Sub-Saharan African Countries on the Path to Achieving Technological Sovereignty — The Case of Nigeria, Kenya and Ghana: Problems and Prospects

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Abstract. The article addresses the issue of ensuring technological sovereignty in sub-Saharan Africa. Using Nigeria, Kenya and Ghana as case studies, the author demonstrates that national programmes and strategies dedicated to developing advanced information technologies have been implemented in a sub-Saharan Africa, as well as professional research groups and scientific and educational research centers that are aimed at developing artificial intelligence (AI) applications. IT parks are also under construction in some countries. The key area of research is natural language processing, as a wide range of AI applications that can understand different African languages is needed to create a well-developed AI-ecosystem in Africa that addresses the needs of local citizens. Both general scientific methods (such as analysis, synthesis and analogy) and special methods (such as critical discourse and comparative analyses) were used in the research. It has been revealed that several language models for Kiswahili, Yoruba, Twi and Luganda as well as a special Python library for solving speech recognition tasks for the most common languages in Ghana have already been developed by certain African research groups. This represents a significant breakthrough for African countries in the field of high-tech technologies. However, these successes are local in nature across the entire continent, as their further development depends on a problem that affects most African countries: lack of funding. As a result, many research groups in Africa exist on a voluntary basis, and the research itself is frequently funded by sponsorship from Western corporations and foundations. This poses a serious threat to the technological sovereignty of sub-Saharan African countries, which, despite ongoing efforts, continue to depend on imported technologies and foreign investments. In order to reduce this dependence, African governments need to consider mechanisms for attracting African investors to relevant research and development. Only in this case it would be possible to organize an effective search for optimal solutions in order to meet specific local and regional demands.

Key words: technological dominance, artificial intelligence, machine learning, large language models, natural language processing, information and communication technologies, the AI-ecosystem, the African Union, Africa

Страны Африки южнее Сахары на пути к обеспечению технологического суверенитета на примере Нигерии, Кении и Ганы: проблемы и перспективы

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Аннотация. Проанализирована проблема обеспечения технологического суверенитета в странах Африки, расположенных южнее Сахары. На примере Нигерии, Кении и Ганы показано, что в последние годы в африканских государствах появляются национальные программы и стратегии, направленные на развитие передовых информационных технологий, формируются профессиональные исследовательские группы, создаются научные и образовательно-научные центры, занимающиеся разработкой приложений, использующих технологии искусственного интеллекта (ИИ), а в ряде стран идет строительство технологических парков. При этом ключевым направлением исследований на сегодняшний день является решение задач в сфере обработки естественного языка, поскольку именно при условии создания широкого спектра разносторонних ИИ-приложений, способных понимать разные африканские языки, станет возможным создание развитой ИИ-экосистемы в Африке, ориентированной на потребности местного населения. При проведении исследования использовались как общенаучные (анализ, синтез, аналогия), так и специальные методы (критический дискурс-анализ, сравнительный анализ). Выявлено, что в настоящее время в Африке стали появляться языковые модели, способные распознавать речь на некоторых африканских языках (суахили, йоруба, тви, луганда), и даже была разработана специализированная Python-библиотека для решения задач распознавания речи для наиболее распространенных на территории Ганы языков. С одной стороны, данное обстоятельство действительно означает существенный прорыв, который страны Африки сумели добиться в сфере высоких технологий, но в масштабах всего континента эти успехи носят все же локальный характер, поскольку дальнейшее развитие в этой сфере упирается в типичную для большинства стран Африки проблему — отсутствие средств. В результате многие исследовательские группы в Африке существуют на общественных началах, а сами исследования зачастую финансируются за счет спонсорской помощи со стороны западных корпораций и фондов, что представляет серьезную угрозу технологическому суверенитету стран Африки южнее Сахары, которые, несмотря на прилагаемые усилия, продолжают зависеть от импортных технологий и иностранных инвестиций. Для того чтобы снизить указанную зависимость, правительствам африканских стран необходимо продумать механизмы привлечения к соответствующим исследованиям и разработкам африканских инвесторов. Только в этом случае представляется возможным организовать поиск оптимальных решений с целью удовлетворения конкретных местных и региональных потребностей.

