

TACIT KNOWLEDGE IN THE KNOWLEDGE ECONOMY: MAPPING STRATEGIES FOR THE AFRICAN NATIONS

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ABSTRACT: *In the present age, tacit knowledge is gaining wider publicity. Still, many economies rely only on the currently available information, ignoring the required tacit knowledge to create new economic activities. This paper, premised on the position that know-how resides in brains, argues that urbanisation and internet access are not enough to enhance national productivity, particularly in the African nation. This study asks how the African nation can motivate and tap into tacit knowledge to be fully integrated as a knowledge economy? This study sought to establish the status of the African nation as a knowledge economy, identify some pillars of selected knowledge economies, and explore the influence of tacit knowledge on the African knowledge economy's suggested pillars. The study uncovered gaps in the African nation and highlighted innovation, ICT, skilled human capital and education as pillars that the African nation can build on as a knowledge economy. A notable finding of this study is the need for African nations to explore local knowledge, popularly known as indigenous knowledge. Also highlighted is the fact that the English language is fast becoming the language of the knowledge economy. The paper closes with the presentation of tacit knowledge strategies that can be considered under each pillar that has been attested to enable a knowledge economy. It is expected that the study will contribute to existing literature on tacit knowledge management, influence the decision-making process of policy-makers and boost the productivity of African economies.*

KEYWORDS: *knowledge, tacit knowledge, Africa, knowledge economy.*

INTRODUCTION AND BACKGROUND

In an agrarian economy, the primary national resource is land, while in an industrial economy, the concentration is both labour and natural resources. However, in the knowledge-based economy, which emerged from the increase in the knowledge intensity and globalisation of economic activities, the main engine of economic growth is knowledge Dahlman, Routti, and Ylä-Anttila (2006). A knowledge economy is also described as one in which administrations and societies efficiently gain, create and disseminate knowledge for better socio-economic development Mustafa (2015). Wanat and Potkanski (2010) submit that the contemporary economy continues to depend on knowledge management. According to Dahlman, Routti, and Ylä-Anttila (2006), knowledge makes it possible for the less developed economies to find a short path to achieving development, advancement in technology, and speedily integrate into the global economy. However, it is suggested that developing countries will be most likely side-lined unless they boost the knowledge contents of their economies through learning and innovation (the United Nations Conference on Trade and Development (UNCTAD) (2007, 6). The United Nations Educational Scientific and Cultural Organization (UNESCO) (2005, 160) ascribes the emerging knowledge divide to the combo starting from the gulf in culture, education, and science.

The economics and production of knowledge require a shift from a focus on technology to knowledge from human-made brainpower Peters (2001, 1). According to Drucker (1995), the efficiency of knowledge will determine the competitive position of a country. He opines that what places a country in an advantaged position is the ability to explore knowledge. Knowledge, in this context, is taken as either explicit (codified and objective) or tacit (personal and subjective). Takeuchi (1998) as cited in Zhu (2014, 68) argues that the western world focuses on existing explicit knowledge and carries out knowledge management initiatives; rather than

focusing on tacit knowledge to create new knowledge. Nonaka and Takeuchi (1995) report that Japanese companies thrive on organisational knowledge creation, which positively reflects their innovation capability and their status in the international market. The Japanese society is rooted in collectively held tacit knowledge Ray and Little (2001, 154) and favours the idea that tacit knowledge is the best mode of creating knowledge Skovira (2012, 689); Burrows, Drummond, and Martinsons (2005, 74). The Chinese explore the socialisation process of knowledge management to their national advantage. Unlike the Japanese and the Americans, they acquire knowledge from domestic and foreign sources to create their national knowledge through R&D activities in their universities. Given the applauded influence of tacit knowledge in the knowledge economy statuses of nations, this study is interested in mapping out strategies for the African nation to tap into tacit knowledge to be positioned as knowledge economies.

