Global Scientific JOURNALS
GSJ: Volume 11, Issue 11, November 2023, Online: ISSN 2320-9186
www.globalscientificjournal.com

National Innovation Strategy: ICT Adoption Collaborative roles of Private sector and Government in Kenya and Uganda

Deborah Mbula
Department of Information Technology, KCA University, Kenya
Email: debbiembula@gmail.com

Second Author Name
Department of Information Technology, KCA University, Kenya
Email: nnnnn.ac.ke

Abstract: *In recent decades, African countries have re-embraced higher education as a key instrument for national and regional development in a knowledge-based economic world order. The main objective of this paper was to investigate whether collaborative innovation is a suitable form of innovation in the public and private sector and analyze whether there is generally a need for a new form of roles of collaborative innovation. Collaboration in Kenya and Uganda public and private actors creates better and more effective. In order to solve these issues government and private sectors in Kenya and Uganda need to develop the capacity to make the trade off between authority and innovation assets and establish a system of reciprocal accountability*

Keyword: *Innovation, Collaboration, International Knowledge Flows, Clusters*

1. INTRODUCTION

There are different definitions of innovation, but the most common is that it represents 'the implementation of a new or significantly improved product (good or service), a new process, a new marketing method, or a new organizational method in business practices, workplace organization, or external relations [1].

The emergence of the idea of knowledge economies over the last two decades represents a profound paradigmatic shift worldwide with respect to the organization of national economic and production systems as well as the reconfiguration of the role of national education and training systems (OECD 1996).

In recent decades, African countries have re-embraced higher education as a key instrument for national and regional development in a knowledge-based economic world order (Bailey et al 2012). A distinctive and growing emphasis on knowledge production, scientific innovation, and closer convergence between research and sustainable development has been observed across many African countries[2]

The case studies of innovation strategies in Kenya and Uganda show that recent development policy frameworks and program initiatives in the two countries demonstrate a clear focus on the interconnectedness between STI (science technology, and innovation) and development planning. However, the level of coherence within and among the existing policies, programs, and institutions still remains relatively weak. Policymakers require greater awareness and capacity building to ensure that national STI policies and programs capture the national development priorities and are internally and externally consistent in order to promote policy complementarily, coherence, and effectiveness [3] .

Kenya and Uganda demonstrate impressive but varying levels of sophistication with respect to recent policy frameworks and governance arrangements for the management of their national research and innovation systems. Kenya represents a more elaborate and dynamic governance landscapes than Uganda; but all the countries clearly demonstrate an unmistakable emphasis on developing more effective national institutional arrangements and policies to promote research governance and nurture knowledge economies. The key and most persistent weakness is the lack of national and institutional policies and programs that stimulate collaboration and knowledge exchange between research subsystems and the industrial and business subsystems [3].

2. LITERATURE REVIEW

Studies of national innovation systems to date reveal that the public research sector may be more important as an indirect source of knowledge than as a direct source of scientific or technical discovery. This tends to vary by sector and is less true for science-based industries and sectors such as construction and energy, where there may be direct flows from scientific discovery to technological development.

However, for the most part, direct linkages are limited due to time-lags between basic research and innovation, the considerable adaptation efforts required on the part of industry and the multiple sources of technological innovation [4].

2.1 Related Work

Collaborative innovation opens the innovation cycle to a diversity of actors across hierarchies and organizational boundaries (Nambisan, 2008; Eggers and Kumar Singh, 2009; and Harris and Albury, 2009). According to proposals for collaborative innovation government should tap into the vast innovation assets inside and outside of the organization, but also leverage internal innovation assets externally. By opening the innovation cycle and allowing the flow of innovation assets across internal and external boundaries, collaborative innovation meets the first criterion. Consequently, the opening of the innovation process.

