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Short Commentary

Innovate or Die Lessons for Sub-saharan African Economies

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Abstract

The widening gap in innovations among nations has received a lot of attention. In what follows, leading innovating economies have challenged themselves to do, but what remains of the laggards is still worth discussing. As a result, this study used articles from high-ranking journals in Scopus and Scimago; and used key terms to ascertain articles via Google Scholar. As found in this study, innovation is the key driver of recent developments seen by many countries and businesses. More specifically, it is observed in this review that innovation drives industrialization, increases productivity, and has a direct link with economic growth. Businesses are seeing growth in sales, sustained businesses, quick and quality service delivery, improved production processes and production volumes, and enhanced performance. In this review, Sub-saharan Africans (SSAs) were observed to have late assimilation of the innovation momentum and there is generally inadequate investment and policy dialogue on innovations in the region. Policymakers and researchers are to begin an extensive inquiry into the stands of SSA economies. SSAs must adopt a need assessment and adopt an appreciative inquiry approach toward investing in innovations and technology.

Keywords: innovation, economic growth, Sub-saharan Africa, technology

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1 INTRODUCTION

"The origin of the phrase innovate or die is a matter of some dispute. Peter Drucker famously declared it, though others may have shared in its coinage. But whatever its genesis, the sentiment is now widespread: Stay ahead of the pace of change or you're toast"[1].

Reference to this phrase recalls thought-provoking dilemmas for countries and corporations' innovative pursuits that are often barely considered. What nations and corporations have failed to recognise is that innovation is the key to sustainable economic, social, and environmental development[2]. For United Nations Conference on Trade and Development, innovations are indispensable to achieving sustainable development goals[3]. The underlying importance of innovation is even more pressed on the grounds that global development literature suggests that many countries

and regions have failed to achieve sustainable and inclusive development owing to increasing inequality and poverty, excessive use of natural resources, climate change, and volatile financial markets.

Innovation has grown in the development of cooperation discourse and business survival discussions and practices over the past 20 years. This follows a trend to promote innovation in business, science, technology, government, and civil society[4]. The World Intellectual Property Organization (WIPO) admits that an economy's capacity to draw in foreign capital and create successful companies that can compete on a global scale is inextricably linked to the ecosystem that supports innovation[5]. However, although the innovation agenda seems to be gaining ground in the field, there has so far been little academic debate on the topic, particularly on how the Sub-saharan African (SSA) region has transitioned over the past 20 years, and the assessment of the innovative efficiency of the region-a clear dearth is observed in the extant literature.

The WIPO reports on the innovation drive of countries and ranks 132 countries using the Global Innovation Index (GII)5. The GII "reveals the most innovative economies in the world, ranking the innovation performance of 132 economies, highlighting their innovation strengths and weaknesses, and pinpointing any gaps in their innovation metrics". The index is based on 81 metrics and clustered under the following 7 major clusters: Institutions (Political environment, business environment, and regulatory environment), Human Capital and Research (Education, tertiary education, research and development), Infrastructure (Information and communication technologies, general infrastructure, ecological sustainability), Market Sophistication (Credit, investment, trade and diversification), Business Sophistication (Knowledge workers, innovation linkages, and knowledge absorption), Knowledge and Technology Output (Knowledge creation, knowledge impact, and knowledge diffusion), Creative Outputs (Intangible assets, creative goods and services, and online creativity). The rankings for the last two years based on region and income group are presented in Table 1.

