1

Managing Knowledge and Innovation for Business Sustainability in Africa

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Today, more than ever before, the African continent is confronted with many challenges on its path to sustained growth and development. There is no denying the fact that Africa needs to substantially improve growth performance if it is to achieve the Millennium Development Goals (MDGs).

It is evident from various recent international reports that nearly all African countries' attempts to transform their economies during the past three decades have not delivered the desired outcomes when measured against the principal indices for sustainable development (Ahmed and Nwankwo 2013). Overall progress towards the attainment of the MDGs has been patchy and less than robust given Africa's peculiar and seemingly insurmountable environmental inhibitors, including very high transport costs, small markets, low agricultural productivity, very high disease incidences, environmental despoliation, adverse geopolitics and very slow diffusion of strategic technology from abroad.

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At the same time, there is no suggestion that Africa has cocooned itself away from the rest of the world. In fact, many countries have opened up their economies, implemented political and market reforms, and undertaken variants of structural reforms to foster and sustain market responsiveness with the concomitant goal of improving the overall well-being of their people.

Poverty remains amongst the most important challenges facing all African countries today due to the failure of macroeconomic policies, market imperfections and inequalities as well as the inability of African governments to enhance productivity. Knowledge, innovation and technological learning in building a knowledge-based economy in Africa are therefore of paramount importance for the continent's efforts to achieve sustainable development.

Due to inadequate knowledge absorption and innovation, technological development in Africa lags behind that in other regions. The majority of African countries are mired in the very early stages of their development. The African region is neither digitally nor politically well positioned to leverage factor endowments in financial and natural resources in a productive way that fosters the development of knowledge economies.

As a result, there is an urgent need for a public sector that is knowledgeable, efficient, empowered and committed; a private sector that is not only innovative and growth oriented, but also driven and competitive; civil society that is constructively responsive and capable of collaborating with both the public and private sectors with a view to achieving the MDGs; a political system that is responsive to its citizens and premised on good governance; and a socio-economic and geopolitical environment that is enabling and inclusive of all.

Moreover, a substantial amount of literature has been written about the role that science, technology and innovation (STI) plays in building an enabling environment to foster economic growth and promote the knowledge economy (see Ahmed 2005, 2012; Danofsky 2005; Hamel 2005; Mansell and When 1998).

A 'pure' knowledge economy generates creativity to produce new ideas instead of making use of existing knowledge. This creativity is innovation. Innovations contribute to knowledge creation and technological learning, which represent the core fundamentals of the knowledge economy.

The focus in national strategies should be on investment in research and development (R&D) and training to strengthen capacity for knowledge absorption and information dissemination.

Based on a synthesis of policy prescriptions for a renascent Africa, it has become clear that solutions to extreme poverty in Africa will have to come from Africans themselves. Africa is not in want of policy prescriptions; problems often arise from implementation failures. The point needs to be made, however, that Africa is not poor because the people are poor.

Over the years, contemporary works by thinkers such as P. T. Bauer and William Easterly (e.g., *From Subsistence to Exchange* and *The White Man's Burden*) have demonstrated that indigenous entrepreneurship provides a strong foundation for development. The logic is simple: Africans, through progressive indigenous efforts at social change, could bring about enterprise-led institutional change which, in turn, could foster the evolution of rules of social cooperation and thus realise the immense gains of trade through entrepreneurial activities (Boettke 2007).

The most profound and encouraging change in African economies over the past decade has been the rapid advancement towards integration into the global economy. Many of the countries have undertaken significant economic reforms: improving macroeconomic management, instigating a conducive private investment climate, liberalising markets and widening the space for entrepreneurship to drive strong and inclusive growth. Concurrent with institutional reforms are policies to improve the conditions for enterprise to thrive and provide a dynamic source of growth. By and large, African economies are opening up and beginning to respond to genuine market signals.

The purpose of this first book in the series is to address issues that will be central to Africa's various attempts to manage effectively knowledge and innovation for sustainable business management.

The book is also very timely with the recently launched *Science, Technology and Innovation Strategy for Africa 2024 (STISA-2024)* by the African Union (AU), emphasising the critical role of science, technology and innovation in Africa's socio-economic development and growth. Among the key pillars for the AU strategy are the promotion of entrepreneurship and innovation as well as providing an enabling environment for STI development in the African continent.

The theme—knowledge and innovation management for business sustainability in Africa—has been very carefully chosen. However, building on this discussion, a number of policy implications can be derived to improve the management of knowledge and innovation within Africa countries and consequently achieve sustainable development (SD).

