

## Higher Education and Knowledge Economy: A Focus on Nigeria

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### Article history

Received :4 April 2013  
Received in revised form :  
25 July 2013  
Accepted :15 October 2013

### Abstract

The objective of this article was to discuss the roles of higher education institutions towards a knowledge-based Nigerian economy in the fast changing globalised economy. In achieving this objective, issues that drive knowledge in developed countries and the need for Nigeria to adopt a knowledge-based approach to economic development were examined. Suggestions on strategies for developing a knowledge-driven economy were offered accordingly.

*Keywords:* Knowledge economy; Nigerian economy; sustainable development, higher education

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### 1.0 INTRODUCTION

A new trend is gaining global attention – i.e. the recognition of knowledge as a driver of economic growth and development. In the advanced economies, ‘knowledge’ has been recognized as a strategic asset for economic development, whose utilization has led to their technological advancement, thus, enhancing the quality of life of their citizens. These developments were facilitated by advances in ICT, S&T and innovations, all courtesy of intellectual capital (Knowledge). These resulted to wealth creation and opportunities for the citizens of advanced countries.

From the Nigerian perspective, much of its wealth and economic growth comes from its natural resources –mainly oil- and control of physical assets such as land, iron and steel. Knowledge has been relegated to the background in the march towards economic prosperity. But in knowledge-based global economy of the 21<sup>st</sup> century, such dependence on primary resources alone cannot lead to desired level of economic growth and development. In essence, natural resources alone cannot continue to be drivers of economic development. It means there must be a paradigm shift to knowledge as a basis for achieving sustainable economic development. This is because, the main source of value and competitive advantage in the new world order today, is human and intellectual capital

The concept of knowledge-driven economy (KDE) often referred to as ‘the new economy’ is used to describe any economy in which knowledge generation, exploitation and utilization is playing a dominant role in National wealth creation. In a knowledge-driven economy, effective use of knowledge and creativity in economic life of a country predominates. Today, there is an exciting trend which is a global phenomenon, and that trend is ‘knowledge capital’. In developed economies, knowledge has

been recognized as a strategic asset for attaining the much desired economic development, thus, advances in new technologies, especially in ICT occurs on tremendous scales, as such propelling technological advancement and globalization.

### 2.0 WHAT IS KNOWLEDGE ECONOMY?

A knowledge-based economy is one where revolutionary ideas and technologies are playing key roles in economic growth and development (Kefela, 2010). In a knowledge-based economy, intellectual property is the merchandise (goods), consumers expect and look for smarter products with more convenience, whereas innovation is championed by firms, universities and institutions as technological leaders. The term knowledge-based economy was coined by Organisation for Economic Cooperation and Development (OECD, 1996), where it is defined as “an economy which is directly based on the production, distribution and use of knowledge and information”.

Looking at the above definitions, it presupposes that knowledge is today assuming the position of an important and powerful driver of production and development. The rapid progress made in ICT, coupled with speed of scientific and technological advances, global competition, and the changing pattern of demand for goods and services have further made knowledge to become more important in the quest for sustainable development.

Nigeria as a developing country needs to transform into a knowledge-based economy, because information and knowledge are replacing capital, energy and natural resources as major wealth-creating assets (Kefela, 2010). In emphasizing the role of knowledge towards achieving sustainable development, it was

observed that knowledge economy emerges from two forces (Houghtin and Sheehan, 2010): (1) the rise in knowledge intensity of economic activities and (2) the increasing globalization of economic affairs. These two forces would enable the creation of knowledge societies. This observation was further supported by Kefela (2010) who stated that “knowledge societies are generally characterized with the ability to create, share and use knowledge for the sole purpose of improving upon the general well-being of the people, and making it possible for them to prosper.

The United Nations Educational Scientific and Cultural Organisation (UNESCO) in its report (2005) also described knowledge society as one which is nurtured by its diversity and its capacities. Every society or country has its own unique knowledge assets, and what is therefore required, is for the country to work towards harnessing these assets for its development. In the same perspective, UNDP (2009, 2010) suggested that knowledge societies should work towards fostering ‘knowledge sharing’. This suggestion was given against the backdrop of the recognition given to knowledge as ‘public incentives’ that should be made available to everyone in the society.