From Table 1, it can be noted that Mauritius (45th) and South Africa (61st) lead the Sub-Sahara Africa region, followed by Morocco (67th) through to Senegal (99th) completing the top 10 in Africa. Interestingly, newcomer Botswana (86th) enters the Top 100 from the 106th position previously attained in 2021. From the GII 2022 report, it is documented that 26 countries are outperforming their innovation trajectory in relation to their economic development. These statistics point out that 8 of these countries are from SSA. Generally, it can be observed that there has been tremendous progress in the innovation trajectory for Africa in the uphill, but this achievement is dragged down by the significant number of SSA economies (over 20 countries) ranked in the 1st quartile (100th to 132nd). This calls for strategic and a befitting response from the SSAs countries if they desire to stay put with emerging economic dynamics amidst global uncertainties continuously peddling the world. For nothing at all, WIPO (2022) estimates that global R&D expenditures are expected to grow positively, and this should culminate in higher GDP growth. This is true given that R&D and innovative activities have been propounded to be an effective response to the woefully unprecedented crisis the world has observed in recent years.

Various scholars have defined innovation differently, however, with a central theme of creating and recreating. As a result, defining innovation, as a concept or phenomenon, has no agreed phrase.

According to Drucker[6], "Innovation is a reform that expresses a new dimension of performance of a company".

In the opinion of Peter Foley "Innovation process is seen as a great idea, executed brilliantly, and communicated in a way that both is intuitive and fully celebrates the magic of the initial concept"[1].

Stephen Shapiro defines innovations as "simply staying relevant".

In the views of Nick Skillicorn, "Innovations entails turning an idea into a solution that adds value from a customer's perspective", 1 and David Burkus defines innovations as "the application of ideas that are novel and useful".

Regardless of how you define innovation, it is important to understand that it is not a novel adventure. However, these definitions largely point out a common ground of relating innovations to national concerns, firm-level perspective, and entrepreneurial lookout. The argument levelled here is that innovation requires quality time and sufficient resources, must be strategically perceived, must be purpose-driven, and executed according to plan. It also belabours the proposition that what has previously aided an organization's success could potentially be the cause of its collapse in the future. Consequently, companies must adapt and change to fulfill their constituents' ever-changing needs and the general economic turmoil and bizarre uncertainties.

From an entrepreneurial viewpoint, it has been argued that entrepreneurs deploy innovation as a tool to leverage change as a latitude to start a new firm or provide a new

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Table 1. Top 10 GII Ranking for 2022 and 2021

Country & Category	2022	2021	Country & Category	2022	2021
High-income Countries (48 in Total)			**Middle-income Economies (64 in Total)**		
Switzerland	1	1	China	11	12
United States	2	3	Bulgaria	35	35
Sweden	3	2	Malaysia	36	36
United Kingdom	4	4	Turkey	37	41
Netherlands	5	6	India	40	46
Republic of Korea	6	5	Thailand	43	43
Singapore	7	8	Mauritius	45	52
Germany	8	10	Russia Federation	47	45
Finland	9	7	Vietnam	48	44
Denmark	10	9	Romania	49	48
Low-income Countries (13 in Total)			**Sub-saharan Africa Countries (Top 10)**		
Rwanda	105	102	Mauritius	45	52
Madagascar	106	110	South Africa	61	61
Ethiopia	117	126	Morocco	67	77
Uganda	119	119	Tunisia	73	71
Burkina Faso	120	115	Botswana	86	106
Togo	122	125	Kenya	88	85
Mozambique	123	122	Egypt	89	94
Niger	125	129	Ghana	95	112
Mali	126	124	Namibia	96	100
Yemen	128	131	Senegal	99	105

Notes: The source is WIPO Global Innovation Index (2022, 2021).

service[6]. Consequently, entrepreneurs must seek out the sources of innovation, as well as the changes and indicators that suggest effective innovation potential. To this end, Drucker maintains that there are seven sources of innovation potential:

(https://www.ideatovalue.com/inno/nickskillicorn/2016/03/innovation-15-experts-share-innovation-definition)

- The unexpected-the unexpected success, the unexpected failure, the unexpected outside event;
- The incongruity-between reality as it actually is and reality as it is assumed to be or as it "ought to be";
- Innovation based on process need;
- Changes in industry structure or market structure that catch everyone unawares;
- Demographics (population changes);
- Changes in perception, mood, and meaning; and
- New knowledge, both scientific and non-scientific.