Relevant studies have highlighted what constitutes the major pillars of a knowledge economy. For instance, Chen and Dahlman (2005, 4) identify economic incentive and an institutional regime that makes it easy to create, disseminate and use knowledge in good facilitating conditions; educated and skilled workers; innovation system comprising consultants, firms, research centres, universities, among others, who can adapt global knowledge to local needs; and adequate and up-to-date information infrastructure for effective communication, information and knowledge management, as defined by the World Bank Institute (n.d.). Moreover, Hooker (2010, 3) highlight education, ICTs, and innovation, and Lor and Britz (2007) report information and communication technologies and connectivity, infrastructures apart from ICTs, and human capital capability.

The pillars mentioned above can be collapsed into ICTs, education, innovation, infrastructures apart from ICTs, skilled human capital, and enabling environment/policies. Chen and Dahlman (2005, 4), building on the knowledge economy pillars as put forward by the World Bank (n.d), recommend that fundamentals, such as investing in education, innovation competency, modernising information infrastructure, and ensuring an enabling economic atmosphere, are required to move to the knowledge economy successfully. It is expected that in the modern and competitive global economy, when a nation invests in the pillars mentioned above, knowledge creation and use in national economies will be enabled and enhanced, with attendant improvement in economic development. Therefore, this study explores how tacit knowledge can be promoted in education, ICT, innovation, and skilled human capital to enhance the functionality of these pillars in positioning the African nation in the knowledge economy environment.

To achieve this aim, the study will review extant literature to establish the status of the African nation as a knowledge economy, identify some pillars of selected knowledge economies, describe the relationship between tacit knowledge and suggested pillars of the African knowledge economy, and develop a synthesis of strategies that will promote tacit knowledge management for each of the pillars.

The study, using Google Scholar, reviewed relevant literature using the search terms: tacit knowledge, knowledge economy and the African nation, and through content analysis, identified knowledge economy pillars on which the African nation can leverage. The paper proceeds by examining the African economy's status in the knowledge economy dynamics and subsequently peeps into lessons from some global knowledge economies.

State of the African nation as a knowledge economy

Dahlman (2007 10) observes that even though developing nations, particularly sub-Saharan Africa, have made progress in their knowledge economy worldwide ranking, most of the countries still rank low. Asongu (2017) reports that Africa's global knowledge index declined between 2000 and 2009. The author opines that Africa, on the path to knowledge economy status, can learn from the miraculous transition of South Korea, mainly due to their knowledge-based approach to development.

Ten years after the submission of Dahlman (2007), Ojanperä and Graham (2017) add that internet access is insufficient to transform sub-Saharan African nations' economies as most countries in Africa are behind. Even though improved internet access can help Africa transit to the knowledge economy, the continent still has the smallest share of digital knowledge production. They conclude that a total shift into an economy dependent on technology and human capital may not be immediately feasible in sub-Saharan Africa, as long as the continent relies heavily on extractive industries and agriculture. They acknowledge that knowledge-based economic practices are emerging. However, the recommendation is that more concentrated efforts should target improved locally produced knowledge that will aid the transformation into knowledge economies. This goes beyond merely increasing internet connectivity.

In another study, Ojanperä et al. (2017) reveal that innovation and investment in education are crucial to knowledge economies. At the World Economic Forum in July 2019, Adotey (2019) adds that Africa contributed only 1.1% to scientific knowledge worldwide, being the lowest globally. Also missing is that Africa does not have synthesis centres, where groups of professionals, such as communities of practice, can collaborate and share tacit knowledge (expertise). According to Adotey (2019), synthesis centres will enable Africa to pull together its human capital to hypothesise, carry out research, and proffer solutions through interdisciplinary collaboration.

It can be implied from the above discussions that many developing countries have not tapped into the vast stock of global knowledge, which can be applied to meet their needs (World Bank Institute n.d.). The next section describes knowledge economies across cultures and closes with a tabular presentation of the knowledge economy pillars (Table 1) favourable to the countries.

PILLARS OF SELECTED KNOWLEDGE ECONOMIES

In section 1, the pillars that nations can adopt were identified and collapsed into education, ICTs, innovation and skilled human capital. Through content analysis of the reviewed literature, this section highlights the knowledge-related strategies that selected current knowledge economies have explored that aided their transition (Table 1). The review further confirmed that, among others, education, ICT, innovation, and skilled human capital are major pillars that nations, African nations inclusive, can build on.

