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Drawing Lessons from Case Studies of African Innovation: Review of *Innovation Africa* (Adesida, Karuri-Sebina & Resende-Santos, 2016)

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Olugbenga Adesida, Geci Karuri-Sebina and Joao Resende-Santos (Editors), Innovation Africa: Emerging Hubs of Excellence. *Bingley, UK: Emerald, 2016, 352 pages, £29.95 (hardcover), ISBN Print: 9781785603112.*

This book covers eight case studies of innovation in various parts of Africa. These diverse cases cover innovation in several key sectors, across services, manufacturing, and agriculture, and spanning the private and public sectors. The cases include innovation hubs in Southern Africa, electronic government in Cabo Verde, mobile technology innovation in Kenya, Nollywood (the movie industry) in Nigeria, processing of agricultural products in Egypt, the sugar cane and tea subsectors in Kenya, the steel sector in Algeria and a large industrial cluster in Ghana.

Each case study is self-contained, with its conceptualisation of the national innovation system (NIS), its experience, and its lessons. The editors and authors ask how all these cases can scale up innovation for Africa.

This review does not attempt to cover all the cases, but rather uses selected cases to generalise lessons and insights about innovation in Africa, and to contrast these with the aims, frameworks, and recommendations of the authors.

The book opens with ambitious aims and aspirations. A new Africa is emerging.

Africa needs transformative development. It needs to own its own narrative of the future. A starting point is to promote an Africa-wide dialogue on innovation and structural transformation. In the opening chapter, the editors state their aim to make innovation a key element of the African development agenda and to promote evidence-based policy-making on innovation. They do not confine innovation to the "high end" (à la Silicon Valley), but extend it to the "low end", to cover inclusive and social innovation, capitalise on locally available and sustainable inputs, and solve everyday problems such as the need for clean water, efficient stoves, etc. They call for a policy focus by all stakeholders at country level, plus a regional pan-African focus, on building national ecosystems for innovation. The authors acknowledge that the book is a first-cut enquiry, a voyage of exploration, towards a systematic approach to support innovation-driven development for Africa.

The case of innovation hubs in Southern Africa is actually multiple cases of diverse hubs in several countries, ranging from traditional science parks, to activity-based innovation centres, to co-creation hubs. These hubs aim to provide an intermediary to link research to industry and other stakeholders.

Science parks require massive investments in infrastructure. Activity-based innovation centres are less capital- and infrastructure-intensive and more focused on directed, value-added activities. Co-creation hubs, a third generation of innovation centres, rely on building the soft enablers and practices of innovation: networking and collaboration among a broad range of stakeholders, open innovation, crowdsourcing, user- and community-driven innovation, and building on what already exists locally.

This particular case of innovation hubs is the most extensive in its coverage and lessons. The hubs' success often depends on having a committed research-based university as a base. Quality of physical and virtual infrastructures remains important, but the risk of over-reliance on a "build and they will come" dynamic is prominent in Africa. Critical success factors include having entrepreneurial communities, educational systems that encourage entrepreneurship, R&D that is aligned with local needs, supportive policies, and entrepreneur support networks.

Activity-based and co-creation models are organised around demand-driven design of activities, so knowledge generated is relevant to, and built around, local needs. These models depend on collaboration, trust, and communication. Critical success factors at contextual and strategic levels include promoting entrepreneurship at the national level, providing policy and strategy support to the hub, building governance and advisory structures involving key stakeholders, pursing partnerships, taking a long-term view of sustainability, providing stable leadership, communicating and seeking feedback from tenants, and piloting and phasing. The authors draw many operational lessons of particular value for African policymakers, financiers, and hub managers.

This rich case, and others that follow, suggest that innovation hubs are key intermediaries to synergise otherwise fragmented national innovation systems. When appropriately designed and led, they can facilitate collaboration at the local and regional levels, and attract talent and foreign and local investors with innovation focus.

A very different and interesting case is the electronic government of Cabo Verde. While many technological and business-model innovations are driven by the private sector, and for the benefit of firms and their clients, innovation can (and should) also happen in the public sector, for the benefit of society at large. This case shows how electronic government has revolutionised public financial management and provided the backbone for an electronic governance infrastructure for Cabo Verde. Again the NIS framework is used to conceptualise the interactions between the university (knowledge infrastructure), public institutions (policy, governance, politics), and private sector (production). The study points to the critical role of institutional innovation (creation of an autonomous professional national ICT agency), and of mobilising the substantial knowledge of the diaspora. The case suggests the potential use of the public sector to promote innovation, as a major consumer of innovation and a demonstrator of the power of digital transformation. But the case also illustrates the limits of this innovation in respect of spillover to the private sector, mainly due to the lack of collaboration among players in the NIS, and absence of a national innovation and ICT policy.

A third case that illuminates the workings of the innovation ecosystem (NIS) in Africa is the famed mobile technology of Kenya. It is a product of the local software developer community, telecom reforms and competition, the widespread adoption of mobile phones, and other enabling policies. It is also a product of business entrepreneurship, with mobile operator Safaricom creating and using the M-Pesa mobile money application as a platform for other companies to build value-added services, and closely interacting with its clients, pursuing innovative marketing, and continuously innovating its services. The case suggests several critical success factors that are of special relevance to innovation systems in the services sector: nurturing the developer (app) community for mobile, building public-private partnership with the ICT sector regulator, promoting local content development via a special fund, holding innovation (app) competitions, engaging the academic community, attracting R&D funding from multinationals for universities and pursuing universal connectivity. The absence of risk capital remains a key constraint to further scaling-up and sustainability of this innovation ecosystem.