Ключевые слова: технологическое доминирование, искусственный интеллект, машинное обучение, большие языковые модели, обработка естественного языка, информационно-коммуникационные технологии, ИИ-экосистема, Африканский союз, Африка

Introduction

Nowadays, advanced information technologies are regarded by sub-Saharan African countries as one of the key tools capable of giving a new impetus to the development of their economies (Awoleye, Abraham & Oyebisi, 2021; Dick, 2019; Grinin, Grinin & Grinin, 2024; Guma et al., 2024; Nhemachena, 2024). However, the global technological dominance of the collective West

suggests that technologies are being distributed unequally around the world, with the most developed countries, primarily in the USA, concentrating them and then spreading them to other regions. This not only increases the technological dependence of developing countries (Awoleye, 2021; Birhane, 2020; Calzada, 2021; Degterev, 2022; Oppermann, 2016; Nhemachena, Hlabangane & Kaundjua, 2020), but also spreads the values of big corporations and Western ideals worldwide, often replacing national ones (Barett et al., 2025; Birhane et al., 2022).

The rapid development of artificial intelligence (AI)-based technologies has enabled the USA to strengthen its technological leadership, with American corporations maintaining a strong foothold in the development of these technologies. This has given the USA almost complete control over the technological development of other countries, allowing it to decide which countries to share its technologies with, and on what terms and in what volumes.

Overcoming this technological dependence is only possible through conducting self-reliant research and development (R&D) in information and communication technologies (ICT). However, sub-Saharan African countries lack the financial, material and technological resources to conduct such large-scale work. That's why, in order to achieve the current level of development of more developed states, they have to resort to financial and technological assistance from their more developed Western partners.

Thus, a vicious circle problem arises, which is very typical of economic systems that are located at different levels of the development. In general terms, it represents a situation where "the conditions of the object's functioning, taken together, mutually neutralize the possibility of achieving a qualitatively new result in its development. Without the ability to increase its effectiveness, the economic entity begins to stagnate and gradually moves towards the end of its life cycle" (Savin, 2016, p. 94).

In the case of sub-Saharan African countries, the vicious circle problem appears due to the fact that these states have been striving for sustainable socio-economic growth throughout their post-colonial history. But due to a lack of the adequate financial, material and technological base, they are compelled to seek assistance from the Western states, which make the provision of this aid dependent on certain political and economic reforms. These reforms usually involve creating favorable conditions for Western corporations and investors to operate in these countries. Breaking this vicious circle becomes a vital task for African states if they wish to participate equally in contemporary international relations.

In this regard, the purpose of the article is to evaluate the level of technological development in sub-Saharan Africa, using Nigeria, Kenya and Ghana as examples, and to determine the prospects for achieving their full technological sovereignty.

Methodologically, the research is based on both general scientific methods (analysis, synthesis, analogy) and special methods (critical discourse analysis, comparative analysis). Critical discourse analysis was used to study the Continental Strategy of Artificial Intelligence in depth, while comparative analysis was used to examine the general and specific features of digital transformation strategies in Ghana, Kenya and Nigeria.

The selection of countries was determined by the fact that both Nigeria and Kenya are regional leaders in the development of advanced information technologies, while Ghana pays great attention to research in the field of natural language processing, which seems extremely important for ensuring the technological sovereignty of African countries (Arakpogun et al., 2021).

Nigeria

In terms of the development of advanced information technologies, Nigeria holds one of the leading positions in Africa, yielding only to

the Republic of South Africa (SA) by this indicator.[1] However, these successes are largely due to the attraction of significant foreign investment, primarily from Western countries, rather than the development of local R&D (Oghuvbu, Gberevbie & Oni, 2022, p. 386). In recent years, Nigeria has adopted a number of initiatives aimed at creating conditions for the development of its own scientific research in this field (Awoleye, 2022).

To solve this problem, the *National Centre for Robotics and Artificial Intelligence* has been established. Its main objective is to stimulate the development of R&D in breakthrough technologies and to promote the practical implementation of such technologies in areas of national interest for Nigeria, such as machine and deep learning, the Internet of Things, robotics, drone production and augmented reality.[2]

In order to stimulate R&D in artificial intelligence and its wide implementation the nation's business sector, a grant support system has been launched in Nigeria. For this purpose, the *AI Development Research Program* has been established. It is aimed to promote the creation of a dynamic and sustainable AI-ecosystem in Nigeria by providing financial support, facilitating knowledge sharing, and fostering collaboration between individuals and organizations.[3]

Another significant Nigerian initiative is the launch of the *AI in Nigeria*, which represents a special platform, aimed at accumulating expert knowledge in the field of AI and bringing together all the key actors in ICT, thereby significantly expanding their capabilities. As posited by the initiators of this platform, all these efforts should contribute to transforming Nigeria into a global AI-hub.[4]

However, despite the state's efforts to stimulate the development of research in the field of breakthrough information technologies, it must be acknowledged that the key positions in the Nigerian ICT market are occupied by Western corporations and international financial institutions, i.e., the so-called global actors.

