Preface

There is no doubt that IT has contributed a lot to the growth of the developing countries. Further improvement of the living conditions would be hard to imagine without the use of modern communication technologies. Although a lot has been said about the role of IT in the development of developed economies, there is still a shortage of studies on how IT can help developing economies. This book will try to fill this gap by providing a broad view of the present state in this field as well as presenting specific conceptual and empirical studies whose findings contain important policy implications for international bodies, governments, businesses and academia. Before we highlight the different chapter of this book, a brief description of developing economies will be presented.

Figures do not tell the full story but 85% of the world’s population is said to live in developing countries and earns only 20% of the world’s income. The gross national income (GNY) per head of the 20 poorest countries in 2003 averaged only £110 which is less than £10 per month. For the richest countries, it was put at £14,550. In 10 of the poorest countries, life expectancy is 42 years only whereas in the 10 richest countries, 79 is the figure.

It can be understood from the foregoing why developing economies need development. ‘Development’ is something we can feel but cannot always agree on its meaning, at least the list of items that are needed for it to happen. A list by Sloman (1991) taking from the view of various economists include:

1. Adequate food, shelter, warmth and clothing.
2. Universal access to education.
3. Availability of adequate health care.
4. Availability of non-demeaning jobs.
5. Sufficient free time to be able to enjoy social interaction.
6. Freedom to make one’s own economic decisions.
7. Freedom for people to participate in the decisions of government and other bodies that affect their lives.

The problems of quantification so as to arrive at comparative values have prompted the development and use of gross national product (GNP) or gross national income (GNY) to measure the state of development. Yet such measures are still seen as inadequate for many reasons including the difficulty of including the economic value of a father personally giving all his children a hair-cut, for instance; and in developing economies, there are many personal services performed as a result of the extended family system which is not so strong in the developed economies. An improved measure for economic development published by the United Nations Development Program (UNDP) in 1990 is the Human Development Index (HDI) which actually is a composite index for (a) life expectancy, (b) school enrolment and adult literacy (c) GDP per capita.
You may agree that it does not matter which of the three approaches we use in thinking about economic development and indeed, we may bear all of the 7 items of Sloman (1991), the GNY and the HDI in mind. All are desirable for inhabitants of developing economies. Governments and scientists of various shades and colours have contributed many views. For instances, economists have proposed various trade strategies such as exploiting comparative advantage, or substituting imports to exporting manufactures. It is not the intention of this book to go through all the recipes but to focus on a very current phenomenon that has significantly affected both developed and developing economies in the past decade especially. That phenomenon is information and communication technology.

I have been privileged to spend the first 32 years of my life in a developing economy and 23 subsequent years in a developed economy. I went through education up to a Masters level, and lecturing, in a University in a developing economy, without using even an electric typewriter let alone a computer. The same snail mail (postal services as contrasted with today’s emails) that delayed my admission letter to City University in London also delayed the next letter from that university that advised me not to come that year because I was too late for the three weeks’ intensive programming course in Cobol (DOS- instead of Window-based) that preceded the course on Business Systems Analysis and Design. When I gave “No” answers to the two questions: “Have you used a computer before?” and “Do you know the difference between a hardware and a software,” the programme leaders could not but insist before I attended the first class (despite my enthusiasm to jump into the class) that both my sponsor (the European Economic Commission) and myself sign an undertaking that I was taking a risk and that I was most likely to fail the course.

Within the 23 years, significant changes have taken place in me, in developed economies as well as developing economies. I try not to say more about myself here. For developed economies like UK, 23 years ago, most programmes did not have the GUI interface and the browser was not invented to give a “human face” to the internet. Laptops were non-existent and nearly every home did not have a computer with broadband internet connection. Mobile phones, sleek and with many computer facilities including global positioning systems (GPS), and other applications like mobile internet were not popular. All these are common today.

Researchers have agreed that much of modern economic development in developed countries are accounted for by their application of ICT to the creation of a knowledge-based economy (KBE) (Rivard et al, 2004; Olszak & Ziemb, 2011) which many experts believe is the only effective way of improving the competitiveness of countries, regions and businesses in the modern global economy (Godin, 2006, Hanna, 2010). We also have the example of China that has experienced significant economic growth in the last 30 years. Apart from human capital, the existence of functioning market institutions to reward hard work, technological advances adopted from developed countries (Chow 2010, pp. 43-46) along with good communication infrastructure in their urbanization policy (Song, 2011) have accounted for the rapid economic growth in China. Similarly, Techatassanasoontorn et al (2011) found out in their research that the future economic growth of Thailand would depend on increased investment and improvement in ICT and innovation.