The growing desire for innovative thinking and innovative management stems from the increasing need to stay relevant in the contemporary and fast-moving technological environment[7], often characterized by known to unknown impacts of changes in ways of doing things. Similarly, Daron and Robinson[8], arguing in the favour of the need for innovation, postulate that sustainable economic growth necessitates continual innovation, which relies on creative destruction to replace old with new innovation. Anakpo and Oyenubi[9] also submit that improved technological innovations translate into economic growth. Similarly, employment, global competitiveness, trade openness, quality of life, financial systems, and infrastructure development are all influenced by innovations[10].

From the aforementioned argument, shreds of evidence are adduced to buttress the clarion inclination for the need to transform economic and business activities through innovations. Innovation remains a critical determiner of how businesses survive and remain relevant in the national discourse of growth maximization[11]. The need for innovation is imperative[12,13]. In Cooper's words, "It is war: Innovate or die"[14]. This review, therefore, attempts to bring to bear the pungent need to innovate as a nation or business. In doing so, first, this study provides a review of the literature on the significant linkages innovation has with various macroeconomic variables. Secondly, this paper presents areas where extant studies have widely agreed upon

and areas still under contention. Thirdly, based on the reviewed literature, lessons and key takeaways that could be replicated and considered for innovation drive in SSA economies are presented. This is exceptionally important for SSA economies bearing the fact that the GII has predominantly ranked SSA countries as laggards in innovation. This review is necessary for the present time as innovation has made significant thrives in policy and academic space globally.

2 LITERATURE REVIEW

Existing pieces of literature have substantiated the need for innovative transformation of the economic and firm-level activities for nations and companies respectively. The need for innovation cannot be undermined both in human and economic terms. As Price and John (2014, p.74) put it, "Innovation is crucial to success in the industry and there have been many reasons given to explain commercial failures as well as successes"[15]. Despite the needed attempt by extant literature to bring to bear the increasing demand for innovation cross-border, lapses have been identified, and this paper demonstrates so.

3 METHODOLOGY

The articles and papers used for this literature review were carefully selected from Google Scholar and journals were scrutinized to ensure accurate indexation and recognition in Scopus and Scimago journal. Google Scholar was chosen because of its extensive collection of resources, which included articles from academic journals, conference papers, theses, and dissertations. The search terms were "innovation and business performance", "innovation and economic impacts", "types of innovations", "the importance of innovation", and lastly, "the need for innovation". These were based on the purpose and objectives of the study.

4 TYPES OF INNOVATIONS

In presenting the selected research works, a fundamental apprehension of how the concept of innovations and classification has evolved in literature. Depending on the nature and purpose for which an innovation is carried out, different kinds of attributes have been alluded to them following which different types have emerged. Stated differently, it appears that the type of innovations considered largely depends on how the innovating firm, individual, or nation sees it. While Crumpton[16], as well as Verloop and Wissem[17], propose that innovation has two facets: process and product, Andrew et al.[18] see innovation to have a third category; process, product, and service. On another hand, Ferreira et al.[19] observe that innovation includes: process, strategy, organization, learning, and networking.

To some authors, innovation could be incremental and radical[20,21]; outcome-driven[22,23]; outcome-driven[24]; disruptive innovation[25,26]; business model innovation[27,28]; organization innovation[29,30]; service innovation, and breakthrough innovation[31] (Jin & Shao, 202240; Cho & Kim, 2017). Based on the exposition above, Figure 1 illustrates the types of innovation that has been widely agreed upon in and disserted about in literature.

5 INNOVATION AND BUSINESS-RELATED OUTCOME

Innovation, like Tobler's first law of geography rightly states "everything is related to everything else, but near things are more related than distant things", has significant relationships with various macroeconomic variables and to some extent, firm-level variables either in a bi-causal approach or one-way correlation.