The *Amazon Web Services* cloud computing platform stands out among them, providing the wide range of services and tools necessary for the development, deployment, and scaling of AI-technologies. Specifically, *Amazon* offers access to its cloud infrastructure, various services that are using AI-technologies and machine learning, as well as data analyses. The corporation also provides different training and certification programs for employees, and supports start-ups and innovations.[5]

Microsoft also offers its cloud storage platform in Nigeria through the *Microsoft Azure* cloud computing service.

Google has interests in Nigeria as well. The company is represented in the country by the *Google AI Research* team, which is engaged in AI development and collaborates with local government authorities and organizations to advance AI research, develop applications that are using these technologies, and implement relevant educational programs.

Even *Data Science Nigeria*, one of the leading non-profit organizations that has been established in 2016 and aimed at bringing together Nigerian data science professionals, has in its governing bodies representatives of

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[1] Artificial Intelligence in Africa: National Strategies and Initiatives // DIPLO. 2022. URL: https://www.diplomacy.edu/resource/report-stronger-digital-voices-from-africa/ai-africa-national-policies (accessed: 29.04.2025).

[2] National Center for Artificial Intelligence and Robotics. URL: https://nitda.gov.ng/ncair (accessed: 29.03.2025).

[3] Nigeria Artificial Intelligence Research Scheme. URL: https://airg.nitda.gov.ng (accessed: 30.03.2025).

[4] About Us // AI in Nigeria. URL: https://aiinnigeria.com/about-us (accessed: 30.03.2025).

[5] Nigeria AI Landscape and Startups Report 2024. P. 29 // AI in Nigeria. URL: https://aiinnigeria.com/report/ (accessed: 30.03.2025).

big American companies. For example, Kirk Borne, Chief Data Scientist at *Booz Allen Hamilton* (a US consulting company specializing in information technology, analytics, and project management), holds the position of Chair of the Advisory Board. In total out of the 15 members of the Advisory Board, eight are employees of Western companies.[6]

Consequently, it can be concluded that Western IT companies continue to play a leading role in the Nigerian ICT market. However, it would be incorrect to assert that Nigeria is not making efforts to reduce this dependence. For example, the National Information Technology Development Agency has initiated the National Sovereign Cloud Infrastructure Seminar, which took place on November 7–8, 2024, in Abuja. The seminar addressed important issues related to ensuring the country's technological sovereignty. However, no concrete solutions to this problem were proposed. On the contrary, suggestions were made to increase foreign direct investment, which would essentially only exacerbate Nigeria's technological dependence.[7]

Kenya

In Kenya, the African Research Center *@iLabAfrica* was established at the Faculty of Information Technology of the Strathmore University in 2011. The center specializes in conducting research in the field of big data and artificial intelligence. It should be mentioned that this center not only provides a wide range of educational programs for training specialists in machine learning and data analysis but also

develops AI-solutions for specific business tasks. The *@iLabAfrica* website currently contains information about 1,250 projects that have already been realized.[8] The center's main partners are major Western IT-corporations such as *IBM*, *Google*, *Intel*, *Cisco*, and *Oracle*, as well as the Chinese company *Huawei*. This overall indicates the Kenyans' aspiration to collaborate with all leading IT-developers.

However, Kenya's stated goal, as outlined in the National Strategy Kenya Vision 2030, which was adopted in 2007, is to reach a new level of scientific and technological development by 2030. In accordance with the Strategy, the objective is to ensure a high quality of life for all Kenyans.[9] And it seems that the separate research centers established at educational institutions are not capable of achieving this goal.

In this regard, President Mwai Kibaki has announced the start of construction of the *Konza Techno City* in January 2013, which was intended to host all of the country's key telecommunications companies and scientific institutions.[10] The construction of the Technopolis was originally scheduled to end in 2020, but has been postponed; only one of the eight administrative buildings has been completed. The main reason for this delay is the lack of a stable investment flow, although the Kenyans themselves state that foreign investors are showing great interest in this project and, in the near future, all areas allocated for construction will be transferred to private developers. Nevertheless, for now, we can only talk about the completion of the first phase of construction, which supposed laying all the necessary communications

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[6] Data Science Nigeria. URL: https://datasciencenigeria.org/ (accessed: 31.03.2025).