### ■3.0 DRIVERS OF KNOWLEDGE ECONOMY IN COUNTRIES

Taking United States of America and United Kingdom as examples of economies that are developed as a result of knowledge, we will be able to assess how important is knowledge as a driver of growth and development. The present state of knowledge-driven development in these economies were aided by the progress made in science and technology (S&T) and information and communication technology (ICT) that made it possible for information to become readily available, accessible and at cheaper cost. These resulted in creating new sophisticated production processes that produces new products and services which are impacting on the quality of life of their people. Increased global competition facilitated by reduced costs of communication (Kim, 2010) has led to opening up of new markets. Costs of international transport have fallen, while goods and services can be distributed and delivered through telephone and other electronic means. All these are courtesy of technological revolution, which has not only increased market sizes of businesses, but also, making products and services become out-of-date quickly, which means that business organizations must innovate quickly too, by making use of its ‘knowledge’ and creativity for survival in a competitive global economy (Toffler, 1991).

Advances in S&T also drive knowledge-economy in advanced countries. In addition, commercialization of inventions and innovation by universities has significantly contributed to technological development of advanced countries by establishing spin-off companies from academic researches of universities (Kamariah, et al. 2010). As argued by Ariyo (2008), increased investments in applied R&D have led to accelerated growth in the stock of scientific and technological knowledge. For instance, fundamental advances made in the field of genetic engineering are a manifestation of the huge investments in R&D by these countries. What is interesting here is that, knowledge itself is not an exclusive commodity to advanced economies alone. It is universal. As further observed by Ariyo (2008), other emerging markets such as South Africa, Malaysia, Brazil and Chile have developed and implemented strategies that make them become knowledge-based economies. Given Nigeria’s vast potentials, both human and material, it is possible for it to become a

knowledge-based economy. But this can only happen if there is serious commitment by the Government in playing its role of establishing the right environment and encouraging changes that stimulate a knowledge-driven economy. In so doing, some strategies are needed for transforming into a knowledge-based economy.

### ■4.0 PARADIGM SHIFT: FROM TRADITIONAL FACTORS OF PRODUCTION TO KNOWLEDGE CAPITAL

Suffice it to say that an important factor in transition to a Knowledge-economy is the creation of abundant, quality human capital. These individuals are the knowledge workers required to form the nucleus of a knowledge-economy. Knowledge workers as argued are versatile, autonomous, highly skilful, and are able to leverage and build knowledge to produce useful actions with very strong and analytical minds (Kefela, 2010). Knowledge workers produce and distribute ideas and information, rather than the traditional goods and services. They are individuals with different aspirations from the hierarchy-conscious employees of the past; they are also highly mobile. Thus, to check intellectual capital drain in a competitive knowledge-economy, knowledge workers should be regarded as assets rather than costs. Knowledge workers require knowledge managers, not bosses.

Managing knowledge workers means that managers themselves should act as good followers, team players and technologists. Since the process of influencing the performance of knowledge workers is developmental (Kefela, 2010), managers need to have skills in appraising, coaching, mentoring and providing feedback. By developing a pool of organizational knowledge workers, it is hoped that there would be positive impact on a country’s developmental goals and aspirations. Advanced countries have shifted from industrial economies fuelled by natural resources to service-based economies fuelled by human capital (Ariyo, 2008). Developing countries, such as Nigeria, needs to break away from resource-based economy (crude-oil in case of Nigeria) to a knowledge and human capital-based economy. But the challenge is on establishing robust interface between education and the drive towards sustainable economic growth and development.

### ■5.0 THE ROLE OF EDUCATION IN KNOWLEDGE ECONOMY

Good and flexible education system is essential for developing a knowledge-economy. For a knowledge-economy to be in place, the education system starts with basic education that provides the foundation for learning, which is followed by secondary and tertiary education that develops core competencies and skills, and encourages creative and critical thinking for innovation to thrive. Thus availability of educational human resource pool in science and technology is a must for achieving knowledge-economy, and hence, development. Investment in human capital is paramount for innovation and development. According to human capital theory (Schultz, 1963), education and training are viewed as an ‘investment’ that yield social and private returns through increased knowledge and skills for economic development and social progress. This perspective was supported by Kefela (2010) where he observed that the economic argument in favour of knowledge-based education and training is linked to the perceived need of the global economy. Therefore the conclusion to be derived from this theory is that, economic growth and development are knowledge-driven and human capital

dependent.

A study by Fong (2006) revealed that a number of developing countries have unveiled strategies for shifting to a knowledge-economy as part of wider plans to achieve economic growth and development. For instance, Malaysia and Nigeria have developed a somewhat similar vision plans: vision 2020. While Malaysia's plan (vision 2020) is a 30-year plan to 'push' Malaysia to achieve a level at par with industrial nations in terms of economic performance and technological capability (Mustapha and Abdallah, 2000), Nigeria's plan (vision 20:2020) was meant to place the country amongst the top 20 economies in the world by the year 2020 (FGN, 2010). With these various moves towards a knowledge-economy, these countries are aiming to achieve sustainable gross domestic product (GDP) growth rates in the long run, with knowledge playing a dominant role in driving productivity and sustainable development.