Hameed et al.[32] examined the significant interrelations between firms' open innovation, service innovation and performance. Using the hospitality industry in Pakistan, the authors sampled data from 285 hotel managerial staff and applied the partial least square. They found that there is a significant relationship between innovations and business performance. In particular, they argue that innovation contributes to enhanced service quality through external knowledge and internal innovation. They recommend that hotel managers must constantly recognize the value of external knowledge from suppliers, distributors, competitors, partners, and market knowledge.

Taques et al.[33] stress that businesses can benefit from innovation by enhancing processes and techniques that can result in the creation of new products or services or the improvement of already existing ones. The main claim made here is that innovation can have positive effects on businesses, both internally and externally, especially when it results in more dynamic and effective production processes, the creation of new goods and services, or enhancements to those already available. From another perspective, Faeroevik and Maehle[34] found that innovation has a strong and positive relationship with firm growth and cost minimization. Mahmutaj and Krasniqi[35] agree on one side with Faeroevil and Maehle[34] on the basis that marketing innovations result in increased firm sustainability. They however submit that product innovation leads to a negative firm growth effect.

Dunleavy et al.[36] state "Necessity is the mother of invention" in recognition of the numerous innovative ideas, conceptualizations, and inventions that have blossomed around the globe in the past 3 years of a health crisis. Expatiating on the evolution of service innovation in the health sector, they submit that changes

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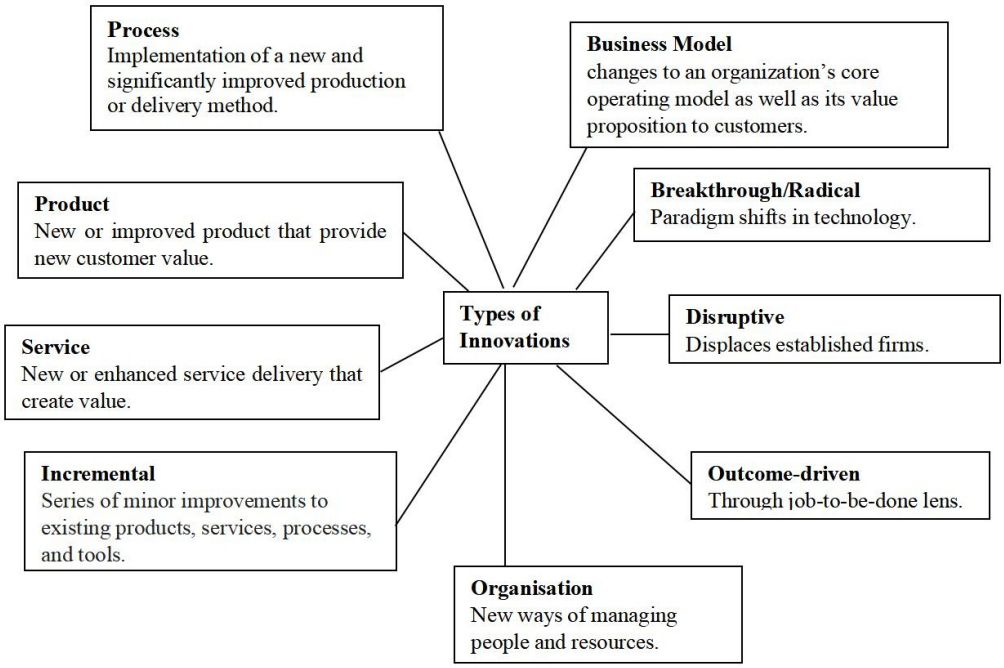

Figure 1. Types of innovations. Source: Author's Construct (2022). Based on the literature review.

that have materialized in the health service sector include streamlining, extending, and expanding service reach, utilizing technology to facilitate communication, and implementing staff wellness innovations. Likewise, Vendrell-Herrero et al.[37] analyze the effect of product-service innovation (PSI) on firm-related outcomes with a sample from 352 manufacturing multinational enterprises. In their findings, they assert that customers and IT processes of firms are heavily linked with the PSI trajectory of the firms. Arguing further, they opine that this relationship is moderated by higher levels of R&D which is a significant element of innovations.