[7] Abraham A. A. NITDA Hosts Workshop on National Sovereign Cloud Infrastructure to Boost Digital Awareness // National Information Technology Development Agency. December 2024. URL: https://www.nairaland.com/8261313/nitda-hosts-workshop-national-sovereign (accessed: 31.03.2025).

[8] @iLabAfrica // Strathmore University. URL: https://ilabafrica.strathmore.edu (accessed: 03.04.2025).

[9] Kenya Vision 2030. URL: https://vision2030.go.ke (accessed: 03.04.2025).

[10] Konza Technopolis. URL: https://konza.go.ke/ (accessed: 03.04.2025).

and access roads — the so-called horizontal infrastructure.[11]

However, despite the fact that the construction of the Technopark has not yet been completed, it should be noted that the technology cluster in Kenya continues to develop actively. For example, the *Tech Innovators Network Kenya* (*THiNK*) was launched in Nairobi in 2019 with the objective of facilitating companies in their digital transformation. *THiNK*'s mission is to create a digital business incubator that is aimed at forming a dynamic ecosystem in which developers of innovative technological solutions and interested entrepreneurs can collaborate effectively.[12]

Meanwhile, the main research field of the *THiNK* is the use of African languages in technology. The most significant project that has been implemented in this regard is the language model *wav2vec2-large-xls-r-300m-sw*, which was designed for automatic speech recognition in Kiswahili.[13] The model was trained on a Kiswahili dataset *Common Voice Corpus 11.0*,[14] which consists of MP3 files totaling 16 413 hours. On August 3, 2023, the model was made publicly available on the *Hugging Face*, and it became the first base language model trained on Kiswahili. African companies from the East Africa can now download and finetune it and create their own voice assistants and specialized applications requiring speech recognition.

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[11] Otieno D. 72% of Konza City Phase 1 taken up by Investors // tech-ish.com. January 17, 2022. URL: https://tech-ish.com/2022/01/17/konza-city-phase-1-investors (accessed: 04.04.2025).

[12] @iLabAfrica and THiNK Forge Partnership to Drive ICT for Development // Strathmore University. February 27, 2025. URL: https://ilabafrica.strathmore.edu/ilabafrica-and-think-forge-partnership-to-drive-ict-for-development (accessed: 03.04.2025).

[13] wav2vec2-large-xls-r-300m-sw // Hugging Face. URL: https://huggingface.co/thinkKenya/wav2vec2-large-xls-r-300m-sw (accessed: 05.04.2025).

[14] Common Voice Corpus 11.0 // Hugging Face. URL: https://huggingface.co/datasets/mozilla-foundation/common_voice_11_0 (accessed: 05.04.2025).

Ghana

Furthermore, Ghana places significant emphasis on the development of advanced information technologies. Among the most significant technological initiatives proposed by specialists from this country, it should be mentioned the developments in the field of natural language processing (*NLP*). This is due to the fact that creating AI-applications using the main languages spoken in Ghana requires both good training datasets (Kagumire et al., 2024) on which appropriate models will be trained and the development of specialized algorithms capable of processing these languages and computational methods themselves that would be focused on solving local problems (Azunre et al., 2021, p. 2).

To fill this gap, the *Ghana NLP* Research Group has been established in Ghana. Comprising approximately 200 members, the group is dedicated to developing language models capable of understanding the country's most commonly spoken languages, such as Twi, Ewe, and Ga.[15] This Group has developed and made publicly available eight language models trained on the Twi language on the *Hugging Face*. But it should be pointed out that all these models were uploaded between 2020 and 2021,[16] and no newer versions of these models have been released since then.

With regard to the AI-applications developed by this group, the *KhayaAI* is particularly notable. It represents a machine translation system capable of understanding different African languages and solving tasks in fields such as text recognition, text-to-speech conversion, and automatic speech recognition. Thus, it can become an indispensable assistant for many Africans, providing them with the opportunity to communicate in their native

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[15] Ghana Natural Language Processing (NLP). URL: https://ghananlp.github.io (accessed: 07.04.2025).