Table 1: Reviewed pillars of selected knowledge economies

| Source | Country | Pillars |
|---------------------------------------|-----------|---|
| Houghton and Sheehan (2000 16) | Australia | <ul style="list-style-type: none"> • benefits from its use of the English language, which is fast becoming the language of the knowledge economy • the rapid uptake of new technologies |
| Rodriguez, Dahlman, and Salmi, (2008) | Brazil | <ul style="list-style-type: none"> • education • innovation |
| Dahlman and Jean-Eric (2001) | China | <ul style="list-style-type: none"> • education and training • improving relevant economic incentives and institutions • innovations • research |

| | | |
|--|-------------|--|
| Porter and Solvell (2002); Dahlman, Routti, and Ylä-Anttila (2006) | Finland | <ul style="list-style-type: none"> • access to high technology and knowledge • domestic knowledge generation, indigenous innovations • educational system • efficient technology transfer (TT) • globally-focused knowledge base • good innovation systems • highly qualified personnel • ICT • intelligent manufactures for the global market. • knowledge-intensive services • combining ICT, nano and traditional technologies • own research and development technologies and products |
| Dahlman and Utz (2005) | India | <ul style="list-style-type: none"> • Investment in various science and technology (S&T) infrastructure • availability of skilled human capital • global niches in IT • widespread use of English |
| Suh and Chen (2007) | Korea | <ul style="list-style-type: none"> • accumulating indigenous capabilities • Enhancing productivity through innovation • Education policy aligned with economic development |
| Raspe and Van Oort (2006) | Netherlands | <ul style="list-style-type: none"> • innovation • research and development • skills of employees (knowledge workers) |
| Mustafa (2016) | Singapore | <ul style="list-style-type: none"> • Technology • R&D • technical education • ICTs • subsidised multinational corporation (MNC) training to nurture the skills of the workforce • Engaging leading educational institutions of the world to enhance the accessibility of talent pools • Use of science and engineering research hubs to boost technologies |

Source: Author generated from multiple sources

Synthesising the pillars illustrated in Table 1, this study classifies economic incentive and institutional regime and infrastructure apart from ICT as facilitating conditions and ICT, education, human capacity, and innovation as major pillars. Therefore, governments and political leaders need to strategise to achieve and sustain a dynamic system that integrates education, ICTs, innovation, and Science and Technology for economic growth Hooker (2010 10). This study, hereafter, explores the relationship between tacit knowledge and the suggested pillars for the African economy to leverage as a knowledge economy.

Relationship between tacit knowledge and the suggested pillars of the African knowledge economy

Tacit knowledge and education

According to Mustafa (2016), to create, share and use knowledge, there is need to have a higher proportion of the educated and skilled population. This bolsters the importance of education, corroborating the conclusion of Ojanperä and Graham (2017) that having internet connectivity is not enough. Mustafa (2016), therefore,

suggests the establishment of research centres, formation of think tanks, the inclusion of universities, community groups, and private enterprises that can access universal knowledge, integrate and streamline it to local requirements, generate new knowledge from it, and tailor it to local needs. This call of Mustafa (2016) can be likened to brainstorming sessions and the use of communities of practice, both of which are tacit knowledge management processes. Hargreaves (1999, 123) opines that traditional education is mostly about propagating current best practices and research output, which is inadequate for schools to operate in the knowledge economy. The author suggests the need to generate better professional knowledge, which is tacit knowledge, and requires that teachers share their professional knowledge. The author proposes that knowledge management models, such as the socialisation, externalisation, combination and internalisation (SECI) of Nonaka and Takeuchi (1995), which is employed by commercial institutions, can be adopted in the education sector Hargreaves (1999, 127).

