

EMERGING TECHNOLOGIES AND ITS IMPLICATIONS ON THE FUTURE OF WORK IN NIGERIA

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Abstract

Automation as a phenomenon is not new to modern society. The idea of replacing man with machines date back to the 1950s, when workers on production line were replaced with automated processes. It is however interesting to note that further advancement in technologies has continued to create fear in the heart of working people, to a point that machines (robots) a technology driven by artificial intelligence will become smart enough to take over and replace human beings in the work environment. This paper intends to examine the future of work in the era of AI. To identify what is needed by workers and potential workers to cope with the ever-changing innovations in the world of work. Appropriate recommendations were made on how workers could scale up their skills in a bid to meet up with the fourth industrial revolution (4IR).

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Introduction

There is no doubt in recent times, advancements in technology has birthed many innovations which has resulted in reshaping the work place. Innovation report (2018) observed that “since the Industrial Revolution, technological change has repeatedly reshaped the workplace. Yet today, the pace of that change has accelerated with the development of new automation technologies driven by Artificial Intelligence (AI). These technologies are not just disrupting the way people work, they are changing our relationship with work”. It is important to emphasize that these advancements are pervasive, not only in the economic sector, but have also impacted health, education, social sectors and so on. Two decades back, no one will ever imagine the level at which these advancements has influenced the work environment. It has struck fear into the heart of working people and also call to reason, possibility that with current progress in artificial intelligence a time will come that machines will replace people in work environments. Yelwa,

Abdulhameed, and Muhamm inad (2020) remarked “these inventions are geared towards execution of task in the workplace with precision and effectiveness on the part of employers in other to minimize costs and maximize profits. On the part of employees however, they constitute threats to the existence of some jobs that automated machines can perform or execute. At the closing Ceremony of the 50th Anniversary Celebrations and Annual Conference of the Chartered Institute of Personnel Management (CIPM 2018); it was also noted that technology is redefining the structure of industry and commerce, and the skills required to function in them. This assertion considered, no doubt, indicates that preference for machines over humans by employers will lead to layoffs. Example is the technological unemployment caused by electronic/mobile banking, Automated Teller Machines and other sophisticated banking methods in the Nigerian banking industry. It is important to note that in integrating robots into the workplace, employers will be

faced with the dilemma of choosing between human workers and highly efficient and intelligent machines (robots). It is most likely that the employers will lean in favour of the robots for several reasons, considering that robots would free the employer from salaries, obligations, regulatory remittances, benefits/allowances, leave days, labour union pressures, etc.

What is Artificial Intelligence?

Artificial Intelligence (AI) is a branch of *Science* which deals with helping machines find solutions to complex problems in a more human-like fashion. The concept of Artificial Intelligence can be traced back to as early as 1950 when Alan Turing invented the Turing test. In a publication entitled “Computing Machinery and Intelligence” Turing proposed a method for evaluating whether machines can think. In general terms, artificial intelligence helps a machine think and solve complex problems as we humans do with our intelligence. This process involves borrowing characteristics from human intelligence, and applying them as algorithms (step by step procedure) in a computer friendly way. The assumption of Turing was that a computer that is indistinguishable from an intelligent human can actually think. This idea set the tone to further studies and research in the field of AI.

According to United States and European Union Economic Council (2021) artificial intelligence (AI) is defined as the application of cognitive science techniques to artificially create something that performs tasks that only humans can perform, like reasoning, natural communication, and problem solving. Pradipta (2015) define artificial intelligence (AI) as the part of computer science concerned with designing intelligent computer systems, that is, systems that exhibit characteristics we associate with intelligence in human behaviour – understanding language, learning, reasoning, solving problems, and so on. Acemoglu and Restrepo, (2017) define artificial intelligence to include devices such as banal, Roomba robots, online recommendation engines to

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more advanced cognitive systems like IBM’s Watson. Osoba and Welser, (2017) stressed that these emerging inventions in Artificial Intelligence (AI) continue to generate suspicion about jobs security because of the perception that they are developed with the capacity to carry out tasks which humans do in the offices and factories. They further echoed that this apprehension has become widespread as more computerized or automated machines are developed with the capacity to discharge routine clerical works that were hitherto discharged by humans. Succinctly put, the ultimate goal of this technology is to evolve computers that learn like a child, with the effect that these machines (robots) will be programmed to learn by simple algorithm to carry out cognitive tasks. Thus, many tasks in various field will be subject to Robotic Process Automation (RPA), thereby reducing human intervention particularly in routine tasks to a minimum’.