[16] Ghana NLP // Hugging Face. URL: https://huggingface.co/Ghana-NLP (accessed: 07.04.2025).

languages and enhancing accessibility and communication in various crucial sectors (e.g. agriculture, healthcare, and education). To promote this technology more widely, a special mobile application has been developed for the *Android* platform. Due to its functionality, *KhayaAI* received recognition from the professional community and became a winner of *The World Summit Award* in the "Culture and Heritage" category in 2024.[17] Based on *KhayaAI*, a chatbot called *KhayaChat* has been developed that resembles ChatGPT.

Among other significant technological solutions proposed by *Ghana NLP*, it is necessary to mention the *Yoruba Text-to-Speech* application, which is capable of converting text to speech in the Yoruba language.[18]

In addition to releasing base models trained on datasets of the most widely spoken languages in Ghana and creating AI-applications, this group has also developed the *Ghana NLP* Python library. This library enables developers to create applications in several African languages. The library provides the following capabilities: text translation between supported languages; conversion of audio files to text; speech generation based on a specific text fragment. The main supported languages include English, Twi, Ga, Ewe, Fante, and Dagbani.[19] The only limitation is that the use of this library requires an API key, which can be obtained by completing the registration procedure on the website of the *Ghana NLP*. This means that this library cannot be considered a publicly available Python library that can be used by absolutely any user without additional authentication. However, the appearance of such library demonstrates that African countries are indeed conducting very serious research and development focused on creating AI-applications in African languages.

Pan-African Initiatives in the Field of the Development of Advanced Information Technologies

In addition to efforts aimed at developing advanced information technologies in separate countries, they are also paying great attention on cooperation at the pan-African level in Africa. Back in 2019, during the 3rd regular session of the Specialized Technical Committee on Information and Communication Technologies (*STC-CICT*), held in Sharm El-Sheikh, Egypt, the idea of creating a working group on artificial intelligence was proposed. This group would focus on developing a pan-African strategy for these technologies.[20]

At the 5th regular session of the Specialized Technical Committee on Information and Communication Technologies, held in Addis Ababa, Ethiopia, in 2023, the concept of the future Continental Strategy on Artificial Intelligence was reviewed and approved. This strategy was adopted in July 2024.[21] However, it is important to point out that this strategy does not provide an answer to the main question: how African countries will be able to ensure digital transformation in the face of a lack of technologies and financial resources. Consequently, this document has become merely another declaration of intent, a type of document that African countries have adopted in large numbers throughout their post-colonial history.

In particular, they are highlighting in the Strategy the need for conducting scientific research in the field of advanced information

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[17] Khaya AI // The World Summit Award. URL: https://wsa-global.org/winner/khaya-ai (accessed: 07.04.2025).

[18] Yoruba Text-to-Speech. URL: https://ttsyoruba.com (accessed: 07.04.2025).

[19] Ghana NLP Python Library. URL: https://pypi.org/project/ghana-nlp (accessed: 08.04.2025).

[20] Specialized Technical Committee on Communication and Information Technologies (STC-CICT) Third Ordinary Session, 22–26 October 2019, Sharm-el-Sheikh, Egypt // African Union. URL: https://au.int/sites/default/files/decisions/37590-2019_sharm_el_sheikh_declaration_-_stc-cict-3_oct_2019_ver2410-10pm-1rev-2.pdf (accessed: 08.04.2025).

[21] The 5th Ordinary Session of the Specialized Technical Committee on Communication and Information Communications Technology // African Union. November 17–23, 2023. URL: https://au.int/en/5thstccict (accessed: 08.04.2025).

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technologies, enhancing intra-regional cooperation, mobilizing financial resources, developing national strategies in the field of artificial intelligence.[22] However, the document did not propose any specific steps aimed at stimulating the development of advanced information technologies in Africa.

Nevertheless, nowadays, many specialists from various African countries are working hard to find joint solutions to the continent's most crucial technological tasks, particularly in the field of the natural language processing, which continues to remain an area dominated by Western approaches, datasets and methodologies. These often overshadow local knowledge systems and local voices (Adams, 2021; Redvers et al., 2020; Valiani, 2022). This fact leads to the marginalization of African languages and reinforces the linguistic hegemony of the collective West (Blodgett et al., 2020). As a direct consequence of this imbalance, there is taking place a spread of bias and discrimination in large language models. By prioritizing Western languages and cultural norms, these models often fail to accurately reflect the linguistic nuances and socio-cultural context of African languages and communities (Yan & Xu, 2024, p. 3).