Hanaysha et al.[38] studied the effect of innovation capabilities on the viability of small and medium-sized businesses in Saudi Arabia. Using data sampled from 171 employees within the SME sphere and d a robust technique in structural equation modeling, they narrate that both product and service innovations have a significant and positive relationship with firm survival and sustainability. This assertion stands to be true since it has been widely agreed that firms with innovative capabilities are able to withstand some degree of economic turbulence that ordinarily affects non-innovative firms and potentially shuts them down over the course time when inadequate response tactics are implemented. Trimi and Berbegal-Mirabent[39] reviewed pieces of literature on business model as a type of innovation and how it relates to entrepreneurship. They pointed out that when business model is employed as an independent variable, it demonstrates a significant relationship with firm performance. Following this line of thought, business models can be viewed as a critical organizational design tool that aids in predicting corporate success. Brettel et al.[40] advance the discussion and assert that businesses that have a business model template that they follow fitfully without an attempt to modify it may fail as market conditions evolve. Conversely, they argue that an entrepreneur who makes routine and purpose-driven modifications and readjustments to his or her business model is more likely to succeed.

Jin and Shao[41] predicate that under the resource-based view and the resource dependency theory, breakthrough innovation is a strategic resource that firms can capitalize to position their operational trajectory in a manner that competitively surpasses the standard operational expectation. Rosenbusch et al.[11] ask the question "Is innovation always beneficial?". In their attempt to find answers, they submit that despite the potential negative effect of innovations on SME performance, the aggregate effect is always beneficial. In particular, they opine that to compete against larger, well-established companies, small business managers must be essentially innovative. They opine further that innovating capability of SMEs contributes to competitive advantage through resource augmentation, recombination, or creation, and their use in value-creating strategies. Taken together, in markets where customer tastes change frequently, differentiation is limited, and competition is fierce, innovation can help organizations maintain a competitive advantage. In most cases, an innovation inspiration clocks in an avenue for entrepreneurial enterprises to enjoy a perdurable monopoly and long-term entrepreneurial success. According to Rosenbusch et al.[11], because SMEs are

more agile than their larger counterparts, they can move more quickly and hence obtain these monopoly rents for a longer period.

6 INNOVATION AND ECONOMIC-RELATED OUTCOMES

Sheikh et al.[42] highlight the gravity of national innovations in the health sector. They allude that using data-enabled infrastructure continuously to support policy and planning, public health, and the personalization of care, national learning health and care systems can be developed with the aid of health information technology[42]. Kim et al.[43] put it differently by asserting that "healthcare quality is a major driver of innovation, growth, and competitiveness". Similarly, the findings of Habidin et al.[44] suggest that supply chain innovation (process and technology) can improve healthcare performance in healthcare sectors and create a competitive advantage through continual quality improvement and supply chain efficiency. More interestingly, the World Health Organization Health Innovation Group articulates that innovation "responds to unmet public health needs by creating new ways of thinking and learning" and "aims to add value in the form of improved efficiency, effectiveness, quality, sustainability and/or affordability".

The banking sector is being significantly impacted by financial industry innovation[45-47]. The issue of information asymmetry brought on by geographic barriers has been lessened, and transaction costs have gone down[48]. Lee et al.[47] discussed the banking sector efficiency in China through financial technologies. The findings reveal that state-owned commercial banks operate with inferior technology and have the lowest cost efficiency[35]. What's more, Fintech innovations have a significant impact on the banking industry because they not only increase banks' ability to operate more cheaply but also improve the technology they employ. The importance of this dual positive impact is greater when it comes to innovations in market support services. Thereupon, Zhao et al.[49] prove that Fintech innovations are a prerequisite to banks' capital adequacy improvement and management efficiency.

