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TOPIC: Future of work in Africa with digital divide due to AI, opportunities and challenges: Webinar

Many countries are developing AI strategies to bridge digital divides and to remain competitive in the global economy. This webinar will explore Africa's varying AI strategies as well as their impact on the continent's economic growth. Our panelists will provide regional success stories that explain the opportunities and challenges in deploying these strategies, with discussions on what their impact will be on the future of AI in Africa.

Greetings from Southern side of Africa,

It is my pleasure to join you this afternoon to engage on this important topic. Why so:

Introduction

There continues to be rapid increase of digitised data in the global economy. Data explosion continues to provide many opportunities from increasingly pervasive sensors, social networks, and mobile devices. By 2025, global data traffic will grow to 163 zettabytes (that is a trillion gigabytes). A study by PriceWaterhouseCoopers (PWC) calculates that global GDP will increase by 14% by 2030 as a result of AI (that is an estimated \$15.7 trillion). In the next five years, business executives across the

globe expect AI to have a positive impact on growth (90%), Productivity (86%) and Business-Process-Outsourcing (BPO) creation (69%).

Mobile and cloud computing, the Internet of things, Artificial Intelligence (AI), and Big Data are not only transforming our lives and the way we work, live and function, but also generating new business models which require new strategies and innovation - and Africa needs to grasp this, or we risk being left behind.

Artificial Intelligence (AI) is part of our everyday lives, as it is embedded everywhere, its important that we don't think of it as something that is coming in the future, however, think of it as something that is happening now. With Globalisation, companies have been motivated in seeking productive and cost-effective work force and the younger population has always been a key ingredient of active work force because of their innovative capabilities. Africa is a young continent with a prospect of growth in the young population and as a destination for an active workforce.

Africa's youth in the world is forecasted to increase to 42% by 2030 and is expected to continue to grow throughout the remainder of the 21st century, more than doubling from current levels by 2055. Having said, Africa has not yet realised its competitive advantage due to a number of challenges among others include the lack of infrastructure, which has serious impediments on rolling out 4IR technologies. As we speak, 35% of the Sub Saharan Africa population is still not connected to the internet. This has an enormous impact in the development of the African economies. The infrastructure, speaks to broadband connectivity, electricity, energy, computers, data centres, cloud storage, etc)

But the situation is not so gloom: as countries, we are making strides to address the infrastructure gaps. We have a roadmap as Africa, under the Programme for Infrastructure Development in Africa (PIDA) as well as Broadband Commission, Broadband for All programmes which seek to close the infrastructure gap and identify financing models for sustainable broadband deployment.

But this is not the only challenge we are facing:

Opportunities and Challenges on the future of work

In South Africa, the unemployment rate is on the increase. In the past 10 years (2008–2018), the unemployment rate has increased from 21,5% to almost 28,0%. The most affected persons are women and youth.

The Fourth Industrial Revolution (4IR) poses a threat to the continent to displace existing jobs however it still possess opportunities to create new jobs and across many sectors as a result of productivity improvements, technology advancements and strategic policy implementation. According to McKinsey & Company Research, South Africa is expected to create about 4.5 million new jobs, however it is also expected that 3.3 million jobs will be lost due to the job functions, those that are capable of being fully automated or jobs that will require less people for them to be performed. We have already seen this negative impact in the financial sector - with most banks being automated.

The retail sector is currently going through major disruption with digitisation in its operations to reduce cost and improve customer experience. However, opportunities have opened in e-commerce and barriers for entrance have lowered, demand in logistics capabilities have increased. This benefits Small Medium Enterprises (SMMEs) through the opportunities brought by such opportunities and traditional models will need to be revised in order for them to be relevant for the future changes in the industries. AI provides an opportunity for SMMEs to use predictive modelling to know what is popular with the customer.

The mining sector in South Africa is depended on massive unskilled labour force and with volatility on precious metals prices the mining sector has been negatively affected as a result closed unproductive mines and significantly cut labour. With the 4IR the mining shaft that were previously unproductive can once again be exploited safely with robotics and with improved safety. New types of quality and sustainable jobs can be created where machines and humans' capabilities are enhanced.

The future of work present opportunities for Women participation where physical strength requirement has been an existing barrier for a long time. As such, work which previously involved heavy machinery, heavy tools and material has now been transformed to digital tools. Digitalisation has eliminated these barriers for women, and

those with physical challenges, to participate equally in such industries. Opportunities will be opened for women as the physical strength barriers will be eliminated.

But the most relevant focus of AI today is on Health: as we grapple with combating COVID-19, there lies opportunity for Africa to use AI solutions of predictive modelling and more accurate diagnostic reporting. AI-based tools can help improve the burden placed by the dismal doctor to patient ratio in Africa today. Experts have been quoted saying Africa needs 1.2m doctors. With AI-based disease diagnosis tools on mobile phones, and other apps, these can help doctors to remotely see patients. Additionally, many jobs can be created in villages and secondary cities for nurses and community workers to diagnose diseases, remotely-connect patients to doctors and save millions of lives and economic burden created by ill populations.

Africa can prioritize the adoption of artificial intelligence and future exponential technologies for transcending our massive annual infrastructure gaps to more cost-efficiently tackle socio-economic challenges. With an approach that advises national, regional and continental specialization, we propose Africa seriously considers the impact of AI in these five (5) verticals

Another area of great potential is Agriculture - AI-based tools can help dramatically improve the yields of African farms, reduce the excessive waste across the value chain and create higher value-chain opportunities for entrepreneurs. Already, about a million farmers are leveraging offline text-based AI-tools to answer common questions, and other AI-tools to accurately detect and treat diseases in their farms. The effect here can be massive for Africa's largest employment sector.

