



THE NIGERIAN ACADEMY OF SCIENCE

Big Data and Artificial Intelligence (AI) Stakeholders' Workshop 4th and 5th November, 2019 Sheraton Hotel, Ikeja-Lagos

Workshop Communiqué

The continued dominance of Big Data Analytics (BDA) and Artificial Intelligence (AI) is reshaping the future of work globally, and begs the question - is Nigeria ready for the future of work? In a bid to address this, the Nigerian Academy of Science (NAS) convened a two-day stakeholders' workshop on the impacts of BDA and AI on the future of work in Nigeria. This workshop took place on the 4th and 5th of November 2019, at Sheraton Lagos Hotel, Ikeja-Lagos.

The workshop brought together relevant stakeholders to chart a new course for education and training in Nigeria, and ensure that Nigerian graduates - especially in the science disciplines - are equipped for work in the digital future. In attendance were representatives from Nigerian tertiary institutions, government ministries, departments and agencies (MDA), the organized private sector, development agencies, as well as civil society organizations. The workshop featured presentations by experts on relevant themes and topics including the evolution of BDA and AI, access to data in Nigeria, the impacts of Big Data and AI on business, education and work, and the preparedness of present day Nigerian graduates for the realities of the modern workplace.

During the course of the workshop deliberations, the participants noted the following:

1. In the world today, a country that is unable to leverage its growth with AI cannot really develop or prosper. Therefore, there is an urgent need for strategies and plans to prepare Nigerians for the digital age, where AI and robotics are becoming increasingly significant. The academia is one of the fronts of emerging technological thinking and development, so it is imperative for the federal and state governments, and all other proprietors of higher institutions of learning to provide the necessary funding, and for the academia to adopt the right learning strategies and research direction to drive and create innovations in new technologies.

2. Data (facts and statistics collected for reference or analysis) constitute an asset that drives the modern world. As the official national data custodian and platform for data access, the National Bureau of Statistics (NBS) has created a data repository, and defined a roadmap that can ensure the effective management and use of the data- making use of integrated data systems based on AI and other BDA technology. The NBS platform should be used to continuously aggregate data for better decision-making. Many citizen-data types are already being captured, which if connected with AI can lead to several innovations, and can help improve developmental plans.
3. Information Communication Technology (ICT) is central to providing quality education that matches the needs of the country. According to the United Nations Educational, Scientific and Cultural Organization (UNESCO), quality education that embraces BDA and AI, can accelerate the achievement of the global goals for education - the fourth Sustainable Development Goal (SDG-4). This would reduce barriers to access to learning, help automate management processes, and optimize methods to improve learning outcomes.
4. The consistent increase in Nigeria's youth population is an opportunity, hence the need for new strategies for talent development that will create the basis for either self-employment or skilled manpower in regular jobs.
5. The current direction of digital transformation through BDA and AI is towards providing personalized services that are readily available to all citizens. New transformational business models in commerce, and ready-to-use transactional applications towards such services are constantly evolving. The economic potentials of new and emerging technologies can only be realizable by developing local capacity in digital technologies.

Recognizing the increasing importance of BDA and AI, the prevailing challenges in terms of digital education at all levels of the nation's education system, as well as the gap between the skill-sets of science graduates and the competencies required for the current and future workplaces, the workshop participants made the following recommendations:

1. Strengthen platforms to bridge the skill gaps required for joining the fourth technological revolution: Nigeria needs to take decisive and timely action to join the fourth technological revolution, and become part of the global innovation transformation. The opportunities are

abundant, but the expertise is scarce; consequently there is a need for capacity development to bridge the gap.

2. Improve the level of digital infrastructure and training: In the short to medium term, the goals should be to increase the level of digitized data, effective storage, and ease of access to the national databases. There is a need to ensure unlimited access to computing power e.g. broad-band internet for all at very low costs, and a deliberate attempt to promote and increase digital knowledge base at all levels of educational strategies and planning. Digital knowledge and skills ‘from the very start’ i.e. the earliest levels of basic education, will ensure that Nigeria can prepare the next generation for AI. Manpower capacity strengthening is also necessary for teachers at the primary stages; training and retraining is required.
3. Integrate BDA and AI into the processes of governance and goal-setting: There is a need to fully integrate BDA and AI into the processes of governance and goal-setting to reduce risks in policy implementation, drive improved efficiency and effective monitoring, and shorten the cycle time of decision-making. Strategies and plans can be made implementable and impactful by choosing transformational goals and directions for innovation. There are several areas of Nigeria’s economy and society where implementation of home-grown AI will enable fast transformations, including education, personalized equations models and services, health, finance, and the environment.
4. Develop a new educational curriculum that is dynamic and relevant to future work realities: AI thrives on data, and data requires infrastructure, both of which can't do without the expertise expected from universities. Nigeria’s educational institutions must develop new educational curricula to reflect modern realities from the basic to the tertiary levels. Such curricula must be dynamic to reflect new knowledge of coding techniques.
5. Increase budgetary allocations for capacity training and research and development: The government should guarantee needed funding for manpower training and research and development. Nigeria can create a new ‘digital tax’ to fund plans for embedding BDA and AI research.
6. Develop and implement AI strategy with focus on Nigeria’s comparative advantage: Machine learning and AI are increasingly replicating human behaviour or actions which can

have potentially serious consequences. Nigeria needs to develop and formulate its own comprehensive ICT policies and strategy, as well as ethics to guarantee delivery of responsible applications of AI. Such policy frameworks and strategies should be both reactive and adaptive, backed up by ethical guidelines that will ensure that the use of data, as well as the outcomes of AI are positive. Additionally, there is need to establish the guidelines for a robust legal framework that defines the terms of use for the trillions of terabytes of data generated daily.

7. Create strong partnerships between government, academia, and private sector: Nigeria needs better synergy between government, academia, and the private sector for joint problem-solving that will benefit the larger society. The creation of innovation hubs would be a good step to drive this. Stakeholders should lead the movement for grassroots digital skills acquisition.

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