notes that, although it can be acknowledged that Ghana's telecommunications infrastructure has greatly improved over the past years, there is still room for improvement. This is especially in terms of capacity and coverage, which have not reached the level that can truly make Ghana globally competitive in the provision of ICT-enabled services including off-shoring and outsourcing services that could dramatically boost the country's trade revenues.

The study also revealed that programs and action plans to implement various strategies under Information and Communication Technology for Accelerated Development (ICT4AD) to support ICT sector development as well as e-trade were being developed. However, the pace of development remains worrisome as the implementation process remained behind schedule, hence affecting the development of initiatives that could make e-trade have a significant contribution to economic development.

The study noted the need to create a critical pool of labour with the requisite technical skills so that the benefits of ICTs in enhancing trade are fully utilized.

The study also observed that the development of an e-competency strategy by the Ghana Export Promotion Agency, if well implemented, will help the building of SMMEs capacity to take advantage of ICTs to improve their business endeavors.

South Africa

Despite the boasting of a world class infrastructure⁶ supporting all forms of ICT enabled services, the study revealed that South African businesses were experiencing some bottlenecks in carrying out their services especially in the SMME sector. Most of the problems highlighted by the study in relation to access, adoption and usage of ICTs included: high costs of telecommunications, high illiteracy rates, weak R&D capacity in the ICT sector as well as insufficient knowledge of export markets. Most of the SMMEs interviewed complained also about red tape in the regulatory environment (prohibitive regulations) and the lack of access to finance to support their investments. For example, the study observed that the National Innovation Fund had concentrated on the health, agriculture, manufacturing and mining sectors, while the ICT sector was not among the top beneficiaries of this fund. Greater efforts should be made to ensure that this fund adds to further innovation and thus opportunities to export ICT products.

⁶ See <http://www.southafrica.info/business/economy/infrastructure/telecoms.htm>

The study observed that SMMEs lagged behind in the adoption of new technologies, for example mobile technologies, especially because of low educational levels on skills development and also due to lack of knowledge on the relevance of these technologies in doing business. Coupled with high costs of Internet services, this led to limited usage of ICTs in SMMEs especially in enhancing trade. This indicated that there was lack of awareness and education about the relevance of ICTs in terms of their commercial benefits related to different forms of businesses and lack of skills in the ICT sector especially the SMMEs.

However, there were indications that the use of e-commerce was increasing. The study revealed that there was relatively high utilisation of ICTs in SMMEs that provided Call Centre services, which provides evidence of the extensive use of different ICT applications and e-commerce tools. E-commerce software vendors maintained that business had been rejuvenated in the industry, with organisations opting to use e-commerce applications to conduct large external transactions with suppliers and customers.

In comparison to other countries, the study revealed that South Africa was lagging behind the rest of the large emerging economies in ICT services exports. In particular the SMME business was not growing as effectively as was the case with emerging economies of Brazil, India and China. This being the case, South Africa was more of an importer than an exporter of ICTs except for the two provinces of Western Cape and Gauteng, which relatively had export capabilities. This, it has been argued, was due to the little support that exporting companies receive especially in relation to high telecommunications costs, limited venture capital and inadequate co-ordination among and within government departments.

Existing research also demonstrates that there is insufficient awareness of assistance programmes and export market information led by government, which in a way emphasises the need for increased marketing of initiatives. Study findings suggest that a systematic release of information on current market conditions, market opportunities, business development services, sales prospects and finance access could enhance SMMEs involvement in using ICTs in trade, as well as enhancing trade in ICT products.

Egypt

The study findings revealed that Egypt had a relatively well-developed ICT infrastructure on the continent and a progressively growing ICT sector. This was due to the government's commitment towards modernizing and developing the sector through different initiatives. This included exporting, which was a national priority supported by new economic reform policies. There was a relatively high and available ICT caliber as well as the relevant regulatory environment (such e-signature law), which are prerequisites for the development e-trade.

Despite having a relatively higher potential in e-trade, Egypt falls short of policies and practices that could make a significant contribution of e-trade to the country's economic growth. The findings of this study revealed that the main problem was the lack of awareness by exporters and generally SMMEs, of e-trade concepts and advantages that it brings to businesses. To a certain extent this had been due to lack of B2B portals that could facilitate international trading as well as the unavailability of people with skills, knowledge and interest in e-trade (e-trade specialists) in the country. This also was found to be due to weak

practices of e-trading bodies, which did not provide adequate information about their activities as well as product markets such as the International Trade Point.

The study also revealed that the e-signature law was not very active in Egypt, thus reducing trust in electronic transactions and the absence of cyber crime laws (which had just been drafted during the time of the study) led to skepticism about doing business transactions using ICTs in the country. The study in Egypt also identified the unclear statistics about the trade volumes undertaken over the Internet as one of the problems in assessing how vibrant e-trade was in the country.

In terms of the Intellectual Property Rights (IPRs), the study revealed that the government had started enforcing the intellectual property law and was applying the jurisdictions of criminal law on violators in order to provide a fair and competitive setting for the industry. However there were high levels of piracy.

Ethiopia

ICT infrastructure development has been recognized as a critical factor for efficient, competitive and sustainable social and economic development of the nation. This is highlighted in the ICT policy, which outlines the goals, strategies, the priority areas and provides a framework for the advancement of ICT as a sector and an enabler for other sectors to maximize the impact on the country's socio-economic development.

The study found out that the PRSP program in Ethiopia and the draft Plan for Accelerated and Sustainable Development to End Poverty (PASDEP) document recognized ICT as one of the strategic areas in which due attention should be accorded, with emphasis on how ICTs could support the poverty reduction process. Despite the promises at the national policy level (where there is some commitment towards reducing cost of access to ICTs, by the private sector in terms of taxes and tariffs), the study revealed that there was still very little or no incentive structure geared towards facilitating the use of ICTs in different economic sectors, including SMMEs. The PRSP and PASDEP did not explicitly indicate the strategies to be pursued with respect to the use of ICTs in facilitating trade.

This clearly showed that Ethiopia's trade policy did not explicitly recognize and appreciate the role of ICTs in facilitating trade in the country, except through the establishment of the Ethiopian Trade Point within the Ministry of Trade and Industry (MoTI), which compiled and disseminated trade related information using modern communication systems. The institutional capacity of the Trade Point, in terms of ICT skills, equipment, ICT applications and content was extremely limited. The study observed that there was little government commitment expressed in the country's trade policy, explicitly recognizing the role of ICTs to support SMMEs in export trade.

The study findings revealed that the industrial strategy for Ethiopia recognized the importance of developing ICTs as a key technological strategy for enhancing industrial development and sustainable growth of the economy through inter-continental and regional cross border markets as well as the development of local entrepreneurship. The industrial development strategy also clearly acknowledged the important role of telecommunications infrastructure in enhancing economic integration and increasing efficiency. The strategy also

underlined the role of ICT for proper income, expenditure and property registration in the tax system as well as for the banking and insurance industry.

The study observed also that the various Foreign Exchange directives as well as the legal and regulatory framework that existed did not explicitly recognize the need for an electronic payment system for cross border transactions. There was no room for electronic processing of imports and exports, no provisions for electronic application forms, electronic contracts and e-signature recognition. In addition, payments through credit cards could only be made in selected enterprises, which had special permission from the Government Ministry. This seriously inhibited the development of e-commerce.

Despite the obvious and concrete benefits that ICTs could bring to SMMEs, the study revealed that the Ethiopian SMMEs had been very slow to adopt ICTs although the result of the survey on the application of ICTs by SMMEs in Ethiopia indicated that some firms had started to use the Internet for buying and selling goods and services. Nevertheless, many firms faced different problems ranging from the absence of relevant and effective legal and regulatory framework for e-trade, to poor ICT related infrastructure and high costs of technology.

Kenya

The study revealed that, as had been the case in most African countries, Kenya also embarked on regulatory reforms, which led to the establishment of the Communications Commission of Kenya (CCK). This led to the deregulation of the former Kenya Posts and Telecommunications Corporation (KPTC) organs and introduced ICT sector regulation. This was done to encourage overall competition and enable efficiency as well as fairness in the sector.

The ICT sector was growing fairly rapidly in Kenya on regional comparative terms. This study found that ICT penetration in SMME sector was low despite the tax incentives for imported complete computers. Implementation of targeted tax incentives involved the reduction of tax on computer hardware and software to ensure affordability by SMMEs and low-income earners. However, the investment climate was marked by distorted taxation that discouraged ICT development despite high and growing demand for ICT products and services. Assemblers of computers and telecommunications equipment had mushroomed. During the time of the study 30 percent of Kenya's computer requirements were locally assembled, but the tariff structure that existed inhibited development of the computer assembly companies and other ICT products. The study revealed that Kenya's system had allowed the tax excess burden on ICTs to be shifted disproportionately to consumers of ICT through taxation on airtime and ICT parts hence adversely affecting ICT development. This was exacerbated by the monopoly power and poor Internet services provision by Telkom Kenya Ltd, which have adversely affected usage and growth of the sector.

The study observed that another problem, as was the case in a majority of African countries, was the absence of ICT data collection mechanisms in Kenya. Kenya did not conduct national business and household surveys necessary for capturing data on key ICT indicators (e.g. Internet usage by business, households and government). The administrative data on ICT was also not regularly collected by the Kenya National Bureau of Statistics. This inhibited the policy development process in as much as addressing issues that affected the ICT sector.

In Kenya, one of the challenges affecting ICT penetration in SMMEs was the lack of awareness of the significance of ICTs in businesses as well as lack of local business information. The study found that it was not the legislation or even lack of ICT policy that was hindering businesses from using ICT to facilitate trade, but it was simply the lack of firm-level ICT strategy and IT education in the business community. There were not many ICT applications to support the SMME sector. Large businesses and organizations could import or buy expensive software solutions while the SMME sector required relatively cheap software solutions to serve unmet business needs.

The Kenya ICT policy published in March 2006 did not address the needs of specific sectors. For example, there was no attempt to analyze the value of the agricultural sector and the information needs along the chain and then develop an appropriate strategy. The study observed that there was need to develop sector-specific ICT strategies to deepen the policy process as the policy focused on developing the ICT sector. Kenya was already developing an ICT master plan to support the new ICT sector. However, the country was not able to measure explicitly trade in ICT goods and services, especially in the domestic market.

Senegal

In terms of ICT and telecommunications development, Senegal was probably the leading Francophone sub-Saharan African country during the time this study was carried out. The study observed that the telecommunications sector in Senegal had recently undergone a complete restructuring as a result of the privatisation of the national telecommunications operator. The new Telecommunications Act (December 2001) had replaced the 1996 Telecommunications Act, which had led to the establishment of the Telecommunications Regulation Agency (Agence de Régulation des Télécommunications - ART) as the main player in formulating and supervising Senegalese ICT policies, with the main objective being that of ensuring market competitiveness.

Senegal's advanced telecommunications infrastructure and entrepreneurship drive were the factors that contributed to the ICT and telecommunications development processes. Strategies and political goodwill for ICT had proved to be a powerful vector for the acceleration of economic growth and modernization of the administration of the government services. This was attributed to the championship of the Head of State, President Wade, who also inaugurated an ICT park in Dakar during the time of this study.

The study revealed that the advanced infrastructure and different development strategies had made Senegal a hub for e-trade and other economic activities. These included the existence of a strategy for the development of Senegalese exports (STRADEX), the existence of a Presidential Council on Investment (CPI), Ministry of Post, Telecommunications and New Technologies and Information and Communication, adoption of a new telecommunications code in December 2001, existence of a Regulatory Agency on Telecommunications (ART), adoption of a new code on public tenders, establishment of a national council on good governance to fight corruption and misappropriation of public funds, existence of huge ICT skills in the diaspora, as well as the availability of cheap and skilled workforce.

In terms of e-trade development, the study revealed that Senegal had advantages for the strengthening of its international competitive position particularly in the West African sub region. Several Senegalese enterprises were present on the European e-service markets and

most of these enterprises had established business contacts with strategic partners especially on the French market.

The study observed that one of the areas in which Senegal had a competitive advantage was in the BPO and offshoring (BPO & O) sectors. Senegal was one of the developing countries, which was increasingly offering services ranging from engineering services to data collection and processing to industrialized countries. Through computer design software such as Autocad, engineering plans were being developed in Senegal for implementation in developed countries without loss of quality but at low cost due to the availability of skilled and relatively cheap labour. This had further led to the establishment of business partnerships between Senegalese companies with clients based in Europe and the US. Other companies⁷, which specialized, originally in voice servers, had now embarked on the establishment of call centres for the national and sub regional markets, hence enhancing the outsourcing business.

Some enterprises (e.g. Alphacad, Africanet, etc) had embarked on the provision of computer services such as development of software and translation of documents for French enterprises. The study showed that increasing levels of literacy with regard to skilled ICT personnel and the mastery of English language as another official language apart from French would lead to significant positive contribution to the BPO & O sector and hence economic growth and competitiveness.

With widespread computerization in public offices and in private enterprises, ICT had brought a major contribution to the modernization of Senegalese enterprises and in particular SMMEs. This had significantly impacted on productivity, profitability and competitiveness. SMMEs were being compelled, in particular, to intensively use ICT as a tool for the improvement of their administration and management and for effective communication with intermediaries and global trading partners or clients. SMMEs were also being encouraged to use websites and all the other means of information and modern communications to market their products and services. The study revealed that SMMEs development initiatives were negatively affected by the lack of investment capacity and lack of knowledge on international markets. This was attributed to ineffective participation in the formulation of public policies in the sector and the absence of a national coherent strategy for ICT development. This was exacerbated by the absence of legislation on e-commerce and lack of recognition of e-signature in commerce and hence, no provision for consumer protection.

The other initiative that was observed as a result of this study in Senegal was m-commerce, which mostly focused on the role of mobile phones for banking and carrying out transactions and as a means of empowering the poor to use ICTs in conducting their economic activities.

The study showed that most of the m-commerce examples were based on partnerships between banks and mobile operators, and the product was envisaged as a mutual value added service enhancing competitiveness. It was observed that initiatives towards open standards, enabling all mobile operators to provide access to m-banking services, would enable more people to economically benefit from the services.

The study revealed that m-commerce or m-banking was one of the sectors that could have a significant impact on the lives of the poor in Africa if properly and effectively managed within an enabling environment. The findings showed that the different African countries could enable m-commerce or m-banking to reach its full potential through the generation of

⁷ Africatel, AVS and Chaka Computer.

inclusive policies that put more emphasis on rural coverage in terms of both infrastructure and banking services, balancing the market and consumer protection through effective regulatory policies and recognising information services as a vital component in the sector. However, with regard to the nature of the constraints (e.g. cost, literacy, handset specification) being faced by the sector, the study clearly showed that the use of m-commerce was likely to remain the preserve of a few well-off individuals in African societies for sometime.

1.6 ORGANISATION OF THE STUDY.

The study review has eight chapters. Chapter 2 discusses African trade regimes and trade performance as well as ICT landscape with emphasis on the countries under study. It reviews the trade policies African countries have gone through since the import substitution strategy era and it also tries to establish the link between ICTs and trade, hence economic growth. Chapter 3 discusses the ICT infrastructure development in African countries and also tries to assess their capability to handle e-trade initiatives by examining African countries' readiness in developing e-trade activities for economic growth. Chapter 4 focuses on the legal and regulatory environment in which the African ICT and telecommunications sector operates. It looks at how the ICT and telecommunications sector reform process has been implemented and how it has affected the performance of the sector. This chapter looks also at how the legal and regulatory framework in Africa affects e-trade initiatives. Chapter 5 looks at the link between IPRs and economic growth in Africa. It also looks at the IPR environment in the African continent and how IPRs impact on e-trade activities in Africa. Chapter 6 looks at the developments and potential of the African countries in BPO's and offshoring. It looks at how African countries could use their available endowments to successfully implement BPO and offshoring business activities, hence contribute significantly to their economic growth. This is done through the review of success stories from South Africa, Ghana and Senegal. Chapter 7 examines the application and role of ICTs in SMMEs development, with emphasis on the SMMEs significance to economic development in African countries. It also looks at the opportunities and challenges faced by SMMEs in Africa. Chapter 8 presents an analysis of the African mobile market with emphasis on m-commerce developments, given that Africa registered the highest growth in the world in the past years. The final Chapter presents the conclusions and policy recommendations based on the main findings, lessons learnt opportunities and challenges from the countries involved in the study.

CHAPTER TWO

ICT AND TRADE POLICIES AND ECONOMIC GROWTH

2.1 REVIEW OF TRADE POLICY ISSUES IN AFRICA.

2.1.1 Import Substitution Strategies

Beginning in the 1950s, and particularly in the 1960s and 1970s, most developing countries opted for import substitution strategies as a way of achieving economic growth. The goal of these strategies was to locally produce consumer goods previously imported from developed countries. Import substitution was seen as a means for revitalizing economic development and reducing dependence on former colonial powers, by diversifying productive structures within the different African countries. These strategies, which were to begin with the production of final goods and move up gradually towards the production of intermediate and capital goods (since most of these were also imported for final good production), were accompanied by restrictive external trade policies and considerable protection for emerging industries. In this way, they were expected to consolidate the new-found political independence of certain developing countries through greater economic autonomy.

From the mid-1980s, most African countries adopted the structural adjustment programmes (SAPs) with the support of the Bretton Woods institutions⁸. These programmes were in two parts, the first being the stabilization part which sought to reduce the short-term imbalance between supply and demand, in order to restore major macroeconomic balances and put forward measures aimed at curbing demand in order to reduce the major imbalances. The second part related to adjustment, the purpose being to reduce sectoral imbalances and boost output, particularly of exportable goods in order to restore the balance of payments in the long term. In this regard, the structural reforms would focus on supply and its redirection in the context of export promotion strategies. These reforms were basically of a microeconomic nature and sought to influence the arbitration and investment choices of businesses according to the requirements of the global markets. These new development options, which marked Africa's total departure from import-substitution strategies, sought to redirect growth strategies towards the external market.

2.1.2 Trade Liberalisation Policies

Trade policies in Africa underwent major changes within the framework of the SAPs. There was greater liberalization in foreign trade through the reduction of non-tariff barriers and decreases in customs levies applied to imports in a large number of countries. African countries stopped fixing exchange rates and overvaluing their currencies and applied a series of devaluations in order to promote exports and help businesses become more competitive. The new trade policies adopted by African countries were part of the new development framework. They sought to promote greater openness in order to boost growth and encourage the competitive integration of the African economies into the globalization process.

⁸ The World Bank and International Monetary Fund (IMF)

The reforms were not, however, entirely successful in Africa. Results were positive because they were higher than population growth rates and resulted in an increase in per capita income. However, the growth remained unstable and the continent's economic performance was below the 7 percent annual rate needed to halve poverty by the year 2015. Africa was able to maintain relative macroeconomic stability during the 1990s despite external imbalances and the fall in the flow of external resources.

The outcome of these reforms fell below expectations if the continent's sectoral performance is examined. Production in both the agricultural sector, which employs nearly half of the African population and the industrial sector, dropped significantly between the 1980s and late 1990s. The fall in agricultural production and the difficulties facing the industrial sector led to the decline in Africa's contribution to world trade. Thus, the share of African agricultural products in international raw-materials trade dropped during this period, while at the same time Latin American countries experienced a share rise. There was however an increase in the proportion of manufactured products in total exports from Africa and this was mainly due to the fact that a few countries such as Tunisia, Mauritius, Egypt and Morocco had succeeded in diversifying their industrial structures and negotiating for international integration based on the export of manufactured products.⁹

Opening up to external markets did not bring about a recovery in growth or more competitive integration into the international economy. This conclusion must be seen against the background of the political situation, which prevailed on the continent in the 1990s, with the increase in the number of internal conflicts negatively affecting growth. It should also be emphasized that trade liberalization efforts cannot yield results in an environment marked by weak infrastructure as is the situation in a number of African countries. High transport costs, the inefficiency of logistical services to international trade and weaknesses in support services certainly affected the export performances of the African economies. It should be noted that, for example, transport costs for landlocked countries are 200 percent higher compared with those at the nearest port¹⁰. Also, handling costs at African ports are markedly higher than those in the developed countries. Thus, weak transport infrastructures and poor support and logistical services certainly weakened the export performance of African countries, heavily reducing the impact of the reforms undertaken.

With these results one has to acknowledge the poor results of the reforms initiated since the early 1980s. Particularly in Africa, the dropping of import-substitution strategies and the choice of greater openness did not markedly boost growth or ensure more competitive integration into the global economy. This outcome clearly explains the latest controversy in the economic assessment of the impact of openness on economic growth

The same process took place in the countries being studied under this exercise, Egypt (1990), Ethiopia (1992), Ghana (1992), and Kenya (1998). These countries like most of the Africa countries have embarked on regional integration efforts mainly through membership in Regional Economic Communities (REC's) like Economic Community of West African States (ECOWAS), East African Community (EAC), Common Market for East and Southern African States (COMESA) and the European Union (EU). To this end, these countries have been implementing trade liberalization schemes since the early 1990s, but have been delaying

⁹ See UNECA (2004), Trade Liberalisation and Development: Lessons for Africa, African Trade Policy Centre, UNECA, Addis Ababa, Ethiopia.

¹⁰ Ibid

in the harmonization of their trade regimes, including the adoption of common external tariffs. In spite of measures taken to integrate regional economies, the level of intra-regional trade has remained low. Most of these countries in Africa receive non-reciprocal preferential treatment, mostly African countries, under African Growth and Opportunity Act (AGOA) and the Economic Partnership Arrangements (EPA).

2.1.3 AISI and Inter-Regional Trade in Africa.

From the African perspective, a subregional Information Society strategy is envisaged to help build a better knowledge environment, increase dialogue at the highest political levels as well as create a common vision for digital opportunities for African countries. This is aimed at supporting regional integration in which ICTs are envisaged to play a vital role as stipulated in the AISI implementation process, through the Regional Information Infrastructure and Communication Strategies and Plans (RICIs).¹¹ These strategies and plans are envisaged to promote harmonization of national ICT policies and regulatory frameworks, establish open standards and promote interoperability and interconnectivity. This lays the required foundation for promoting e-trade through increased intra-regional trade and integration of African countries into the global economy, hence reaping the benefits of economies of scale as a result of enlarged market sizes. However, challenges still remain with respect to strategies at the regional level. Factors such as inadequate infrastructure, ineffective or unavailability of legal and regulatory policies, limited human capacity, cultural and linguistic factors as well as political will, are some of the factors that derail development endeavours at the regional level in Africa. The AISI is envisaged to play a vital role in promoting regional economic integration in Africa and hence e-trade. In the face of the opportunities and challenges posed by the new paradigm of the global economy, nations are moving towards the integration of their economies with those of their neighbours, to create larger and more competitive regional economic blocs and enhance international trade.

The 6 countries in this study are members of several regional organizations whose progress in policy harmonization encompasses factors impacting ICT development. The different regional blocks such as COMESA are implementing on-going reforms in the ICT sector to improve efficiency and to attract private investment. The Member States aim to harmonize policy changes towards an integrated ICT market. Significant progress has been achieved in a number of areas, such as establishment of a regional association of ICT regulators. In other implications of regional cooperation, members will be obliged to co-ordinate international conventions and agreements such as the WTO Information Technology Agreement (ITA).¹² Such kind of initiatives have also been developed in ECOWAS, UEMOA and SADC in various ICT and trade endeavours e.g. the Telecommunications Regulatory Association of Southern Africa, now Communications Regulators' Association of Southern Africa (CRASA) (See Box 2.1 below).

¹¹ See UNECA (2008), AISI A Decade's Perspective, ECA, Addis Ababa.

¹² The Information Technology Agreement (ITA) of the World Trade Organization went into effect on April 1, 1997. The ITA is primarily a tariff cutting mechanism, which requires all signatories to eliminate customs duties on all products listed in Attachment A and Attachment B of the Agreement and to bind these duties and charges at zero. Under the agreement, tariffs are eliminated on information technology products, including computers, telecommunications equipment, semiconductors, and semiconductor manufacturing equipment. The agreement does not apply to domestic taxes, including VAT.

Box 2.1: Telecommunications Regulatory Association of Southern Africa (TRASA).

Regulatory authorities in the SADC region formed a telecommunications regulatory association of southern Africa (TRASA) to harmonise regulations with the aim, amongst others, of attracting investors, maximising the utilisation of scarce resources and promoting low cost services to meet the diverse needs of users. South Africa is also a member of TRASA. Whilst TRASA has fulfilled the needs of large operators in SADC by encouraging regulators to develop regulations required to support telecommunications services including new technologies, such as new wireless solutions, it has not explicitly focussed on SMME development in the sector or region.

In the East African Community (EAC) increasing harmonization of fiscal and monetary policies also impact investment and marginal costs of doing business in the countries in the region. For example, Kenya, Tanzania and Uganda implemented a common external tariff on January 1, 2005. This implies that if the EAC (which inducted two new Member States, Rwanda and Burundi, in November 2006) wished to join ITA, all the five Member countries would have to eliminate duties on ICT products at the same time. More importantly for these EAC countries' ICT policies and external trade, it is critical for the growth of manufacturing exports to develop a matching ICT framework for the region hence enhance trade and economic growth in these countries.

2.2 REVIEW OF EMPIRICAL EVIDENCE OF ICT IMPACT ON TRADE AND ECONOMIC GROWTH.

Although evident, conclusive theoretical and empirical evidence explaining how the diffusion of ICT is a catalyst for economic growth and competitiveness in developing countries is still evolving. ICT-macroeconomics-trade links are also being studied. Taken overall however, and despite the potential but as-yet un-conceptualized benefits of ICT and e-commerce, the literature yields complex and contentious information on the determinants and channels of impacts on trade and economic growth. The debate is about whether and how ICTs adoption improves firm performance and how the changes in performance translate into changes in trade and economic growth performance. Furthermore there are undetermined questions on the role of regulation and taxation and their impact on ICT development and the market. If they stay too far from resolving market failure, they strangle the development of ICT with the so-called fiscal excess burden. The underlying debate is deepened by the lack of firm analytical concepts or theory linking investment in ICT to complementary investments, e.g. training and ICT-compatible skills and the state of ICT leadership, management, organization and innovation.

2.2.1 Global Evidence of ICT benefits to Growth and Trade

A number of important studies that address the impact of ICT across developed and developing economies show that the efficiency gains enabled by ICT products and services have led to a sizeable macroeconomic impact in poor countries. Fuss, Meschi, and Waverman (2005), recently studied the effects of mobile phone service penetration in 92 countries over 20 years. They found that the effects of mobile phone use on economic growth are much more in developing countries as they are in developed countries. For an increase of 10 mobile phones per 100 people in developing countries, the rate of GDP growth rises by an

impressive 0.6 percent per year. Clarke and Wallsten (2004), studied 27 high-income countries and 66 developing countries, and found that a 1 percent increase in the number of Internet users boosts total exports by 4.3 percent. It also increases exports from low-income countries to high-income countries by 3.8 percent. A study by Freund and Weinhold (2004) included 56 developed and developing countries for the period 1997–99, found a significant link between access to the Internet and trade growth. The study also found that developing countries with poor pre-Internet access to external trade benefit the most from connections to the Internet.

The pursuit of global economic efficiency, growth and trade in the ICT sector is not universal. The principal trade instrument for ensuring a competitive ICT service market is the World Trade Organisation's (WTO) Basic Telecom Agreement. Although more than 70 countries have made commitments under this agreement, several have not liberalized their markets sufficiently and most developing countries have made few commitments or none at all as evidenced by some African countries in this study.