But, what is the state of Nigeria's educational institutions and outputs in the desire to transform into knowledge-economy? It is simply that of weak institutions, unskillful and less innovative graduates. Higher education institutions in particular, who are the hub of research and development (R&D) for innovations to take place, are relatively faced with problems of decayed infrastructure, gross underfunding, incessant labour disputes and unrest and old-fashioned methods of teaching delivery. The resultant effect of these is the production of 'half-baked' graduates<sup>1</sup> who are less creative and unemployable. This is corroborated in a study by Manufacturing Association of Nigeria (MAN)<sup>2</sup> who found out that less than 10% of graduates produced by Nigerian universities are employable. This is an unpleasant development in the country's quest for achieving sustainable economic development as enshrined in its vision 20:2020 project.

There is a link between educational outputs and a country's requirement for growth and development. In a study by Kim (2010), it was reported that, the most important economic development in recent years has been the rise of a new system for creating wealth, which is no longer based on muscles and machines, but on knowledge. Labour in advanced economies no longer consists of working on "things," but of people acting on information and information acting on people. In the present information-based century, the real power of a nation is determined by its knowledge capacity, which is the amount of knowledge its people possess, i.e. understanding, creativity, ingenuity and wisdom. Knowledge serves as a wealth and force multiplier (Toffler, 1991).

The yardstick for measuring the knowledge capability of a nation within an information-based society is the education level of its people [REF JT], upon which economic and social development can be based. It is imperative to have a paradigm shift in Nigeria's educational system, particularly in the higher education sector. The state of infrastructure in the universities needs to be overhauled; state-of-the-art facilities, equipment and laboratories should be in place to encourage research and development (R&D) with a view of innovating for the economy [REF JT].

Education is a critical force that generates technological progress of a nation. As noted by Daggash (2008), educational training that generates human capital is responsible for the differences in labour productivity and the overall differences in technological attainment between developed and developing countries. It means, human capital created from a functional educational system are a source of economic growth and development of economies such as Hong Kong, South Korea and

Singapore, which were hitherto at par with Nigeria. Their unprecedented rate of growth and development could be attributed to the huge investments in education, particularly in adaptive science and technology. Therefore in a knowledge-economy, education and skilled human capital are the most critical and valuable assets.

## ■6.0 HIGHER EDUCATION INSTITUTIONS AND THE DRIVE TOWARDS KNOWLEDGE ECONOMY

The rapidly changing global economy has posed many challenges for HEIs (Birgeneau, 2005). As argued by Birgeneau (2005) creativity and innovation seem to be the driving forces for competition in the new world order, thereby making Higher Education institutions to be the facilitators of knowledge economy. In this line, Ildio, et al. (2005) observed that in the 21<sup>st</sup> century knowledge is a necessary resource for prosperity. Higher Education institutions today and in the near future, will experience different and intensified external pressure influenced by globalisation, and the past few decades have witnessed the pressure on HEIs to respond to this global integration (Bloom, 2005). Globalisation refers to the process whereby countries become more and more integrated, mainly via movements of goods, capital, labour and ideas (Scott, 2005:22).

An essential attribute of globalisation is the accelerated production of knowledge workers and knowledge societies, albeit through revolution in information and communication technologies. Based on the aforementioned, higher education institutions (HEIs), particularly universities as creators of knowledge should aim at preparing new generations with the requisite skills, scientific literacy, flexibility, and capacity for critical inquiry and discoveries that would have significant impact on society. Higher Education institutions are said to be in the "knowledge business" since they are involved in knowledge creation, dissemination and learning (Rowley, 2000:332). Given the mission and purpose of HEIs, it is imperative for them to help towards creating competitive advantage for their countries.

## ■7.0 STRATEGIES FOR TRANSFORMING NIGERIA INTO A KNOWLEDGE ECONOMY

### 7.1 Right Operating Environment to Foster the Growth of Small and Medium Enterprises (SMEs)

Over 70% of employment in Nigeria is generated by the Small and Medium Enterprises (SMEs) sub-sector (Ariyo, 2008). Therefore as major wealth creators and job-generators, SMEs would form the bedrock of a knowledge-economy. In this regard, Government should put in place the right operating environment to make them prosper. By so doing, entrepreneurship and innovation would be enhanced. Activities of support agencies such as Small and Medium Development Agency of Nigeria (SMEDAN) needs to be strengthened in the likes of Small Business Administration (SBA) in US and Small Business Services (SBS) in UK. SMEDAN should specifically focus on providing services such as advices on start-up; exporting; use of ICT for business growth; business R&D; business training for owners and managers; incubation support and collaboration with the SMEs. Attention should be paid on the role of research and development, as well as monitoring and evaluation in SMEs. At present little or nothing is done in these perspectives. But in

<sup>1</sup> Based on visitation reports of National Universities Commission (2006-2010).