It is also revealed that the knowledge-base of an experienced teacher, compared with those of other professionals, is richer in personal and tacit knowledge than in explicit, collective knowledge (Hargreaves 1999, 138). This implies that for a more productive education system, it is necessary to create an avenue where teachers can share and externalise their tacit knowledge. Tschannen-Moran and Nestor-Baker (2004, 1509) opine that there should be a platform in education through which other scholars can learn from more prolific scholars' tacit knowledge. The OECD report Olssen and Peters (2005, 334) shows that tacit knowledge, which showcases through skills, is essential, as education will play a major role in knowledge-based economies. Stiglitz (1999) links knowledge and development by implying that higher institutions of learning, being traditional knowledge centres, will lead the service sector in the near future and will need to be restructured as done in China in her transition to the knowledge economy. Burton-Jones (2001, 225) emphasise that to transit to a knowledge economy, it is necessary to consider the interaction of education, learning and work. Olssen and Peters (2005) stress that it is not enough to acquire the best available knowledge globally. The authors propose the creation of local knowledge by building on indigenous knowledge through research and development. The above submissions imply that tacit knowledge sharing will enhance the education system, which will influence the shift to a knowledge economy, where education is a major pillar.

Tacit knowledge and ICTs

According to Stajic in Al-Qdah et al. (2009, 315), ICT is any form of information and communication tool, such as personal computers, smartphones, audio and video transmission devices. These devices enable communication and the sharing of data, information and knowledge. ICTs positively influence the transfer of tacit knowledge, reduces geographical distance and cost of transmission. To Al-Qdah and Salim (2013, 4117), information technology is an enabling factor for acquiring, processing, storing, and retrieving knowledge. In other words, the use of ICTs will positively enhance tacit knowledge management and boost the knowledge economy.

Tacit knowledge and innovation

According to Dahlman (2007, 11), innovation encompasses using existing knowledge in the domestic setting. As opined by Porter (1990), successful innovations are giant steps in creating a new competitive advantage for now and in the future. As observed by Oluwatobi (2015), statistics revealed that economies that are primarily driven by innovation advance more than those that depend mainly on natural resources to sustain their economies. Koskinen and Vanharanta (2002, 63) note that innovation can be linked to effective utilisation and tacit knowledge sharing. Mascitelli (2000, 182) describes the roles of tacit knowledge on innovative abilities: the provision of whole-concept solutions, revolutionary breakthroughs, sophisticated and creative solutions to specific problems, among others. It is, therefore, safe to conclude that tacit knowledge is both an innovation and a knowledge-economy-enabling factor. Mustafa (2016), in agreement, submits that knowledge and innovation are widely recognised as strategic platforms for growth and development. The author reports that the knowledge revolution improves countries' socio-economic development, especially through higher and technical education, innovations, and ICTs.

Tacit knowledge and skilled human capital

According to Pereira, Ferreira and Alves (2012, 175) and Williams (2011, 52), the knowledge that generates innovation, the attendant competitive edge and improved performance is tacit and embedded in humans. Even in the era of the Fourth Industrial Revolution (4IR), Schröder (2017, 13) observes that smart technologies cannot take over workers' tacit knowledge that is not coded. Schröder's standpoint was in agreement with that of Frey and Osborne (2017), who submits that technologies have no intelligence in themselves, except as coded by human beings and can, as such, not be substituted for human beings, who can act flexibly and creatively to unanticipated situations. Additionally, Soliman and Spooner (2000) reveal that it will be difficult to implement new technologies without efficient human resources management. The authors add that intellectual capital and assets will be of better use if organisations (in this case, economies) apply knowledge management strategies to leverage their human resources management. Again, these submissions buttress earlier reports that internet connectivity and improved communication are not adequate to transition to the knowledge economy. In other words, tacit knowledge is embedded in the skilled workforce in any economy, and human resources are also responsible for the performance of knowledge tasks that enable innovation and productivity. In the words of Thurow (Peters 2001, 1), "Today, knowledge and skills now stand alone as the only source of comparative advantage. They have become the key ingredient in the late twentieth century's location of economic activity." Knowledge, particularly tacit knowledge, and skills are attributes of the human capital, implying that African nations that desire the knowledge economy platform should invest in their human resources, as was done by other knowledge economies: China Dahlman and Jean-Eric (2001), Finland Dahlman, Routti, and Ylä-Anttila (2006), and Singapore Mustafa (2016).

To conclude this section, it has been established that tacit knowledge is a key player in all the identified pillars of the knowledge economy. Undoubtedly, the African nation needs to promote tacit knowledge management to leap into the knowledge economy status.