2.2.2 ICTs and Productivity

Economists who link macroeconomic performance to microeconomic impact of ICT, Wolf (2001) and Chawdhury and Wolf (2003), for example, have found mixed results: they have found positive impacts on total factor productivity (TFP); no significant impact on enterprise return; a negative impact on labour productivity; a positive impact on market expansion; and no significant impact on export performance.

After disaggregating capital into ICT and non-ICT components, it is found that while both categories of capital positively affect market expansion, only non-ICT capital¹³ has a positive impact on enterprise return and export performance. Yet, such desegregation cannot eliminate cross elasticity impacts of ICT. Some impacts of non-ICT capital must be induced by ICT. The studies nevertheless stress the important question of how firms can reach or overshoot threshold ICT investments relative to other inputs. The lumpiness and high relative costs of ICT in Africa and the capacity and pace of learning by labour to employ ICT technology are other factors that may conceal the positive dynamics of ICT-related production, exports and growth. For example, a phenomenon such as ICT over investment relative to labour-ICT skills can occur, which would then lower the productivity of ICT-related capital stock. In addition, ICT input is only one factor in the context of other complimentary determinants of export performance such as country infrastructure and the functioning of the banking system.

2.2.3 Commercial Practices and ICT/Trade Development

Other studies that examine e-commerce and both business-to-consumer (B2C) and business-to-business (B2B) models yield results that are more critical to the development of strategic ICT policies at country level. The findings of a study by Humphrey, Mansell and Paré (2003) are relevant to Africa as these included firms in Bangladesh, Kenya and South Africa in sectors that were significant to these countries in the export markets i.e. garments and horticulture. They reach three major business-related conclusions. Firstly, that for the garments and horticulture sectors, it is difficult for producers in developing countries to use ICT developments to change traditional links among agents/intermediaries and reach the end-customers directly. Secondly, they suggest a bi-directional causation where ICT entrenches

¹³ Non-ICT capital includes expenditures for example on ICT training

conventional factors and 'locks-in' existing producers and buyers in trade. And thirdly, it is suggested that the key factors in the relationship are established through face-to-face interactions, trust factors, transactions security, and prevention of cyber crime and consumer protection. These factors are powerful blockers preventing the indiscriminate development and substitution of ICT diffusion and applications in trade, regardless of the potentials offered by the Internet in its form of many-to-many buyer-producer relationships. If true, ICT could under this hypothesis deepen and cluster its benefits around producers-buyers already in traditional market relations and supply chains. The situation favours large-firms and traditional exports against non-traditional exports and lesser-known SMMEs who face clear disadvantages in attempts to forge new buyer relations and confidence, compared to large multinationals with highly recognizable brand names. On-line clients may equate recognition of a brand or company name with a measure of a firm's credibility just as they do off-line. Inability to verify the on-line seller's credentials thus ranks high among reasons for domestic and cross-border reluctance to buy on line (OECD, 2002).

One important strategic question for Africa is whether to accept uncritically the above hypothesis. Under it, in markets already established firmly (manufactured goods in African markets and agricultural products and garments in the developed world), ICT should then help to deepen existing trade relations on the B2B model. If traditional trade frameworks (exporters and importers of key commodities and services (coffee, tea, horticulture, tourist and financial services etc)) were monopolies or oligopolies, it would be inefficient and uncompetitive to support further entrenchment through ICT. If in addition, the value chain of products (in coffee and tea for example) position domestic producers to receive only a fraction of final prices, the B2B ICT strategy would entrench inequality and poverty. It would be prudent to focus entry of new players aided by ICT development and diffusion of market information that would break up cartels and capture higher domestic incomes from trade in developing countries in Africa.¹⁴ Furthermore, the empirical findings above would suggest that projects that deliver sophisticated ICT infrastructure and digitization per se, but which are unpretested for the country's trade policy priorities and constraints, could be costly but over-rated. A country can allocate and implement ICT investment amounts that fail to capture counterpart expansion of production and that generate trade impacts disproportionately small relative to the overall costs and impact on trade expansion.

The presence and persistence of strong buyer-producer relationships would instead suggest that ICT injected in domestic transport and institutional arrangements for trade and coordination with buyers in the value chain are higher priorities. Furthermore, the above conventional factors might not generally favor new export market development on-line and governments would be called upon to address identifiable growth and trade-related market failures.¹⁵

On the import side, B2B suggests risks in developing non-traditional sources of supply or taking up new ICT-based supply chains. Similarly, where cartels, monopolies and oligopolies exist, it would be prudent to test new markets. This factor could be important in many

¹⁴ Some countries (examples, Nicaragua, Costa Rica and Guatemala) are reaping dividends after embracing online auctioning of coffee, see; 'Untapped e-Commerce Potential', East African Standard, July 23, 2006.

¹⁵ OECD (2003) suggests slow growth of ICT-related B2C and B2B. In 2000 total on-line transactions were generally 10% or less of total business sector sales and were mainly B2B. B2C were even lower, generally less than 2% of the total retail transactions. On-line transactions are mainly B2B (domestic) rather than B2C or cross-border. The roles of small and medium-sized enterprises (SMMEs) lag behind larger firms in Internet transactions.

African countries' substantial imports of raw materials and other inputs for industry, agriculture and services. However, ICT or lack of it may not by itself be the key factor marginalizing importers/producers from developing countries. The study suggests that a degree of cost-saving substitution of voice telephone infrastructure with data communications services provided by Internet Service Providers (ISPs) is in progress in most of the countries, in tandem with development of export markets in which traditional producer-buyer chains remain locked in, i.e., conventional commercial links are largely retained and re-affirmed.

It is also observed that stable customer bases matter more than the active search for new outlets. The overall thesis is that post-ICT developments have left global sourcing networks in their 'business as usual' mode, strengthened with new ICT capabilities and that despite the digital divide, digital technology is not a priority for developing country producers seeking export expansion.

2.2.4 Role of Governments

As suggested in the above sections, there emerge a number of market-failure issues that governments can address in ICT strategy. Governments can promote the appropriate business environments for e-trade and ICT uptake – e.g. diffusion of broadband and enhancement of ICT competition and domestic affordability.¹⁶ The productivity dilemma of ICT-capital stock and labour productivity assessed in Wolf (2001) and Chawdhury and Wolf (2003) also call for targeted programs that can overcome the market failure of the mismatch between existing skills and available ICT capabilities. Development of an ICT-trained workforce grounded in public schools would shift ICT-related labour productivity upwards over time.

In a market-failure framework, government can also address the issues of commercial practices as ICT posed in Humphrey, Mansell and Paré (2003). By setting up the requisite institutional framework for officially publishing on-line 'certified' producers that overseas traders can do business with, and setting up and certifying compliance with codes of conduct for trade, contract enforcement procedures, seamless payments mechanisms etc, government can minimize the negative impact of the lack of pre-existing/traditional trust factors. This could enhance trade from the ICT-constraining framework of traditional business-as-usual methods.

A study by OECD (2004) poses an even bigger dimension of market failure that governments can address: that of ICT development denied on the demand side by failures of government to digitize public services.¹⁷ Government expenditures typically provide a large share of effective demand in many developing countries. Delays in digitization of public services also delays ICT leadership, demonstration effects and the overall developmental and growth benefits of ICT.

¹⁶ Broadband refers to the amount of capacity (or speed of data transfer) provided on a telecommunications network via high-speed Internet access. See OECD (2004) recommendation of the Council on Broadband Development.

¹⁷ A seminar, ICT-Village Forum that the consultants attended, Safari Park Hotel, July 25 2006, focused this issue.

CHAPTER THREE

INFRASTRUCTURE DEVELOPMENT IN AFRICA

3.1 INTRODUCTION

The development of physical communication infrastructure, such as transport, postal and telecom networks and the spread of global information and communication networks immensely facilitates the electronic trade (e-trade)¹⁸ processes, which are more efficient compared with the traditional trade practices, where extensive travel and relatively higher cost is involved to participate in trade fairs, produce catalogues for advertising and promotion of products. The efficiency can be measured in terms of product or service development costs saved, customer outreach or advertisement costs saved and the increase in volume of sales.

Developing physical communication infrastructure and information network (e.g. LAN, WAN, Web Portals)¹⁹ is an overwhelming challenge to the least developed nations in Africa, which have meager resources on the one hand and often competing national development demands on the other. ICTs when used in trade undermine traditional national boundaries bringing additional challenges to policy makers and requiring them to review the traditional trade and monetary policies including payment, transaction procedures and processes, customs, tax collection system and export rules and procedures, privacy and security protection schemes among others. Moreover, putting the necessary infrastructure, human and financial resources, the necessary policies and regulatory frameworks to enable the actors build the information infrastructure is an important task for policy makers to narrow the knowledge gap existing in various sectors of a country's economy including the trade sector. These challenges can only be addressed through the understanding of the existing situations in a country in relation to the global trends.

The most important development issues, to establish and scale up e-trade are, the existing physical, information and communication infrastructure in the country, not overlooking the transportation system, energy, postal network, radio and TV which also facilitate or impede the development of business activities including trade. In this chapter the ICT infrastructure landscape in Africa is examined; in Section 3.2, and in Section 3.3 development initiatives in the sector that have led to a significant growth in ICT in Egypt are analysed, to enable other countries to benefit from the lessons learnt. Section 3.4 provides concluding remarks.

3.2 ICT INFRASTRUCTURE IN AFRICA

The wide availability and accessibility of ICTs has the potential to reduce poverty in Africa through extensional services in health, education, agriculture and social systems especially in rural and disadvantaged areas and groups. These as postulated earlier, have the capability of

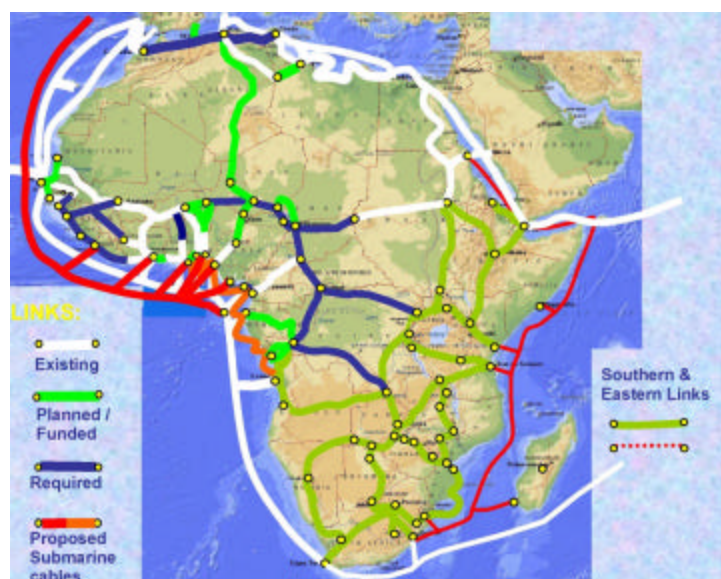
¹⁸E-Trade involves two parties, a seller and a buyer going through a trading process of products/services. Information searching, negotiating, contracts signing, payments transaction and delivery of products/services through an electronic media or through a combination of physical and electronic means are processes in e-trade.

¹⁹ Web Portal - Commonly referred to as simply a portal, a Web site or service that offers a broad array of resources and services, such as e-mail, forums, search engines, and on-line shopping malls. The first Web portals were online services, such as AOL, that provided access to the Web, but now most of the traditional search engines have transformed themselves into Web portals to attract and keep a larger audience. (http://www.webopedia.com/TERM/W/Web_portal.html).

enhancing intra and inter country trade, efficiency as well as reducing transactional costs, attracting private investments and foreign direct investment (FDI) into the continent.

However, connectivity and interconnectivity are the main impediments to the diffusion of ICTs. Despite having a number of initiatives to enhance connectivity, Africa is still least served by telecommunications and information technology services. Figure 3.2 shows the various existing telecommunication infrastructure connectivity as well as the proposed, planned and the required submarine cable network. These are envisaged to contribute significantly to infrastructure development hence trade and economic growth in the continent.

Figure 3.1: Broadband Network in Africa



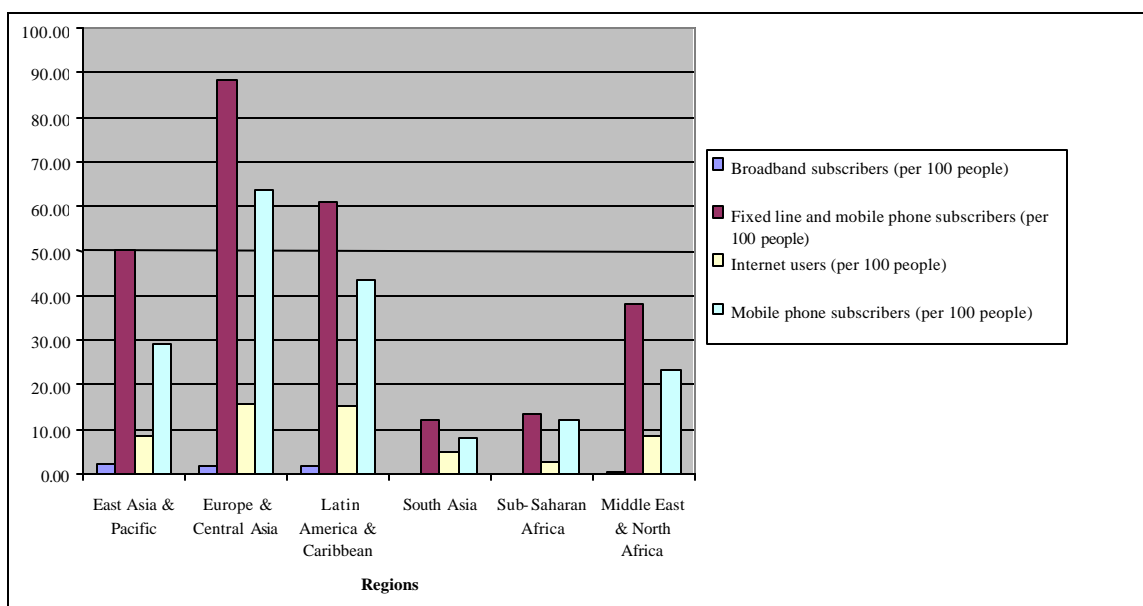
Source; NEPAD e-Africa Commission

Infrastructure to support rapid development of ICTs in Africa is very limited and rudimentary, hence affecting trade and economic growth on the continent (See Figures 3.2 and 3.3 below). The figure indicates that South Asia and Sub-Saharan Africa are the two least developed regions in terms of ICT infrastructure.

It has been argued that this low development in ICT infrastructure in Africa is due to high costs, a shortage of investment capital, low capacity of regulatory authorities, poor institutional linkages, lack of government commitment and the state of war and civil strife especially in the Central, Eastern and West African countries (ITU, 2003). These are also exacerbated by weak telecommunications infrastructure to support rapid development of ICT, restrictive institutional structures which are ill adapted to facilitate these developments to meet the huge demand for ICT services, weak and non-existent regional links to help create economies of scale and drive cost of capital equipment down. This is compounded by the lack of other related infrastructures such as electricity which is very unreliable and mostly concentrated in urban areas and the lack of human resource capacity in key areas to support the roll out, design and exploitation of ICTs.²⁰

²⁰ See ITU,(2003) and NEPAD-Infrastructure development short term action plan on [http:// event-africa-networking.web.cern.ch](http://event-africa-networking.web.cern.ch)

Figure 3.2: Regional Infrastructure Distribution 2005



Source: World Development Indicators

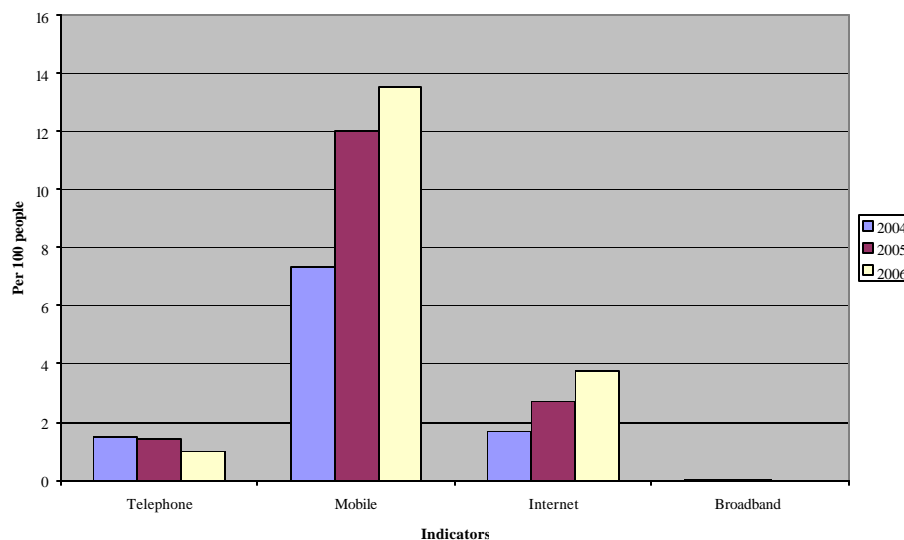
However, despite this low development in ICT infrastructure from a global comparative basis, the Sub Saharan Africa (SSA) region shows signs of growth especially in the mobile and Internet services indicators with a decreasing trend in the use of fixed telephony as shown in Figure 3.3 below. The Figure reveals that Africa stands a better chance of advancing in e-trade activities by utilizing mobile technology as well as the Internet while at the same time increasing investments in the adoption of the broadband technology, which is the lowest utilized technology in SSA.

Within the African continent, it has been observed that North Africa is the most advanced sub-region in telecommunications and ICT infrastructure development. It is well connected with submarine cables in the Mediterranean and other components of the Madarabtel network²¹. Liberalisation has taken place in Morocco, Tunisia and Egypt and is in the process in Algeria (ITU, 2003). The success of these countries is mostly due to the availability of oil and gas, which have brought about overall relatively enhanced socio-economic development.

North Africa is followed by the Southern African region, then Central, Western and lastly, the Eastern Africa according to ITU (2003) analysis. With reference to infrastructure indicators for the selected countries in this study, South Africa is the most developed followed by Egypt and with Ethiopia occupying pole position (Figure 3.4)

²¹ Madarabtel is the network infrastructure connecting North African countries

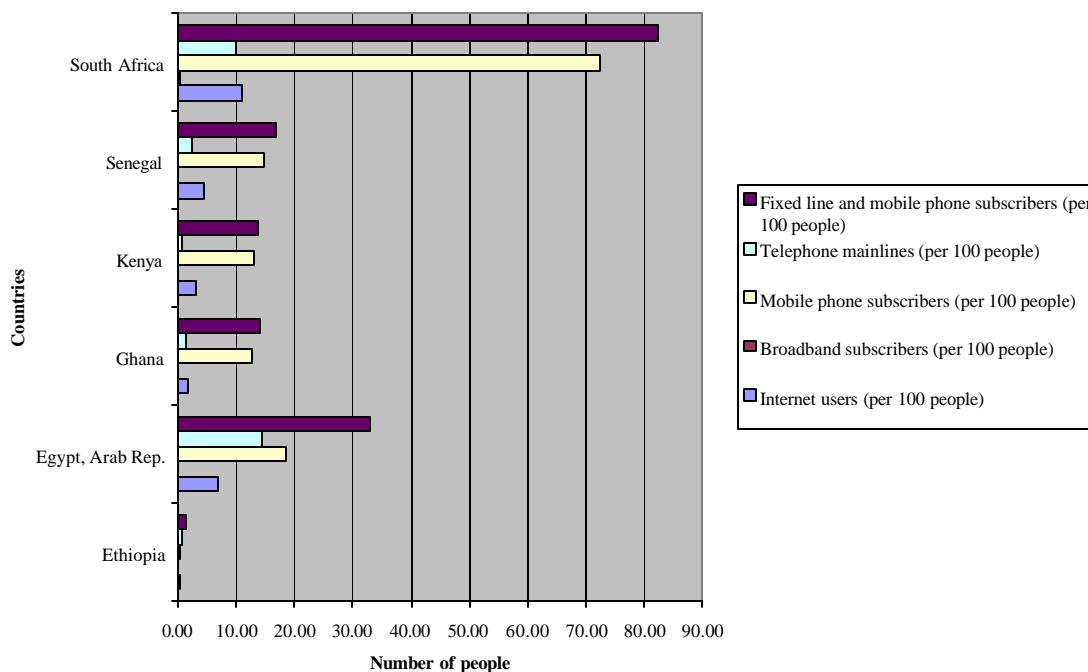
Figure 3.3: ICT Utilisation Trend in Sub-Saharan Africa



Source: World Development Indicators

To make sure other African states learn from the initiatives that led to the successful development of the ICT infrastructure in North Africa, the initiatives around ICT developments in Egypt were analysed in the following section.

Figure 3.4: ICT Infrastructure and usage in selected African countries in 2005



Source: World Development Indicators

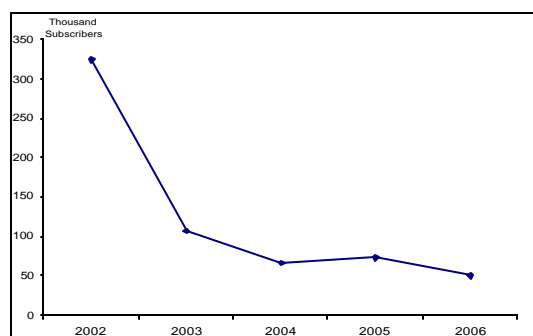
3.3 THE ICT SECTOR IN EGYPT

The Egyptian ICT infrastructure is considered one of the most developed infrastructures in North Africa, supported by the government's keen interest to build and maintain a modern and reliable infrastructure that allows Egypt to position itself among the front-runners in terms of ICT development in the African region. Telecommunications infrastructure has improved dramatically during the last seven years. Fixed telephone lines have grown significantly to almost double from 6.4 million in 1999 to 13.2 million in 2006. Telecom Egypt is the national fixed network provider with several major components, which include access, transmission, switching and signaling service intelligence to support the voice services. The Telecom Egypt switching network includes at least one national gateway in each governorate to handle long distance calls. Each of the main towns of Cairo and Alexandria has one international gateway as well as two mobile gateways. Launched in 1988, Egyptnet, the packet data network owned by Telecom Egypt, was the first packet switching network in the country to offer data services to the public. Current services offered by Egyptnet include X.25 dial-up services and direct lines with access rates of up to 256 Kbps. Also provided are Frame Relay services with access rates of up to 2 Mbps, as well as digital leased lines with access rates of up to 2 Mbps. International access is also available for X.25 services in Egypt.

This overlay data network provides basic services for business customers and is a backbone for sophisticated and ever growing needs of different economic activities that are mainly related to high-level information technology infrastructure. In addition to Telecom Egypt's success in doubling its exchange capacity, it has also succeeded in reducing the waiting lists for fixed phones significantly (See Figure 3.5 below). In addition to the provision of telephone services for rural areas, which have increased from 775 exchanges in 1999 to 1140 exchanges in 2006. Telecom Egypt set as a target the provision of telephone services to all Egyptian villages by June 2007.

Figure 3.5

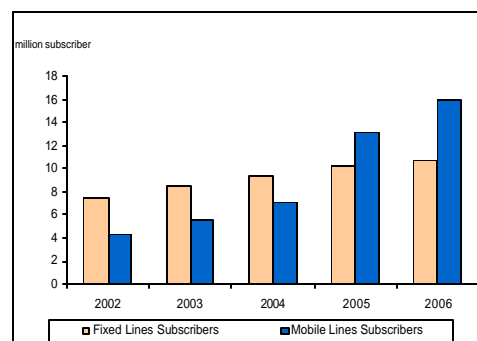
Waiting List for Fixed Line Subscribers



Source: MCIT, November 2006

Figure 3.6

Fixed and Mobile Lines Subscribers



Source: MCIT, Data of October 2006

While Telecom Egypt is providing its services for fixed network subscribers, the two mobile operators are attracting customers more effectively than does the fixed lines provider. Figure 3.6 indicates the high growth rate of the mobile phone subscribers in comparison to the fixed line subscribers, especially after 2004, which was mainly attributed to the attractive sales promotions offered by the two operators. This shows also that the growth rate of mobile phone penetration is growing significantly in comparison with fixed lines as the market of fixed lines is reasonably saturated whilst opportunities for mobile operators are still

promising with a large consumer base and growing income levels. This is true for most of the African countries as shown in Figure 3.4.

Egypt currently has three mobile telephone operators, Mobinil, Vodafone and Etisalat Misr. Mobinil was the first operator to provide GSM service in 1996 and currently has 1824 towers covering 220 cities including 61 highways and has agreements with 240 different operators in 107 countries worldwide. Vodafone, the second mobile operator has 1718 towers covering 214 cities including 111 highways and has roaming agreements with 250 different operators in 105 countries worldwide.

By the end of 2006, the third mobile operator Etisalat Misr was licensed to provide 3rd Generation mobile technology.. The company started operations in April 2007 and now offers the most advanced 3.5 Generation technology.

3.3.1 The Internet Service

The Internet service in Egypt started off outside the telecommunication sector, where services were first introduced in October 1993, by the Egyptian Universities Network (EUN) and the Information and Decision Support Centre (IDSC) of the Egyptian Cabinet. In March 1996, a landmark decision was taken by the government, opening the door for commercial Internet services. Represented by IDSC and Telecom Egypt, the government started developing an Internet backbone and gateway facility to serve twelve private sector Internet service providers (ISPs) at that time (providing commercial Internet services in Egypt for the first time).

With the formation of Ministry of Communication and Information Technology (MCIT) in October 1999, the Internet as well as the telecommunication sector started to witness a remarkable reform process. By 1998, Law 19 had transformed Telecom Egypt, the state owned incumbent operator into a joint stock company and the government created and assigned all regulatory functions to the National Telecommunication Regulatory Agency (NTRA) as an independent regulator. The newly established ministry started a number of initiatives to expand broadband capacity and establish a reliable, fast Internet backbone.

Several ISPs were licensed by the NTRA to build their own data backbones and expand their broadband capacity by obtaining separate international gateways. These initiatives introduced competition in the local Internet and data backbone market. This led to the provision of maximum capacities and best available services at the minimum costs possible to the end users. This coincided with another landmark initiative that was introduced and backed up by the government, Egypt's Free Internet Project. This project, which began in January 2002 pushed both Telecom Egypt and other licensed data backbone operators to expand their networks both in terms of capacity and coverage. This project was supported by other initiatives such as the PC for community scheme, the Broadband Initiative, the IT Clubs, the e-Connect Initiative and Civil Society Initiatives which encouraged the participation of the private sector in the development of the ICT sector through the use of Public Private Partnerships model in designing and implementing policies for developing and renovating the sector in Egypt.

Telecom Egypt opened its exchanges nationwide to interconnection and licensed operators were permitted to co-locate their equipment all across the country. All this resulted in a significant increase in the number of Internet users, reaching 6 million in 2006 from 300,000 in 1999.

To date, there are eight Network Service Providers (NSPs), while the number of retail ISPs has jumped to 190 nationwide. The total international capacity to the Internet has also been exponentially increased to reach 8.3 Gbps by November 2006.