Thus, creating basic language models is currently becoming one of the key tasks for African countries. To this end, the pan-African research group *Masakhane* has been established, bringing together over 1,000 specialists in natural language processing from 30 African countries.[23] In order to stimulate the development of AI-applications in Africa, this research group has uploaded more than 300 open-source models on the *Hugging Face*. These models are capable of solving various tasks, primarily in the areas of text generation and machine translation.

It is also noteworthy that *Masakhane* is willing to share not only its technologies for solving specific tasks but also the datasets on which these models were trained. This opens up extensive opportunities for the emerging growth of AI-applications that are using African languages.[24]

Another pan-African research group is *Deep Learning Indaba,* an organization aimed at developing machine learning and AI-technologies in Africa. The use of the word *indaba*, which means "meeting" in Zulu, is significant and demonstrates the professional community's commitment to uniting Africans for knowledge sharing and learning (Amegadzie et al., 2021, p. 5). This leads to the organization's key mission — to transform Africans from mere observers and recipients of current AI achievements into active developers and owners of these technological advancements.[25]

Responsible AI Africa (RAIA) follows a similar approach. This platform positions itself as the leading center of AI knowledge in Africa, bringing together all stakeholders across the continent. Its key objective is to strengthen African countries' influence on the global AI-landscape. The organization's website explicitly states that the future of artificial intelligence in Africa is tied to the need for: generating African ideas, promoting African values and finding African solutions.[26]

However, solving this problem is hindered by the lack of proper funding for research and development at the field. As a result, the main sponsors of all the abovementioned pan-African research groups — which should be engaged in

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[22] Continental Artificial Intelligence Strategy // African Union. 2024 (July). P. 7. URL: https://au.int/en/documents/20240809/continental-artificial-intelligence-strategy (accessed: 10.04.2025).

[23] Masakhane. URL: https://www.masakhane.io (accessed: 11.04.2025).

[24] Masakhane NLP // Hugging Face. URL: https://huggingface.co/masakhane (accessed: 11.04.2025).

[25] Our Mission // Deep Learning Indaba. URL: https://deeplearningindaba.com/about/our-mission (accessed: 15.04.2025).

[26] Responsible AI Africa. URL: https://www.responsibleai.africa/about (accessed: 15.04.2025).

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finding African solutions to African problems — remain Western companies and foundations. For example, *Google*, *Meta*[27] and the *Rockefeller Foundation* still remain the largest financial donors to *Responsible AI Africa*. And the headquarters of *Deep Learning Indaba*, which has nonprofit status, is registered as a company limited by guarantee in the UK. This raises a legitimate question: if these organizations are primarily funded and actually managed by Western corporations and foundations, how can they truly pursue African-led solutions?

Conclusion

In recent years, sub-Saharan African countries have been paying increased attention to the development of advanced information technologies The key area of research for these states today is solving tasks in the field of natural language processing. This is because the creation of a well-developed AI-ecosystem in Africa that would be focused on the needs of the local citizenry will only become possible if a wide range of diverse AI-applications capable of understanding various African languages is developed.

Several language models for Kiswahili, Yoruba, Twi, and Luganda have now been developed and made publicly available. These models represent a significant breakthrough for African countries in the field of high-tech technologies. However, these successes are of a local nature on the scale of the entire continent. Furthermore, many of these models have not been updated since 2021–2023, which is

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[27] The activities of *Meta* company are prohibited on the territory of the Russian Federation.

unacceptable for language models, as high-quality performance requires constant training on updated data and continuous improvement of their architecture.

This situation can be explained by two factors: a lack of training datasets and insufficient funding for relevant research and development because many research groups in Africa operate on a voluntary basis, and the research itself is often funded through sponsorship from Western corporations.

That's why the backbone of business models for all key initiatives in the field of advanced information technologies that have been regularly proposed by sub-Saharan African countries, is based on public-private partnerships. In this context, the role of the state is typically limited to creating favorable conditions for foreign (non-African) investors that continues to remain the key priority of economic policy for most African countries and the lack of a stable flow of such investments is the primary reason for the failure to meet initially announced deadlines for the implementation of various high-tech projects.

Moreover, it should be taken into account that if R&D activities in Africa are carried out exclusively with funds from foreign, predominantly Western investors, and are based on Western technologies; they will ultimately turn into a new and highly effective tool for maintaining Western influence in the region.

In this regard, African governments need to think on the creation of mechanisms for involving African investors in solving this task. Only then will it be possible to organize the search for optimal solutions that meet specific local and regional demands.

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