A number of theoretical studies introduced the term “collaborative public sector innovation” (Hartley et al., 2013; Sørensen & Torfing, 2017). Together they suggest that collaboration with other public sector organizations, businesses, universities and citizens increasingly forms the main driver of PSI. Recent empirical studies examined the role of collaboration as an independent variable on innovation outcomes and pointed a positive relationship (e.g., Clausen et al., 2020). However, detailed empirically derived understanding of the nature of collaboration is lacking.

Motivating factors for innovation in the private and public sectors may differ between individuals and within the business or organisations as a whole, but many individual factors are also relevant for businesses and organisations alike. For example, individuals in the public sector might be motivated to innovate by career considerations, idealism, professional recognition, power, self-fulfillment and money, while innovation motivators for public sector organisations include the propagation of a policy, idea or rationale, increased funding, problem-solving, an increase in staff, and public relations [5].

Despite the existence of both public and private capital markets in Uganda, SMEs are yet to actively participate in these markets. Is it because there are better financing options than the capital markets in Uganda, such as retained earnings and banking finance as clearly depicted in the statistics, or the capital markets are a viable option but they are still underdeveloped and the SMEs are not attractive to would be investors? Certainly bank financing and Internal financing are not sustainable, especially if SMEs are aiming at growing and expanding their markets [6].

Knowledge flows between the public and private sectors can be measured in a variety of ways, but there are four main techniques that have been used in national innovation surveys [7]:

i. Joint research activities – Using the most accessible measure, the number of joint research and technical activities between firms and universities/research institutes can be counted using data published by government funding agencies, universities and other sources. This includes both contract research and financing of university staff to conduct research. As studies of the innovation system in the Netherlands have shown, income from industry contract research at Dutch universities almost doubled in the period 1989-92, indicating the growing level of industry-universities,
ii. citation analysis – Since it is the practice of users of technical knowledge and ideas to cite their sources, citation analysis can used be to assess the degree to which enterprises draw upon the information contained in either the patents or publications of universities and research institutes. Studies of the United States, for example, show that sectors such as biology, biotechnology and physics rely more heavily on university patents than other industries.
iii. Firm surveys – Surveys of firms reveal the extent to which they consider universities and public research institutes as sources of knowledge useful in their innovative activities. These surveys also capture more informal networking between industry and the public research sector. As would be expected, such surveys reveal that the utility of public knowledge differs greatly by industrial sector. In Europe, the industries ranking public research institutes as important included more science-based sectors such as utilities, pharmaceuticals and aerospace.
iv. Co-patents and co-publications – The number of co-patents or co-publications developed by enterprises in collaboration with a university or research institute can be compiled by analyzing patent records and publication indices. Computer technology makes it possible to scan published patents and science-based articles to gain an idea of the collaboration between firms and public entities by technical field and over time. For example, analysis of publications of researchers from major science-based companies in the United Kingdom revealed that a large part (a quarter to a third) of these papers were written in

collaboration with a university or other publicly funded research institution (Hicks et al., 1993).

2.1.1 Justification

To determine the contribution that innovation makes, we need to know how successful an innovation system is. An innovation system consists of the participants and their activities and interactions, as well as the socio- economic environment within which these actors or participants function – these factors determine the innovative. performance of the system.

The measurement of the performance of an innovation system influences the policy decisions that are taken to improve the system. Because there is no single accepted definition of innovation, this makes the identification of an innovation difficult. The focus is usually on companies as the only institutions in which innovation takes place – in a way, this means that the public sector is overlooked [8].

In studies of national innovation systems, Kenya and Uganda have used different approaches to identifying clusters of industries. For the most part, they group sectors according to the intersectoral intensity of different types of knowledge flows, including: embodied technology flows (The purchase of products and intermediate goods from other sectors) and producer-user interactions,

3. METHODOLGY.

3.1 International Knowledge Flows

While the national level remains the most important for conceptualizing innovation systems due to the importance of country-specific interactions in creating a climate for innovation, the role of international knowledge flows must also be acknowledged. Globalization of industry and internationalization of production, research and other firm activities mean that knowledge flows are growing worldwide.

