

The Need for a Triple Helix Strategy for Africa

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Introduction

Knowledge is a decisive factor in the economic development of nations; its creation and exploitation require a certain level of dynamism in the knowledge environment. Consequently, the interaction between the various ecosystem stakeholders is a must. Multiple models would guarantee such chemistry between the ecosystem's actors, and university-industry linkages are well-documented frameworks that represent this dynamism between two of the main actors of the knowledge production system. It is a win-win model through various forms and practices. Both parties benefit from outcomes that can be broader than the predefined goals, which could have a tremendous positive impact on the innovation system and economic development.

The literature is growing rich, and the model is getting more attention from researchers worldwide. However, the field still lacks works concerning African countries—the context matters in studying such a phenomenon. Several factors could influence the model, such as technological developments, institutional environments, policies, cooperation patterns, entrepreneurship ecosystems, etc. Thus, the less-developed countries are dominant in the African continent. These elements have different realities than developed countries in the literature, making understanding challenging.

Most African economies rely on natural resources and activities requiring less knowledge creation. Since knowledge creation is not crucial for such an economy, the lack of dynamism and synergy manifest, as well as other issues such as the struggle of universities with funding decline, the overload of work, the increased brain-draining, the deterioration of the service conditions and quality of education and research and much more. Those factors would influence the relationships between the ecosystem actors, and scholars must consider such impact for a better understanding.

In our attempt to understand, we investigated the phenomenon in our previous study (What Do We Know About University-Industry linkages in Africa? - Outamha and Belhcen 2018) to draw a first picture of the relationship between academia and industry in Africa. We shed light on the converging realities between the African countries and conclude with research tracks for future studies. The most striking fact we discovered is the disconnection between the two sides, and considering the necessity of the link, significant action must be taken. We should ask: Can we rely on African academia and industry initiatives to connect? Or do governments need to engage and establish links between the two worlds using the Triple Helix model? The conclusions of our previous study (Outamha & Belhcen, 2018) might help answer these questions.

To what degree is the university and industry disconnected in Africa?

Through the exploring process of the literature, papers generally study challenges and drivers to establish university-industry linkages in African countries. The words (barriers, fail, weak, lack, absence, and more) are frequently repeated in most African literature (Outamha & Belhcen, 2018). The disconnection between the two worlds is the ordinary reality in Africa, and it is due to several factors related to each actor (see table 1).

At the university level, contributing to economic and social development as the third mission to become entrepreneurial (Etzkowitz, 1998) and strategically connect with the industry to meet their needs is far from a priority in the African context for two main reasons. First, it is challenging for African universities to fulfill the first and second missions, namely research and teaching, since they

suffer from structural issues such as answering the need for human capital, meeting global trends, lack of collaborators, leadership issues, and others. Second, African universities still depend on the Ministry of Higher Education for their programs, resources, and learning goals in a highly bureaucratic and hostile way. Consequently, they are not proactive (Outamha & Belhcen, 2018).

On the industry side, the nature of the economic activity is one of the major concerns. It is dominated by services, mining, and agriculture, with a significant share of extractive industries. The lack of diversification might limit the options for potential collaborations with academia. Another point highlighted is how African firms consume technology, rarely produce it and barely develop new practices.

On the government side, the main issue is that most Industrial policies in Africa address innovation, technology, finance, strategy, and growth outside the system. Their approach is individualistic and works on each component without considering interactions and linkages, making it difficult for organizations to understand the environment and operate systematically with all actors.

Table 1: Interesting Points (Outamha and Belhcen 2018)

Authors	Country	Interesting Points
Adoeti et al. (2009)	Nigeria	Science and technology focus on supplying irrelevant knowledge for the expected user, due to the lack of interactions between different stakeholders.
Attia (2015)	Egypt	The Egyptian environment suffers from orientation-related barriers because the university is extremely oriented to pure science as well as there is a lack of understanding of work practices, and transaction-related barriers since most of (the)public universities do not have a liaison office and the system is too rigid.
Etzkowitz and Dzisah (2007)	Africa	Africa is lacking knowledge-based industries and university government interactions is needed to jump-start the creation of an economical model that support knowledge. One of the important statements made by the authors is the need to redefine the mission of universities in Africa. A mission that must include economic development.
Juvane et al. 2016	Mozambique	In terms of obstacles that prevent industry to collaborate with university, authors found financial constraints, excessive bureaucracy, lack of leadership will and support and lack of IT skills and qualified staff at universities
Kruss (2017)	South Africa	The analysis shows the patterns of interaction in an emerging economy with immature system of innovation, distinguished by a hierarchical, segmented higher education system that restricts knowledge flows and mobility. The incentives that drive South African academics and block university-industry interaction are strongly related to their differentiated nature as organisations controlled by reputation.

As we can see, each actor is disconnected from the others and operates in its sphere. This configuration is unorganized, unstructured, and inhomogeneous, creating a separation of domains that limits the potential to generate synergy and could be one of the reasons why African economies do not perform better.

Why is a Triple Helix Strategy Necessary?

Waiting for the two parties to take the initiative and join forces might take a considerable time, which African countries cannot afford during this age of rapid change in every domain. Thus, how could the two parties connect? The answer could be found in the triple helix of the university-industry-government relationship. The government plays the role of coordinator. Waiting until one actor takes the initiative to join the other would take time the African economy cannot afford anymore.

The Triple Helix model could be considered a collective entrepreneur, principal-agent, facilitator, and enabler of knowledge creation, technology transfer, and enterprise formation (Leydesdorff, 2005; Bresnitz & Etzkowitz, 2016). A strategy that aims to establish such a configuration could help jump-start the integration of Africa in the knowledge era. However, forming a Triple Helix strategic plan requires expertise. Understanding the model is not difficult. However, its implementation would not be easy. Think of a context where the relationships between the main actors are limited or even lost. In this case, reassembling the three actors would be difficult since the African university is too academically oriented, the industry is weak, and the governments are too bureaucratic. Consequently, it is naive to expect an easy line-up of each actor's role within the Triple Helix model. African countries have to change their paradigm regarding institutional leadership, remove barriers, and foster drivers to accelerate university-industry collaboration (Outamha & Belhacen, 2018); all actors need awakening and determination.

To conclude, the answer to the first question seems to lean towards using the triple helix model. Suppose it was not for the encouragement of universities to expand their activities from purely academic to more economical. In that case, the scientific research could have stayed pure academic without impacting society. This impact could only be attainable by becoming more entrepreneurial and engaging with the industry. There are multiple cases of successful university-industry partnerships worth studying to discover specificities in the African context; however, it is not enough, and there is a need for a strategy to fertilize such collaborative practices. Consequently, African governments must implement strategies involving the three actors to speed up the process and create a synergetic force of economic and entrepreneurial growth. The question is, to what extent are African governments knowledgeable of the triple helix model?

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