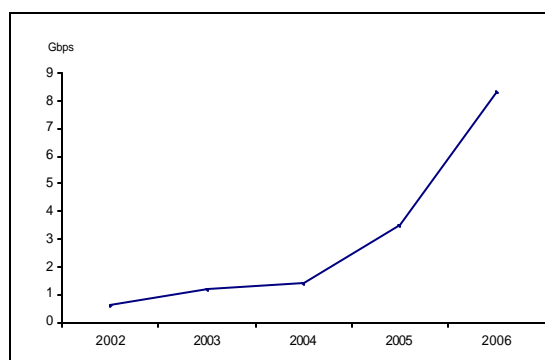
Currently, the domestic Internet infrastructure consists of several backbone networks using different technologies such as IP, Frame Relay and ATM. Eight private sector operators, in addition to Telecom Egypt, are licensed by the NTRA to build and operate these networks, providing reliable Internet services with enhanced quality. Another class of license is granted by the NTRA to virtual ISPs renting infrastructure and providing access, content and customer support to end-users.

Egypt also has committed itself to cooperating with the establishment of international infrastructure projects. Egypt's privileged geographical location makes it an international telecommunication hub in the Middle East and African region. A number of global and regional fiber optic cables have landing points in Egypt and provide the country with redundant international links and reliable connectivity to the global Internet leading to significant Internet capacity growth (See Figure 3.7 above).

A number of global and regional fiber optic cables have landing points in Egypt and provide the country with redundant international links and reliable connectivity to the global Internet. The first submarine cable between South East Asia, the Middle East and Western Europe is called the SEA-ME-WE and the second is SEA-ME-WE-II, which was implemented along the same route, but serving more countries and using digital fiber optic technology. There is also a SEA-MEWE-III cable with extended coverage from Europe to Japan, Australia and many other countries in East Asia.

It should be noted that during the year 2000, Telecom Egypt signed with the Fiber Optic Link Around the Globe (FLAG) project, an agreement to build a local IP peering point for FLAG in Egypt. The peering point located in Cairo, directly connects ISPs to the FLAG IP backbone via an STM-4 link on FLAG cable. This agreement resulted in decreased prices for international Internet connectivity.

Figure 3.7: Internet Capacity Growth in Egypt



Source: MCIT, December 2006

IP peering is linked to different global operators connected to the US and European backbones, such as UUNet, France Telecom and the Fiber-Optic Link around the Globe project. Egypt's international Internet capacity is not yet fully utilized, which makes it ready to accommodate further expansion to the domestic Internet infrastructure and usage.

These developments have enhanced competition in the sector hence leading to a significant reduction in telecommunication services prices. Prices for international leased lines have experienced a number of successive reductions during the last three years. Prices are showing a clear sign of the government's commitment to link the country to the global society.

3.3.2 ICT and Economic Growth in Egypt

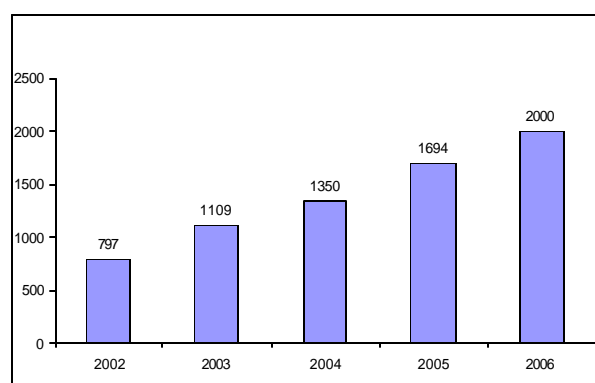
The ICT sector is receiving ever-growing importance in the structure of the Egyptian economy. As of January 2007, estimates for the contribution of ICT sector to GDP was around 2.9-3 percent according to international market research agencies²², while this number is tending to lower the contribution of ICT in the national economy, official sources reckon this number to be around 6%.

The Egyptian ICT market generates approximately \$2.9 billion annual revenues, almost \$2.5 billion (86 percent) is derived from the telecommunications sector and about \$46.8 million is due to IT exports. The Government of Egypt is sustaining its ongoing economic and institutional reforms, infrastructure development and global integration to enhance Egypt's competitiveness in the region and globally.

Demand for software in Egypt grew by 48 percent between 2000 and 2004 and Egypt now boasts of the largest software sector as a fraction of its IT sector in the region.²³ Business Monitor International estimated the overall IT market size to be \$823 million in 2005 and the growth of the IT sector to reach 1.2 billion in 2010.²⁴

During the last three years, the number of companies working in the ICT industry has more than doubled, sustaining an increasing average growth rate of 30 percent annually, which is significantly higher than growth in traditional economic sectors in the country. As of December 2006, the number of ICT companies in Egypt increased to 2000.

Figure 3.8: Number of ICT companies (2002-2006)



Source: MCIT, December 2006

²² See IDC and Business Monitor International, estimates of 2006 for more details.

²³ 6HH IDC, miscellaneous country reports

²⁴ Business Monitor International, Egyptian Information Technology Report, August 2006

Investments in the ICT sector were phenomenal in the last few years and capital investments exceeded 17 billions Egyptian Pounds (EGPs) in 2006 according to the data from the General Authority for Investment and Free Zones²⁵. This is equal to nearly 16 percent of total national investments in (2005/2006)²⁶. More detailed data in IT and Communications companies' reveals that the growth rate of the IT companies' was higher than the growth of communications companies in Egypt. Capital investment of IT companies increased from 1 billion EGPs in 1999 to 4 billions in 2006, while the capital investment of the Communication companies increased from 5 billion EGPs in 1999 to 13 billion EGPs in 2006.

International partners are increasingly more interested in the Egyptian ICT sector and recent figures are showing that Foreign Direct Investments in this sector has exceeded 7 billion EGPs in 2006, making foreign contribution around 41percent of total investments²⁷.

Although the numbers of investments are impressive, there is a long way to go before a relevant increase in the volume of investments is achieved as required to meet the information base and human resource development objectives of Egypt's plan to revive the ICT sector. This would require the pooling of financial resources from both the government and the private sector. This impressive development has been achieved mostly through investments in ICT and telecommunications infrastructure, such as submarine cables which have led to improvements in communications and reduction in costs of ICTs and telecommunications.

3.4 CONCLUDING REMARKS

The main objective of this chapter was to assess the ICT infrastructure available in the African continent and examine if it is able to handle e-trade initiatives. The study reveals that Africa is the least developed in terms of ICT infrastructure and this has mainly been due to weak African governments' commitment to infrastructure development as well as weak capital investments in the sector. Despite these challenges, some African countries stand out in the use and investment into the sector. These are mostly North African countries and in the other sub-regions, only South Africa has world class ICT infrastructure which contributes significantly to economic growth and development of these countries. Egypt, as a case study, provides lessons on the significance of deregulations and economic reforms in the ICT and telecommunications sector, which have encouraged competition, reduced telecommunications prices, increased efficiency in the sector and contributed significantly to economic growth. The government has also undertaken different ICT initiatives, which have created momentum for ICT use in the Egyptian society. African countries could learn from these initiatives to enhance investment, awareness and usage of ICTs in their countries. Egypt has invested in several international infrastructure projects and its domestic Internet infrastructure consists of several backbone networks using different technologies.

²⁵ General Authority for Investment and Free Zones, Preliminary estimates for 2006

²⁶ According to the data of the Ministry of Economic Development the total investments in (2005/2006) was approximately 113 billion EGP

²⁷ See General Authority for Investment and Free Zones, Preliminary estimates for 2006

CHAPTER FOUR

ICT AND TELECOMMUNICATIONS LEGAL AND REGULATORY ENVIRONMENT IN AFRICA

4.1 INTRODUCTION

The growth of electronic business transactions in recent years has raised concerns about the inconsistency and inadequacy of the existing legal and regulatory regimes in dealing with issues that electronic commerce raises. Most commentators have noted that ironically it is the lack of a substantial legal and regulatory framework that has made the unbridled growth of electronic commerce possible, as the application of too much traditional regulation would otherwise stifle growth.²⁸ This thinking led to the deregulation and transformation as well as introduction of new legal and regulatory frameworks in most developing countries.

Until recently, the ICT market was dominated by monopolies of fixed telephone services, mostly provided over a basic access network in developing countries. However, the rapid development in the ICT sector has brought about new challenges for the regulators globally. Regulators and policy makers around the world are looking at creating responsive and dynamic policies and regulatory frameworks that address issues raised in a liberalized and converging ICT environment. No one formula exists, as the ultimate objective of ensuring efficient markets and efficient use of resources depend on administrative, legal, cultural and social framework in a given country. However, a comprehensive legal and regulatory framework aimed at “facilitating” instead of “strictly regulating” e-commerce or e-trade has to be in place to facilitate the contribution of e-trade to the national economy.

The legal and regulatory environment ensures that there is order to make the telecommunications sector more competitive hence allowing the new economy to yield gains for the developing economies. The lack of a legal framework to address problems of validity of electronic transactions is a significant barrier to the growth of e-trade.

Regulatory reform or deregulation in the telecommunications sector implies changing the legislation that governs the sector, a reduction in government intervention, and also analyzing the institutional set-up and use of policy instruments. This has moved at a slow pace in developing countries especially in Africa. The nature of the telecommunications industry is such that government controls are essential in order to enforce a fair, competitive and efficient environment. This is due to the importance and centrality of the telecommunications sector in the economy. A major component of deregulation is the establishment of an independent regulator, which is immune to political or economic influence and operates independently of service providers. Deregulation is therefore essentially about changing the laws that govern telecommunications and creating and empowering bodies to enforce the new legislation. However, for deregulation to be beneficial to the economy, the regulatory regimes need to be transparent, coherent and comprehensive, spanning from establishing the appropriate institutional framework to liberalizing the telecommunications sector.²⁹

This chapter discusses the legal and regulatory development processes aimed at improving the efficiency and development of the ICT and telecommunications sector as it contributes to e-trade. The next section examines how the ICT and telecommunications sector was affected

²⁸ See Anil and Tan, Legal Regulatory and Policy Issues of E-commerce in Asia on www.apdip.net/asian-forum.

²⁹ See OECD (2004), Regulatory Reform in Germany, OECD.

by economic reforms and tries to establish why the different African countries have not fully benefited from these reforms in the provision of ICT and telecommunications services. Section 4.3 analyses how the legal and regulatory developments in the sector have affected e-trade in South Africa and Egypt. This is substantiated by Section 4.4, which looks at the development, implementation and implications of the legal and regulatory issues by Kenya. Kenya is selected because it portrays a more comprehensive picture of developments regarding ICT and telecommunications developments, which are partly or entirely experienced in almost each and every country in Africa.

4.2 ICT AND TELECOMMUNICATIONS SECTOR REFORMS

An important step in pro-competitive regulatory reform in the ICT and telecommunications sector occurred in the late 1980s and in the 1990s in most African countries. In these countries, this process was implemented through the structural adjustment programmes (SAPs) initiated by the World Bank and IMF to deregulate and stabilize the African economies. Recognising the relevance of the ICT and telecommunications industry as a key part of developing countries' economies and of critical strategic importance for economic competitiveness, these policies were implemented in these sectors as well. This was done through privatization and deregulation policies in the sector with the aim of market liberalization in these African countries. This was deemed to end up not only by being beneficial to consumers due to improved prices, choice, quality of service and widened product range, but also overall economic development.

A combination of the poor historical performance of the public enterprises which had traditionally been running the sector, fiscal crisis slowing down government financing of their investment deficits and new opportunities allowed by technological progress have resulted in major institutional changes in the sector. In the 1990s, most of the African countries essentially embarked on the process of adopting new laws aimed at liberalizing telecommunications, which have been implemented at least partially through privatization of the historical operators. In most African countries, this deregulation process led to the separation of Posts and Telecommunications Corporations into three public enterprises, in which operational functions were separated from regulatory ones. The Postal services were separated from the telecommunication services and this process led to the establishment of independent Regulatory Authorities (RAs) with the overall responsibility of regulating the communications sector. The RAs are mostly responsible for licensing telecommunications, postal and broadcasting operators, settling disputes among operators, approving tariffs, promoting and monitoring free and fair competition, allocating and managing the radio frequency spectrum, managing the numbering plan, approving the types of terminal equipment and protecting the consumers among others. Accordingly, the aim of market liberalization in Africa is not only to realise consumer benefits such as improved prices, choice, quality of service and widened product range, but also to facilitate overall economic development in different countries. The governments recognize that investment in communications infrastructure and services, including broadband, will mainly come from the private sector and pro-competitive regulatory reform is seen as the most effective way of stimulating such private sector investment and innovation, hence contributing significantly to e-trade and economic development.

The goal of the telecommunication liberalization process was also to gradually introduce competition. The diffusion of mobile technology and the opportunities for other technological

changes forced competition into the sector in many countries. Most African countries have some degree of competition although often with restrictions. The telecommunication reform process was mainly directed at creating an environment that could foster a massive expansion in the coverage and capabilities of the information infrastructure networks, with national telecommunication regulators as the key implementers of the reform policies..

One important issue is how privatization fits into a reform process and what the sequence of reforms should be. In the early 1990s, many influential advisers recommended speedy privatization in Eastern Europe and the former Soviet Union, as the only realistic method of reforming state-owned enterprises. As a result, there was much debate on sequencing of reforms, which focused mainly on corporate governance and macroeconomic conditions, but rarely on microeconomic industrial structure or institutional issues.³⁰ In particular, those early debates almost completely ignored issues of competition and regulation. By the end of the 1990s, reformers recognized that ignoring the institutional and competitive framework was a mistake and conventional wisdom held that a regulatory framework should be in place prior to privatization. However, absent from any of this debate, has been the empirical evidence on how the sequencing of reforms might matter.

Despite all these developments, there was no foresight on the implications of the decisions especially with reference to Africa's initiatives towards e-trade. This would have ensured that all the decisions that were being made would have been aimed at creating a conducive environment for e-trade investments in the future. This study observes that, with reference to economic reforms in the telecommunications sector, more emphasis has been on creating a conducive environment for telecommunications investments through fostering competitive market environments in African countries with little emphasis on implications for e-trade.

4.3 LEGAL AND REGULATORY FRAMEWORKS AND E-TRADE

From the study, it can easily be observed that, of late, countries like Egypt, Republic of South Africa (RSA) and Kenya are among the few countries that have embarked on regulations pertaining to creating a conducive environment for e-commerce activities. Among the countries studied, Egypt and RSA are the only ones that have gone far ahead in terms of developments related to e-trade with regard to creating conducive legal and regulatory environments. Like many African countries, until the 1990's, all the communication networks or initiatives were regulated by one Telecommunication and Postal department or institution, as is still the case with countries like Ethiopia (See Box 4.1 below). In the 1990's, necessary steps for modernizing and reforming the telecommunications sector were issued in order to set the regulatory framework for the sector and to provide a clear and supporting environment for operating in the telecommunication activities as stipulated in the previous section.

With reference to e-trade, these countries have moved ahead of other African countries especially in terms of creating a conducive legal and regulatory environment fuelled by the realization that on-line procurement and supply chain management can trim costs and improve customer relationships. Egypt and RSA have even moved further ahead of most African countries by issuing and approving the e-Signature Act (2004) and the Electronic Communications and Transactions Act (2002) respectively. These laws provide

³⁰ See Scott W (2002) Does sequencing matter? Regulation and Privatisation in Telecommunications Reforms, Policy Research Working Paper 2817, World Bank.

comprehensive legislation outlining the governments' commitments to developing electronic transaction processes. They also address some of the legal issues of contractual arrangements undertaken online such as electronic signatures, cryptography, authentication-service providers and consumer protection. The study reveals that in RSA, the Act also provides for the appointment of cyber inspectors who have the power to inspect websites and report unlawful activities on them, investigate the activities of cryptography providers and authentication service providers and audit critical database administrators. While in Egypt, at the time of this study (2006-007), the cyber crime law was being drafted to help confronting the different forms of illegal access to information services on the Internet.

Box 4.1: The Ethiopian Telecommunications Corporation (ETC)

ETC is an autonomous state-owned and sole telecom operator and Internet service provider in the country. According to the ETC's annual statistical bulletin, (ETC, 2006) ETC has 904 telecommunications service stations. The number of fixed telephone subscribers under all categories (residential, business, government) has reached 725,046 in 2005/06 revealing an 18.8 percent increment over the previous year. Mobile subscribers are 866,700 showing a growth rate 111 percent over the previous year. Telecom penetration, (Tele-density, number of telephone subscribers per 100 inhabitants) excluding mobile phones was 0.98 in 2005/2006 fiscal year. The telecom penetration (fixed + Mobile) is 2.14.

However there is a strong argument among the ICT professionals and other stakeholders that the telecommunications sector has to be liberalized at least partially, to contribute towards trade and economic growth. But the issue is not resolved until to date.

This study team has found out that there is unpublished communication policy document, Ministry of Infrastructure, Letter of Communication Policy, August 2004 that is being used as working policy document since August 2004.

For Ghana and Kenya, the drafting of these laws is under different stages of the legislation process. For example, Ghana has drafted the Telecommunication Bill, Electronic Transactions Bill and the National Information Technology Agency Bill while Kenya has drafted the Kenya Information and Communications (KIC) Bill (2006). These Bills are expected to address issues including, recognition of electronic records, electronic signatures required in electronic transactions, licensing of certification services and electronic fraud. These legal and regulatory developments if successfully completed, are expected to support and boost e-trade and e-government services in these countries.

In the next section an analysis of the legal and regulatory reforms as regards ICT and telecommunications development in Kenya is provided. This analysis presents the picture of the development stages most of the African countries have gone through and why the reforms have not been significantly effective in most of the countries.

4.4 ICT TRENDS, POLICY AND REGULATORY ISSUES IN KENYA

The main ICT sub-sectors in Kenya are the public telecommunications sector, public broadcasting sector and organizational networked applications and services sector. The public telecommunications sector includes all the mobile and fixed telecommunication service operators, Internet service providers and other data communications operators that offer services to the public, often at a fee. Similarly, the public broadcasting sub-sector includes all radio and television broadcasting stations that offer services to the Kenyan public. The third category of organizational networked applications and services sector (sometimes called the

information technology sector as it includes PCs, software and LANs) includes all value-added service providers as well as the private voice and data networks that are interconnected using the public networks. Such private networks support services offered to both internal and external customers, for example e-commerce services.

Kenya has had a regulatory framework for the public communications sector with limited oversight for the broadcasting sector since 1998 when the Kenya Communications Act (1998) became operational. Unfortunately, the regulatory framework does not include other ICT services and applications and no explicit national ICT policy has addressed the non-communications sector of ICT and yet, all of the three categories identified above contribute to the effective utilization of ICT for ICT-facilitated trade.

4.4.1 Trends in telecommunications policy, legislation and regulation 1998-2006

Prior to 1998, the then Kenya Posts and Telecommunications Corporation (KPTC) controlled all the telecommunication services in the country. The monopoly powers by the KPTC had been established under the Kenya Posts and Telecommunications Act after the break-up of the East African Community in 1977.

As was the case with most African countries, the trade reforms of the 1980s and 1990s also affected the telecommunications sector in Kenya. In January 1997, the Government of Kenya published the Postal and Telecommunications Policy guidelines that among other things intended to liberalize the telecommunications sector and to separate the postal and telecommunications services. In 1998, Parliament enacted the Kenya Communications Act (KCA 1998), which is still being used to regulate the postal and communications services in Kenya. This KCA (1998) led to the creation of the following companies and institutions from KPTC: the Telkom Kenya Ltd (TKL) which was incorporated under the Companies Act, the Postal Corporation of Kenya (PCK) established under the Postal Corporation Act (1998), the Communications Commission of Kenya (CCK) which is the independent regulator of all communications services (i.e. telecommunications and postal services), the National Communications Secretariat (NCS), which is the communications policy advisory think-tank within the government ministry responsible for communications services (currently the Ministry of Information and Communications) and the Appeals Tribunal, which is a specialized tribunal to resolve disputes amongst operators or between CCK and the regulator.

All the regulatory and advisory institutions created by KCA 1998 (i.e., CCK, NCS and the Appeals Tribunal) are funded directly by the communications sector through the license fees collected by the regulator. The regulatory and policy institutions have been in operation since 1999.

The study notes that KCA (1998) was for regulating the communications sector and not the umbrella ICT sector. This included assigning licensing telecommunications operators, Internet service providers and even Cyber Cafés and other value-added services providers.³¹

CCK in consultation with the stakeholders developed the Kenya Communications Regulations (KCR) 2001, which details the licensing, pricing, interconnection, universal access and competition regulations.

³¹ See <http://www.cck.go.ke> for more details.

Although the main objective of the KCA (1998) was to fully liberalise the telecommunications sector, the government granted the incumbent telecommunications operator, Telkom Kenya Ltd, an exclusive license for a period of 5 years up to June 2004 for local access, national telephone and Internet backbone networks, VSAT and all international gateway services. This means that the fixed telecommunications and the Internet backbone infrastructure and services remained a monopoly up to June 2004. The rationale for granting this exclusive right was to accord TKL time to be able to adjust to a competitive business environment that was being created. Unfortunately, the expected reforms had not yet occurred by December 2006 and this has had a negative impact on the growth of fixed telecommunication network and Internet services, both of which, are very essential for e-trade development in Kenya.

Table 4.1: License fee categories and number of licensees in year 2004/2005

License category	Initial License Fee (US\$)	Number of licensees (2004/2005)
1. National Fixed Operator License	Bid price	1
2. Cellular Mobile Operators	Bid price	2
3. Local Loop Providers	Ksh 200,000	13
4. Regional Telecom Operators	Ksh 15 million	1
5. Public Data Network Operators	Ksh 1.5 million	14
6. Commercial VSAT Hub operators	Ksh 15 million	6
7. Internet backbone and gateway operators	Ksh 15 million	6
8. Internet eXchange Points	Nil	2
9. Internet Service Providers	Nil	72
10. Cyber Cafés	Nil	90

Source: CCK Web site at <http://www.cck.go.ke>

On the other hand, Safaricom Ltd and Celtel Kenya Ltd have operated as a duopoly in the provision of mobile services in the country up to the time this study was being carried out 2006-2007. This means that the original intentions of KCA (1998) of liberalizing the telecommunications sector and even the mobile phone sector have not yet been fully realized. Although CCK had promised to issue unified licenses to all the operators by January 2007 after licensing the Second National Operator, this has not yet materialised. This in effect, means that the main objective of KCA (1998) to fully liberalizing the communications sector has therefore not yet been achieved in practice.

Apart from the large fixed and mobile operators, the regulator has over time licensed other operators (local loop operators and regional operators) and service providers. Table 4.1 summarizes the different classes of licenses granted in the past 5 years. It is worthy noting that fewer than 50 percent of the ISPs are operational and none has more than 100 customers. Internet services have thus not grown as much as the mobile phone services, in part, because businesses and government are not yet intense users of ICT applications and the Internet as revealed by the data.

4.4.2 Implementation of the Kenya Communications Act and Associated Regulations

Although the Kenya Communications Act (1998) was aimed at liberalizing the sector, it still conferred discretionary authority to the Minister responsible for Communications on when different sub-sectors would be introduced. For example, the exclusivity period of 5 years granted to the incumbent operator Telkom Kenya Ltd, means that full liberalization was going to take at least 5 years to be achieved. Similarly, the duopoly status of the mobile operators was not allowed by KCA 1998.

Some of the major aspects of the KCA (1998) that were only partially implemented have been identified in Table 4.2 below. The second national operator (SNO) license is yet to be issued almost 9 years after the KCA (1998) was operational.

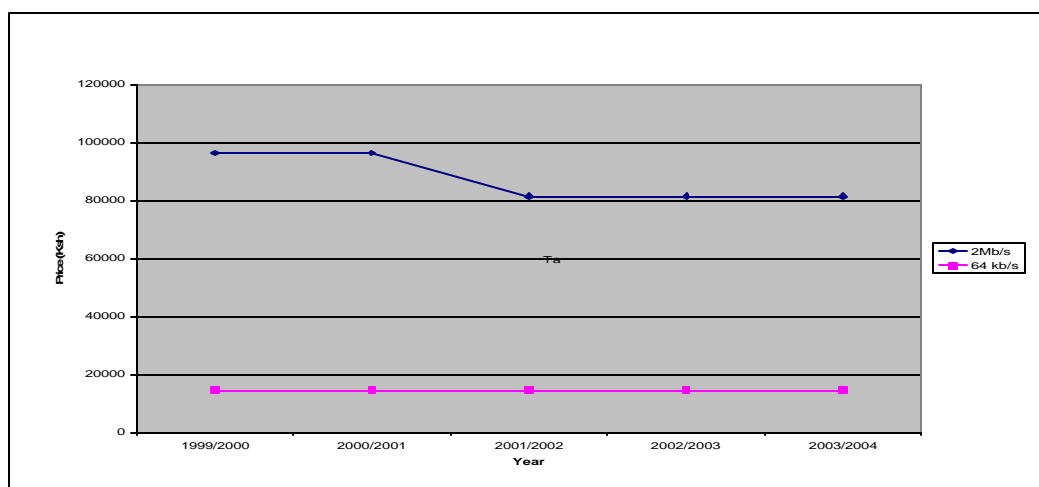
Table 4.2: Examples of partial implementations of KCA 1998

The Act	The Reality	Comment
Full-liberalization	5 year -Exclusivity of TKL for period 1999-2004	Time to change from monopoly; tariff rebalancing period
No monopoly or duopoly	Mobile operator duopoly	Licensing of 3rd Mobile operator delayed
Price regulation for monopoly services	No leased line or Internet bandwidth price regulation of TKL	ISPs won the appeal in June 2004
Transparency of tariffs	Transparency requirement not enforced	Lack of transparency distorts competition

Source: Author Analysis

The monopoly status of the fixed telecommunications operators was a major barrier to the growth of Internet usage. For example, the digital leased line network necessary for Internet services has had limited reach because of lack of investments. Consequently, the leased line prices have remained relatively high for the period since 1999. Figure 4.1 shows the prices of digital (64kb/s and 2 Mb/s) lines during the monopoly period from 1999-2004. During this period, it is noted that the prices were not falling in any significant way. In February 2007, the incumbent operator reduced the digital leased line prices by 50 percent because of competition from other licensed leased line providers that emerged after the monopoly period.

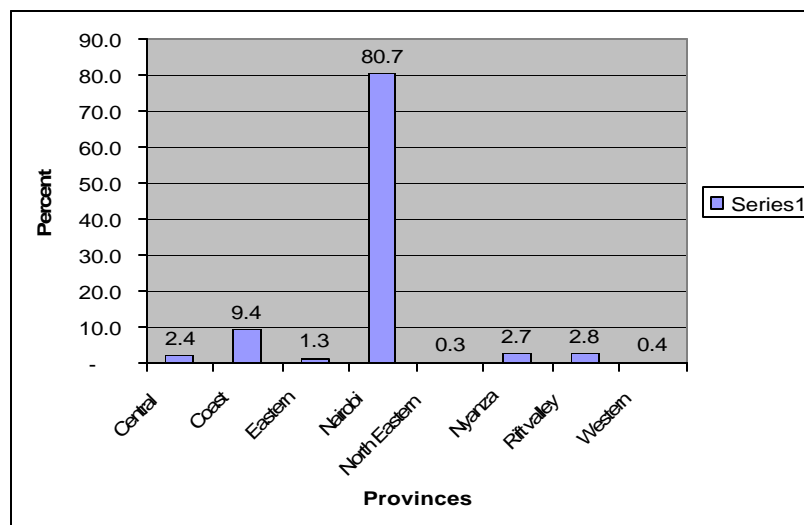
Figure 4.1 Prices of digital leased line by the incumbent operator



Source: Internet Market Analysis

Most of the leased lines are still concentrated in Nairobi (80 percent) and there is very limited geographical dispersion of Internet services as shown in Figure 4.2 below. Lack of full competition and incentives for extending services to other urban centres and rural areas has led to the limited growth of Internet services. However, mobile operators currently covering about 80 percent of the densely populated areas of Kenya have introduced mobile dial-up Internet services, which are expected to increase the geographical dispersion of Internet services in the country.