The book shows that innovation is taking place in Africa. The above cases and the rest that are elaborated in the book bring the NIS framework alive. They show how this framework works in practice in diverse sectors, countries, and contexts. Yet, most of the cases are at early stages of developing a sustainable and scalable NIS.

They have yet to overcome significant constraints and be formally evaluated for their developmental impact.

The editors draw several lessons and recommendations. Most cases suggest important roles for government in setting enabling policies, rule of law, infrastructure, human resources, finance mechanisms for R&D, public procurement, and promotion of interactions among players in the NIS. And, at times, the public sector can lead innovation, as in the digital government of Cabo Verde.

The book's contributions make the case for an activist and smart government in building the NIS. In addition, the contributions generate a call for innovation policy to recognise the duality of Africa's NIS, to promote global competitiveness, and to address basic needs and solve everyday problems like money transfer, and clean energy and water. Third, the authors posit the need for a shared vision to mobilise all actors for a common future, and for actualisation of this vision through strategy, policy frameworks, and action plans. The authors suggest the need for more of a top-down direction, via public leadership, to overcome constraints and secure policy consistency over time. They argue, for instance, for import substitution strategies to stimulate indigenous innovation, as in the Cabo Verde and Algerian cases, and as has occurred in more advanced countries. Finally, they recommend the development of supporting institutions, with the means to carry out their mandates: to lead, catalyse, coordinate, incubate.

The book is not without its shortcomings. Its second chapter's heading is "Towards a unified theory of pan-African innovation systems and integrated development", an ambitious and unnecessary hill to climb. It posits "an alternative to all existing development approaches" to address the challenges of Africa, escape the raw material resource trap, promote green industrialisation, harness indigenous knowledge, and respond to local context and needs. It calls for rethinking both innovation and development theories.

While agreeing on the need for a context-sensitive framework, the reviewer finds this call for substantial reinvention of the NIS framework for Africa unconvincing. The authors of the cases cited above from the book have used the same NIS framework, or a slightly adapted version of it, and applied it to the context at hand. Many other countries also started with similar constraints as those faced by African countries, and learned to innovate by addressing the key components of their NIS and the interactions among them.

The challenge for Africa is to deepen and accelerate such learning, with increasing sensitivities to local realities and local stakeholders. There is more value to gain from working with this relatively universal framework and focusing on the most significant interactions within the system, aligning it with national development

priorities, piloting new institutional models for collaboration, measuring the impact of alternatives, and asking hard questions about the roles of government, universities, finance, communities, and other stakeholders.

Also, the editors tend to put too much faith in government as activist and leader of the NIS, and insufficient emphasis on the market, including small and innovative enterprises. This may be partly justified as a reaction to the neoclassical economic thinking (prevalent among the World Bank and other aid agencies), which emphasised government failures and neglected the need to nurture innovation in the context of a relatively weak private sector, and fragmented NIS.

Recent research supports a more proactive and diversified role for government, even among the most advanced countries like the US (Mazzucato, 2013; Stiglitz & Greenwold, 2014). But the book's case studies also point to severe limitations among government institutions, the risks of crowding out the private sector and the need for governments to learn before taking big leaps with major risks. In this context, the recommendation of relying on an import substitution strategy for Africa to secure demand for innovation could be risky and wasteful. It may be prudent to limit the government role here to creating the enabling environment, fostering entrepreneurial education, facilitating the functioning of the NIS and focusing government interventions on a few priority needs and local challenges, where market failures are prevalent and mission-oriented innovation can support inclusive and sustainable development.

One final limitation is the notion of high-end vs. low-end innovation, with high-end innovation associated with digital technologies à la Silicon Valley, and the low end associated with basic needs like clean water and other everyday needs. General purpose technologies (GPTs), such as the Internet and mobile, span both ends of innovation, and can be conducive to inclusive and social innovation, as well as innovation for competitiveness in industry and services. Perhaps a better differentiation is between incremental and breakthrough (R&D-intensive) innovations, with the former often more relevant for technology adopters in developing countries.

Future research on innovation in Africa can also benefit from an additional and complementary perspective: the role of digital technology (as a GPT) in inducing a technological revolution that impacts most sectors of the economy and demands profound social and institutional changes (Perez, 2010). This could be achieved by adjusting the social and institutional environment to take advantage of the ongoing digital technology revolution and its associated techno-economic paradigm involves disruptive innovation, the destruction of legacy systems and processes, and the invention of new practices and business models (Hanna, 2016).

The digital revolution is also transforming the very process of innovation, the

formation of innovation clusters and the workings of the NIS, by providing new tools for research, interaction, and collaboration, such as digital networking, open innovation, co-creation, crowdsourcing, simulation, big data, analytics, artificial intelligence, and the Internet of Things.

This is a pioneering book that should fill a significant gap in the literature on innovation in Africa and other developing and low-income countries. It sheds light, and lays out an agenda for research, on a poorly-understood and under-researched but increasingly important topic central to transformation of Africa's economies. It should be of interest to scholars, policymakers, development professionals, business leaders, and international financing institutions.

References

Hanna, N. K. (2016). *Mastering digital transformation: Towards a smarter society, economy, city and nation.* Bingley, UK: Emerald.

Mazzucato, M. (2013). *The entrepreneurial state*. New York: Anthem Press.

Perez, C. (2010). Technological revolutions and techno-economic paradigms. *Cambridge Journal of Economics*, *34*, 185-202.

Stiglitz, J., & Greenwold, B. (2014). *Creating a learning society.* New York: Columbia University Press.