Comparably, Carbó Valverde et al.[50] examined the impact of financial innovations on the regional growth of the Spanish economy. Their findings reveal that product and service delivery innovations have a favourable impact on regional GDP, investment, and gross savings growth. More precisely, they argue that banks and financial institutions play financial intermediation role in the economy and their innovative effort transmits into higher economic growth[50]. Supplementarily, Parameswar et al.[51] assess the banking industry of India and conclude that every country's economic health depends on a resilient banking industry. Customers expect secure, efficient, and smooth service, and banks that present themselves as both technologically smart and customer-friendly have kept ahead of the competition by anticipating their needs[51].

Fostering the innovation discussion further, the education sector has progressively modelled content and structure through the innovation space. To many, educational innovation enables information to be utilized in real-world situations and exchanged with the rest of the world for the benefit of society. Guzman and Jaillier-Castrillon[52] proffer that innovation in the education sector encapsulates a school mobilizer, a catalyst for change and evolution, as teachers re-energize their techniques to create purposeful activities that keep kids interested and inspired. In another sphere, Avila-Lopez et al.[53] mention that technological knowledge and science, as well as the capacity for innovation, are factors that help countries raise their productivity and living standards. As a popular measure of the well-being of people, advancing the drive to make technological development available and accessible to seasons the skill set of individuals. This inadvertently results in an increased per capita income.

A study by Maradana et al.[54] found that there is both unidirectional and bidirectional causality between innovation and per capita economic growth using the Granger causality test. In some cases, this particular link is either supply-leading or demand-following. Premised on causal links between innovation, and in particular, where innovation is believed to be deterministic, policymakers and playmakers in the technology and innovation space are constantly reminded to rethink the expository knowledge in the innovation-development nexus and apply the same for societal benefits. To realize the full economic potential of innovations, Avila-Lopez et al.[53] maintain that regular evaluations of policy design and financing needs are required. Countries need to faithfully recreate practices that are progressively seen as best, and in the spirit of what is usually referred to "organisational learning", finetuning and transferring knowledge to catalyse the growth process[41].

7 SUMMARY AND CONCLUSIONS

Innovations, whatever way it is defined, categorized, and analysed, remain significantly necessary and non-negotiable. From a national perspective to individual-level persuasion, innovation emerges as the lookout factor for growth and development. With the changing global trends in almost everything the world can think of, businesses and nations can only survive the pace with well-meaning innovative activities. For SSA economies that are majorly dependent on primary commodity export and foreign investment inflows but hopes to compete

world's dynamic economies on R&D, technological inclusion, and value-added pursuits. Substantially, the modern growth theory argues that a country's rate of innovation is the key determinant of its productivity and economic growth.

Strands of literature have adduced evidence to highlight the significance of innovation national development prospects. In understanding the variables that enhance innovations in countries, researchers have agreed that business environment, investment in machinery and equipment, and human capital development are significant. The current study admits the complexity that surrounds the drive for innovation but admonishes that the opportunities far exceed the propelling hindrances. Existing pieces of literature, as reviewed in this study, provide a brazen attestation of the need to innovate. Contingent upon the object and directional motive of the organizations or nations, differing magnitude and perspectives of the importance of innovation has emerged. It was observed in this study that business sustainability especially in this present time of increased globalization and market uncertainties significantly depends on the innovation echelon of the organizations. Following this assertion, researchers contend that innovations result in positive financial performances; enhancement in entrepreneurial purview; increased competitive advantage; improved market share, advanced operation, and supply chain practices; minimization of overhead cost; and sustainable firm growth.

From the national-level perspective, researchers globally have documented, from the literature we have presented, that as a result of increasing innovation in science and technology, the healthcare sector is performing exceptionally well, and healthcare delivery has improved appreciably. In the banking and finance industry, extant literature suggests that since financial innovations evolved, the financial sector has recovered well in accessibility, usability, and service delivery. The education sector has also benefitted materially from technological innovations mostly evident during the evolution and high spread of the Covid-19 pandemic. In modelling the general economic growth of countries, recent pieces of literature have acknowledged the importance of innovation as a deterministic predictor rather than the previously used residual factor variable.