Lastly, on e-Governance & Smart Cities - AI-based tools can help government offices incredibly reduce inefficiencies to reduce the cost of operation and unlock growth opportunities for millions of constituents who consume government services daily. For example, conversational AI and automation can help reduce the email and physical document processing burden government's face and speed up the processing time for common government services that will directly affect its "ease of doing business" rankings. As part of transforming our cities and villages to smart villages: AI-based tools can be used especially in Africa's most populated cities to better route large transport operations like trucking and mail delivery, and also used to provide sizable improvements to traffic management infrastructure like traffic lights. These types of tools are already being deployed by IBM and a number of start-ups in Kenya, and

worth looking at as an example of positive impact to general productivity of the population.

What is required of us as Africa to meet this new challenge?

Earlier, I spoke about the challenges of closing the infrastructure gap.

We also need to re-skill and upskill the work force, so to ensure that employees' skills are in line with the technology improvements and demands. We need to change the educational curriculum. As South Africa, we are making strides to address this: we have introduced coding at schools; we are repositioning NEMISA to be the e-Skills Institute that will focus on 4IR training; we also have a number of local, Africa home-grown enterprises and training institutions that are have dedicated programmes in cloud computing, software development, data science, cybersecurity, etc. One such institution is Deviare; that provide foundational, advanced and expert programs in the areas I have mentioned above.

It is therefore clear that the 4IR can be redirected to provide solution to the work place and not to replace human participation; however compliment and improve the efficiency of workers. Human cognition can be extended by AI when addressing complexity, whereas humans can still offer a more holistic, intuitive approach in dealing with uncertainty and equivocality in organizational decision making. This premise mirrors the idea of intelligence augmentation, which states that AI systems should be designed with the intention of augmenting, not replacing human contributions. Competence skills such as critical thinking, problem solving, creativity and emotional intelligence are still required for the implementation and use of the advance technologies in our societies.

What South Africa and Africa is doing?

The South African Government through the Presidency has established the Commission on 4IR to formulate a strategy on how South Africa can position itself through policy review and programs to take advantage of the 4IR. The Commission has developed the strategy which will inform the implementation of 4IR in South Africa.

The implementation of AI technologies will require people with advance skills, the demand of graduates will increase. It is important that this demand is met in the work places. This requires partnerships between academic institutions, private business

and government to work together in ensuring that the right skills that meet the technology innovation requirements are available. The preparations for these critical skills needs to begin now. Our continent continues to engage in research work where governments collaborate with academic institutions, for example in South Africa the Centre for Artificial Intelligence Research (CAIR), in future we seek to see this research work being implemented to address the issue that continent faces.

Africa is also in process of finalising the Fourth Industrial Revolution Strategy, which will unpack key programmes for Africa to grow its digital economy. One main focus of the strategy is on capabilities and opportunities for AI and I look forward to engaging with the panel and the Africa-wide audience to learn more on those opportunities.

Role of African Governments

As African Governments, we see great potential for AI. We have seen other countries adopt strategies on AI. We have seen great investments in 4IR. One observation: other jurisdictions have taken more action in regulating data.

- The Cloud Act forces open access to data on a cross-border basis in the context of judicial investigations
- The General Data Protection Regulation (GDPR) standardizes data protection law across all 28 EU countries and imposes strict new rules on controlling and processing personally identifiable information.

As a basic, for us as Africa we need to:

- Promote data-driven technologies and innovation-driven growth;
- strengthen the support for infrastructure development;
- set the tone on collaborative approach that allows for all stakeholders to share their expertise, insights, and build trust.

We also need a continental Data Policy – as articulated in the AU Ministerial decision of Ministers of Communications (October 2019) and the AU Digital Transformation Strategy adopted by the Heads of States and Government in February this year.

We also recognise the need to further strengthen the AU Convention on Cybersecurity and Protection of Personal Data.

As Governments own the largest repository of data – we need to be decisive in how this can turn Africa’s economy around. Any organization in any industry that has large amounts of data can use AI to add value.

Conclusion

It is crucial that the AI solutions that are developed and implemented in our societies address our social challenges. It will be meaningless to adopt solutions that are not in our social context and help to address our challenges. South Africa’s challenges, similar to Africa’s are inequality, unemployment and poverty. Therefore the implementation of AI solutions must address these issues and improve the economy and competitiveness of our contry while also contributing to the improvements of the African continent’s participation in the global markets.

To do this, we must collaborate AI groups and with the young tech entrepreneurs in the continent and in the Diaspora; groups such as the Alliance for Africa’s Intelligence are key, as they have been doing work in this area.

We must collaborate with our research institutions as we need more software developers, data scientists, cloud computing experts, cybersecurity experts and big data analysts.

As Governments, we must coordinate ourselves, and create regional hubs in Africa that will focus on specific areas of expertise or prioritise; and in return we will maximise on the economies of scale and ensure the limited resources available achieve maximum impact.

I need to emphasise what we have been saying all along: Africa cannot afford to be left behind. But we need to be inventive in our approach and what we implement: provide African solutions to Africa’s challenges, utilising African resources! That’s the only way we can win in this game.

As Stella, the Commander of 4IR, I am ready for this challenge.

I thank you,