Figure 4.2: Geographical dispersion of leased lines in Kenya

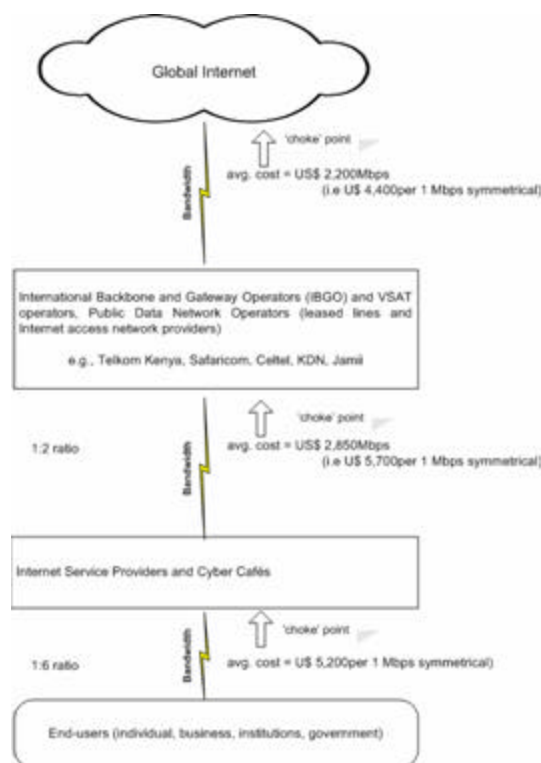


Source: Kenya Internet Market Analysis Study 2006

Another factor that has contributed to the high Internet tariffs in Kenya, especially for leased-line based Internet services required by businesses and institutions (e.g. health and educational institutions), is the licensing regime adopted by the Regulator which has created a hierarchy of Internet access providers as shown in Figure 4.3 below. This figure depicts how

the institutional structure contributes to increases in the cost of Internet services to end-users without adding value. In fact, the quality of Internet services is reduced because of the large number of customers who share the satellite bandwidth. Moreover, there is a large variation in the International bandwidth prices ranging from \$625 per megabytes per second (Mb/s) to over \$3,000 per Mb/s. The average International purchase bandwidth price is \$2,200 per Mb/s, which means that the dominant Internet gateway operators are still purchasing bandwidth at about 3 times the minimum cost of \$625. These high costs are passed on to the customers at a profit without any significant value addition and can only be reduced with increased competition of International gateway operators. It is noted that the average price of a low-quality 1 Mb/s Internet connection to an end-user is \$5,200³². It is therefore clear that the licensing regime has a large effect on quality and price of Internet bandwidth to the end-users. (See Figure 4.3 below).

Figure 4.3: Hierarchy of Internet access providers



Source: Kenya Internet Market Analysis Study 2006

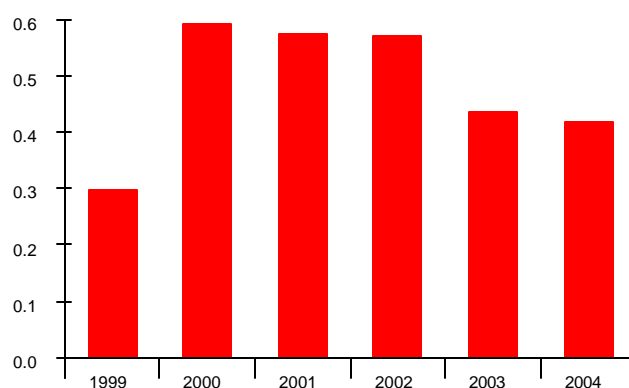
CCK also introduced the Kenya Regulations in the year 2001. This was the subsidiary legislation that is used to regulate prices, interconnection charges, and competition in the telecommunications sector. Although the regulations state that any monopoly services are subject to price regulations, the prices of digital leased lines were never regulated during the monopoly period. It is observed that this had a huge impact on growth of Internet services in Kenya because most small businesses found it expensive to have a leased line connection.

³² See the Kenya Internet Market Analysis Study 2006 for more details.

Another example of partial implementation of regulations was the requirement in the KCR 2001 regulations that the dominant operator in the communications sector be gazetted. This has not yet happened despite the fact that one of the mobile operators is clearly the dominant operator by virtue of revenue generated. This has affected the way interconnection charges are established because the dominant operator is required to use only cost-based interconnection charges. Table 4.2 above highlights some of the important aspects of partial implementation of the Kenya Regulation of 2001. It seems obvious that the partial implementation of both KCA 1998 and KR 2001 have had a negative impact on the growth of telecommunications services and especially Internet services and applications.

In addition, partial liberalization had left mobile tariffs unchanged for a long period until 2003 as shown by Figure 4.4 below. The 2006 tariff data suggests that mobile charges are starting to fall due to changes in interconnection agreements and the planned licensing of the second national operator, which was expected in January 2007.

Figure 4.4: Trends in Mobile Tariffs in a Duopoly
(Mobile Phone price of 3 –minute local call off-peak in US\$)



Source: ITU Telecommunications Database 2006

4.4.3 Convergence of computing and telecommunications and Kenya ICT Policy 2006

The ICT policies and legislation prior to 2006 had focused only on data pipes (layer 1 of the TCP/IP protocol stack) and had not addressed the needs of networked applications providers or content providers. For example, Kenya does not have a policy on ICT professionals, software platforms (open source or Microsoft), local content, or financing of ICT-based Small and Medium Enterprises. Furthermore, the lack of e-government applications to support Government-to-Citizens (G2C), Government-to-Business (G2B) and internal Government-to-Government (G2G) interactions has significantly curtailed the growth of the ICT sector in Kenya. For example, in December 2006, the government released the national primary school examinations results via the Internet and all the ISPs experienced an increase in Internet traffic. The Kenya Revenue Authority is also increasingly using the Internet to interact with business and individuals for taxation and this has increased local Internet traffic at the Kenya Internet Exchange Point (KIXP).

It is to be expected that the implementation of the e-government strategy of 2004 will have a more significant effect on the growth of the ICT sector than any other policy or legislation that will be introduced. Similarly in the business sector, analysis of the Kenyan networked readiness index and the ICT in business indicators in the SME sector shows that the barriers to the use of ICT to facilitate trade in Kenya cannot be addressed by either the current Kenya ICT policy (2006) or the proposed Kenya Information and Communications Bill of 2006. The ICT policies must address the business value chain for them to have a significant impact. In addition, it appears that business and leadership issues in different organizations in Kenya must be addressed by the ICT policy alongside the technology issues³³.

Analysis of KCA (1998) and the associated Kenya Communications Regulations 2001 (KCR 2001) demonstrated that they were adequate for achieving full liberalization of the telecommunications sector, however, neither the KCA 1998 nor KCR 2001 had been fully implemented yet the country had experienced tremendous growth in mobile telephony and mobile Internet (about 300,000 customers in less than 1 year). It might appear that a new KIC (2006) Bill was unnecessary from a telecommunications and Internet perspective. However, the KIC (2006) addressed the most significant issues in relation to e-trade. It introduced legislation on information technology, which was missing from the KCA 1998 Act. This would address issues such as the recognition of electronic records, electronic signatures required in electronic transactions, and licensing of certification services. This is the legal framework required to support e-commerce or e-trade and e-government services. In addition, the Bill also recognized electronic fraud and introduces changes in the Kenya penal code. This new regulatory environment would make it easier to use ICT to facilitate domestic and international trade. The Bill also dealt with the establishment of a new Universal Service Fund that would ensure that ICT services were extended to rural areas, hence promoting access to ICTs by the rural people.

4.5 CONCLUDING REMARKS

In this chapter, it is observed that although most African countries had liberalized the ICT and telecommunications sectors, most of the activities pertaining to the development of the sector had not been fully liberalized, making the countries fail to fully benefit from the liberalization policies put in place. The study also revealed that except for South and Egypt, most of the Africa countries had not established laws and regulations that could enhance e-trade. In most of these countries, drafting of these laws was at very early stages of the legislation process, hence slowing down the growth of e-trade.

³³ See the Kenyan country study for more details.

CHAPTER FIVE

INTELLECTUAL PROPERTY RIGHTS

5.1 INTRODUCTION

Knowledge is a public good, nonrival in consumption and nonprice excludable. From economic theory, such goods will not be provided at an optimal and socially desirable level.³⁴ A common intervention to correct this undersupply is contained in the definition of property rights that will allow private investors to harvest the profits generated by their efforts rather than sharing them with free riders. Such internalization of externalities provides incentives for further innovation. Still, the new knowledge produced by some sector research and development (R&D e.g. agriculture), is not always a pure public good.

Intellectual property rights (IPRs) are intended to allow rightholders to price their products above the marginal cost and hence recoup their initial research investment. Such exclusive rights create incentives for the performance of R&D leading to innovation, while impeding the dissemination of new technologies and innovations. IPRs tend also to support the concentration of the industry, but some innovations can also have deconcentrating effects (Lesser, 1998). The theory does not offer clear indications as to which effect dominates: it is clearly an empirical question. On one hand, it is because it is strongly argued that IPRs are necessary to stimulate economic growth, which in turn, contributes to poverty reduction. By stimulating invention and new technologies, they will increase agricultural or industrial production, promote domestic or foreign investment, facilitate technology transfer and improve the availability of medicines necessary to combat disease. While on the other hand, it is argued that IPRs do little to stimulate invention in developing countries because the necessary human and technical capacity may be absent. They are ineffective at stimulating research to benefit poor people because they will not be able to afford the products, even if developed. They limit options of technological learning through imitation; they allow foreign firms to drive out domestic competition by obtaining patent protection and to service the market through imports rather than domestic manufacture; and they also lead to increases in the costs of essential medicines and agricultural inputs, hence affecting poor countries negatively.

This chapter interrogates whether IPR regimes assist developing countries in obtaining access to development oriented technologies and hence enhance trade. The crucial question is whether or not the extension of intellectual property regimes assists developing countries in obtaining access to such technologies; and whether and how intellectual property rights protection might help developing countries to achieve economic and social development through technology innovation and development hence reduce poverty.

5.2 IPRs AND ECONOMIC GROWTH

Historically, national patent systems were put in place to support domestic industrial developments. However, the increase in international trade and the advent of new, information based products and services, led multinational companies (MNCs) to request

³⁴ See the report of the Commission on Intellectual Property Rights: Integrating Intellectual Property Rights and Development Policy, London, September 2002.

international policies that would help protect their proprietary information. In this case, the WTO Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs) sets minimum standards for IP protection in WTO member States (Leger, 2005).

Trade policies have contributed to economic and social development through these laws that protect intellectual property. These laws are mostly aimed at promoting creativity, attracting foreign direct investment (FDI) and encouraging fair-trading, apart from according statutory expression to the moral and economic rights of creators for their innovations.

IPRs are generally considered an efficient institution to stimulate innovation. IPRs protect inventions, scientific discoveries, copyrights, patents, trademarks, industrial designs and, in some cases, traditional knowledge and folklore. They are critical tools in commerce, wealth and knowledge generation. Strong IPRs should provide incentives for innovation and expand investment and technology flows to developing countries. Although granting monopoly rights for an invention would impede its dissemination, under-provision of protected goods and monopoly distortions are usually considered acceptable costs in order to promote the creation of new knowledge and the increase in societal welfare that it brings (Leger, 2005). Many researchers question this position and maintain that IPRs do not play an important role in stimulating innovation in developing countries and that the strengthening of IPR benefits industrialized countries while hurting developing countries. There is considerable uncertainty on the effects of strong IPR in developing countries.

Economists are also now very aware of what they call transactions costs. Establishing the infrastructure of an IPR regime and mechanisms for the enforcement of IPRs, is costly both to governments and private stakeholders. In developing countries, where human and financial resources are scarce and legal systems not well developed, the opportunity costs of operating the system effectively are high. Those costs include the costs of scrutinizing the validity of claims to patent rights (both at the application stage and in the courts) and adjudicating upon actions for infringement. Considerable costs are generated by the inherent uncertainties of litigation. These costs too need to be weighed against the benefits arising from the intellectual property system.

Thus the value of the patent system needs to be assessed in a balanced way, acknowledging that it has both costs and benefits and that the balance of costs and benefits is likely to differ markedly in diverse circumstances, which means that there is a need for balance. Too much protection by copyright, by other forms of intellectual property protection, or by technology, may restrict the free flow of ideas on which further progress of ideas and technology depends. For developing countries, affordable access to works essential for development such as educational materials and scientific and technical knowledge may be affected by unduly strong copyright rules.

Table 5.1: Patent Filings in Africa compared to India and China

Country	PCT International Applications 2006
Algeria	4
Egypt	41
Kenya	3
Morocco	5
South Africa	137

Sudan	3
Tunisia	2
India	503
China	3826

Source: WIPO Patent Report 2007

Table 5.1 reveals that there are very few applications from African countries. For example, Kenya filed only three applications, most probably not because of a dearth of patentable rights, but this could be mostly attributed to lack of awareness of what is patentable from these African countries. Most of the countries, businesses and individuals capitalise on IPRs to create wealth, foster development and, of course, ward off imitators and copycats. This is evidenced by South Korea and China.

Table 5.1 also provides an overview of the evidence that countries which embrace IPRs, grow faster. It is no accident, for example, that the largest number of international patent applications received by the World Intellectual Property Organisation (WIPO) from developing countries in 2007 were from South Korea (7,061) and China (5,456) which are the fast growing economies in the world. The only Africa countries that were in the group that followed these countries were South Africa (390) and Egypt (41).³⁵

5.3 IPRs and e-Trade

The most significant issue of interest in this chapter is how IPRs impact on e-trade. It is argued that if IPRs are to benefit developing countries that benefit will need to come through promoting invention and technology innovation thereby enhancing growth. This is done through IPRs connection to FDI and trade since many producers of intellectual output are engaged in both domestic and foreign markets. As a result of the existence of risks of unauthorized copying and imitation both in domestic and foreign markets, countries where IPRs are weak, incentives to market (through trade and FDI which are vital for technology inflow and resource accumulation) might also be weak and these weak IPRs may adversely affect incentives to innovate and produce thereby affecting the potential to export and invest abroad.³⁶ This means that for the developing countries, IPRs can play a role in attracting foreign trade and FDI hence leading to technological transfer and domestic innovation, as well as fostering a country's potential to export and invest abroad. The most crucial issue in respect to IPRs is how they hinder or help developing countries to gain access to technologies that are required for these countries' development. Through this technological transfer as a result of IPRs which stimulates foreign trade and FDI flows, the domestic economies might be able to absorb knowledge and skills that are vital for the implementation of e-trade activities, hence leading to a positive impact on economic growth. However, it should be noted that effective technology transfer would depend on the development of local capacity through education, R&D and the development of appropriate institutions without which, technology transfer would be unlikely to succeed.³⁷

³⁵ For more details see www.wipo.int

³⁶ See OECD Working Party of the Trade Committee (2003), The Impact of TRIPS on trade and FDI in Developing countries at <http://www.oecd.org/trade>.

³⁷ Report of the Commission on Intellectual Property Rights: Integrating Intellectual Property Rights and Development Policy, London, September 2002

5.4 IPRs ENVIRONMENT

Studies have shown that the quality of the institutional environment and the confidence in the judiciary system, the importance of transaction costs related to obtaining and securing protection, as well as the level of technological development of the country, are important factors affecting IPR use and perceived efficiency (Leger, 2005). These factors should be considered when predicting the impacts of IPR on developing countries.

Whether the assumptions of IPR theory are justified for developing countries is however subject to debate (Jaffe' and van Wijk, 1995). Technological capacities differ widely among developing countries, which implies that not all of them are able to assimilate technologies from other countries, let alone develop their own technologies. The dynamic gains due to IP protection, leading to indigenous innovation would hence not take place and the static costs of IPR summed to the costs of implementation of the system, would lead to a net negative effect for most developing countries.

The low level of IPR use can also be related to the generally low innovative level prevailing in the industry or even the country. It is difficult for a country to discover inventions qualifying for patent protection when the general level of technological development is relatively low. Developing countries, which can benefit from imitating advanced technologies but cannot develop them, would benefit from weaker IPR. The optimal strength of protection would increase with technological development.

This last aspect also affects the efficiency of the system: The studies reveal that many countries thought that stronger IPR would, in theory, support innovation but that, given the developing countries' institutional environment, could not play their role. This reveals the importance of the regulatory and institutional environments for the protection and enforcement of IPR and innovation, as supported by empirical evidence (Alfranca and Huffman, 2003). However, the importance of transaction costs, more specifically the information, certification and enforcement costs, along with the lack of confidence of the public in these institutions, also have to be taken into account. This is another long-term commitment that should not be overlooked if IP protection is to eventually support innovation, as it should in theory.

The level of awareness of the developing countries, their resource endowment, interests and the products they develop are important explanatory factors. MNC know in general a lot more about IPR and their impacts and are more familiar with their use. These companies possess more human and financial resources and develop high-quality, modern products for bigger markets.

IPR are relevant for companies and countries possessing inventions worth protecting. They have an interest to protect this knowledge and reap all the benefits associated with it, while other countries and institutions would prefer keeping the materials and technologies unprotected and benefit from the knowledge spillovers.

From the discussion above, qualifications to IPR theory and policy can be formulated for the case of developing countries. The all-positive assumptions at the basis of the TRIPs Agreement (e.g., Article 7) should be put in perspective and characteristics of the countries should be taken into account in evaluating the role that stronger IPRs could play for their

economy. The quality of the institutional environment, that is, the institutions regulating and enforcing IPR, is an important aspect to be taken into account. The presence of efficient and reliable institutions is key to the proper functioning of IPR and it is often a weakness in developing countries. In the same perspective, the importance of costs and transaction costs involved in obtaining protection and enforcement of the rights has to be bearable for the local inventors in order for them to obtain added value from IP protection.

Finally, the level of technological development prevailing in the country also has to be taken into account. When local inventors do not develop inventions qualifying for protection, the relevance of IP protection can be questioned. Even though the countries benefit from protected products developed by MNCs and brought into the country, this represents only one aspect of the potential benefits the countries could derive from IPR.

However, the most important fact in the whole history of the evolution of IPRs remains the signature in 1994 of the Trade-Related Intellectual Property Rights (TRIPS) agreement, which sets up minimum standards of IPRs to be adopted and respected by all the World Trade Organization (WTO) members. Nevertheless, there are conflicting attitudes towards the TRIPS agreement especially between developed and developing countries. On the one hand, IPRs are supposed to create incentives for innovation while on the other hand, intellectual property, especially patent protection, creates monopolies allowing patent holders to set high prices and thus limiting access of people in developing and poor countries to patented technologies. According to the economic literature, it seems obvious that enhancing patent protection is in favor of innovators from developed countries but does not take into consideration the interests of poor people in terms of accessibility to some crucial products such as drugs. The debate about the TRIPS agreement has in fact become more stretched after the extension of patentability to pharmaceuticals. The question has henceforth carried a social dimension since it is dealing with public health.³⁸

5.5 IPR DEVELOPMENT: COUNTRY EXPERIENCES

With reference to African countries, little progress has been made in terms of IPRs development and implementation. Maybe the simplest evidence of the impact of the IP system is how much it is used, particularly by nationals. The propensity to take out patents will reflect some judgement as to the benefits, albeit private rather than social benefits. In sub-Saharan Africa, in 1998 (excluding South Africa), only 35 patents were granted to residents compared to 741 for non-residents. By contrast in Korea, 35,900 patents were issued to residents, compared to 16,990 to non-residents. In the US, the corresponding figures were 80,292 and 67,228.³⁹

For the purpose of the study, the analysis on this subject will mainly focus on the countries selected in this study, which are Ghana, Egypt, Kenya, South Africa, Senegal and Ethiopia.

Ghana

The government has established two institutions to administer intellectual property issues in Ghana. These are, the Registrar-Generals Department and the Copyright Administration. Whilst Industrial Property, which includes Trade Marks, Patents, Industrial Designs,

³⁸ For more details see the report of the Commission on Intellectual Property Rights (2002) on www.iprcommission.org.

³⁹ www.wipo.int

Geographical Indications, Trade Secrets and Layout Design of Integrated Circuits are administered by the Registrar General's Department, the Copyright office oversees issues relating to Copyright.

In spite of the fact that there are laws in all the areas of intellectual property, there are no policy guidelines to determine the direction of the subject. To address this anomaly, by the time of this study in 2006/2007, a national committee composed of key stakeholders had been constituted to draft a policy on intellectual property. Indications are that the policy guidelines would address information technology issues to remove the manual operations of the two offices administering Intellectual Property. These would cover applications for registration for rights, searches, oppositions, registrations and renewal of rights. It is expected that by the end of the life span of the Ghana Trade Sector Support Programme (i.e. 2010), the intellectual property offices would have been fully established and effective and hence encourage different innovations in the country.

Egypt

Egypt has been applying protection for Patents since 1949 (under Law No. 132/1949) with the definition of patentability provided by the Convention of Paris. A new Egyptian legislation for the protection of intellectual property rights was issued in 2002 (Law No. 82/2002), aimed at protecting the rights of software companies and fight software piracy. The law stated that every software company has to seek a license to record and register original computer software and databases.

The government is currently enforcing the intellectual property law and is applying the jurisdictions of criminal law on violators in order to provide a fair and competitive setting for the industry. According to Egyptian statistical records, piracy rates currently reach approximately 65 percent, a figure that they argue, if reduced by only 10 percent, will realize an increase in growth of the sector equivalent to 20 percent.⁴⁰

Ethiopia

The study findings reveal that the Ethiopia Science and Technology Agency (ESTA) in its mandate, has the protection of intellectual property rights as one of its strategic elements, which would promote creativity and the dissemination of technological innovation⁴¹. Consequently, measures have been taken to streamline the legal and administrative framework of intellectual property in the country. The Patent, Technology Transfer and Development Departments have been created under the Ethiopian Science and Technology Commission. The Patent law was enacted in 1995 after the adoption of the National Science and Technology policy and the issuance of the 1994 proclamation that entrusted Ethiopian Science and Technology Commission to deal with patents. This was regarded as a milestone in the establishment of a national patent system.

Realizing the importance of bringing the administration of different components of intellectual property under one umbrella, the Ethiopian Intellectual Property Office was established by Proclamation Number 320/2003 in April 2003. The office is mandated to promote intellectual property as a tool for national development and economic growth in

⁴⁰ IDC country comparison, 2005

⁴¹ Science and Technology Agency, 2006

collaboration with responsible agencies, ministries, research organizations and other similar institutions.

The legal framework for the protection and enforcement of intellectual property rights is constituted in several proclamations. A section in the Civil Code of Ethiopia deals with "Literary and Artistic Ownership" regulating mainly issues of copyright. The proclamation concerning innovations, minor inventions and industrial designs issued in 1995, the Copyright and Related Rights Proclamation of 2004, the Trade Practice Law of 2003 which deals with unfair competition, the Trademark Directive issued in 1986 and a wide range of civil and criminal remedies for the infringement of copyrights and industrial property rights were included in the Ethiopian laws. Trade names and trademarks are governed by the provisions of the Commercial Code and Proclamation No. 67/1997 and technology licensing is governed by Regulation No. 121/1993. There is also another piece of legislation, Proclamation No. 123/1995, which governs inventions, minor inventions and industrial designs focusing mainly on patents.

Although these measures are steps in the right direction in the country's IPR regime, the state of IPR in industry, universities and research organizations is in its rudimentary stage. These institutions do not have intellectual property rights policies designed to promote the creation, acquisition, protection and exploitation of inventions and creative works.

Kenya

In Kenya three government ministries administer intellectual property rights. Kenya Industrial Property Institute (KIPI), a body corporated in the Ministry of Trade and Industry, which administers the Industrial Property Act 2001 of the laws of Kenya covering patents, trade marks, service marks, industrial designs and utility models. Copyright is administered by the Copyright Board of Kenya an office in the Attorney General Chambers under the Copyright Act 2001 of Kenya. The Plant Varieties Act of Kenya is administered by the Kenya Plant Health Inspectorate Services (KEPHIS).

In Kenya, intellectual property is protected by national laws, which are unique to each country. Some countries, including Kenya, have become signatories to multinational treaties and agreements, which provide some form of harmonization in the protection of intellectual property. Kenya is a member of the following organisations, protocols, treaties and agreements: World Intellectual Property Organization WIPO; African Regional Intellectual Property Organisation (ARIPO); Trade Mark Law Treaty - now Singapore Treaty on the Law of Trademarks since 28th March 2006; Paris convention for protection of Industrial Property; Madrid Union (Madrid Agreement & Protocol) on International Registration of Marks; Nice Agreement on classification of Trade and Service Marks (about to register); Kenya uses Vienna Classification although not a member of Vienna agreement (there is a provision in Trademarks Act for both Nice and Vienna classifications); Patent Cooperation Treaty (PCT); Berne convention on Copyright; Nairobi Treaty on the Protection of the Olympic Symbol; UPOV for New Plant varieties; and Trade Related Aspects of Intellectual Property Rights (TRIPS). Kenya's existing intellectual property legislations have been drafted in line with these provisions.⁴²

⁴² For more details see Sylvance Anderson Sange, Introduction to Intellectual Property Rights, Kenya Industrial Property Institute (KIPI)

The importance of putting in place an IPRs regime has been augmented by what has been experienced in Kenya in recent months. Kenya lost its rights to the Kiondo basket weaving design and nearly did so with the Kikoi design because it was not vigilant in utilizing the importance of IPRs. The country consequently lost its Kiondo export business because it did not protect it as a creation of Kikuyu and Kamba women weavers who over the years have perfected the art. Kenya could have protected the Kiondo by registering it internationally, possibly as a patent or trade mark, or as a “geographical indication” just like the French, for example, protect their wines. Kenya need not have lost the trade to Japan and other Far Eastern countries, which turned the hand-woven basket into a mass-made product using modern technology. The aftermath was that Kikuyu and Kamba women, who supplemented their incomes by weaving the Kiondo for the export, were edged out of the market.⁴³

5.6 CONCLUDING REMARKS

In this chapter an assessment of the development and significance of IPR regimes in Africa was presented. The analysis revealed that developing countries had not really experienced the benefits of implementing IPR strategies. This was suggested to have been due to very low technological inventions and even though innovations might exist, they were of very low quality to qualify for the application of IPRs. Above all, there was very little coverage in terms of awareness about the significance of IPRs in most African countries as evidenced by the Kiondo example in Kenya, where African countries might be losing more due to unprotected innovations on the world market. In spite of the fact that there were laws in all the areas of intellectual property, as most countries applied the jurisdictions of criminal law on violators in order to provide a fair and competitive setting for the industry, there was no policy guideline to determine the direction of the subject. Hence there had been little or no significant contribution of IPRs to trade through technology transfer and FDI in Africa.

⁴³ For more details see Kenya Daily Nation Media April 21, 2008.

CHAPTER SIX

BUSINESS PROCESS OUTSOURCING FOR DEVELOPMENT: THE CASE OF SOUTH AFRICA, GHANA AND SENEGAL.