This book also provides an opportunity to discuss and clarify how universities can contribute to the generation of wealth in Africa through the transfer of finalised knowledge and the creation of new firms, new industries and business opportunities. Moreover, the book presents a number of case studies relating to the expansion of networking and collaboration between education and research institutions, and between private and public entities, as well as the commercialisation of research and innovation outputs.

This book takes a holistic multidisciplinary and multisectoral approach to provide in-depth analysis and a state-of-the-art overview of the efforts made by different African countries to tackle various issues relating to knowledge and innovation management in Africa.

The results of many comprehensive research programmes undertaken in different countries in Africa and other parts of the world over the last few years are presented here. More than 27 chapters, covering a wide range of topics, were considered for possible inclusion in this volume of the series. The 12 chapters that appear here were chosen following a blind peer review process. The chapters cover a wide geographical area and were written by more than 20 renowned international experts from Africa and the rest of the world.

This volume comprises five sections:

Introduction (2 chapters)
Innovation and Entrepreneurship (3 chapters)
Education (2 chapters)
Capacity Building and Human Capital (2 chapters)
Investment (1 chapter)
Banking and Finance (2 chapters)

In Chap. 2, Kolo proposes some strategic initiatives for African governments, corporations, non-profits and citizens to take, in an effort to deploy innovation and knowledge to build the capacity of

entrepreneurs, thereby enabling them to produce goods and services that are profitable in the marketplace. Kolo argues that Africa's role and presence in the global creative economy are weak. Africa is in a race against time as the population explodes, driving rapid urbanisation and the growth of slums, and the need for schools and health centres places enormous pressure on the meagre resources of states. These issues are exacerbated by extraneous factors such as climate change, terrorism and global economic volatilities. Kolo's fascinating research should equip and enable entrepreneurs to produce goods and services for local and international markets. His proposed initiatives are simple, pragmatic, feasible, innovative and knowledge-based, and their adaptation could trigger the change needed to catapult African entrepreneurs into the global theatre of the creative economy.

Innovation and Entrepreneurship

Following on Kolo's research, Kamel's chapter (Chap. 3) describes the role of an innovative information and communication technology (ICT)-based entrepreneurial evolution in Africa's development, helping to realise business and socio-economic development based on different channels of information acquisition and knowledge creation and dissemination. This will in turn allow for the creation of a global information society with innovative means of communication that can help increase competitiveness for individuals, organisations and societies. Using the case of university-based incubators, Kamel addresses the developments taking place in Africa in the space of ICT with an emphasis on the evolution of the entrepreneurial ecosystem and its implications for business and socio-economic development. The chapter demonstrates how ICT, coupled with skilled human capital and timely infostructure, are vital to improving the balance in economic and social progress between nations, leveraging economic growth, boosting capacity to face societal challenges, enhancing the progress of democratic values, and augmenting cultural creativity, traditions and identities. Moreover, Kamel demonstrates the growing role of innovation and entrepreneurship and the emergence of start-ups that capitalise on ICT to help transform society, boost the private sector and improve standards of living across the continent.

Continuing on the theme of entrepreneurship in Africa, Raimi, Peluola and Shokunbi explore the prospects and challenges of managing clusters as entrepreneurship interventions for SD in Nigeria. According to Raimi et al., clusters development has the prospect of strengthening Nigeria's food industry, by making it strong enough to produce semi-finished and finished products. The food clusters afford interaction and collaboration among farmers, food processing companies and other stakeholders. However, the findings of Raimi et al. need to be strengthened with further quantitative and empirical research in Nigeria.

In most cases, failure is perceived as a disappointment and drags down the person experiencing this misfortune, but it is also possible for failure to be a blessing in disguise. Using the case of the founders of WhatsApp, Ndedi and Kingsley demonstrate how any failure may lead to innovation and success. In doing so, Ndedi and Kingsley undertake a thorough literature review focusing on the linkages between failure, success and innovation. According to Ndedi and Kingsley, success and innovation result from rapidly fixing mistakes rather than getting things right the first time.

Education

The next part of the book focuses on the important role of education in African sustainable business practices. Dafa'Alla, Hussein and Adam investigate the role of education in achieving SD and whether it can reasonably be expected to improve on Africa's state of underdevelopment. Using Sudan as a case study and building on their previous research, Dafa'Alla et al. assess the Sudanese education system's ability to meet the objectives of the national development plan of the country. Lessons learned are then generalised to the case of Africa, and recommendations for an 'Action Plan for Education in Africa' are made. They find that good-quality education and SD are synonymous. Education drives innovation, which in turn drives economic growth and SD, as has been clearly demonstrated in many emerging economies worldwide. Dafa'Alla et al. argue that weak education is the root cause of the underdevelopment of Africa, and that Africa must build an innovation-based economy.