The developed economies have not stood still either. While land telephone lines had been the asset of only the very few in developing economies, the mobile technology explosion has placed mobile phones in the hands of millions in these economies. Though not always up to the standard of developed economies, the quality of mobile phones has improved over the past years. For instance, in Nigeria, it would usually take more than 6 attempts at dialling before one could get a connection. The situation has much improved. There are also abundant internet cafes (though with slow connections because of
inadequacies in the communication infrastructure) in most of the cities of developing economies. Most universities in developing economies provide some level of computer training though the computers may not be networked (as I observed in one university in Nigeria) and it may be a bit difficult for the facilities to meet the demand.

As far back as 1955, Lewis observed that “economic growth depends both upon technological knowledge about things and living creatures, and also upon social knowledge about man and his relations with his fellowmen” (1955). This book focuses on information technology. The question that this book tries to answer is how to harness the current state of ICT to achieve economic development in developing countries. How can it improve the food, shelter, warmth and clothing situation of these countries? How can it impact on education, health care, quality of job, social interaction, level of economic freedom and interaction with business and governmental organisations? How can it increase the income per capita and life expectancy? Most parts of these questions are tackled by this book as will soon be discussed. In addition, there are many other advantages: for example, the mere availability of mobile telephones helps to cut down unnecessary trips to do face-to-face personal and business meetings. This may reduce road accidents that often result in loss of life in some of these developing economies.

The provision of communication infrastructure, which is part of ICT, has been found to lead to the generation of employment (Osotimehin et al, 2010), the opening of opportunities for foreign investment (Aitken and Harrison, 1999), better education and training facilities, a boom in private sector development, improved overall regional productive capacity, a reduction in poverty (Calderon and Serven, 2004), expansion in economic activities (World Bank, 1991), and a larger spill-over to other sectors of the economy as it has a larger impact on aggregate output compared to other kinds of infrastructure (Canning, 1999). This book presents opinions, conceptual and research papers from authors situated in developing economies and in US, Canada, Greece, Thailand and UK on the trends and tools of information and communication technology for improving developing economies. Here is a summary of each section of the book and its 15 chapters.

CHAPTER ONE: BRIDGING THE DIGITAL DIVIDE: LEVERAGING EARLY STRIDES IN NIGERIA

Arikpo, Osofisan and Usoro explain one concept of the digital divide, namely the ICT gap between developing and developed countries. It uses Nigeria as a case study in presenting several ICT initiatives and the role of some ICT bodies there. These initiatives and roles are meant to bridge the digital divide between Nigeria and the developed world. The authors also discuss the challenges facing the use of information technology for socio-economic development.

CHAPTER TWO: THE DIGITAL DIVIDE AND DISADVANTAGED POPULATIONS IN E-TOURISM

The digital divide contributes negatively to the economic growth of e-tourism could bring to a nation because their inhabitants are denied access to adequate information technology with associated efficiencies that would benefit both tourists and the tourism industry. The resulting imbalance in technology between countries may threaten good relationships because of feelings of insecurity and jealousy. Yfan-
tis, Usoro and Tseles discuss how the introduction of mobile technology reduces the digital divide and offers abundant opportunities to developing countries and human minorities to benefit from tourism, share knowledge and enjoy a better quality of life. The attractive features of mobile devices include their small size, low cost, ease of use and familiarity to most people.

CHAPTER THREE: KNOWREM: FORMAL DEFINITIONS AND ONTOLOGICAL FRAMEWORK FOR KNOWLEDGE RECONCILIATION IN ECONOMIC INTELLIGENCE

Knowledge sharing and re-use by both human and computer agents can suffer from the difficulty of having shared understanding. Ontology and the study of semantics endeavour to tackle these difficulties. Osofisan moves the search for common understanding by combining both graphical and mathematical models to rigorously develop formal definitions and mapping functions derived from the extension of the axiom of selection (or choice) and Object-Attribute-Relation (OAR) model. He terms the new model he develops Knowledge Reconciliation (KNOWREM). Though highly theoretical, this paper finds its relevance in targeting knowledge sharing which is very important in developing economies where cultural factors may play introduce imprecision in information. Thus, Osofisan’s future research direction is fuzzy logic to tackle more the problem of ill-defined decision-making problems.

CHAPTER FOUR: A CONCEPTUAL VIEW OF KNOWLEDGE MANAGEMENT ADOPTION IN HOSPITALITY INDUSTRY OF DEVELOPING ECONOMIES

The importance of knowledge management in the hospitality industry is well established in the research literature. However, apparently all the studies are in developed economies and in big hotels whereas the important economic role of hospitality industry in developing countries is not disputed. Usoro and Abiagam develop a conceptual model of intention to adopt knowledge management in developing economies, using the constructs of developmental factors, information technology and culture. The underlying theories are from developmental studies, technology acceptance model (TAM) and Hofstede’s (1980) Culture Model.