6.1 INTRODUCTION

The main objective of this chapter is to create awareness among African countries as well as in many of their business sectors of the new opportunities created by ICTs, especially in SMMEs, which lag behind in terms of their familiarity with these opportunities. International outsourcing has become a growing phenomenon in world trade. Advances in ICTs and their business applications, together with the globalization of the world economy, have led to a rapid internationalization of information-technology-enabled services (ITES), including business process outsourcing (BPO). Outsourcing has been used for decades, especially in manufacturing, as a way of reducing costs and decreasing investment in capital assets. It has been found that international outsourcing grew approximately by 30 percent between 1970 and 1990 (UNCTAD, 2003). More recently, the attention in many countries has shifted away from outsourcing of materials to services outsourcing. This, it has been argued, is in line with the current thinking that recent innovations in communication technology should reduce the search costs for international service partners, as evidenced in the growth of international traded services as well as stronger productivity benefits from international outsourcing of services than from materials.

6.2 BPO &O – A SYNOPSIS

International outsourcing is used to designate the use of goods and services produced outside the enterprise. Outsourcing can occur within the country where the company is located (domestic outsourcing) or abroad (outsourcing abroad). The term offshoring is used to designate outsourcing abroad. This could be where an enterprise transfers some of its activities to its foreign affiliates (which may already exist i.e. offshore in-house sourcing or Greenfield affiliates i.e. those that are created from scratch or might also refer to the transfer of the production of goods and services abroad to a non-affiliated enterprise (offshore outsourcing) i.e. subcontracting abroad.

To compete in increasingly competitive economic environments, decisions to offshore company activities are essentially driven by factors related to costs of production, distribution and production itself. From the firms' perspective, offshoring is therefore seen as part of its business strategy. For example, a firm could relocate its relatively inefficient production processes to external providers with cheaper and perhaps more efficient production capabilities. This can then enable the firm to turn its focus to areas where it has a comparative advantage and expand output, or engage in new business activities. This thinking led to an increase in imports of inputs used between 1987 and 1997 in the US manufacturing from 10.5 percent to 16.2 percent and from 26 percent to 38 percent in high tech. Manufacturing (Olsen (2006)). The motivation on the part of the US firms has been driven by the low cost of manufacturing abroad, primarily in the East Asian countries such as Taiwan, China, South Korea, Malaysia and others, as well as the availability of cheaper skilled labour, the promotion of business friendly environments and existence of production and supply networks in these countries.

BPO is becoming very popular in global trade relations and has a total market value of approximately \$300 billion, of which, \$110 billion will be offshored by 2010⁴⁴. Countries such as India, Singapore, China and Ireland have emerged as the most preferred destinations for companies in the developed world to offshore their businesses. India is estimated to capture about 50 percent of the market and generate export revenue of over \$60 billion by 2010⁴⁵. It therefore becomes paramount that countries develop the necessary infrastructure to use BPOs to facilitate their competitiveness in trade, both at the national and the international levels.

However, the new wave of outsourcing has been from the software sector, which was the first sector to transfer significant activity to foreign location, leading to the creation of a critical mass of expertise and resources in concentrated locales, for example, the City of Bangalore in India. This was originally driven by the ongoing long-term support to manage the ever-changing information technology infrastructure. While the push factors for business process outsourcing or business service outsourcing (BSO) are similar to those in manufacturing and are largely cost driven, the pull factors and attributes of countries and economies providing outsourced services are somewhat different. Internet research firms have estimated that in the next few years, BPO will continue to grow internationally, becoming one of the fastest growing e-commerce and e-business services (UNCTAD, 2003). With the abundant and availability of the pull factors, African countries stand a better chance of significantly benefiting from business process outsourcing and offshoring (BPO &O) hence contributing to their economic growth.

BSO has not spared the African continent due to its competitive resource base referred to herein as pull factors and certain economic attributes in some African countries. These with other factors put Africa at a relatively competitive advantage in the BSO sector especially with reference to the BPO business environment factors in countries like the US, UK and even some East Asian countries. Several developing countries have already started to benefit from ICT opportunities through outsourcing using new technologies. India is the main outsourcing provider among developing countries. In Africa, the first African country to benefit from BPO&O is RSA. With RSA's strong and consistent economic performances in the post-apartheid era, the business processing outsourcing and offshoring phenomenon has developed into a cutting edge, knowledge driven economic sector in which RSA is poised to play a leading role on the continent. South Africa and Ghana are used as examples to demonstrate how African countries can benefit from BPO&O. These countries have made headway in creating conducive environments for BPO&O.

6.2.1 Business Processing Outsourcing in South Africa

In light of the growing evidence of the role of BPO&O in stimulating economic growth, the South African government's "Accelerated and Shared Initiative for South Africa", has identified BPO as one of the immediate high priority sectors. Both the government and the private sector view the BPO&O industry as a source of economic and employment growth⁴⁶.

The BPO&O is one of RSA's fastest growing economic sectors. Illustrating this is the call centre sub-sector, which has been growing at about 8 percent per annum in the past 4 years

⁴⁴ <http://www.nasscom.in/Nasscom/templates/NormalPage.aspx?id=2599>

⁴⁵ <http://www.nasscom.in/Nasscom/templates/NormalPage.aspx?id=2599>

⁴⁶ For more details see <http://www.info.gov.za/asgisa/asgisadoc.pdf>

and currently employs about 54 000 call centre agents. Most activity occurs in the call centre and back office processing spheres, serving both local and offshore customers.

One of the reasons why RSA is succeeding in the BPO&O sector is because the country is able to offer a balance of high quality and low costs as a destination for offshoring business processes. The country also offers a large and well-educated labour pool, world-class infrastructure that supports all BPO&O investments and, has good language skills, culture and time zones and thus having a competitive advantage over other countries in Europe and the Far East. It is estimated that the sector has the potential of contributing up to US\$790 million in GDP by 2009 and create up to 100,000 new jobs in RSA by 2014 (RSA, 2007).

BPO&O Development Initiatives

Among the countries' developmental initiatives, the South African government has put in place strategies to create a conducive environment for BPO&O. This was led by the development and approval by cabinet in 2006, of a strategy that identified the main constraints to the establishment of a significant BPO&O sector in RSA. This strategy mainly identified constraints like high telecommunications costs, the need for skills development especially in the ICT related fields and competition for foreign investment, to be the main bottlenecks to the development of the sector especially in enhancing trade through outsourcing services to other countries.

As a remedy, this led to the introduction of a developmental telecommunications pricing model which led to the reduction in prices in the sector; the National Treasury allocated funds to be used as an incentive for the investors in the BP&O sector; and the Department of Labour allocated funds for the skills development programme among others. These initiatives were very significant to the growth of the sector.

From this analysis, it can easily be observed that despite RSA having a well-developed telecommunications infrastructure than most of the African countries, most of the characteristics that have led to the success of the BPO&O sector in the country were not very different from those in most African countries. For African countries to register success in this area, government commitment and a well developed strategy for implementation and incentives for investment are therefore key. This being the case, countries like Egypt, Kenya, Senegal and Ghana have joined the BPO&O business and some seem to have advantages over RSA especially in terms of offering cheaper telecommunication rates. A very good example is the establishment of the "PrecissPatro Kenya", founded by a young Kenyan woman entrepreneur.⁴⁷ This is expected to increase the value of trade flows in these countries.

6.2.2 Business Processing Outsourcing - Ghana

Ghana is ranked among the preferred countries for BPO activities. The A.T. Kearney Index ranked Ghana 22nd out of 40 preferred countries which include India, China, Philippines, United States, Ireland, South Africa and others in BPOs⁴⁸. Therefore, it is important that this recognition as a preferred outsourcing country is utilised effectively to the country's advantage in the world trade.

⁴⁷ See UNCTAD, 2003 for more details on this.

⁴⁸ See http://www.atkearney.com/shared_res/pdf/GSLI_Figures.pdf

In Ghana a number of companies have been established to participate in BPO activities. The lead company is the Affiliated Computer Systems (ACS), which was established in 2000. Others include, AQ Solutions, Mary Greenslade, Data Management International and Rising Data Solutions. Companies, which are yet to commence operations are, Platinum, ABM Links and Global Response among others.

Initially incubator laboratories and BPO training centres were established under the Ghana Multimedia Centre where a number of people have been trained in medical transcription, data entry and call centre management. Most of the initial activities carried by the Ghana Multimedia Centre will be taken over by Information Technology Enabled Services (ITES) - BOP Secretariat, which is part of the e-Ghana Project. The e-Ghana project aims at supporting programmes enunciated to implement the country's ICT-led development strategy. Under the e-Ghana Project, BPO training will be formalised and will be affiliated to formal training institutions such as Ghana Institute for Management and Public Administration (GIMPA) and Kofi Annan ICT Training Centre. Further, the government has taken steps to assess the country's readiness to utilise BPOs and strategise to improve its preferred status. In 2005, the government commissioned an ITES-BPO study with the objectives of:

- Recommending concrete actions for Ghana to increase its competitiveness and capability as an Information Technology Enabled Services (ITES)-BPO destination;
- Targeting ITES-BPO activities and market segments in which Ghana can be competitive in the short and medium terms;
- Charting a roadmap for developing ITES-BPO industry in Ghana, including a skills development component, policy framework and a measurement matrix; and
- Recommending an investment promotion strategy for developing and attracting investments in the ITES-BPO for Ghana;
- Monitoring and evaluating framework for the ITES-BPO sector in Ghana, providing baselines and targets and
- Analysing Ghana's ability to compete globally as well as regionally in ITES-BPO and the primary constraints to improving Ghana's competitiveness in ITES-BPO.

The results of the study provided indications about Ghana's readiness to use BPOs as e-service to facilitate trade.

6.2.3 Business Processing Outsourcing in Senegal

In terms of e-trade development, the study reveals that Senegal has advantages for the strengthening of its international competitive position particularly in the West African sub region. It has the potential to develop a real eservice industry, which can generate thousands of high-grade jobs. Several Senegalese enterprises are present on the European e-service market. These enterprises have established business contacts with strategic partners especially on the French market, hence encouraging outsourcing services from these countries to domestic firms in Senegal.

The study observes that one of the areas in which Senegal stands a competitive advantage is in the business processing outsourcing and offshoring area. Senegal is one of the developing countries increasingly offering services to industrialized countries in areas ranging from engineering to data collection and processing. For example, through computer design software, engineering plans are being developed in Senegal for implementation in developed

countries without loss of quality, but at low cost due to the availability of the skilled and cheap labour in Senegal in comparison to countries in Europe. Many foreign companies, through telecommunications, are requesting the services of companies in Senegal for the collection and processing of data. This has further led to the establishment of business partnerships between Senegalese companies and European and USA based clients.

The study revealed that at the end of the 1990s some enterprises in Senegal embarked on the telecommuting market and acquired subcontracts in computer services such as development of software and translation of documents for French enterprises. Considering the specific nature of e-services e.g. data collection issues on the value of goods and services involved in transactions through e-trade, the estimate of the value of the exportable supply faces a major quantification issue. However, a minor survey carried out within the framework of the Grappe e-services in Senegal indicated very high potential for exportable goods and services. The results are shown in the table below:

Table 6.1: Turnover and exports of enterprises in the sector

Enterprises	Overall turnover	Export turnover
Senegalese Telecommunications (STE)	147 000 000 Francs CFA	14 700 000 Francs CFA
Macsym	100 000 000 Francs CFA	40 000 000 Francs CFA
ATI	4 100 000 000 Francs CFA	300 000 000 Francs CFA
E-services SA	300 000 000 Francs CFA	300 000 000 Francs CFA
Africanet	443 000 000 Francs CFA	443 000 000 Francs CFA

Source: E-Trade Senegal Country Study Report (2006)

Other companies like Africatel, AVS and Chaka Computer, which specialized originally in voice servers, embarked on the establishment of call centres for the national and sub regional market. Furthermore, the infrastructure and facilities in Senegal encouraged new investors in the call centre business, hence promoting trade through outsourcing and offshoring services.

From Table 6.1, it can easily be observed that Senegal stands a better chance of increasing revenues and creating jobs for the economy through outsourcing. The study showed that apart from continuous emphasis on infrastructure development, increasing level of illiteracy with regard to increase in skilled ICT personnel and the mastery of English language as another official language apart from French, would lead to significant contribution to the growth of the BPO&O sector and hence trade and economic growth.

6.3 CONCLUDING REMARKS

The main objective of this chapter has been to bring to the attention of African countries that they have the capability to offer competitive BPO&O services taking into consideration the availability of the abundant and required human resource for the sector as well as the infrastructure available in most of these countries. What is needed is government commitment in putting in place required initiatives that will be able to create a conducive environment for the provision of these services such as those leading to competitive prices, developed telecommunications infrastructure, skills development in terms ICTs and investment incentives in the sector. Investment in these activities is envisaged to have a significant contribution to trade and economic growth.

CHAPTER SEVEN

ICTs, SMMEs AND ECONOMIC GROWTH

7.1 INTRODUCTION

One of the main objectives of this study was to examine and assess private sector's readiness or capacity, particularly in SMMEs regarding the use ICTs to promote trade in Africa⁴⁹. The potential contribution of ICTs to small enterprise development can only be assessed by first understanding the current environment in which they operate as well as their needs and constraints. With the aim of understanding the level of usage of ICTs by SMMEs and the environment in which they operate in Africa, these country studies organized small surveys on selected SMMEs in different countries.⁵⁰

Entrepreneurship is considered the engine of economic development. The SMME sector has the potential to address socio-economic challenges facing both developed and developing countries. It is argued that without small business development, economies stagnate, unemployment levels continue to rise and the general standard of living deteriorates. ICTs have been identified as a major area of need to develop the SMME sector, especially in areas of information provision, access to national and international markets and other areas of business development and support including e-trade.

In this chapter, the role SMMEs play in trade and economic growth in Africa, the role of ICTs in SMMEs growth and development (business operations), as well as opportunities, challenges and constraints faced by SMMEs in Africa in relation to their contribution towards e-trade development and growth is reviewed.

7.2 THE ROLE OF SMMEs

The African private sector, which consists to a greater percentage of small, medium and micro-sized enterprises (SMMEs) and the informal sector, is widely regarded as a potential engine of growth and economic development in the information economy globally. A large body of evidence shows that SMMEs contribute greatly to the development of a country in several ways. They contribute to a country's national product by either manufacturing goods of value, or through the provision of services to both consumers and/or other enterprises. This encompasses the provision of products and to a lesser extent, services to foreign clients, thereby contributing to overall export performance and trade in general.

SMMEs contribute to the innovation process by introducing new products and adapting existing products to the needs of customers. Moreover, SMMEs foster competition, ensure a more productive and efficient use of resources and stimulate the creation and the diffusion of innovations. SMMEs are generally more "market" and less "research" driven, quicker to respond to new opportunities and more oriented to small incremental advances. SMMEs are widely acknowledged to contribute towards the promotion and development of inventions, especially minor inventions and industrial designs thereby generating employment opportunities. SMMEs thus have a significant impact on economic growth of a country as

⁴⁹ SMMEs constitute a greater percentage of the private sector in most African countries.

⁵⁰ These were Egypt, RSA, Kenya, Ghana, Senegal and Ethiopia.

they create new jobs, expand the tax base and drive innovation. It has also been argued that the best way to reduce poverty in a country in a sustainable manner is to promote economic growth, through wealth and employment creation hence emphasizing the significance of SMMEs as they make up a very significant part of the economy. They are a major source of income, breeding ground for entrepreneurs and providers of employment for a large segment of the population.

From an economic perspective, however, enterprises are not just suppliers, but also consumers, which have an important role to play if they are able to position themselves in a market with purchasing power. Their demand for industrial or consumer goods will stimulate the activity of their suppliers, just as their own activity is stimulated by the demands of their clients. Demand in the form of investment plays a dual role, both from a demand-side (with regard to the suppliers of industrial goods) and on the supply-side (through the potential for new production arising from upgraded equipment). In addition, demand is important to the income-generation potential of SMMEs and their ability to stimulate the demand for both consumption and capital goods.

Most importantly, and from the African context, SMMEs have, at least in theory, the potential to generate employment and upgrade human capital. Economic historians have demonstrated the importance of this phenomenon in Europe's industrialisation and the subsequent development of other emerging economies. As technological progress in agriculture liberated the agrarian labour force, this unskilled excess labour force was absorbed into small manufacturing industries and exposed to business experience, thereby encouraging a "learning-by-doing" effect. This combination of the employment of a vacant labour force and improvement of their skills through business exposure strongly characterised the process of industrialization and development during the time.

Most of the African countries' current economic situation is comparable to the above scenario: the excess labour force is "released," not so much from the agricultural sector, but rather from large enterprises in the secondary and tertiary sector. Generally, these enterprises are not necessarily facing economic recession, but rather are growing and transforming themselves in such a way that their demand for unskilled labour is decreasing. This results in an abundant pool of unskilled labour, which SMMEs can possibly employ and upgrade.

From a different viewpoint, it has been suggested that, in cases of "jobless growth" and a mismatch between the demand and supply of unskilled labour, a shift in both the sectoral composition of the economy and the occurrence of growth in different categories of firms may be an important avenue for the generation of both employment opportunities and growth. The question here is whether a more robust SMME growth strategy in developing countries will bring about such changes. This in turn depends on whether SMMEs are more labour-intensive and therefore likely to employ unskilled labour and whether they are able to provide a "skills upgrading process." With these categories of functions defined from a theoretical perspective, it can easily be observed that policies and strategies leading to a vibrant SMME environment will significantly impact economic growth in Africa. To achieve significant SMME growth, as well as their future prospects, there is need for them to adapt and survive in a new economic climate subject to increased levels of domestic, regional and international competition. There will also be new opportunities, particularly where links can be forged with larger, more technologically advanced export-oriented companies.

All in all, in the case of developing countries in Africa, SMMEs are particularly important in the context of their poverty-reduction strategies because they are the seedbed for the

development of medium and larger enterprises and because they absorb agriculturally under-employed labour and diversify the sources of income for farming families. Areas of high potential for SMMEs include, animal husbandry, poultry, silk harvesting, honey production, small-scale garment manufacturing, metal work, construction and increasingly urban-based services such as solid waste collection, small shops and repair services.

7.3 ICT SIGNIFICANCE IN SMMEs

In most African countries SMMEs account for a significant share of production and employment and are therefore directly connected to poverty alleviation. SMMEs are very relevant for employment and as an income source especially for the poor population in the rural areas. However, SMMEs are challenged by the globalisation of production and the shift in the importance of the various determinants of competitiveness especially in developing countries. Through the rapid spread of ICTs and ever decreasing prices for communication, markets in different parts of the world become more integrated. Therefore, the main question would be how the use of ICT (as production technology, as information processing technology or as communication technology) can help SMMEs to cope with these new challenges.

Over the past decade, the Internet has profoundly transformed the way business is conducted. The high profile failures of the dot-com bubble, notwithstanding many corporations, particularly in the US, have enjoyed success with e-commerce. Most experts on ICTs for development have long heralded the opportunities for leveling the playing field for SMMEs, especially in developing countries. This area has been of special interest because it provides significant employment in poor countries especially for those people in rural areas as previously indicated.

One of the main issues to be addressed by developing countries to fully benefit from the contribution of ICTs in SMMEs development is by creating a conducive policy environment in these economies. It is widely believed that the establishment of a favourable policy environment will greatly facilitate e-trade activities by enhancing competition and business efficiency and by facilitating the integration of African countries into the global economy. E-trade has a lot to offer for advancing Africa's development. Business practices in global markets are changing because of the growing use of e-trade as a medium for exchange. African economies must adapt to these changing global patterns as failure to do so will lead inexorably to businesses being less competitive and inefficient on the global economy. Business-to-Business (B2B) e-commerce will provide opportunities for competent African businesses to increase their markets and trading potential well beyond their national borders. Business-to-Consumer (B2C) e-commerce will have the greatest initial economic impact in such areas as tourism by bringing new money into the economy.

The spread of ICT has led several commentators to argue that these technologies are creating a new economy – an information economy – in which information is the critical resource and basis for competition in all sectors, especially manufacturing and probably even more in services. Generally, from the performance perspective, the competitiveness effect of ICTs derives from the impact that ICTs have upon the productivity of the factor inputs. In this regard, ICTs can improve efficiency and increase productivity through different ways including, improving efficiency in resource allocation, reducing transaction costs and technological improvement leading to the outward shift of the production function.

In addition to increasing business opportunities for African entrepreneurs, there is a great spin-off potential in the creation of a digital economy in Africa. Several opportunities are emerging from the global information economy that potentially have great strategic importance for Africa and may have significant impact on socio-economic development.

It is argued that in remote regions, the disadvantages that arise with isolation can be significantly lessened through access to rapid and inexpensive communication. However, there are also more pessimistic views, which assume that the digital divide will increase and therefore producers in developing countries and especially in rural areas will face even greater disadvantages relative to their competitors in developed countries.

7.4 FINDINGS FROM THE SMMEs SURVEY

This section presents an overview of SMMEs usage of ICTs in promoting trade taking into consideration the environment in which these enterprises operate as well as the challenges they face. The countries analysed include Egypt, Ghana, Kenya and Ethiopia.

7.4.1 GHANA

7.4.1.1 ICT Readiness of SME Employees

The results of the study on SMMEs in Ghana indicate that the majority of SMMEs in the country did not regard ICT literacy as a prerequisite for job placement. With the exception of a few job titles that required ICT readiness, the majority of employees did not need to be strictly ICT literate. However the SMMEs expressed their willingness to build their ICT skills. It has been the expectation of SMMEs to receive ICT training and capacity building from their business associations and public organisations. Only 12 percent of the SMMEs claimed to have received ICT training from their respective affiliations.

7.4.1.2 ICT – Competency of SMMEs

Direct involvement of SMMEs in taking up trade opportunities through ICT was imperative to maintaining and improving the export performance of the SMMEs and that of Ghana as a whole. However, a notable portion of Ghanaian SMMEs was still wary of electronic trading. They viewed ICTs as valuable communication tools, but not as an essential aspect of competitiveness. The survey sought to identify ICT facilities available to SMMEs, how predominantly they were being used and the importance attached to each facility. The survey involved the assessment of facilities like fixed telephone services and mobile phone services and mobile banking; usage of leased lines and VSAT; usage of the Internet, websites and email facilities; fax machines; laptops and desktop computers; and electronic payment cards and electronic fund transfer.

Fixed telephone, mobile phone, leased line and Vsat.

As is the case with most African countries, fixed telephones were the only facility available to all SMMEs in Ghana, and it had been the earliest ICT product to be introduced to SMMEs. The facility was the most widely used in SMMEs for trading activities.

The limited fixed telephone network had fuelled the rapid growth of the Global System for Mobile (GSM) communication networks. The mobile phone market was the most

competitive area in the Ghanaian ICT sector. Mobile phones were used by SMMEs to supplement or substitute fixed lines services. The SMMEs interviewed were however not conversant with the significance of leased lines.

SMMEs had however raised concerns about the hidden costs and inconsistencies in their fixed line bills and the longer time it took to acquire new lines. Generally, the poor fixed line network and the uncertainty over the telecom regulatory environment was a major impediment to economic growth in Ghana⁵¹.

Fax was commonly used by 98 percent of SMMEs survey respondents and similar to fixed lines, this had been one of the earliest facilities to be introduced and was still an important tool for communication. Very Small Aperture Terminals (VSAT's) were not popular within the SMMEs and only a few individuals and institutions had the facility. VSATs have an initial high installation cost which was found to be a barrier to many institutions although some SMMEs utilised VSAT's to mitigate unreliable connection through Ghana Telecom.

Internet, Website, and E-mails, Laptops/Personal Computers

As early as 1995, Ghana became the first country in Sub-Saharan Africa to have full Internet connectivity when Network Computer Systems (NCS) established the first connection⁵². The subsequent years experienced a rise in Internet connectivity and use of computers in businesses. SMMEs took advantage of this and most of them were using computers and were connected to the Internet. The survey recorded an average of 16 computers for an SMME and the survey revealed that 93 percent of the SMMEs were connected to the Internet and most of them had their websites hosted on the Internet.

SMMEs to a large extent utilised computers and Internet connectivity in their administrative arrangements, and in at least one or a combination of the following areas: administration, finance, accounting and management; marketing, sales, distribution and invoicing; production or manufacturing; record keeping, stock control and warehousing; communication and websites; entry, processing and control of data; quality control, purchases and supply chain; and payroll and human resource management.

However, the survey revealed that there had not been concerted efforts on the part of most SMMEs to use the Internet as a tool to increase or at least, maintain international competitiveness in their businesses especially in relation to trade.

Cell phone Banking, Electronic Payment card, Electronic Fund Transfer

Cell phone banking and electronic payment cards had just been introduced in the Ghanaian market recently through the commercial banks. The electronic payment cards were mostly "debit cards" and thus SMMEs did not have an opportunity to access credit or short loans through the direct use of the cards. Even at the local level, these electronic cards could not be used to carry out electronic transactions, increasing business community skepticism on the use of these technologies. There was need for a culture change as electronic payment systems would eventually play an integral part in Ghanaian SMMEs performance in the current digital

⁵¹ See the International Finance Corporation 'Investment Opportunities in Western Africa ICT and Internet sectors, final report -Ghana'. October 2003.

⁵² Ibid.

economy. The Internet had provided an added boost to the digitization process in Ghana by lowering costs of carrying out business transactions.

7.4.2 EGYPT

The survey was conducted among 1821 companies selected from all Governorates of Egypt. The sample was divided in the following manner:

- Micro enterprises -with less than 10 employees (constituted 77percent of the total enterprises in the sample);s
- Small enterprise - with between 10 and 49 employees (constituted 18percent of the total enterprises in the sample;
- Medium enterprises - with between 50 and 249 employees (constituted 4percent of the total enterprises in the sample; and
- Large enterprises with 250 employees (constituted 1percent of the total enterprises in the sample).

The total number of employees in the sample enterprises was nearly 199111 employees, with around 60000 in micro enterprises, 68000 in small enterprises and 54000 in medium enterprises.

The survey instruments attempted to highlight the usage of ICT within businesses and the extent to which Egyptian SMMEs relied on advanced technology and the degree of conducting e-commerce⁵³ among Egyptian SMMEs. The questionnaire was structured as follows: use of telephones (fixed and mobile) and fax machines; use of PCs; connectivity; Internet use and e-commerce; and ICT usage breakdown by economic sector.

7.4.2.1 ICT – Competency of SMMEs

Telephony

The findings of the survey revealed that 96.2 percent of the companies had fixed telephones in their offices, facilitated by the modernized telephone service provided by Telecom Egypt. While fixed telephones were a fundamental part of the businesses, mobile telephones' use was remarkably less in businesses, around 33 percent of the companies had mobile phones, which showed a greater dependence of the business sector on fixed lines than mobile phones. Companies using fax machines at work were 65.4 percent.

Computer Usage

Computer usage was the second indicator investigated in this survey and the results indicated that around 62.8 percent of companies reported using computers at work. All the SMME's surveyed were using computers at work, but only half of the micro enterprises (51.6 percent) had computers. In addition, micro enterprises usually operated in activities that did not need

⁵³ According to the UN Core ICT Indicators report, any placement or receiving of orders over the Internet is considered to be e-commerce activity even if the payment took place offline.

computers such as pastries or small shops. On the other hand, SMME's had at least 10 employees and thus usually used at least one computer for financial accounts or secretarial functions such as typing memos and letters⁵⁴.

While the above figures were of importance as they reflected a high rate of computer usage among enterprises surveyed, the percentages of employees using computers were not encouraging, as that was only 13.8 percent for the employees in enterprises surveyed. The highest percentage was in large enterprises as 62 percent of their employees used computers, while this percentage dropped to 10 percent and 13 percent in SMME's respectively. As for micro enterprises, only 4.2 percent of the employees used computers.

