Chapter 19
Africa in the Face of the AI Wave and the Fourth Industrial Revolution:
Leapfrog Opportunities, Developmental Backlogs, and Impediments

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ABSTRACT

The major concern of the chapter is with the prospects of AI and the generality of the Fourth Industrial Revolution in the light of Africa's development and with Africa's readiness to embrace the new technology. Using the method of hermeneutics, the work discovers that efforts made in some African countries to embrace the opportunities offered by the new revolution notwithstanding, Africa seems to be at the lower rung of the new technological ladder. The chapter discusses the impeding factors and more while proffering a way out in order to catch into the opportunities created by artificial intelligence. The chapter further recognizes that AI within the context of contemporary African situation presents a dilemma given the teeming unemployed demography. Without taking light of this dilemma, the chapter tends to view AI emergence in terms of what has been described as a critical juncture, and an adequate response would ultimately lead to increased prosperity.

INTRODUCTION

The present chapter is poised to tinker with the prospects of Artificial Intelligence and the generality of the Fourth Industrial Revolution in the light of Africa's development and with Africa's readiness to embrace the new technology. Discovering that despite efforts made in some African countries to embrace the opportunities offered by the new Revolution notwithstanding, Africa seems to be at the lower rung of the new technological ladder, the chapter discusses the impeding factors and more while proffering

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a way out in order to catch into the opportunities created by artificial intelligence. It further recognizes that AI within the context of contemporary African situation presents a dilemma given the teeming unemployed demography. Without taking light of this dilemma, the chapter tends to view AI emergence in terms of what has been described as critical juncture and an adequate response would ultimately lead to increased prosperity.

The research is informed by the understanding that Africa cannot afford to miss the transformative changes which the Fourth Industrial Revolution promises to bring. In this the Brookings Institution warns that missing such opportunities will obviously impose considerable risks on Africa stakeholders. In fact, "without attempts to move beyond existing models of innovation, entrepreneurship, and digital growth on the continent, African businesses risk falling further behind, exacerbating the global 'digital divide' and lowering their global competitiveness" (Radu, 2020). The inevitable rise of the advanced technologies of artificial intelligence and the Fourth Industrial Revolution have been marked as disruptive technologies and so while they, like other industrial revolutions will be characterized by evolution they will also disrupt economies and human society. What this means is that if nothing dramatic is done and differently, the result will be continued and more exasperating inequality. To do nothing in this regard would entail widening an already exacerbating gap and divide: There will for instance be continued skill gap, technology gap, knowledge gap and all these would inevitably translate in the long run to clear prosperity gap.

Unsettled by these concerns of the inevitability of continued prosperity gap if nothing is done, the chapter reflects on the imports of Artificial Intelligence and the Fourth Industrial Revolution on Africa; the possibility of their offering a unique launching pad for development in what has been termed leapfrogging. The second section is concerned with developmental backlogs and impeding factors on the path of leapfrogging as well as how they could be surpassed.

BACKGROUND

Artificial Intelligence (AI) is up for revolutionizing the technological sphere and as a result changing society in a profound way. It is today not just a laboratory affair, it is more than ever becoming a technological force multiplier in an ever-widening range of real world cases including drug development, healthcare, agriculture, energy, logistics and defense. From the economic perspective, the PwC analysis in its 2017 report had noted that "AI is set to be the key source of transformation, disruption and competitive advantage in today's fast changing economy." It avers that artificial intelligence can transform the productivity and GDP potential of the global economy. In this it predicted that "45% of total economic gains by 2030 will come from product enhancements, stimulating consumer demand." (PwC, 2017) This is premised on the realization that "AI will drive greater product variety, with increased personalization, attractiveness and affordability over time." (PwC, 2017) It projects the total economic impact of AI in the period to 2030 as $15.7 trillion to the global economy by 2030. While $6.6 trillion is likely to come from increased productivity, $9.1 trillion is likely to come from consumption-side effects (PwC, 2017).

Artificial Intelligence is, however, only a key element of what has been tagged the Fourth Industrial (technological) Revolution which enters into the purview of the present work. While the First Industrial Revolution used water and steam power to mechanize production, the Second used electric power to create mass production; the third used electronics and information technology to automate production. The Fourth, though, in some sense an extension of the Third but qualitatively different is "characterized by