CHAPTER FIVE: WEB SERVICE COMPOSITION, OPTIMIZATION AND THE IMPLICATIONS FOR DEVELOPING ECONOMIES

Cloud computing has tremendous economic potential to developing countries because of the reduction of the need to own computer infrastructure, platform, storage or even software. Using the web one of its mean features is to deliver computing and storage as a service. It therefore builds on the concepts of Web Services and Quality of Service (QOS). Osofisan, Eteng, Arikpo and Usoro describe web services and present a novel game theoretical approach using genetic programming for composition of web services.
CHAPTER SIX: ASSESSING THE ROLE AND FUNCTION OF IT/IS TRAINING AND DEVELOPMENT AND POLICY IMPLEMENTATIONS IN A PUBLIC SECTOR ORGANISATION

Ololube, Ajayi, Kpolovie and Usoro explore the experiences of employee technological training and development and how these impact on their performance. A well reported empirical work was carried out on the Nigerian Immigration service using a sample of 82 respondents. The research framework and implication of the study emphasises the importance of information technology training to workers in developing countries if improvement in the economy is to be achieved.

CHAPTER SEVEN: THE INFLUENCE OF NATIONAL IT POLICIES, SOCIO-ECONOMIC FACTORS, AND NATIONAL CULTURE ON NETWORK READINESS IN AFRICA

Prior studies have shown that network readiness has significant influence on how countries benefit from the use of information technology for economic development. However, research on this topic with data from Africa is rare. Therefore, Ifinedo and Ifinedo examine network readiness index of 20 diverse African countries against their national IT policies, socio-economic and cultural factors. This cross-sectional study suggests variability in the use of information technology for economic development since African countries are not seen to be a monolith. Variations that have to be taken into consideration are each country’s educational system, its transparency (corruption) level, its information technology regulatory framework, and its cross-cultural dimension of power distance (PDI). African national governments and several bodies such as the World Bank and the UN ICT Task Force should focus attention on these factors which were seen to significantly relate to e-readiness index. Thus will the index improve for developing countries.

CHAPTER EIGHT: AN EMPIRICAL STUDY OF CAREER ORIENTATIONS AND TURNOVER INTENTIONS OF INFORMATION SYSTEMS PERSONNEL IN BOTSWANA

Existing career orientation studies of information systems (IS) personnel are focused on developed economies. Mgaya, Uzoka, Kitindi, Akinnuwesi and Shemi investigate career orientations (anchors) of IS personnel in a developing country, Botswana. The findings confirm earlier ones in literature but with some variations which are attributed to cultural and socio-economic peculiarities. For example, life style is not significant but the dominant career anchors include organizational stability (security) and sense of service (service). Gender, age and education tend to moderate the anchors significantly. The major contributors to turnover intentions of IS personnel in developing economies tend to be job satisfaction and growth opportunities whereas career satisfaction, supervisor support, organizational commitment, length of service and age did not contribute significantly. One of the recommendations of this empirical study is to encourage females from secondary school level to opt to study mathematics and other sciences to provide a sound platform for IS career.
CHAPTER NINE: E-COMMERCE ADOPTION IN NIGERIAN BUSINESSES: AN ANALYSIS USING TECHNOLOGY-ORGANIZATION-ENVIRONMENTAL FRAMEWORK

E-commerce adoption is crucial to income generation in modern businesses. Ekong, Ifinedo, Ayo and Ifinedo are contributing to recently emerging studies on e-commerce (EC) adoption in Sub Saharan Africa (SSA). They use Nigeria as an example to investigate factors that impact on acceptance of EC in small businesses. They developed a research model based on Diffusion of Innovation (DIT) and Technology-Organisation-Environment (TOE) frameworks to guide their investigation. The model is composed of factors such as relative advantage, compatibility, complexity, management support and organisational readiness. The research supports relative advantage of technologies, management support and IS vendor support as significant predictors of EC adoption in Nigerian small businesses. Other factors like organizational readiness, complexity and compatibility of technology were found to be not only insignificant but also inhibitors to EC adoption.

CHAPTER TEN: AN EMPIRICAL EVALUATION OF THE EFFECTS OF GENDER DIFFERENCES AND SELF-EFFICACY IN THE ADOPTION OF E-BANKING IN NIGERIA: A MODIFIED TECHNOLOGY ACCEPTANCE MODEL

Considerable research interest and attention have been given to gender disparity in the usage and acceptance of information technology (IT). Most research findings indicate females to be disadvantaged with males being more proficient in IT skills. Such research concentrates in developed economies with very little done in the developing parts of the world. Ayo, Ifinedo, Ekong and Oni perform an empirical evaluation of this gender disparity in the context of e-banking in Lagos (Nigeria – a developing country) and its environs. They extended Technology Acceptance Model (TAM) to guide their study. Their finding is that gender differences moderates the acceptance of e-banking. Computer self-efficacy and perceived ease of use were concerns to females than males who were most influenced by perceived usefulness of e-banking. Their research model provides a platform for further research and their findings implies that e-banking system developers should continue to improve the ease of use of their systems if females are to be encouraged to use them more.