Following on the same theme of education, Khalifa studies the use of mind mapping (MM) as an unconventional but valuable technique in knowledge retrieval and critical thinking in medical education and clinical problems. According to Khalifa, mind mapping is a visual technique that accelerates the learning process, inspires problem-solving and critical thinking, and supports effective teaching. However, there is a lack of significant previous research on using MM in medical institutions in Africa, and she argues that MM methodologies could be more widely implemented in most African medical institutes.

Capacity Building and Human Capital

The first chapter in this section investigates the difficulties faced by many African countries in building innovation systems in their countries. Djeflat argues that amongst the components of innovation dynamics, the issue of design and engineering (D&E) is drawing more and more attention from international organisations and a growing corpus of researchers, both in the North and in the South. Yet, D&E raises various questions related to the concepts, the tools and the instruments it uses, but more profoundly and in particular, its links with R&D and innovation. It also raises questions regarding the policies needed to build D&E capabilities. Finally, it raises questions with regards to the practices of D&E and interactive learning at the enterprise level. To assess the real situation, Djeflat examined a small sample of 20 Algerian firms (small and big enterprises), both in the public and the private sector, from 11 different industries. According to Djeflat, D&E is a neglected function throughout the North African region, and this explains why local industry is still highly dependent on external sources for technical change and innovation. This is due to a host of factors, namely the low level of policy awareness, weak linkages with the training system, out-of-date syllabuses, and little practice of reverse engineering.

The next chapter, by Elish and El Shamy, investigates the relationship between labour productivity, human capital and international R&D spillover during the period 1982–2011 in Egypt. Elish and El Shamy estimate a single equation model which employs long-run cointegration

analysis and short-run analysis (ECM) using annual data collected from the World Bank and the Ministry of Planning in Egypt and the OECD database. The results show a conventional result for international R&D and human capital. Elish and El Shamy's study stresses that human capital's absorptive capacity, enhanced by high-quality education, intensifies the positive effect of R&D spillover on labour productivity.

Investment

In sub-Saharan Africa (SSA), the performance of foreign direct investment (FDI) differs considerably between Zimbabwe and its neighbouring countries. Gutu, Anastasiadou, Omar and Osei examine FDI determinants for SSA with particular emphasis on the comparison between Zimbabwe and Botswana. Using secondary data analysis, their study examines why Botswana was attracting more FDI than Zimbabwe in the period 2002–2012. According to the study, Botswana is attractive due to the stability of the political and legal environments, high human capital and governance that promotes technological adoption. In contrast, Zimbabwe's political instability and the government's unwillingness to address the challenges the country is facing impedes FDI attraction and retention. Gutu et al.'s research is very useful for policymakers as they plan and implement policies, and for foreign investors for understanding how different determinants impact on location attractiveness.

Banking and Finance

In the final part of the book we examine the financial and banking sector in Africa and its impact on sustainable business practices in Africa. The banking industry is a major driver of economic development for world economies. By offering different types of services, such as facilitating money transfers between countries and ensuring that savers and

borrowers are brought together in well-organised structures, the industry determines countries' economic development and long-term sustainability. According to Muriithi and Louw, the Kenyan banking industry is considered to be the most mature, fastest-growing and largest in East Africa, thereby making it the regional financial leader. The industry has, however, been a victim of both global and domestic financial challenges. Between 1980 and 2000, the country's financial industry was characterised by major financial upheavals that led to the collapse of many banks, while others were in and out of receivership. Muriithi and Louw explore the importance of enhancing and strengthening the Kenyan banking internal control mechanisms and developing sustainability strategies, focusing on business practices and product development geared towards healthy economic, social and environmental activities.

In the final chapter of the book, Ndedi assesses the importance of the Douala Stock Exchange (DSX) in Cameroon. Ndedi argues that without financial markets, borrowers would have difficulty finding lenders, and that these structures are seen as platforms for the economic prosperity of nations, especially in Africa. Accordingly, the future development of the DSX will occur when market players are able to reach mutually acceptable compromises regarding the terms of financial transactions. Ndedi develops an appropriate strategy for sequencing the development of the DSX by arguing that instruments that require simpler and more easily verifiable compromises must be launched in the first place at the DSX. The chapter also shows that the path of development will depend on economic, legal, political, institutional and cultural factors—the framework that prompts policymakers to ask the right questions in diagnosing the deficiencies and hurdles. Finally, Ndedi provides guidance for designing suitable policies for the development and functioning of the DSX that will contribute to the emergence of Cameroon by 2035.

Finally, this book is intended as a first step in paving the way towards further reflection on the future position and role of Africa in the world, and we hope it will be utilised as a guide by policymakers and senior managers to enhance their ability to think strategically towards achieving SD.

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