<sup>2</sup> Based on survey conducted by MAN in January, 2010 on the employability skills of Nigerian Universities' Graduates.

knowledge-driven economy, research and development are essential to achieving success.

### 7.2 Overhauling the Education System

Success in the knowledge-driven advanced economies such as USA and UK were due largely to their skilled workforce. In these economies, workers are highly educated. In most hi-tech companies, the book value of such companies or intangible assets resides in the knowledge and creativity of employees. Hence investing in knowledge, skills and learning for all should be a top priority for transforming into a knowledge-driven economy. Nigeria needs to arrest the rot in public education system that hinders production of quality graduates. At present, there are problems posed by cultism, perpetual strikes by teachers and university lecturers due to non-regular payment or under payment of salaries, poor conditions of service and inadequate funding. A complete overhaul of the education system and massive injection of funds are necessary for Nigerian universities to contribute to research and development and also produce high quality graduates, capable of competing with their peers globally. Universities in Nigeria need to develop entrepreneurial ethos by commercializing their research findings through the formation of spin-off companies. According to Kamariah et al. (2010), commercializing universities' inventions, either through spin-offs or licensing would contribute toward national innovation systems and sustainable economic growth and development. In the drive towards a knowledge-based economy, such quality graduates should be knowledgeable, highly skilled, IT-literate, innovative and entrepreneurial. They should be graduates who would be able to raise their heads, to collaborate, compete, solve complex problems, generate ideas and take risks. Such graduates should be in charge of SMEs and the public service of the future in order to move Nigeria forward.

### 7.3 Growing the Science and Technology and ICT Infrastructure

Developing a knowledgeable workforce to support businesses and other organizations require basic science and technology infrastructure. This could be done by Nigeria becoming a producer of high technology, not just a net importer. Again universities in Nigeria need to be encouraged and adequately funded so that they can carry out scientific research and development, like other universities in the world. Policies and programmes that would take Nigeria out of an IT end-user country to a producer of high technology are necessary in becoming a knowledge-economy. Drawing from the examples of Bangladesh, India and Barbados where off-shore information processing is thriving (UNESCO, 2005; Ariyo, 2006), setting up information industries will greatly help Nigeria participate in the information economy. The IT business has been found to have positive impact on both organizational performance and national development (Ismail, 2007) Nigeria's population of over 150 million people and more than 1 billion people in the rest of Africa (Ariyo, 2006) presents big market opportunities and potential knowledge workforce. Many Nigerians are making waves in the field of computer technology, both within and outside the country. For example, the biggest black-owned software company in UK- *Open link software*-is owned by Nigerian brothers (Kingsley and Kevin Idehen); *Signatronics*, a Scottish software company is owned by Godwin Osigwe – a Nigerian. Efforts should be made to encourage such successful Nigerian entrepreneurs to transfer their skills and expertise back to the country, to help in attaining sustainable development.

## 8.0 CONCLUSION

Nigeria's vision plan (vision 20:2020) is generally aimed at placing the country in the league of top 20 industrialised economies in the world by the year 2020. This aspiration was made on the realization of Nigeria's abundant human and material resources, which places it in good position to achieve economic growth and development. However, the country's higher educational sector which produced top quality graduates in the 1970s; 1980s and 1990s is in shambles. The resultant effect is low ranking in terms of human development. The UNDP's Human Development Reports (UNDP, 2009, 2010, 2011, 2012) have consistently shown that Nigeria is still amongst the countries in the lower bottom of human development as compared to emerging economies such as South Africa, Malaysia, Chile and Egypt implying that that Nigeria despite its abundant resources, is far behind in human capital development, and this calls for concerted efforts towards transforming the economy from a mono-product economy to a knowledge-based economy if the vision 20:2020 goals are to be realised (Daggash, 2008). One critical success factor is massive investment in higher education with emphasis on science and technology, with a view of competing in the fast changing global economy. To become a successful knowledge-economy, Nigeria must act, with seriousness, on overhauling the higher education sector, the National Innovation Systems and ICT infrastructure and at the same time building robust and high quality economic and institutional frameworks that would support the emergence of new entrepreneurs, particularly in the SME sub-sector.

### Acknowledgement

We are grateful for the financial aid by UTM to the corresponding author.

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