8 MAJOR LESSON: THE CASE OF SUB-SAHARAN AFRICA

All nations are expected to pursue science, technology, and innovation policies that are pertinent to their stage of development as well as their economic, social, and environmental circumstances. From climate action and improved health to more democratic and inclusive societies, new technologies represent the hope for the future. This study recognizes the increasing need for firms and nations to prioritize innovations. This is because the positives majorly outweigh the negatives. The study also acknowledges that innovations must be strategically managed as they involved a random system of somewhat complex procedures. Consequently, countries have begun to psych out the substance of innovations as a key driver to economic growth. It is even more true that some countries and firms have managed innovation processes better than others; hence the difference between the success and failure of firms. The oscillating nature of the world economic outlook places a clarion call on all to have a responsibility towards embracing innovations and leveraging on their benefits. For SSA countries, there is limited research on their innovative capabilities and drive. Perhaps, this account for the low rankings and below-average performance that characterizes Africa's innovativeness.

8.1 Lessons for Africa

There is a dearth in the literature on innovations for the SSA region. Available pieces of evidence of literature on innovations in Africa suggest that academic and policy research have been unsuccessful in addressing the innovative needs of Africa, and fostering the drive for Africa's desire to innovate. Existing studies have mainly focused on innovations in the agriculture sector, and even so, the existing studies have insufficiently yielded the desired result. Ayalew et al.[55] and Egbetokun et al.[56] have all contended for innovations in Africa's agriculture sphere. What is however typical in these studies is that attention has been averted toward the role of the farmer's creativity. While this study agrees to a great extent about the paramountcy of the farmers' creativity in agriculture innovations, it also submits that R&D policies existent in various African nations have not responded timely and adequately to the changing demands of agriculture, and stimulated the ready representation of stakeholders including the government and policymakers in the agriculture sector. More so, issues of institutionalizing partnerships, and preparing agricultural innovators for such partnerships have been barely discussed.

The narrative continues that Africa's exigency toward innovations, especially ones that are radical and technological, lags. Very often, the conventional "transfer of technology" dominates Africa's perspective of "we are innovating". Cultivating the culture of "it takes time to build" and diverting from the "goblin mode" is apparently substantial to SSAs move towards a pragmatic innovation dream.

9 RECOMMENDATION

Following the discussions in extant literature, there

exist no qualms about the assertion that innovation remains one of the crucial subjects that requires sufficient debate and consideration in policy and academic discourse. A skyrocketed and strategic approach to innovative economies would proliferate a slew of benefits and incentives for nations; specific governmental entities, and public and private sector industry-level. There is a need to therefore vigorously lobby for and promote such innovative ideas on global markets scale, and economies should closely monitor that. This is even more true for SSAs. The prevailing shreds of evidence in literature largely point out that the developed economies especially those in Europe and Asia have envisioned innovations as necessary to overall economic growth. We ask the begging question, "has the African continent performed sluggishly in its economic outlook because innovation has been inadequately prioritized?". As a result, we recommend in this study, more directly to SSAs, the following: Innovations require committed time and resources, and must be geared toward a purpose, captured in both short-term and long-term perspectives. To do this, there must be a pressing need for governments of SSA economies to partner with nations in Asia or Europe that have reached the appreciable pedestal in innovations and leverage those links to institutionalize and foster innovative thinking. Again, the cultural inclination of SSAs has not helped to promote innovations; innovation, especially technology, is often seen as "a thing of the white". It is high time SSA began to rethink and reprogrammed this attitudinal inefficiency, and change towards building the platform for creativity and innovations. Also, governments and key institutions must begin to invest in R&D activities that strengthen the economic spine with equal opportunities in all sectors.

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Conflicts of Interest
The authors declared no conflict of interest.

Author Contribution
Amoah C designed, wrote and revised the paper. Amoah C approved the final version.

Abbreviation List
GII, Global Innovation Index
PSI, Product-service innovation
SSA, Sub-saharan African
WIPO, The World Intellectual Property Organization

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