These results indicated that the percentage of employees using computers increased as the size of enterprise increased, which confirmed that computers in smaller enterprises were usually used for administrative purposes, while in larger ones they were used by employees for performing day-to-day functions. Besides, SMME's lacked the capacity to provide computer skills training for their employees, in addition to the predominately labour intensive functions that did not entail the use of computers in such enterprises.

The results of the survey showed that most enterprises used computers for typing, administrative functions, surfing the Internet, following-up and monitoring activities and training. The reasons for not using computers reflected the lack of awareness on the importance and benefit of using computers among computer non-users.. Only 14 percent of those who did not use computers reported lack of financial resources to procure computers while 17 percent said that they lacked appropriate skills to use computers at work and another 17 percent lacked the appropriate software.

Connectivity

The survey revealed that only around 30 percent of the companies had LANs. This low percentage had been attributed to results from micro enterprises, which alone comprised 76.9 percent of the sample surveyed. Only 14.9 percent of micro enterprises were connected through LANs, since they had a small number of employees with limited use of computers for conducting business activities. Similar to computer usage, availability of LANs increased as the number of employees in the enterprise increased - 75.2 percent of small enterprises, 91 percent of medium enterprises and 94.1percent of large enterprises. This demonstrated that as the number of employees in the enterprises increased, there was realization of the need to facilitate the workflow through connecting different computers in the work area via LAN.

Internet

It should be noted that the Internet was the most commonly used ICT tool in facilitating trade, as it played a significant role in increasing market reach and reduced costs of marketing and publicizing goods and services. Sixty percent of enterprises using computers reported using the Internet for performing their functions. A break down of enterprises according to their size indicated that 63.9 percent of the enterprises consisted of micro enterprises. For SMME's, this figure was a modest 53.2 percent.

⁵⁴ **Source:** UNCTAD Questionnaire on ICT Usage by Enterprises and on the ICT Sector

Results of the survey revealed that the Internet was used for the following purposes:

- E-mail usage - 85.7percent;
- Information search and research activities - 48.8percent; Around of the companies use the Internet for
- Internet banking and other financial services – 19 percent;
- E-government services - 3.8percent.

These results highlighted the importance of increasing the awareness of private enterprises on the different uses of the Internet that could improve the flow and quality of SMMEs' activities and help improve revenue generation and hence contribute positively to the economy.

Applications of E-Commerce among SMMEs

The results of the survey showed that more than half (52.8 percent) of the enterprises using the Internet had websites, which they use as tools for facilitating their marketing and publicity purposes. On the other hand, the number of enterprises involved in e-commerce was very small, since companies receiving orders over the Internet represented nearly half (49 percent) of the enterprises having websites, while those placing orders over the Internet represented 31.5 percent. It was however difficult to obtain clear responses as to the percentage of sales or purchases carried out over the Internet.

Regarding the benefits of utilising e-commerce, the results revealed that most of the surveyed enterprises (94 percent) considered that using e-commerce speeded up operations, while only around half of them (51 percent) believed it increased customer's accessibility. Other benefits such as reducing transaction costs and increasing security registered 31 percent and 16 percent of respondents respectively. More private enterprises in the Egyptian economy could be encouraged to be involved in e-commerce activities as such activities would allow customers to have easy access to goods and services and reflect positively on sales revenues and profits. The increase in the number of enterprises using e-commerce in their business operations would therefore have positive implications on the economy.

ICT Usage in Enterprises in Different Economic Sectors

The study focused on the breakdown of ICT usage by enterprises according to different economic sectors to determine the sectors with high or limited ICT usage. The results showed that the most important sectors in terms of ICT usage were manufacturing, hotels and restaurants, and financial services. Other sectors included agriculture, mining, construction, electricity, transportation, trade, real estate etc. These sectors were evaluated based on the intensity of computer and Internet usage, website hosting and receiving and placing orders over the Internet.

The manufacturing sector utilised different ICT applications and concerted efforts had been made to modernize the manufacturing sector in the past years, such as the establishment of the Industrial Modernization Center (IMC).⁵⁵

⁵⁵ IMC was established by a presidential decree number 477/2000 as an independent body to implement and coordinate the modernization of the Egyptian industry. It is jointly funded by the European Union, the Government of Egypt and the Egyptian private sector with a total budget of €426 million.

In the hotel and restaurants sector, the results indicated that 13 percent of the enterprises used computers, 15 percent use the Internet, 20 percent had websites, 19.2 percent and 21.9 percent of the enterprises received and placed orders over the Internet respectively. This showed the importance of ICTs in this sector, mainly in activities such as ticket bookings and hotel reservations, in addition to settling arrangements and program schedules with tourism companies.

The financial services sector included banks, brokerage firms, insurance companies and different enterprises which used computers, LANs and Internet. Introducing ICT applications in the sector had enabled bank customers to manage their accounts from the Internet and investors to engage in the buying and selling orders of stocks and bonds in the stock market after introducing online trading services. Online trading provided the ability to place, execute and manage investors' orders, transactions and information directly in the market using a single system, which should manage portfolios, online payment to/from brokers, give online price feed and market news and be able to trade in different markets and financial instruments. In Egypt, online trading was expected to increase liquidity, transparency, daily market volume, investor protection and foreign investments. At the same time, it would reduce human errors and trading costs, eliminate investor-broker trading problems and solve cash problems during public tenders. Online trading was just an example of many other ICT services that could be introduced in this sector with high potential for using ICT.

Enterprises in all other sectors combined represent around one fifth to one quarter of the total of enterprises in each category, which showed modest ICT usage by such sectors. More attention should be given to these sectors so as to increase their awareness on different ICT uses that could improve work flow of and save their time, money and effort, in addition to encouraging the three top sectors to apply more of these services after realising their importance and benefits.

7.4.3 KENYA

The surveys undertaken in Kenya examined ICT impacts in several dimensions suggested in the emerging literature. The surveys mainly focused on the manufacturing sector and the service sectors in Kenya.

7.4.3.1 Manufacturing Sector:

In the manufacturing sector, the total sample consisted of 61 firms. Ownership characteristics showed that the highest percentage of the firms were Sole Proprietorships (73.8 percent), Partnerships (21.3 percent) and limited concerns (4.9 percent)..

The results showed that only 11.5 percent of enterprises in the manufacturing sector had Internet access, only 3.3 percent of firms had websites and about 1.6 percent and 3.3 percent of firms use electronic data interchange (EDI) and the inventory control software respectively.

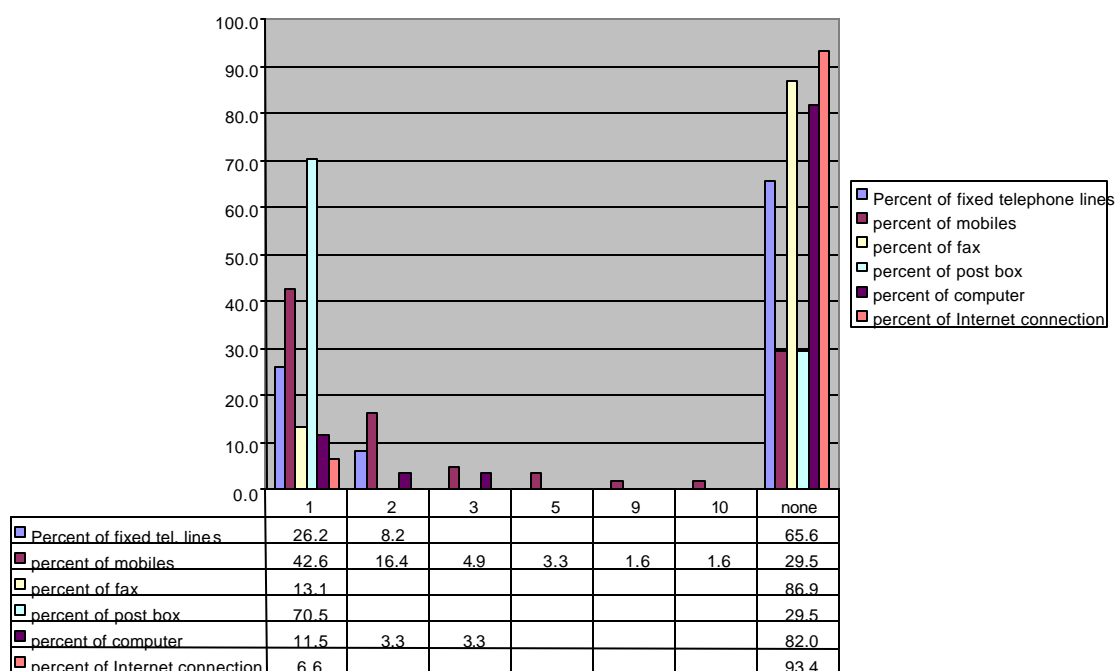
Regarding the type of ICT facilities that manufacturers used, the survey yielded low response rates from the sample except for mobile telephones and post boxes. The survey revealed the following results:

- Use of fixed line telephones - 34.4 percent;
- Mobile phones - 70.5 percent;

- Working fax machines - 13.1 percent;
- Use of post boxes - 70.5 percent;
- Working computers - 18.0 percent; and
- Internet connections - 6.6 percent.

Among the respondents, the average numbers of ICT facilities in use per category are plotted in Figure 7.1

Figure 7.1: Number of working ICT facilities in the Manufacturing Sector



The results in the figure above showed that the most important item of which firms use at least one is the postbox, followed by the mobile phone and the fixed line telephone. Although only about 11 percent of firms had at least one computer, at least 3.3 percent have at least 2 computers and another 3.3 percent also had at least 3 computers. On the other extreme, the leading item in the category 'none in use', is Internet connection, followed by fax machines and computers. Overall, less than 5 percent of firms had in use ICT items in excess of one, and when they did, it was the mobile phone or a computer.

It should be understood that functionally, average numbers of ICT items in use did not signify productivity e.g. the numbers of post boxes in use and value added to the firm differed for example from the numbers of computers in use and value added in a firm.

7.4.3.2 Service/Retail Sector:

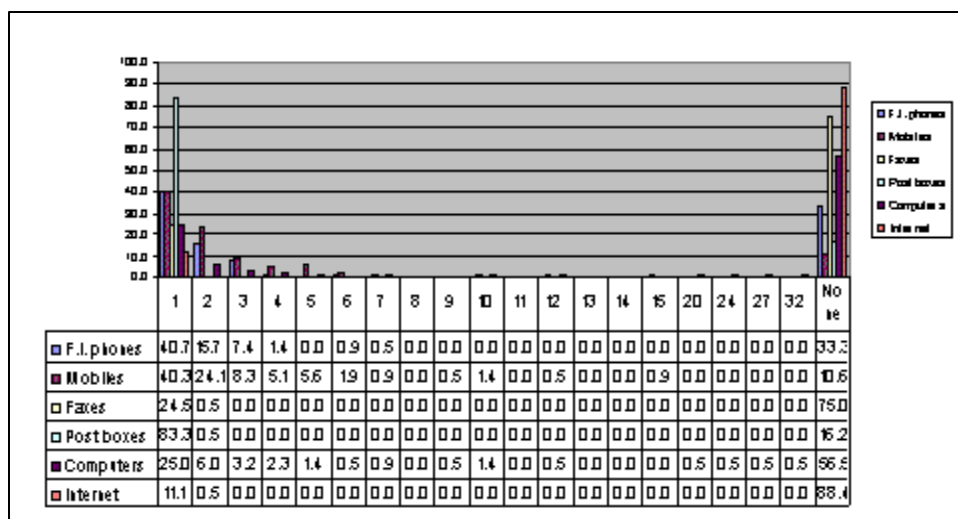
In the service/retail sector, the total sample consisted of 216 firms. The main ownership characteristics showed that 65.7 percent of the firms were Sole Proprietorships, 24.5 percent were Partnerships and 7.4 percent were limited liability companies.

Regarding Internet access, 25 percent of firms had access to the Internet, which was higher than in the manufacturing sector. Some 5.1 percent of the sample had websites while 1.9 percent used the electronic data interchange (EDI) and 3.3 percent, used the inventory control software.

On the types of ICT facilities that service-sector operators' used, the survey yielded substantially higher response rates from the sample than in manufacturing, again led by mobile telephones and post boxes. The results showed that 66.7 percent used fixed line telephones; 89.4 percent had working mobiles; 25 percent had working fax machines; 83.8 percent had post boxes; 43.5 percent had working computers and 11.6 percent had an Internet connection.

Figure 7.2 below shows the average number of working ICT facilities that firms had. Overall, the average numbers of ICT facilities in use in the service sector were substantially higher than in manufacturing. Access to important ICT items such as Internet was low. However, from the results, the most important item of which service sector firms used at least one was the postbox, followed by mobile phones, fixed line telephones, computers and faxes. For firms that had more than one item, that extra item was most likely to be a mobile phone or a computer. Even then, the average number of working computers in use was highest (4.5 percent) followed by working mobile phones (3.2 percent) and working fixed telephone lines (2.5 percent). This pattern replicated usage in the manufacturing sector. The leading items of the 'none in use' category were the Internet, the fax and the computer, in that order.

Figure 7.2: Working ICT items – Services Sector



Source: Survey Data

7.4.3.3 Lessons from the survey

From the survey, it was evident that ICT infrastructure and intensity of use differed amongst the economic sectors depending on nature of business and need for product specialization. Of the indicators above, e-mail and web use were leaders within the manufacturing and service sectors relative to computer usage. However, web use was higher in the service

sector than in manufacturing and a much higher rate of employees used computers in the service sector (40 percent more) than they did in manufacturing.

Firms that provided ICT services proved to be the heaviest users of both websites and e-mail. In both the real estate and the hotel and restaurant sectors, about 70 percent of firms used ICT applications to interact with clients and suppliers. The Kenya findings were roughly similar to global patterns. In the pattern, relative intensity in the service sector was high. About 67 percent of employees in the accounting and finance sector used computers, the highest percentage in any sector.

The findings of the survey show that the service sector employed larger numbers of ICT items than did the manufacturing sector. In the 'at least one item in use' category, the service sector led manufacturing in all items except mobile phones, where further scrutiny showed that the service sector had greater numbers in other 'more than one' categories, and reported only 10.6 percent 'none in use' compared to 29.5 percent in manufacturing.

7.4.4 ETHIOPIA

7.4.4.1 Enterprise and Owners Profile

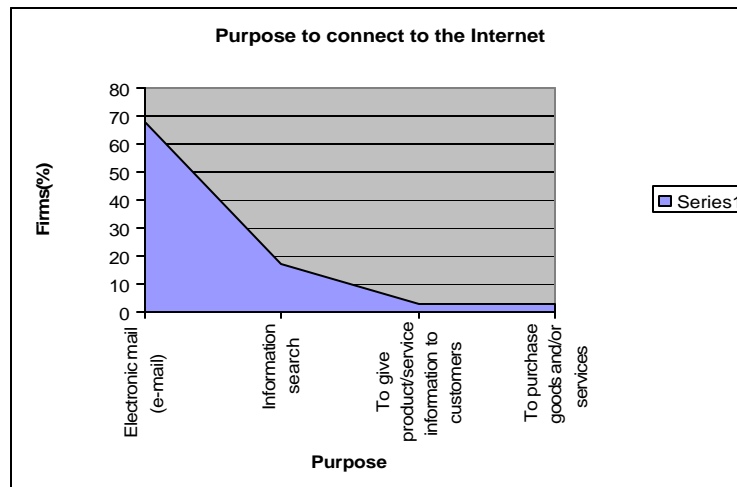
The SMME survey in Ethiopia revealed that 48 percent of the selected firms were sole proprietorships while 43 percent were private limited companies and 5 percent were either joint ventures or share companies. With regard to the sectors in which the firms operated, the results revealed that 65 percent of the firms sampled were engaged in retail and wholesale trade, about 8 percent in transport and logistics and 3 percent in small manufacturing activities. The results showed also that the majority of the firm managers were males (93 percent). In terms of the educational levels of the firm managers, more than 80 percent of the managers had either college diplomas or degrees.

7.4.4.2 ICT Penetration and Utilization

The results of the survey revealed that 93 percent of the firms had at least one direct telephone line and at least one Personal Computer (PC). And all the firms were using PCs for basic office applications and records management. In addition, 36 percent of the firms had at least one mobile line and 90 percent of the firms had less than four mobile lines. More than 78 percent of the firms had less than five PCs of which, 55 percent had only one or two. According to the survey, 95 percent of these PCs were used for running basic office applications while 65 percent of the firms used the PCs to handle office records.

The PCs were mainly used for word processing, accounting and finance and in some cases for data processing. According to the survey about 50 percent of the firms used them for price data exchange with local and international suppliers and 42.5 percent for information exchange within the firms. Most firms' did not have LANs and websites. The results showed that only 20 percent of the surveyed firms had LANs and 7.5 percent had websites. About 80 percent of the firms had Internet connections, of which 77.5 percent had a dial-up connection and only 2.5 percent had a dedicated line connection.

Figure 7.3: Firms' Purpose for Internet connection



Source: Survey data

Figure 7.3 illustrates a snapshot of why enterprises in Ethiopia used the Internet. Approximately 67 percent of the firms used the Internet mostly for e-mail services, followed by 17.5 percent for information search. The firms also used the Internet to access databases of suppliers of goods and services. This was the next dominant use while provision of service or product information to customers and purchasing of goods and services over the Internet was the least practiced activity by the firms. Barriers prohibiting firms from owning Internet accounts included lack of awareness, lack of IT skills high equipment and high Internet connection costs.

7.4.4.3 Sales and Purchases via the Internet

The survey indicated that while some of the sampled firms had received orders via the Internet, online payment had not been possible for them. Out of the sampled firms, 43 percent of the sampled SMMEs stated that they had received orders via the Internet. This indicated that firms were generally less active in selling their products using the Internet and most of them depended on the conventional way of handling sales. Online payment was not possible even for those firms that had received orders via the Internet because of the absence of appropriate legal and regulatory framework governing such payments.

The sampled SMMEs were also requested to indicate their experience in e-purchases, if any. According to the results, some 45 percent of the sampled firms indicated that they made orders for the purchase of goods and services via the Internet while the remaining firms did not make any purchase via the Internet. However, e-payment was not practiced among the sampled SMMEs because of lack of appropriate legal frameworks.

On the main advantages of using ICTs in trade, the following responses and results were give:

- Reduction of transaction costs - 93 percent;
- Improvement of customers' satisfaction - 75 percent;
- Expediting of transactions 65 percent and
- Avoidance of corruption - 43 percent;

7.4.4.4 ICT Skills in SMMEs

The level of education of the managers and their basic ICT skills is an important factor, which can enhance their utilization of ICTs for various business purposes. The survey results showed that 11 percent of the managers in SMMEs had postgraduate degrees, 70 percent of them were college diploma or degree level trained professionals. Another 5 percent graduated from Technical and Vocational training schools and 13 percent were below high school level. The survey findings revealed that, only 2.5 percent of the SMMEs included in the survey were headed by a manager who had basic ICT skills. From the firms included in the survey, only 45 percent had hired ICT skilled professionals. From these ICT professionals, 94 percent were male and only 6 percent were female. A little more than half of the firms (57.5 percent) enlisted some form of ICT professional services from permanent and contract employment basis.

7.4.4.5 Source of Finance for ICT investment

The most important source of ICT investment is owners' capital. According to the results of the survey, most of the sampled firms (85 percent) had used their equity capital for any ICT related investment. Retained earnings were the next most important source of finance for ICT investment.

7.4.4.6 Legal and Regulatory Framework

One of the most important inhibitors of the use of ICTs in trade was the absence of an appropriate legal and regulatory framework in Ethiopia. More than one third of the sampled firms indicated that some relevant government information and some electronic forms were available on the Internet. However, more than two fifths of the sampled firms stated that such information and electronic forms, which could have reduced transaction costs, were not available on the Internet. There were some efforts by some government ministries to upload some forms so that customers could download and complete these online before submission to the relevant ministry.

The sampled SMMEs were also asked if they planned to start online business in the immediate future and whether they perceived any legal problems. Some of the sampled firms indicated that they had a plan to start online business but most of them indicated also that the legal and regulatory framework was not conducive to start e-commerce in Ethiopia. The results showed that some 75 percent of the sampled firms would want to start online businesses. More than 40 percent of the firms indicated that an appropriate legal and regulatory framework was lacking to conduct business on-line in the country. One third of the firms did not have any clear knowledge on the regulatory and legal framework. According to the survey, many firms felt that there was no legal and regulatory provision that could authorize the establishment of online cross-border businesses. This was the most serious perceived legal barrier to starting online cross-border businesses.

The lack of a legal provision for recognizing electronic contracts and the electronic transaction of goods and services, as well as the recognition and validity of electronic signatures were the most serious constraints hampering the development of online businesses.

Absence of an e-payment procedure was also posed a significant problem for some of the firms.

7.4.4.7 Obstacles and Constraints on the use of ICTs by SMMEs in Ethiopia.

While ICTs may be important for the development of SMMEs in countries like Ethiopia, the application of the technology in trade was quite limited. To identify the main obstacles on the use of ICTs in trade the sampled SMMEs were asked to indicate the main constraints related to Internet sales and purchases.

Absence of an online payment system and an appropriate legal framework for e-commerce in Ethiopia were reported to be the main obstacles to expanding the use of ICTs in trade, confirming the need for a trustworthy environment in which to carry out e-commerce activities. Uncertainties concerning contracts, terms of delivery and guarantees were areas of high importance for many firms. Lack of client firms and customers who were ready to use the Internet to exchange goods and services, as well as the non-conformity of the products and services SMMEs transacted, were cited as additional barriers to expand e-commerce.

The sampled firms were also requested to suggest and identify possible solutions to mitigate the problems facing e-commerce in the country. Several areas of intervention to expand and enhance the use of ICTs in trade were identified thus:

- . Improving the telecommunications services;
- Lowering the service charges of the telecommunication service;
- Introduction of new business licensing procedures;
- Introduction of an e-payment system;
- Encouraging the participation of the private sector in ICT infrastructure development; and
- Improvement of the customs and trade regulations.

7.5 APPLICATION OF ICTS IN SMMEs - SURVEY RESULTS

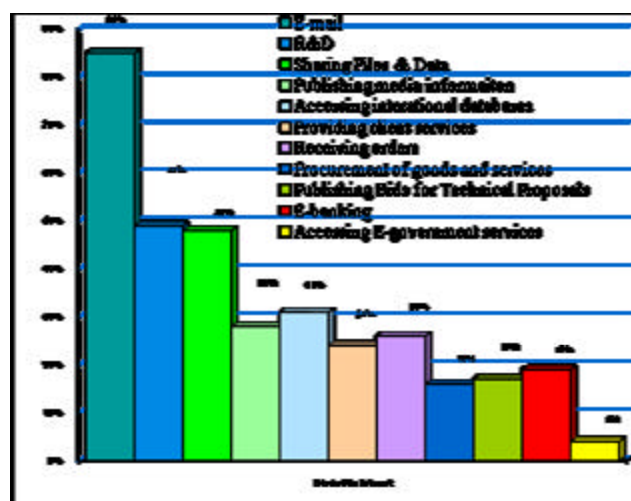
The study also attempted to assess the level of awareness and usage of ICTs within SMMEs, especially the extent to which the SMMEs relied on advanced technology to do business as well as the degree of conducting e-commerce activities among African SMMEs. The study specifically analysed the use of ICT's i.e. telephones (fixed and mobile) and fax machines, PCs, connectivity, Internet and e-commerce, by economic sectors and also the policy environment in which SMMEs operated.

The findings indicated that a significant and growing number of SMMEs' exporters were registering success in conducting business online despite the difficult conditions encountered in these developing countries. It was observed that the use of telephones, both fixed and mobile and fax machines was very popular among SMMEs in the countries surveyed. Regarding the usage of computers, the survey results showed that most of the companies had computers but they were mostly used for secretarial functions i.e. word processing, accounting and finance and in some cases, for data processing. In most of the countries surveyed, the findings revealed that computers had become an integral part of the operations of SMMEs, however there had been no concerted effort on the part of most SMMEs to acquire e-competency or to use the Internet as a tool to increase or at least maintain international competitiveness. Connectivity to the Internet was viewed as a valuable tool for

communication, especially through emails, but not an essential aspect of enhancing business competitiveness both domestically and internationally.

Very few companies in these countries surveyed had websites as marketing tools with the exception of Egypt and RSA, where a significant number of SMMEs were involved in e-trade. The results of the survey in Ethiopia showed that approximately 67 percent used the Internet for e-mail purposes. The provision of services or product information to suppliers as well as the purchasing of goods and services over the Internet was the least practiced activity by firms on the Internet (See Figure 7.3 above). In Egypt, the results of the survey showed also that the highest percentage of enterprises used the Internet for e-mail communication as compared to providing client services as well as receiving orders in the Egyptian SMMEs (See Figure 7.5 below).

Figure 7.4: Internet usage in Egypt.



In terms of ICT usage in different economic sectors, the results revealed that ICTs were mostly used in the manufacturing, the hospitality industry and the financial services sectors. The results also indicated that a greater proportion of firms had managers who were computer literate as opposed to general employees.

7.5.1 Major challenges facing these companies

The major challenges being faced most SMMEs in Africa are given an Ethiopian case study as it encompasses most of the issues raised by SMMEs in the countries covered in this study. Most SMMEs as they commenced their e-commerce activities, they had been facing several challenges. One of the main challenges faced by the companies, in their effort to expand their e-trade initiatives was the incompatibility of the existing legal framework in Ethiopia. The exchange control regulation of the National Bank of Ethiopia (NBE) –Ethiopia's Central Bank - required that goods and services worth more than \$250 USD (local currency equivalent) could be exported only if the full payment of the goods or the services was effected through the Letter of Credit (L/C) System. The exporter had to open an L/C prior to exporting of any product. The export and exchange control system did not have any provision

for electronic payment. This regulation was generally incompatible with the promotion of e-trade where transactions were mostly conducted online through appropriate credit cards and therefore seriously undermined the role of ICT in these companies' trade.

In addition to the incompatible legal provisions, payment could not be effected through a credit card system since most of these companies did not have special permits to accept credit cards from their clients. These permits were only issued by the Ministry of Trade and Industry⁵⁶. The absence of an e-payment system in the country, had forced some of the companies' dealers to employ Credit Card Clearing Companies (CCC), which were located in Europe and Canada to verify the validity of customer credit cards. After checking the authenticity of the credit cards, the Clearing Company transferred the price equivalent amount of the goods that were to be exported to the companies' local account based on trust that these Ethiopian companies had developed with the clearing companies. However, this procedure was cumbersome and expensive particularly if the transaction involved small amounts of money.

The customs' clearance requirement was also cited as a major problem in enhancement of e Trade in Ethiopia. Apart from the lengthy process of the Customs Procedures, it was also required of an exporting firm to provide the Custom's Authority with an Exchange Control Permit, an Export Control Permit and other documents in order for the firm to obtain export clearance. In addition, an exporting firm was required to complete a declaration form for goods to be exported. In the end these requirements rendered Customs Clearance procedures very expensive, cumbersome and incompatible with the e-commerce environment.

Most of the companies were also not able to use the export incentives provided for firms by the government and did not enjoy duty free privileges such as other companies operating in the traditional trading mode. This was because, while using the electronic means of export, it was not possible to produce traditionally required paper based documents, invoices, signed contracts etc, for one to be entitled for the duty free privileges. This was due to the absence of legal provisions to accept electronic documents and a system to certify the validity of electronic documents through the authentication of electronic signatures. These bottlenecks forced some of the companies to gradually reduce their e-trade activities and resort to the conventional trade format. As a result, most of the companies' Internet sales had considerably been eroded while the sales through the traditional trading systems of doing businesses had increased.