There is an increased openness of national innovation systems with regard to many forms of knowledge flows, including technology acquired from abroad in capital and intermediate goods, purchases of foreign patents and licenses, technical alliances between firms of different countries, trade in services such as technical consultancies, foreign direct investment and internationally co-authored publications. Despite these growing international linkages, however, innovative capacity still seems to be primarily determined at the national level with subnational systems playing a contributing role.

3.2 Innovation Surveys

A more comprehensive approach to mapping national innovation systems is contained in firm-level innovation surveys, which question firms on their sources of knowledge relevant to innovation. These surveys also gather data on firm R&D expenditures and other innovation inputs as well as R&D-related performance and other innovation outputs.

From the national innovation systems perspective, they are the most broad-based source of information on the general patterns of technological collaboration and information use of firms.

These data provide a rich source of qualitative information about the interactions of various actors in innovation systems from the firm perspective, including inter-industry activities, alliances with the public sector and personnel.

3.3 Cluster Interactions

Kenya and Uganda are increasingly using a "cluster approach" to analyzing knowledge flows in national innovation systems in recognition of the close interaction between certain types of firms and industries. These interactions may evolve around key technologies, shared knowledge or skills or producer- supplier relationships.

Nations, whatever their overall level of innovative performance, do not usually succeed across the whole range of industries, but "in clusters of industries connected through vertical and horizontal relationships" (Porter, 1990). According to the "diamond scheme", clusters of related and supporting industries can be created through demand patterns for products, rivalry among firms as well as specialized factors or inputs such as skilled personnel or natural resources (see Figure 9). Patterns of knowledge flows can differ markedly from cluster to cluster and also within countries specialized.

According to the best-known taxonomy of innovating firms, clusters can be categorized as: supplier, science-based; scale-intensive; dominated; or specialized suppliers (Pavitt, 1984). Each type has its own characteristics as regards predominant forms of knowledge flows. For the science-based clusters (e.g., pharmaceuticals, aerospace), direct access to basic research and to public research institutes and universities is important to complement their own research activities.

These sectors are highly R&D- and patent-intensive and tend to exhibit closer collaboration with the public research sector . Scale-intensive clusters (e.g., food-processing, vehicles) tend to establish links with technical institutes and universities without performing much research on their own; their innovative performance depends on their ability to import and build upon science developed elsewhere, particularly with regard to process improvements. Supplier-dominated.

Supplier-dominated clusters (e.g., forestry, services) tend to import technology mainly in the form of capital goods and intermediary products; their innovative performance is largely determined by their ability to interact with their suppliers as well as extension services. Specialized supplier clusters (e.g. computer hardware and software) are R&D intensive and emphasize product innovations, generally working closely with each other, customers and users.

4. CONCLUSION

Public sector innovation is, in some respects, comparable to private sector innovation; in other respects, it is almost identical to it. There are commonalities, differences and synergies between private and public sector innovation. However, public sector decision-making processes can appear obstructive, risk-averse and time-consuming in comparison with private sector. This is the case in particular with policy innovation, where governments must bear responsibilities that greatly outweigh those borne by the private sector (Karlsson & Tavassoli, 2016).

When considering how to innovate effectively, it is important to pay attention to where, when and how the public sector might best engage the private sector in order to make use of its particular skills and expertise (Innovation in the public sector: Enabling Better Performance, Driving New Directions, 2009, p. 3).

Collaboration in Kenya and Uganda public and private actors creates better and more effective public and private services and products. Collaboration enables the participating actors to exchange and share knowledge, experiences, know-how and expertise. It helps to bring a broader set of skills and talents, and a more responsive work culture, into public sector organisations, along with innovative thinking and creativity; it can also help private companies to innovate more effectively, as they bring together new financial resources and business capital and also help to facilitate innovation in increasingly competitive environments (Bommert, 2010).

.