TACIT KNOWLEDGE MANAGEMENT STRATEGIES FOR THE AFRICAN NATION

The Washington Consensus, a set of policies and reforms required to promote economic growth in developing countries Williamson (2009), propose that developing countries should adopt appropriate knowledge strategies and broad innovation system, which require that they increase their efforts to acquire, adapt, diffuse, and use existing knowledge, including indigenous knowledge, which is characteristically tacit. The author also stressed the need to pay more attention to using existing knowledge to create their technologies. Similarly, Lwoga and Ngulube (2007) report that indigenous knowledge is key to sub-Saharan Africa's development. Thus, this study suggests the strategies in Table 2 below for consideration by the African economy.

Table 2: Strategies for tacit knowledge management for the African knowledge economy pillars

| Education | ICTs | Innovation Systems | Skilled Human Capital | Facilitating Condition |
|--|---|---|-------------------------------------|--|
| Indigenous knowledge | Indigenous knowledge management systems | Research centres | Platforms for knowledge sharing | Basic technological infrastructure other than ICTs |
| Knowledge creation | Tacit knowledge management systems | Research universities | Multi-stakeholder knowledge sharing | Norms and standards, |
| Knowledge synthesis centres | Knowledge dissemination mechanisms | Knowledge experts and consultants that can tailor external knowledge to meet national needs | Virtual collaboration | Quality control |
| Collaborative learning | IoT | | Communities of practice | Economic policies |
| Technical information centres | ICT tools | | Alumni networks | Knowledge management policies |
| Productivity organisations. | | | Apprenticeship | Intellectual property rights |
| Public research institutes | | | Mentoring | . |
| Interactive learning, processes | | | Storytelling | |
| Interactive networks of people and institutions | | | Expert interviews | |
| Research schools | | | Best practices | |
| Internship Programmes | | | Reviews of lessons learned | |
| | | | Brainstorming sessions | |

Source: Author generated from literature (Hooker 2010; World Bank Institute, n.d.; Williamson 2009; Hargreaves 1999; Lwoga, and Ngulube 2007; Chen and Dahlman 2005)

CONCLUSION AND RECOMMENDATIONS

In this study, the importance of knowledge, particularly tacit knowledge for the leap into the knowledge economy, by the African nation, was discussed. This study purposively examined extant literature on knowledge economies and the pillars that enabled and sustained them. The study uncovered that the African nation is currently behind in the rise to being a knowledge economy. The study also highlighted that economies that succeed as knowledge economies create knowledge, which is a product of tacit knowledge management. Innovation, ICT, skilled human capital and education were identified as pillars of knowledge

economies. This author found insufficient literature that clearly defines the tacit knowledge management status of African nations. The paper, therefore, looked at the influence of tacit knowledge on these pillars and discovered that tacit knowledge is indeed central to building knowledge economic pillars that will be dynamic and sustainable. Tacit knowledge sharing makes the difference between the traditional education system and the static curricula in learning institutions; tacit knowledge spurs innovation; tacit knowledge sharing empowers and improves the skills and capabilities of human capital for better performance. Hence, the study produced a strategic structure of tacit knowledge promoters that will aid the transition to the knowledge economy status for nations in Africa. It is hoped that the African nation will provide the suggested facilitating conditions in all sectors of the economy to implement the identified factors for a successful transition into the knowledge economy.

Education appears to be at the forefront of these enabling factors. Therefore, this study recommends expanding secondary and higher education to include vocational technology education and indigenous knowledge management. Education should be made more dynamic through the tacit knowledge sharing activities of professionals in the field. This, of course, may demand curriculum review in institutions of learning across Africa. While strongly advocating the continuity of indigenous languages, it is suggested that the use of the English language should not be neglected in learning institutions, as the study revealed that it is speedily becoming the *lingua franca* of the knowledge economy. It is also recommended that African nations invest in staff training and reskilling, which will impact staff members' innovative capabilities and motive tacit knowledge sharing. The study suggests that future studies explore the contextual implementation of each pillar of the knowledge economy in each African country, with the possibility of coming up with knowledge management systems that can be adopted for effective implementation.

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