CHAPTER ELEVEN: ENHANCING TRUST IN E-COMMERCE IN DEVELOPING IT ENVIRONMENTS: A FEEDBACK-BASED PERSPECTIVE

The current expansion of e-commerce has been accounted for by its ability to reduce transaction cost and to promote speed and efficiency. Nonetheless, one of its key challenges is trust. Thus much research and professional interests had been focused on this challenge. However, such focus is mainly in developed economies with advanced information technology (IT) infrastructural environments. Arikpo, Ososfisan and Eteng present a unique approach by taking into consideration less-advanced IT environments that exist in developing economies. The perspective of the empirical study presented is on feedback mechanisms in e-commerce websites. The findings support the importance of feedback in enhancing trust in less-developed IT environments.
CHAPTER TWELVE: BUILDING A CONCEPTUAL MODEL OF FACTORS AFFECTING PERSONAL CREDIT AND INSOLVENCY IN CHINA BASED ON THE METHODOLOGIES USED IN WESTERN ECONOMIES

The demand for personal credit has dramatically increased as China is embracing Western values. This has presented a challenge to financial institutions to ensure they have a workable lending system that would avoid the increasing repayment failures. In most cases, financial institutions use Western lending methodologies. The drawback is failure to take into consideration the Chinese society and culture. In an initial attempt to address this drawback Majewski, Usoro and Chumnumpan develop a research model that endeavours to express the contributing factors to the present increase in bad debts. The authors believe that once the model is empirically tested, it would contribute to automation of the lending system that would take into consideration the peculiar conditions of China as an emerging economy.

CHAPTER THIRTEEN: INTEGRATING INFORMATION AND COMMUNICATION TECHNOLOGIES (ICT) WITH INFORMATION LITERACY AND LIBRARY-USE-INSTRUCTIONS IN NIGERIAN UNIVERSITIES

A sample of three Nigerian universities is used to study how computer literacy is incorporated into use of library course. Ntui, Ottong and Usoro compared their curriculum contents and found that students were loaded with unnecessary library technicalities. They recommend the giving of more attention to information and technology literacy and presented curriculum structures that can improve the situation.

CHAPTER FOURTEEN: E-LEARNING IN HIGHER EDUCATION: THE NIGERIAN UNIVERSITIES’ EXPERIENCE

Learning is one the key areas where recent advances in information technology have impacted. Usoro and Akuchie explore the extent of e-learning application in Nigerian Universities with a sample of four public universities. Their findings were that lecturers were better exposed to information technology than students. Most of the e-learning facilities available in the universities are neither entirely functional nor adequate. Therefore, computer facilities application in teaching and learning is very low. Their recommendations range from university to government policies for e-learning provision in higher education.

CHAPTER FIFTEEN: THE ISSUES OF DIGITAL NATIVES AND TOURISTS: EMPIRICAL INVESTIGATION OF THE LEVEL OF IT/IS USAGE BETWEEN UNIVERSITY STUDENTS AND FACULTY MEMBERS IN A DEVELOPING ECONOMY

Ololube, Amaele, Kpolovie and Egbezor derived 11 dimensions for measuring the use of computer systems. They applied these dimensions on a sample of 191 questionnaire respondents in Nigerian universities. Their findings indicate that there is no sharp contrast between “natives” and “tourists” but that students were more of the former and academic staff were more of the latter. This is accounted for by the
greater exposure (including at home) of youths (students) to computers than the adults (lecturers) are. One implication of this finding is that faculty members cannot provide the expected level of computer literacy to students. Thus, more effort should be made to equip the lecturers and update their skills so that they can impact sound knowledge including computer skills in such a way that greater economic development can be achieved.

In 2007 and 2008, I chaired in Nigeria an international Conference on Information Technology and Economic Development. In 2009, IGI requested that a book be put together on that theme. The chapters we have reviewed are not all from that conference, as an opportunity was given to a wider audience of authors. It is evident from the above synopsis of their chapters that the book has a lot to offer to policy makers, businesses, educational institutions. To the latter, there are implications to the administrative, to the academics as well as students. Apart from the discussions and recommendations, the research methods used by many of the authors are very instructional and researchers can use the material as a platform for further studies. The book is a very good teaching material and informative for anyone interested in developmental studies.

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REFERENCES


**ENDNOTE**

1 Measured not so in the traditional number of years spent in education but by work ethics which have been shaped by Chinese cultural history over the years and passed on in families from generation to generation.