5. Areas for Future Research

Public sector innovation is, in some respects, comparable to private sector innovation; in other respects, it is almost identical to it. There are commonalities, differences and synergies between private and public sector innovation. However, public sector decision-making processes can appear obstructive, risk-averse and time-consuming in comparison with private sector. This is the case in particular with policy innovation, where governments must bear responsibilities that greatly outweigh those borne by the private sector [9].

When considering how to innovate effectively, it is important to pay attention to where, when and how the public sector might best engage the private sector in order to make use of its particular skills and expertise (Innovation in the public sector: Enabling Better Performance, Driving New Directions, 2009, p. 3).

Collaboration in Kenya and Uganda public and private actors creates better and more effective public and private services and products. Collaboration enables the participating actors to exchange and share knowledge, experiences, know-how and expertise. It helps to bring a broader set of skills and talents, and a more responsive work culture, into public sector organization’s, along with innovative thinking and creativity; it can also help private companies to innovate more effectively, as they bring together new financial resources and business capital and also help to facilitate innovation in increasingly competitive environments [10].

REFERENCES

[1] C. Holloway *et al.*, “A review of innovation strategies and processes to improve access to AT: Looking ahead to open innovation ecosystems,” *Assist. Technol.*, vol. 33, no. sup1, pp. 68–86, 2021, doi: 10.1080/10400435.2021.1970653.

[2] J. O. Jowi and M. Obamba, “Research and Innovation Management: Comparative Analysis of Ghana, Kenya, Uganda,” *Program. Innov. High. Educ. Res. Dev.*, 2013, [Online]. Available: http://www.oecd.org/sti/Session 3_Advanced draft not copyedited_Research and Innovation Management Comparative Analysis.pdf.

[3] D. Touche and T. Llc, “Survey on Open Innovation through Utilizing Disruptive Digital Technologies in Africa Final Report February 2021 Japan International Cooperation Agency,” 2021.

[4] C. Karlsson and S. Tavassoli, “Innovation Strategies and Firm Performance,” *Work. Pap. Ser. Econ. Institutions Innov.*, no. 401, pp. 1–32, 2015.

[5] S. S. Cankar and V. Petkovšek, “The Importance Of Cross-Sector Collaboration,” *J. Appl. Bus. Res.*, vol. 29, no. 6, pp. 1597–1607, 2013.

[6] O. Mulumba, A. A. Kinengyere, N. O. Rugambwa, and I. Okullo, “Analysis of the National Innovation System in Uganda African Higher Education Leadership in Advancing Analysis of the National Innovation System in Uganda Makerere University , Lira University , Kyambogo University,” no. January, 2017.

[7] R. Makoo, “INTERNATIONAL JOURNALS OF ACADEMICS & RESEARCH (IJARKE Business & Management Journal) Determinants of Strategic Innovation Implementation in the Banking Sector : A Survey of Commercial Banks in North Rift Region,” vol. 1, no. 1, pp. 306–314, 2018.

[8] F. Gault, “Innovation Strategies for a Global Economy,” *Innov. Strateg. a Glob. Econ.*, pp. 0–17, 2013, doi: 10.4337/9781849806725.

[9] C. Karlsson and S. Tavassoli, “Innovation strategies of firms: What strategies and why?,” *J. Technol. Transf.*, vol. 41, no. 6, pp. 1483–1506, 2016, doi: 10.1007/s10961-015-9453-4.

[10] B. Bommert, “The international public management review IPMR : the e-journal of the IPMN.,” *Int. Public Manag. Rev.*, vol. 11, no. 1, pp. 15–33, 2010.

Authors Biography (Mandatory)

Debbie Mbula

Wilson Cheruyoit

Cite this paper:

Author 1, Author 2, “Paper Format for International Journal of Advances in Computer and Electronics Engineering”, International Journal of Advances in Computer and Electronics Engineering, Vol. xx, No. xx, pp. xx-xx, June 2017.