The other major problem that hindered the companies' e-trade was the accessing of the companies' websites as well as their regular update, which was often difficult because of the low access speeds and high cost of Internet connections. Low ICT skills, absence of relevant business information security and privacy protection mechanisms were also among the major problems faced by the SMMEs in Ethiopia. Due to these reasons, most of the companies became less competitive in the global market in respect to e-trade activities.

In addition to the above challenges, it was also observed that there was limited awareness on the part of the policy makers and the general public about the relevance and importance of e trade, hence there was slow development of the ICT infrastructure and policy framework in the country which was negatively affecting the companies' etrade activities. Moreover, these companies had a weak policy influencing position since very few of them were engaged in e-

⁵⁶ Some tourist trading shops, travel agents and higher grade hotels are permitted to accept credit card from their clients.

commerce activities in the country, hence they failed to create a critical mass. However, in spite of the above challenges, the companies had been trying to handle various orders within the existing legal framework and attempting to ensure customer satisfaction and profitability.

Finally, in order to expand e-trade in Ethiopia several issues to be addressed were proposed thus:

- A need to improve the export procedures;
- The creation of enabling legal and the regulatory framework for e business - recognition of electronic documents/signatures/e-transactions;
- Export permit and the Customs Clearance procedures need to be adapted to ensure compatibility with e-commerce environment;
- Reduction in transmission costs i.e. Internet connection, telecommunication charges; has to be reduced considerably as well as the cost of computers and their accessories.
- Conducting ICT capacity building activities for SMMEs to expand e-commerce activities.

7.6 CHALLENGES AND CONSTRAINTS BEING FACED BY SMMEs IN AFRICA

While ICTs may be important for the development of SMMEs in African countries, the application of the technology in trade is quite limited. There are several reasons why the application of ICTs may be low in Africa. As in many developing countries, the Internet in Africa is expensive, low quality and unreliable. Generally, the high costs, the poor quality of fixed line networks and the uncertainty over the telecommunication regulatory environment are the major impediments to growth⁵⁷. Therefore, any effective use by SMMEs of an e-commerce solution requires off-line operation to minimize the need for using expensive, low quality bandwidth in African countries. In addition, computer usage and skills is low and is often affected by electric power outages, which is mostly concentrated in urban centres in most African countries. This is exacerbated by the lack of client firms and customers within the different countries who are capable of using the Internet to exchange goods and services as well as the nonconformity of the products and services SMMEs transact, have been identified as additional barriers to expand e-commerce e.g. those SMMEs involved in transport and construction see no significant benefit from e-trade as signified in the study. It is also observed that the use of computers and the Internet for business, let alone e-commerce is not widely understood by many SMMEs in African countries. Furthermore, being part of global trade, e-commerce processes require knowledge of many complex systems including on-line promotion, international payments and shipping procedures that are beyond the current limited capacity of most SMMEs. Moreover, many entrepreneurs are now skeptical of using ICTs for trading purposes, due to the concerns on the issues of security and privacy. This means that more knowledge needs to be imparted to SMMEs to encourage them to use ICTs in order to exploit business opportunities and to gain exposure and representation on the global market.

The other constraint for most SMMEs has been the source of finance for investment. The most important source of ICT investment is owners' capital. According to the results of the study, most of the firms have been using their equity capital for any ICT related investment. Retained earnings are the next most important source of finance for ICT investment. With a low per capita annual GDP in most African countries, very few individuals or SMMEs can

⁵⁷ International Finance Corporation 'Investment Opportunities in Western Africa ICT and Internet sectors, final report-Ghana'. October 2003.

afford to own a computer along with the phone line, printer, specialized software and digital camera that are prerequisites for e-commerce. Therefore it is necessary to find mechanisms where SMMEs would be able to access finances for the initial cost of acquiring ICT facilities and the cost of running them.

Absence of online payment systems and absence of appropriate legal and regulatory frameworks for electronic commerce in most African countries are some of the main obstacles hindering enhancement in the use of ICTs for trade according to the survey findings. This confirms the need for a trustworthy environment in which to conduct e-commerce. Uncertainties concerning contracts, terms of delivery and guarantees are of importance for many firms. According to the survey, many firms felt that there was no legal and regulatory provision that authorizes the establishment of an online cross border business. Lack of legal provision for recognizing electronic contract and the electronic transaction of goods and services as well as the recognition and validity of an electronic signature were identified as constraints hampering the development of online business. Challenges and Opportunities of the Ethiopian SMMEs in Box 7.1 ably summarise the situation faced by most SMMEs in Africa.

7.7 CONCLUDING REMARKS

Much of the hype of the new ICTs has been focused on its potential to wipe out geographical barriers and potentially create new markets for existing businesses and firms. In the late 1990s, the use of ICTs to foster commerce was thus initially seen as one of the key drivers of the so-called ICT revolution. Eight years into the new Millennium a more sober picture has emerged. E-commerce is certainly not a panacea although it has worked for quite a few companies.

This study was motivated as a result of an observation that the role of ICTs in supporting Small, Medium and Micro Enterprises (SMMEs) in developing countries had not been properly addressed in most of the policy studies. Most poor countries had very few large enterprises that could benefit from using ICT by becoming competitive on both national and international markets. As a matter of fact, most of the enterprises in these economies were SMMEs. This was particularly so when focus was placed in urban poor and rural areas. Thus, the study had indicated that targeting SMMEs in developing countries was one of the ways in which ICT could help alleviate poverty and help these countries achieve the Millennium Development Goals (MDGs).

The study findings indicate that there is high potential for ICTs in assisting small enterprise development. As the global economy becomes increasingly reliant on ICTs to receive, process and transmit information, SMMEs in developing countries should not be left behind lest they lose out on opportunities to integrate into the global supply chain for outsourcing businesses and increasing productivity.

The study has attempted to outline the different ways in which ICTs can benefit SMMEs in the areas of business productivity, efficiency (i.e. improve communication among different departments within the firm) and also linking SMMEs more easily and cheaply to external contacts, whether locally or globally which is the genesis of e-trade.

Despite the obvious and concrete benefits that ICTs can bring to SMMEs, in most developing countries SMMEs have been slow to adopt ICTs. At the same time, most governments have not mainstreamed ICTs into their SMME policies. The study findings reveal that this has mostly been exacerbated by a lot of challenges and constraints that respective governments need to address so that SMMEs, through the use of ICTs, can significantly contribute towards economic growth and development. Most prominent of these challenges and constraints are the issues of infrastructure development and the legal and regulatory framework in which these SMMEs operate. There is need to put in place relevant legal and regulatory structures that would enhance e-trade in African countries.

Box 7.1: Ethiopian SMMEs' e-Trade Challenges and Opportunities

Most of the SMMEs in Africa face almost similar challenges and opportunities. To have an in-depth understanding of these challenges an example of SMMEs in Ethiopia's manufacturing sector is presented. This industry presented is a subsector of the manufacturing sector. Ethiopia is believed to possess huge livestock resources. However, this sector has not been well developed and properly exploited. Recently, there have been some initiatives by the government to exploit some of the potentials of the sector with the establishment of the Leather Technology Institute as one such example. In addition, several private companies have also started to observe the huge potential of the sector and have started to be engaged in some business activities related to the livestock sector.

Due to the abundant availability of hides and skins, many companies have been established recently to exploit the abundant raw material available in the country. Most of these companies have been established with the purpose of processing and exporting leather products, and they have created employment opportunities for many jobless individuals. Most of these companies have tried to promote their activities aggressively and have participated in several trade fairs within and outside Ethiopia.

According to officials in these companies, an extended chain of actors characterize the conventional export channel. The traditional system is very expensive to sustain and is less competitive in the global market. Selling online is by far cheaper for both the producer and the consumer. Internet sale makes business to consumer transaction more efficient and prices attractive to both parties. Therefore, it had become imperative for the companies to find an alternative mechanism for the promotion and exporting of leather products. Hence, some of these companies created websites as a way of promoting efficiency in their business transactions. Most of these companies opted for this initiative at the time when there were no Internet Service Providers (ISP) in Ethiopia, the companies had to use overseas ISPs to register their domain names and get their website hosted through the support of the Pan African Development Information Services (PADIS) - ECA. The companies' electronic-trade was mainly focused and tailored to consumers (B2C), which improves the companies' competitive positions and reduces marketing and other transaction costs. The new system also enabled the companies to outreach their products to a wider network of consumers.

A snapshot evaluation of the performance of the companies show that after the introduction of the website, interesting progress was made. Some of these companies' websites have been visited by more than 5.8 million people over the last ten years. There has been a steady increase on the online and domestic sales. In addition, the traditional export market has also showed an increasing trend. The introduction of the Internet also enabled the companies to capture the fashion trends more easily and quickly. The cost of advertising and promotion of the companies' products have been changed from a Catalogue based on trade fairs to electronic advertising and promotion over the Internet. As a result companies have experienced reduction in the cost of advertising and business promotion.

CHAPTER EIGHT

MOBILE COMMERCE IN AFRICA

8.1 INTRODUCTION

Undoubtedly, the fastest growing ICT sector in Africa is mobile telephony, which is creating immense interest in the sector. Mobile phones are an important ICT tool for development due to their ability to easily leapfrog the infrastructure barriers in remote and rural areas in Africa. Furthermore, the rapid advancement in the technologies and ease of use, coupled with falling prices in devices, presents the mobile phone as an appropriate and adaptable tool to bridge the digital divide. The scope of applications for development is wide, and as it can reach the majority of people, its impact is enormous. Overall, wireless communications provide the long sought after platform that can make digital data transfer possible in many developing countries. This is due in part to the lower costs of mobile systems relative to fixed networks, the provision of short message services (SMS) and the enabling of wireless Internet connections.

This has spurred the advent of m-commerce, a new form of electronic commerce brought about by the rapid growth of wireless communications in many Africa countries. The most common definition of m-commerce is the buying and selling of goods and services using mobile phones. In Africa and other developing countries, most mobile services are prepaid using stored value cards. This mitigates post-paid subscription problems of creditworthiness and billing.

In the study the definition of “M-Commerce” included the contribution of the mobile phone to business through voice and data services. The study presents a number of emerging initiatives, which use the current Global System for Mobile (GSM) communications, data exchange mechanisms of small message services (SMS), Wireless Application Protocol (WAP) and Unstructured Supplementary Service Data (USSD). These initiatives include information only services, financial transaction services and a mix of both.

When considering financial services, the spectrum of m-commerce responses has been everything from an information service added to an existing bank account, through to propositions that enable information and transactions on an existing bank account, to innovative transformational propositions such as M-Pesa⁵⁸ which enables information and transactions on a newly registered mobile phone enabled account.

The study reviews the telecommunication and financial infrastructure and presents findings of some recent studies on how households manage financial services and their expectations for ease of access. Infrastructure expansion and upgrade, particularly international connectivity and bandwidth, coupled with the convergence of GSM networks and IP infrastructure, means that increasingly, sophisticated m-commerce applications are becoming a reality across African countries. However, the nature of a number of constraints (e.g. cost, literacy, handset specification) means that use of m-commerce is likely to remain the preserve of the well off for some time, hence exacerbating the digital divide.

⁵⁸ See Box 8.1 below for more details about M-Pesa

8.2 WHY THE STUDY WAS COMMISSIONED

The role of mobile phones for banking and conduction transactions was as a result of six-country studies on ICT trade and economic growth commissioned by ECA under the ePol-Net initiative, whose objectives and findings have been presented in the previous chapters.. M-commerce/M-Banking was flagged out in some countries as a way for the poor to use ICTs in their economic endeavours. Given the explosion of mobile telephony across the continent, this became an important area of study for the ECA, particularly with respect to interrogating the kind of policy requirements needed to sustain this phenomenon, so that this sector contributed fully to economic development in Africa. This was also highlighted during the “Connect Africa Summit”, held in Kigali, Rwanda, from 29-30 October 2007. At the Summit, it was observed that the African mobile market was the greatest expanding market in the world. In the past three to four years, some countries had recorded a growth rate ranging from 40 to 50 percent, and in 2000, there were 16 million mobile telephone subscribers in Africa and this number rose to 135 million in 2005. Presently, for each fixed telephone, there are about five mobile phones in Africa⁵⁹.

This promising experience reflects the implementation phase of the Tunis Commitments at the World Summit on the Information Society (WSIS) and led to the commissioning of this study by the United Nations Economic Commission for Africa (ECA) within the framework of the African Information Society Initiative (AISI). The aim of AISI is to provide Africans with the means to improve their standard of living and reduce poverty through new ICT's. As a result, UNECA launched several programmes including the National Information and Communication Infrastructure (NICI) programme⁶⁰.

It is within the framework of the NICI development that the African Initiative on ICT, Trade and Economic Growth was launched following a Forum held on the subject from 14-16 March 2006 in Addis Ababa. The objective of the Forum was to examine the economic significance of ICT and determine their impact on African countries. This m-commerce study is part of the follow-up activities of the ePol-Net programme initiative. This initiative focuses on the emergence, status and the future of m-commerce – including mobile phone enabled banking. It brings together, three country studies on Senegal, Kenya and South Africa.

8.2.1 The Study Objectives

The study was instituted to examine m-banking in a more traditional sense, linking mobility to banking and also to examine the alternative banking applications, for instance using cell phones to purchase goods and services, i.e. pre-paid phone cards becoming a new currency. Specifically, the study was aimed at providing an overview and state of infrastructure with reference to the spread of mobile technology in each country. In particular, the study examined the types of wireless technologies being deplored, the advantages and disadvantages such technologies, the growth potential of the mobile telephony sector and roll-out plans in these countries.

The study also analysed the mobile market, which included an assessment of the extent of innovation taking place in creating m-commerce opportunities as a mechanism of opening up

⁵⁹ See ITU database on www.itu.org

⁶⁰ See NICI e-Strategies: Best Practices and Lessons, ECA, Addis Ababa, 2007.

new revenue streams as well as creating value chains. Possible business models to be adopted to expand m-commerce to rural and remote areas were also analysed.

The study examined also the extent of collaboration between mobile operators and financial institutions such as banks and, where possible, credit card companies. The critical issue was whether there could be collaborative value generated as a result of mobile operators teaming up with the financial institutions to develop solutions. The existence of content development providers, as well as key sectors and applications that could drive m-commerce in these countries was also explored.

Some of the driving forces behind m-commerce development are the issues of trust, confidence and security. This being the case, the study also analysed the extent of usage of mobile telephony for commercial activities which was to a greater extent, determined by how the citizenry in a given country perceived the use of electronic devices for monetary transactions in terms of security, trust and confidence. As a result, it was deemed important to assess the extent to which the business environment provided trust and confidence for using the devices and the security measures that were in place.

The study also assessed the legal and regulatory framework in which m-banking institutions operated. In particular, the study examined how existing policies and regulatory frameworks had affected the development and promotion of m-banking or e-commerce. It explored how the policy and regulatory environments have affected technology promotion and also how regulation could be effectively utilised to facilitate market entry. Issues of service access and affordability were also examined.

METHODOLOGY

The study used secondary data obtained from policy documents, relevant legislation and the financial and telecommunication sector regulators. Primary data were collected using interviews and directed questionnaires targeted at the financial sector, the mobile operators and selected companies in the retail, tourism and information services sectors of the economy. Details of sources used and interviews conducted can be found in the supporting documents which include the three country reports: “Status of Mobile Commerce and Mobile Banking in Kenya, UNECA”, by Professor Meoli Kashorda, April 2008; “Etude sur le m-banking/m-commerce au Senegal, UNECA”, Par Mme Fatimata Seye Sylla, April 2008 and “A view of M-commerce in South Africa, UNECA”, By Dr Simon Batchelor, June 2008.

8.3 INFRASTRUCTURE

The situation in each of the three countries is significantly different, however, in all these countries, poverty reduction strategies acknowledge that reduction of poverty can be achieved if communication services become affordable and accessible to the rural and urban poor.

In all the three countries, there is significant mobile network growth, both in terms of network infrastructure and in market competition. In South Africa (with the highest GDP growth among the three countries), the reach and coverage into rural areas is significant, however the price point is higher than the other two countries and this might have a negative effect on economic development. In Senegal (the lowest of the three GDPs), there is a very strong international connectivity such that it acts as a regional Internet exchange point, and there is a strong fibre optic network throughout the country, although currently reach into the rural areas is a little limited. Kenya holds the distinction of having good coverage and

holding a mid point price. Against this backdrop of a strong well-used mobile phone network, what are the opportunities for m-commerce/m-banking?

In order to successfully establish m-banking/m-commerce, there should be collaboration between the institutions, actors of traditional commercial transactions (i.e. financial institutions), businesses, telecommunications operators, mobile operators, Internet service providers and the value added service providers.

The study findings revealed that Senegal, despite being the regional Internet exchange point, had effectively no m-banking or m-commerce activities that could be used in the rural areas. Only Sonatel Multimedia had proposed an SMS banking solution. Others, such as Chaka and CBO had projects, but despite their goodwill there had been very little investment in the sector at the time of this study (early 2008), indicating drawbacks in new technological developments. The study observed that the rural areas remained the poorest areas while they constituted the majority of the population and should therefore constitute the virgin areas to be exploited by operators and service providers with the resources.

In contrast, Kenya and South Africa had a considerable number of initiatives, most of which included a focus on the rural poor – who were regarded as the potential market players. From these countries, the studies noted that key to the inclusion of the poor was a proportionate response to the identification and associated risk for the registration of new customers. Kenya and South Africa had taken steps down this road and hence enabled the innovative propositions.

8.4 M-COMMERCE DEVELOPMENTS

In the last four years, the growth in the number of mobile telephone users worldwide has exceeded the growth in the number of fixed lines, increasing from 50 million to almost one billion in 2002. Today, over 90 percent of countries have a mobile network and nearly one in every six of the world's inhabitants has a mobile telephone.

As mobile phone usage expands into the realm of commerce and trading, many other opportunities are arising, notably m-banking or m-payment, that allow low-income people to use the phone for banking purposes. M-banking transactions cost far less to process than transactions at an automated teller machine (ATM) or bank branch. A 2008 survey estimated that only half of South African adults had a bank account, but a third of those without an account owned a mobile phone⁶¹. The survey revealed that cell phones had spread faster than bank accounts across the rest of Africa. FinMark, a British-backed non-governmental organization that looks at how financial markets can help the poor, estimates at least half of all bank accounts in South Africa will be administered through cell phones within the next five years⁶². There are currently several models of m-banking and m-payment that are being developed throughout the developing world. In South Africa, there is the WIZZIT initiative, a startup mobile banking provider that offers a transaction banking account accessible via mobile phone and debit card. The company operates as a division of the South African Bank of Athens, targeting 16 million people (48 percent of adults) who are unbanked or who have difficulties in having access to formal financial services. Since its launch in December 2004, WIZZIT has acquired more than 50,000 customers.

⁶¹ Ria, 2008 South Africa - Policy vs. Performance - ICT Access & Usage in South Africa

⁶² See Finscope 2006 "Understanding Kenya's financial landscape - the FinAccess survey results 2006", FinMark 2006

In Kenya, the M-Pesa model is a new Safaricom (private mobile operator) service allowing transfer of money using a mobile phone. Kenya is the first country in the world to use this

Box 8.1: Kenya's MPESA

M-Pesa functionalities were rapidly modified from simply enhancing micro-finance transactions to enabling users to send and receive money. M-Pesa provides an affordable, fast, convenient and safe way to transfer money by SMS anywhere in Kenya. Using M-Pesa, a user can deposit money, withdraw money, send money to another M-Pesa user, send money to a non M-PESA user who does not need to be a Safaricom customer, buy Safaricom prepaid airtime and manage his/her M-Pesa account e.g. show the account balance, change PIN and change language.

Registration for an M-Pesa service is done free of charge at any M-Pesa Agent location. A user is required to provide a Safaricom SIM card, a mobile phone and a form of identification e.g. National ID or passport. Since the older versions of SIM cards did not have a M-Pesa menu, a replacement is done during registration. This is done free of charge at the authorized M-Pesa agent. The agent assists users to transfer phone book details to the new SIM card. All SIMs since October 2006 come with an integrated M-Pesa menu and upgrading is free (Vaughan, 2007).

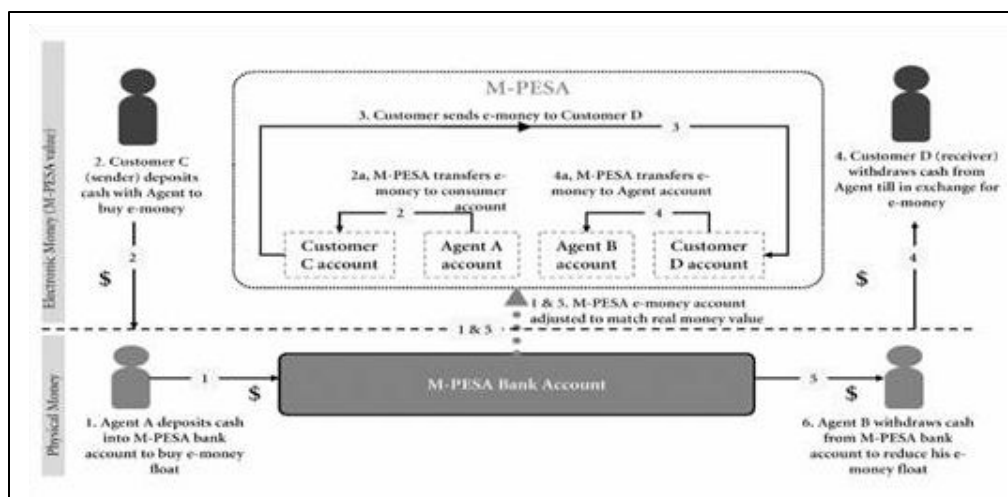
To Activate an M-Pesa Account, users choose an 'M-Pesa' menu on the phone and select Activate option. Upon entering a 'start key' (a 4-digit number issued by the system), the user can then create and confirm a new secret PIN. The user then enters an ID number, which should be similar to the one entered by the Agent. Upon correct entry of the above, the M-Pesa account is activated and the user can access the M-Pesa menu to view the following sub-menus: Send money, Withdraw cash, Buy airtime, Pay Bill, My account.

An M-Pesa agent provides services to M-Pesa customers including the buying and selling of M-Pesa e-Money and the registration of new M-Pesa users. Agents are either Safaricom dealers who are operating one or more outlets around Kenya or other retailers with a substantial distribution network like petrol stations/distributors.

service, which is offered in partnership between Safaricom and Vodafone (See Box 8.1).

The service is an affordable, fast, convenient and safe way to transfer money by SMS anywhere in Kenya. Apart from M-Pesa, there are other firms involved in m-commerce such as Equity Bank Ltd, Jamii Bora and Sokotele, while the Commercial Bank of Africa only allows customers to access their accounts information, but not financial transactions.

Figure 8.1: An Overview of the M-Pesa service



8.5 FINDINGS AND RECOMMENDATIONS

The studies noted that infrastructure expansion and upgrade, particularly international connectivity and bandwidth, coupled with the convergence of GSM networks and IP infrastructure, means that increasingly, sophisticated m-commerce applications are becoming a reality across African countries. However, the nature of a number of constraints (e.g. cost, literacy, handset specification) means that use of m-commerce is likely to remain the preserve of the well off for some time, hence exacerbating the digital divide.

Most of the m-commerce/banking examples are based on partnerships between a bank and an operator and the product is offered as added value of that bank or operator. This gives the players a competitive advantage over their rivals in the sector. It has been observed that initiatives towards open standards, enabling all mobile operators to provide access to m-banking services would enable more people to benefit from these services.

The studies reveal that m-commerce or m-banking is one of the sectors that can have a significant impact on the lives of the poor in Africa if properly and effectively managed within an enabling environment. The findings show that the different African countries could enable M-commerce or m-banking to reach its full potential through the generation of inclusive policies that put more emphasis on rural coverage in terms of both infrastructure and banking services, balancing the market and consumer protection through effective regulatory policies and also through recognising information services as a vital component in the sector.

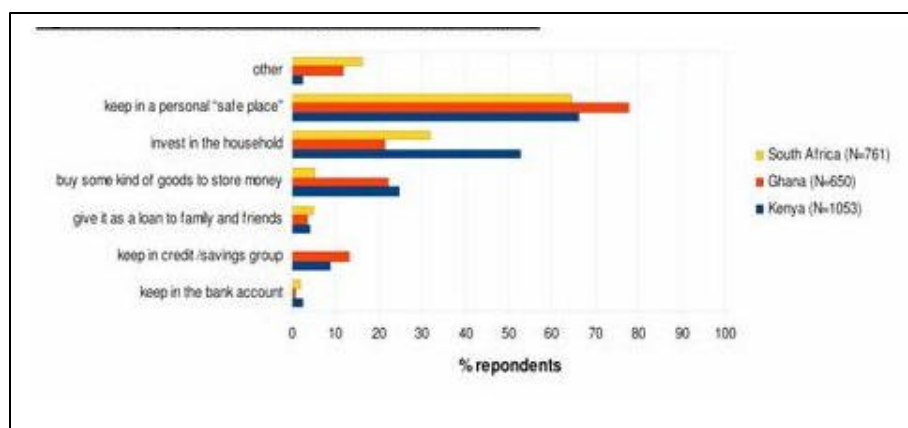
8.5.1 Generate inclusive policies

The situation in each of the three countries is significantly different, but in all the poverty reduction strategies there is an acknowledgement that reduction of poverty can be enhanced if communication services reach to the remote rural areas, and are affordable and accessible by both the rural and urban poor.

Regarding information, it was observed that there is an increasing demand for generalised information services. The National Media Group (NMG) and Sonatel Media cases from Senegal, illustrate how their offerings are being taken up by customers. Sonatel Multimedia has proven that an information-based solution is viable but only operates this in the cities particularly in Dakar. This does not address the needed inclusion of the rural areas. Banks like CBAO and telecommunications operators such as Sonatel Multimedia do not want to take risks with the rural areas (seeing them as illiterates with no bank accounts), and they do not plan in the foreseeable future to target the rural areas. Only the company Manobi has included the rural areas (businessmen, farmers etc.) in their products, offering a consultation by WAP on the price of agricultural products in various markets (Xam Marse, the market in real time on SMS). The country study concludes: - “The rural areas remain the poor areas while they constitute the majority of the population and should therefore be virgin areas to be exploited by operators and service providers with the resources.”

In contrast, Kenya and South Africa have a considerable number of initiatives, most of which include a focus on the rural poor – who the proponents see as new potential markets. Figure 8.1 below illustrates the distribution on how people keep their money in the three countries.

Figure 8.1: How people without Bank Accounts keep their money



From their responses we can note that: -

- Key to the inclusion of the poor is a proportionate response to the identification and associated risk for registration of new customers. Kenya and South Africa have taken steps down this road, and hence enabled the innovative propositions. However, it would be helpful to bring together good practice regarding this initiative.
- Similarly, the other major key to an inclusive response is enabling agents to accept deposits and be the cash in and cash out points. Again, Kenya and South Africa have enacted some proportional measures, enabling agents to represent financial institutions. There is a need to identify best practices for this and take regulators on board.
- Regarding telecommunication inclusion, Universal Access Funds levied from the mobile network operators have been used to promote the reach and access of the network into remote areas in some of these countries. In this new converged space, which includes both telecommunication and financial services and with the diminishing need for subsidised universal access, governments might seek instruments to encourage reach and access of financial services into remote areas.

8.5.2 Balancing the Market

In responding to demand, particularly in Kenya, it is clear that mobile operators are critical in the success of mobile applications, especially for small businesses. This is because of the dominant or strong bargaining power of the mobile operators. For example, in the Kenya's Equity Bank case study, it was found that the technical support of the mobile operators was making its mobile banking application expensive. The increasing power of the mobile operators puts them in a strong bargaining position – even when negotiating with banks. It was therefore suggested that the ICT regulator could regulate partnerships between the businesses and mobile operators to ensure fair play. For example, the value-added mobile application providers should be protected from the dominant power of the mobile operators especially in sharing the revenues from such services. There is also need to expand the

mandate of regulators so that the new laws should not only regulate e-commerce but also regulate spam or fraudulent SMS's as well as the partnerships between the different licensees at the different layers of ICT.

8.5.3 Consumer protection

The study noted that each of the three countries had policies and bills in waiting regarding customer protection and security. These needed to be enacted as soon as possible in order to increase the trust among people and businesses especially with reference to the recognition of the electronic signatures necessary in mobile and electronic commerce transactions.

There was need to transform the business culture in order to promote e-commerce and mobile commerce applications. At present, there was low trust between businesses and customers because of lack of transparency in business transactions with regards to e-commerce or m-commerce. There were also many fraudsters who took advantage of mobile commerce applications, as was the case with the Nakumatt Supermarket chain case study in Kenya⁶³.

8.5.4 Recognise that information services are important.

Mobile phones play a significant role in people's everyday lives as they reduce costs, enhance interactivity and can be used to access specific vital information.

The Nokia research study indicates that the most important types of information to users are news (local and international), health (how to prevent and treat illness and diseases), education (education and training opportunities), income generation (job opportunities, market information, availability and price of resources) and information on new products and services⁶⁴. This indicates to the different countries that these are some of the generic areas in which m-content services could make a significant contribution towards economic development.

In conclusion, the study findings reveal that Africa is well placed for exploring and exploiting the new opportunities presented by m-commerce. It has the core demand for such services and in this sense is better placed than Europe where consumers have a wide range of alternatives. There is need to put more emphasis on key infrastructure development especially in the rural areas where the majority of the population lives and to formulate inclusive policies that enable m-commerce.

⁶³ Nakumatt retail supermarket group experienced lots of fraudulent cases with the customers when they used SMS based promotional services.

⁶⁴ Nokia 2008 "Towards Effective E-Governance -The delivery of public services through local e-content", Nokia 2008

CHAPTER NINE

CONCLUSIONS AND POLICY RECOMMENDATIONS

9.1 CONCLUSIONS

The information revolution has transformed the way modern businesses are conducted. ICTs have enabled people to exchange large amounts of information quickly and cheaply. Those who can best receive, process and innovate become the ultimate winners. Despite ICTs playing a vital role either as a production sector or as an enabler of socio- economic development, it is observed that they play a more pivotal role in accelerating a wider development process through e-trade. E-trade has a lot to offer for advancing governance, delivering effective government services in the public sector and promoting efficiency and growth in the private sector through SMMEs.

Although there is an increasing realization of the potentials that ICTs can offer for human and economic development, ICT induced productivity and growth are still confined to the developed world. This study reveals that Africa can also benefit much from developing the ICTs industry as a sector and using ICT as an enabler. While it is clear that ICTs can facilitate domestic and international trade by improving efficiency and by enhancing productivity in developing countries, the study shows that not much is known about the use of ICTs in facilitating domestic and international trade in Africa.

The study's review of the recent development strategies and sector policies indicate that ICTs are not taken as a significant element into most sector policy frameworks in different countries, except in the countries' ICT policy documents. In most of the African countries the PRSP programs have considered ICT as one of the strategic areas in which due attention should be accorded to in order to support the poverty reduction process in which more emphasis has been placed on the contribution of ICTs in the countries' economic and social development initiatives. In spite of the promises at the national policy level, where there is some commitment towards reducing cost of access to ICTs in terms of taxes and tariffs, the study reveals that there is still very little incentive structure geared towards facilitating the use of ICTs in different economic sectors.

Despite recognizing the important contribution of ICTs and setting several targets to expand the use of ICTs and the development of appropriate infrastructure, the study found out that PRSPs in different countries do not explicitly indicate the strategies to be pursued with respect to the use of ICTs in trade. Given the recognition of the contribution of ICTs for economic growth and poverty reduction and the high emphasis for infrastructure expansion and the planned capacity building programs in most of these countries, it can be assumed that ICTs will attract the attention it needs in the different economic sectors. The industrial strategies in most of the countries studied recognized the importance of developing ICTs as a key technological strategy for enhancing industrial development and sustainable growth of the economy. The strategies also clearly acknowledged the important role of telecommunications infrastructure in enhancing economic integration and increasing efficiency. It is stated that an efficient and reliable telecommunication infrastructure is crucial to expanding the ICT sector and improving the usage of the technology for industrial development in the country.

In this study it is also revealed that at a macroeconomic level, the various foreign exchange policies in most African countries did not explicitly recognize the need and significance for an electronic payment system in cross-border transactions. This seriously discouraged the development of e-trade. There were also no provisions for electronic application forms and electronic contracts and signature recognition in most of the African countries. In addition, payments through credit cards were only possible for very few services, especially for the purchase of goods and services by travelers and tourists in selected enterprises, which had special permits from the governments in most African countries. Other enterprises, which did not have this special permit, were not eligible to conduct business using credit cards.

Related to the foreign exchange policies is the absence of appropriate legal and regulatory framework, which is one of the main constraints for the expansion of online trade. This has been observed through the case studies (in selected countries in this study) where the absence of such regulations was a major impediment to making transactions across the border through electronic means. Creating a strong legal and regulatory framework for ICTs presented a global challenge. The developments in the ICT's out-paced the formulation of policy, legal and regulatory frameworks in most African countries. Therefore a concerted effort among the actors in the area was desirable.

The findings also showed that despite the obvious and concrete benefits that ICTs could bring to SMMEs, the SMMEs in most African countries had been very slow to adopt ICTs for trading purposes, despite showing that some firms had been using the Internet for selling and purchasing of goods and services. The sampled firms indicated that there was great interest in using ICTs for trade practices, nevertheless, many firms faced different challenges and constraints ranging from the absence of legal and regulatory framework for e-trade, to poor ICT related infrastructure and high cost of the technology. Such problems considerably hindered the use of ICTs in trade by SMMEs.

With reference to IPRs, this study revealed that there was very little progress made among developing countries in Africa with regards to the application of property rights. This was attributed to the fact that there was very little investment in technological innovations as witnessed by very low R&D expenditures in the African region⁶⁵. Studies have revealed that R&D expenditure was heavily concentrated in a number of technologically advanced developed countries. Very few developing countries have been able to develop a strong indigenous technological capability. This renders it difficult either for them to develop their own technology or to assimilate technology from developed countries. IPRs have had no significant impact on trade, as there have been no innovations to protect in Africa. In sub-Saharan Africa in 1998 (excluding South Africa), 35 patents were granted to residents compared to 741 for non-residents. By contrast in Korea, 35900 patents were issued to residents, compared to 16990 to non-residents. In the US, the corresponding figures were 80292 and 67228.⁶⁶

The other area that African countries stand a greater chance and potential of benefiting from and contributing greatly to economic growth, is the area of business processing outsourcing and off-shoring. The study revealed that there was great potential in this sector due to the human resource availability in African countries, the increasing ICT infrastructure developments and the language and time zones that are in line with the European countries who solicited a lot of off-shoring opportunities.

⁶⁵ See UNECA (2008), Investing in the Future: R&D Expenditure in Africa, Addis Ababa Ethiopia.

⁶⁶ WIPO Statistics <http://www.wipo.int>

It was also observed in this study that the African mobile market was the greatest expanding telecommunications market in the world and this placed Africa in a excellent position for exploring and exploiting the new opportunities presented through m-commerce such as conducting transactions through mobile phones. The study revealed that this had already commenced in most of the countries and was paying dividends especially in the rural areas where most of the unbanked population lived. The best practice models being the M-Pesa in Kenya and Wizzit in South Africa.

9.2 POLICY RECOMMENDATIONS

In general, the systematic review of the various economic and social policies and strategies adopted by African countries clearly shows that ICTs have not been effectively mainstreamed as a tool for development. There is, therefore, an important need to mainstream ICTs in all sectors of the economy to make the continent competitive on the global market through trade.

The widespread adoption of information technology holds considerable promise for the continent in its quest to enhance economic development. Governments have an important role in defining and establishing an enabling environment in which economic transformation through digital inclusion can occur. National strategies that recognize the critical role played by ICTs as a sector as well as, ICTs as an enabler of economic development are important. The study has shown that most of the development strategies and the economic and social policies have not considered ICTs as a tool for their development strategies. As a result a sense of direction towards use of ICTs hardly exists in various sectors of the economy to support and achieve Africa's ICTs vision. This shows that there is an urgent need to mainstream ICT strategies in all sectors of the economy, including trade to create a fertile ground for the proper implementation of the proposed e-trade strategies in different African countries.

This study has examined in broad terms a number of policy issues relating to the prospects and the opportunities for the deployment and the exploitation of ICTs to facilitate economic growth through the promotion of African countries' domestic and international trade. Based on the details of the analysis carried out as part of this study, a number of policy recommendations that could guide and facilitate the deployment and use of ICTs to promote trade as a means to facilitating Africa's economic growth and development in the information age emerge.

The key recommendations are summarized under the following headings which are considered the most crucial and pivotal if Africa is to benefit fully from the ICT impact on trade: and make the African countries more competitive in this information age on the global market. These include infrastructure development, human capital development, policy and regulatory issues, IPR regimes and the development of SMMEs in Africa.

9.2.1 Infrastructure development

It has been observed that infrastructure development is the backbone of all ICT development initiatives in each and every country. The existence and spread of ICT infrastructure beyond the major cities and towns is important for increasing ICT access and usage by many African businesses in order to exploit the potential of ICT in trade. The study shows that to promote and facilitate African countries' trade through ICTs, there is need to address the poor and

limited communications and telecommunications infrastructure of these countries. Although it can be acknowledged that Africa's telecommunications infrastructure has improved over the years (especially in the mobile telecommunications), the level of coverage and spread of the infrastructure as well as its capacity, has not reached the level that can truly make these countries globally competitive in the provision of ICT-enabled services including m-commerce, off-shoring and outsourcing services that could dramatically boost the nations' trade revenues from non-traditional products and services including ICT services. To develop Africa's e-trade will therefore require rolling-out advanced telecommunication systems and infrastructure, including electric power supply whose reach should go beyond the capital cities and urban towns. Inadequate supply of these services would certainly stall the increasing use of ICT in trade.

There is need for rapid expansion of the countries' communication infrastructure especially broadband to provide high speed Internet and multimedia services in every part of the respective countries. There is need to encourage public-private partnerships (local and international) to construct more undersea fiber cable links to increase the countries' electronic links with the rest of the world as has been initiated in Southern and Eastern Africa. To make this a success, there is need for a review of the countries' socio-economic and ICT landscape including the level of ICT infrastructure and deployment points. This will enable the identification of the developmental challenges faced by African countries thereby proposing requisite solutions. There is also a need for electronic platforms such as trade portals and interactive corporate websites to support the provision of e-services and information on various countries' tradable goods and services.

9.2.2 Human Capital development.

A successful ICT strategy requires substantial investment in human capital, active absorption of technology, awareness raising, and clarity of roles and responsibilities. and mobilize and complement available resources. This calls for a radical transformation in the education and training systems, science and technology policies and development strategies. Extensive technical and managerial capacity-building programs are particularly important in view of the need to formulate and implement policies, standards and develop a proactively supporting legal and regulatory environment. Extensive capacity building programs on ICT skills development at all levels in the public and private sector therefore have to be encouraged to ensure information network development maintenance and support. This will also address the aspect of keeping abreast with the latest ICT-related technological developments.

The effective and efficient application of ICTs in trade presupposes the abundant availability of a critical pool of labour with the requisite technical skills. There must be deliberate policies geared towards the development of such technical skills. The establishment of specialised ICT institutions for this purpose is considered as being very strategic. What is envisaged here is the replication of institutions such as the Kofi Annan Centre of Excellence in Ghana, which specialises in the training of software developers, hardware technicians, programmers, etc., in all regional capitals within the respective African countries.

The education-industry linkage, which is a key aspect of official trade and industry policy in most of the countries should ensure that ICT specialization becomes a prime focus. This programme should ensure that education becomes more relevant to industries. This will seek to achieve the right blend of managerial, technical and entrepreneurship skills in line with each country's national development objectives. This will in turn enable a balance between

education and technological innovation. It is important therefore to ensure that educational outputs are adapted to meet the country's evolving manpower requirements including ICT.

The need for consistent capacity building is important for trade facilitation as new internationally agreed rules and resultant challenges would require modification of regulations and the training of officials, both public and private, in modern trade management and customs techniques, automation systems as well as efficient port management and cargo handling. Such modifications and improvements should have longer-term maintenance and follow-up perspectives so that innovations become permanently rooted. Capacity building programmes should have clearly defined goals to facilitate targeted assistance with clear performance benchmarks and timeframes.

A related area of policy recommendation that could be pursued in order to develop e-trade capacity especially in ICT products and services is the implementation of policy initiatives and incentive packages to support ICT industry and services sector. ICT applications should be focused on existing directions of trade, with export intensities to Africa and industrial countries and import intensities (of inputs and consumer goods) from industrial countries. Policy should therefore remove market distortions and market failures while engendering greater competitiveness.

Finally, there is need to increase awareness among exporters on the role of ICT in facilitating their businesses through cooperation between universities, IT companies and business entrepreneurs as has been the case in Egypt through the ITAC program⁶⁷. This will increase awareness of the importance of e-trade amongst the business community and will be able to increase productivity and enhance performance of the whole international trade sector.

9.2.3 Policy and Regulatory Issues

An ICT friendly legal and regulatory environment that guarantees the development of the sector and its use in trade is crucial. Legal and regulatory reform that enables the use of electronic documents (private and public), privacy and consumer protection, electronic signatures, electronic payments for goods and services, allowing the legal recognition and enforceability of such instruments, is urgently needed in Africa.

The effectiveness in developing and utilising ICTs to facilitate trade, as well as the development of IT enabled services depends on the existence of clear policy and well-functional regulatory frameworks. The existence of these frameworks does not only ensure harmony, but is a prerequisite for attracting investment into IT enabled services that could improve the country's trade performance. To this end, responsible institutions as well as government departments should expedite action on the implementation and promulgation of the electronic transaction bills and the other relevant bills (that have been drafted in different countries) to accord legal basis and security for all electronic transactions in the different countries. Given the importance of these legislations, especially the electronic transaction law to e-trade in both domestic and international markets, it becomes imperative that the responsible ministries initiate the formulation process for the development of such kind of laws or fast track the passage of these bills through the legislative process as most of the countries such as Ghana, have already drafted such bills.

⁶⁷ This program is a joint cooperation between the largest 4 universities in Egypt and ICT companies, it is tailored to support the research and development activities in ICT industries and the application of ICT in businesses

The study identified taxation policy as one of the areas that also needed greater attention. There is need to advocate for changes in public policy with the view of reducing tariffs on imported computer hardware. Taxation of ICT is problematic and taxes are predominantly shifted to consumers because the sector generally lacks competitiveness. This impedes investment and hence economic growth. Internet tariffs have remained high and unaffordable to a majority of Africans in the past years. This has hindered Internet usage by individual and businesses, especially SMMEs. The study revealed that increased competition and reduction of the vertical layers of Internet service providers would reduce these tariff rates.

The cross-cutting nature of ICTs requires appropriate institutional arrangements that would facilitate effective co-ordination, monitoring and evaluation of ICTs adoption and application for the socio-economic development. Currently the ICT regulatory bodies are under different ministries in most of the countries and it becomes very demanding to coordinate and facilitate the implementation of the ICT policies including development of e-commerce in such circumstances⁶⁸. There is need in a convergent environment for the merging of ICT related regulatory bodies to establish a single institution.

Another issue of concern is the availability of timely and relevant data in relation to ICTs and e-trade. Since this type of information is very scarce in most African countries, there is need to have a data collection methodology incorporated into regulatory, tax and statistical offices or bureaus of different countries. The fact that ICT is not treated as a separate category by most of the Revenue Authorities or by statistical offices in Africa is a significant weakness. ICT research should be conducted more systematically, and regularly, since there is need to have available and timely data for policy formulation and analytical processes in different countries.

9.2.4 Intellectual Property Rights

If IPRs are to benefit developing countries in Africa, such a benefit will need to be realized through the promotion of invention and technological innovation thereby enhancing growth. It is believed that a prerequisite for sustainable development in any country is the development of an indigenous scientific and technological capacity. This is necessary to allow countries to develop their own processes of technological innovation, and to enable them to effectively absorb technologies developed outside these countries. For instance, it is argued that the absence of IP protection encourages technology transfer and technological learning through copying and imitation. The other argument is that IP protection is a mechanism, which encourages technology transfer from abroad through direct investment or licensing and the indirect effects are an effective means of technological learning. For developing countries to fully reap the benefits of IPR protection, they will have to assess their technological development levels and determine which innovation to protect. This could include traditional knowledge, genetic resources, folklore, brands and even values. African countries could also devise IP protection policies that at the same time would encourage technology transfer and technological learning to contribute towards economic development.

There is also need to educate the masses in most developing countries about the relevance of IPRs in African countries, so as to move effectively to protect not just local inventions and scientific discoveries, but also indigenous knowledge in, for example, agricultural products, arts, ritual dress and other cultural artifacts. It is also argued that IPRs are unlikely to be a

⁶⁸ For example in Ghana ICT regulatory bodies are under the Ministry of Capacity Building, the Ministry of Transport and Communication and the Prime Minister's office.

relevant factor in the investment decisions of the less technologically advanced developing countries. Therefore, to make IPRs more relevant, there is need to urge African governments to invest more in technological innovations in order to have world class and state of the art innovations that could qualify for IPR protection hence leading to increases in trade and economic growth.

9.2.5 SMMEs Development.

Since SMMEs are regarded as an engine for economic growth and development in developing countries, governments must therefore encourage an entrepreneurial spirit amongst the business communities so that investment in the new economy takes place. African governments have to establish trade facilitation centers to develop the ICT industry and attract venture capital and foreign direct investment in innovative ICTs. In addition to direct interventions in the market place, governments can also provide indirect support to private firms by setting and enforcing policies required to boost and protect financial returns to ICT investment. Excessive barriers to ICT investments have to be removed and a commitment to the protection of investment must be clearly specified and enforced, thereby encouraging venture firms to invest in the sector.

Since, SMMEs have a great potential in driving national economic growth, governments have to support SMMEs development by removing the constraints and encouraging them to adopt ICTs in their business processes. Policies to encourage the growth of SMMEs should include simplified registration and export related legal and regulatory framework⁶⁹, provision of business and ICT skills, cheaper access to ICT infrastructure and provision of business facilitation services to enable the harnessing of ICTs in their activities.

Since the telecommunication sector is not fully liberalized in most African countries, liberalization of telecommunication services has to be considered in order to promote competition which might lead to a reduction in prices and thus enabling SMMEs to acquire ICTs as well as investing in the ICT sector. The creation of trade facilitation institutions, such as Trade Point in Ghana and Egypt, will be very useful in developing market information networks, from which SMMEs could benefit.

It is also clear from the studies that the deployment and the exploitation of ICTs in different countries can enhance the opportunities for the diversification of businesses into new areas and cost effectiveness. For example, ICT deployment has resulted into a considerable reduction in the cost of doing business, as is the case with the financial services sector and in the customs clearance area in most countries studied. The increasing application of ICTs in businesses however comes with a number of challenges such as, the initial huge capital outlay and the continuous investments required to manage the systems and equipments. This investment is often out of reach of most SMMEs and therefore, inhibits their ability to constantly upgrade equipment. There is need for governments to sway financial institutions to lower the threshold for SMMEs to have access to finance. In this regard, governments should follow the Indian example where the government can guarantee or act as surety for loans to SMMEs⁷⁰.

In the area of trade facilitation, simplified trade procedures not only reduce costs to traders, but should also help governments in terms of improving efficiency of controls and ultimately

⁶⁹ Ethiopian case study gives more information on this issue.

⁷⁰ See the South Africa e-trade report 2006 for more details.

lead to high revenue intakes. Such gains are especially beneficial for small and medium size companies as the cost of compliance with trade procedures are proportionately higher and a disincentive to their expansion and growth.

The study noted also that there was limited readiness and use of ICTs by SMMEs in most African countries because of lack of awareness of potential benefits of ICT and lack of local ICT applications appropriate for the sector. The country's ICT policy must aim to promote new ICT facilitated business practices, which could further be enhanced through digitised government processes, which have potential benefits to the economy.

There is need for a co-coordinated and integrated regulatory framework in the ICT sector directly responsive to the ICT SMME sector. This is critical as the ICT sector is pervasive, comprised of service providers and manufacturers and thus requires an integrated and well coordinated national ICT strategy that will facilitate SMME growth at all levels. Public sector organs involved in ICT-SMME development should integrate their plans and strategies to eliminate unnecessary duplication of efforts and resources (both human and capital).

From some of the studies, especially in South Africa, it was observed that most SMMEs were owned by women, hence there was need for gender considerations to be part of the SMMEs development process (See Box 9.1 below). Efforts are required to ensure the employment of women who are largely under-represented in the ICT sector. Given this fact that the majority of SMME owners are women, government monitoring and evaluation of SMMEs must encompass gender analysis as well such that challenges faced are addressed by governments. Women should be accorded skills, training and exposed to ICT trade opportunities. More trade shows, exhibitions etc. should be held to showcase and enhance women owned businesses. The booming of call centres in some African countries provide women with immediate opportunities. Governments and their agencies should avail more funds to women and encourage banks to review their policies towards women lenders.

Box 9.1: ICT and Gender in RSA

In the ILO Report 2001, it is argued that the digital divide also manifests along gender lines. The gender digital divide appears in Internet usage, with women users in the minority in both developed and developing countries. A gender digital divide is also apparent in the work place, with women occupying lower level ICT jobs while men rise to higher paying, more responsible positions. Furthermore, the report states that while there are indications that there is a strong correlation between financial performance of companies and women appointed in executive positions, gender bias against the recruitment of women in senior positions continues.

Recognising the disparities evident in the sector in 1994, the national gender policy framework in South Africa declared that "distributive justice requires that women should participate in the ICT driven information sector on an equitable basis. Technological changes themselves should be used to promote economic and social empowerment of women, thereby resulting in the enlargement of the market for service delivery". However, gender disparities persist in the recruitment of women in ICT companies in South Africa. According to a DTS study conducted in 2003, women represent 12% of managers in ICT companies although women enrolments and graduation in ICT qualifications have steadily increased since 2001.

The reports acknowledge that there is a dearth on research of ICT impact and that more should be done through other partnerships to ensure more data is available. Review of existing research highlights the demand from SMMEs for a stable policy climate in relation to the interest rates regime, economic growth policy and ICT policy.

9.2.6 Business Process Outsourcing and Off-shoring

For Africa to fully benefit from BPO&O, there is need for government commitment in putting in place required initiatives that will be able to create a conducive environment for the provision of these services. The initiatives should include those leading to competitive prices, developed telecommunications infrastructure, ICT skills development and investment incentives in the sector. There is also need to explore more areas of doing business under the BPO & O sector, apart from the booming call centres.

There is also need to stimulate the private sector to view the operations of business and trade portals as lucrative business venture for investments and attract more companies into the BPO in order to increase the countries' share in the global BPO trade.

9.2.7 Mobile Commerce

Since it has been observed that when financial services are considered, the spectrum of m-commerce activities has been everything ranging from, an information service added to an existing bank account, to innovative transformational propositions such as M-Pesa, it is therefore of paramount importance to enhance the collaboration between financial institutions and mobile operators. African countries could fully benefit from m-commerce or m-banking through the formulation of inclusive policies that put more emphasis on rural coverage in terms of both mobile technology infrastructure and banking services. This should be accompanied by effective and development oriented legal and regulatory frameworks that create a level playing field for all the stakeholders, while at the same time, providing consumer protection (against fraudulent acts, pricing etc) for the rural population.. The study noted that each of the three countries had policies and bills in waiting, relating to customer protection and security. This calls for an urgent need to enact these policies and bills in order to increase the trust among people and large businesses especially in as much as they addressed the recognition of the electronic signatures necessary in mobile commerce transactions. There is need to transform the business culture in order to promote ecommerce and m-commerce applications. At present, there is low trust between businesses and customers because of lack of transparency in business transactions when it comes to e-commerce or m-commerce. There is evidently an increasing number of fraudsters taking advantage of insecure mobile commerce applications.

REFERENCES

- Alfranica, O., & Huffman, W. E. (2003). Aggregate private R&D investments in agriculture: The role of incentives, public policies and institutions. *Economic Development and Cultural Change*, 52(1), 1–22.
- Clarke, George, and Scott Wallsten, (2004); “Has the Internet Increased Trade? Evidence from Industrial and Developing Countries.” World Bank Policy Research Working Paper 3215, World Bank, Washington, DC.
- Freund, C. L., and Weinhold, D., (2004); “The Effect of the Internet on International Trade.” *Journal of International Economics* 62 (1): 171–89.
- Fuss, M., Meschi, M and Waverman, L. (2005), 'Development and Telecoms Infrastructure: Calling Up Growth' London Business School.
- Humphrey, J., Robin Mansell, Daniel Paré, and Hubert Schmitz, (2003); “The Reality of E-Commerce with Developing Countries”; London: London School of Economics and Institute of Development Studies.
- ILO (2001), World Employment Report, 2001: Life at Work in the Information Economy”, Geneva
- Jaffe', W., & van Wijk, J. (1995). The impacts of plant breeder's rights in developing countries: Debate and experience in Argentina, Chile, Colombia, Mexico, and Uruguay. Amsterdam: Inter-American Institute for Cooperation on Agriculture and University of Amsterdam.
- Le'ger, A. (2001). Strengthening of intellectual property rights in Mexico: Case study of maize breeding. Unpublished M.Sc. Thesis, Wageningen University, The Netherlands.
- Leger A.(2005), Intellectual Property Rights in Mexico: Do They Play a Role? *World Development* Vol. 33, 11, pp 1865-1879.
- Lesser, W. (1998). Intellectual property rights and concentration in agricultural biotechnology. *AgBioForum* [On-line serial], 1(2), 56–61, Available from <http://www.agbioforum.org>
- OECD, (2003), The Sources of Economic Growth in OECD Countries, Paris, OECD cited in European Commission – Enterprise and Industry Directorate General, Effects of ICT Production on Aggregate Labour productivity growth, July 2006, Brussels.
- OECD, (2004), The Economic Impact of ICT, Measurement, Evidence and Implications. OECD, Paris.
- WIPO (2007), WIPO Patent Report, Statistics on World Wide Patent Activities, www.wipo.int.
- Wolf, S., (2001); “Determinants and Impacts of ICT use for African SMMEs: Implications for Rural South Africa”, Trade and Industrial Policy Strategies (TIPS) 2001 Annual Forum, Misty Hills, Muldersdrift.

Wolf, S., (2002) Common Agricultural Policy Reforms and ACP Preference: What is at stake for ACP countries? Trade Negotiations Insights. Vol. 1 Issue No. 4, December 2002.

World Bank (1998), Various years. "Investment Climate Surveys."- Washington, DC.
<http://rru.worldbank.org/InvestmentClimate>.