Emerging Technologies and Job Shifts

Anywhere we turn today, there is some unbelievable technological advancement which could not be imagined some decades back. We hear and even see things like autonomous (self-driven) cars, chatbots, robots Chatgpt, Siri, Alexa, Netflix, automated email response etc. These advancements have at the center of it, the AI technology.

Anxiety about employment losses induced by greater use of advancement in technology has existed for centuries. With each breakthrough, someone's livelihood or quality of life is always at risk of being irreversibly altered. To this end, the tech industry as one of the fastest growing sector has continued to swing in the full force of AI which has given birth to what is now called the fourth industrial revolution (4IR). Quite different from other technological advancements in human history, the 4IR which is driven majorly by AI came with a pace of change that appears to be faster than previous revolutions, this pace of unprecedented developments in technological progressions is pointing to the fact virtually all jobs and

occupations will be affected by task automation aided by ICT and AI.

Relevant literature on the impact of emerging technologies (AI) on the future of work and job shifts highlighted two possible changes that will hit the work place; First, the adoption of digital technologies will create new jobs, meaning that employment and demand for digital skills will be on the rise in this sector, while tasks of routine nature will be on the decline. The table below bear credence to this;

Current Job Shifts

Jobs in Increasing Demand	Jobs In Decreasing Demand
Data Analysts and Specialists	Data Entry Clerks
AI and machine Learning Specialists	Administrative and Executive Secretaries
Bid Data Specialists	Accounting, Bookkeeping and Payroll Clerks
Digital Marketing and Strategy Specialists	Accountants and Auditors
Process Automation Specialists	Assembly and Factory Workers
Business Development Managers	Business Services and Administration Managers
Digital Transformation Specialists	Client Information and Customer Service Workers
Information Security Analysts	General and Operations Managers
Software and Applications Developers	Mechanics and Machinery Repairers
Internet of Things Specialists	Material-Recording and Stock-Keeping Clerks
Project Managers	Financial Analysts
Business Services and Admin Managers	Postal Service Clerks
Database and Network Professionals	Sales Rep., Wholesale and Manuf., Tech.
Robotics Engineers	Relationship Managers
Strategic Advisors	Bank Tellers and Related Clerks
Management and Organization Analysts	Door-To-Door Sales, News and Street Vendors
FinTech Engineers	Electronics and Telecom Installers and Repairers
Mechanics and Machinery Repairers	Human Resources Specialists
Organizational Development Specialists	Training and Development Specialists
Risk Management Specialists	Construction Laborers

Source: Future of Jobs Survey 2020, World Economics Forum

The second impact according to a report by Bloomberg (2019) indicate that there be massive loss of jobs globally. To corroborate this, Yelwa, Abdulhameed, & Muhammm Inad (2020) Pointed To empirical evidence which indicate that in some developing countries, private businesses and public employers have started shifting demands from educational qualification to skills. For example, Statistics reveals that roughly 25 percent of U.S. employment (36 million jobs in 2016) will face high exposure to automation in the coming decades (with greater than 70 percent of current task content at risk of substitution). At the same time, some 36 percent of U.S. employment (52 million jobs in 2016) will experience

medium exposure to automation by 2030, while another 39 percent (57 million jobs) will experience low exposure (Muro, Maxim and Whiton, 2019). Also, EY and NASSCOM (2017) cited that in India, one of the rapidly growing hub for IT, evidences of job shifts which essentially is driven by emerging technologies are manifesting. Their study showed that reskilling of employees was rated as a key initiative by 71% of industry players. In response to these changes, there is growing emphasis on need for significant reskilling of current employees in soft skills and IT skills if they are to remain on their job

The case of India is therefore is a clear signal to other developing countries of the world, particularly Nigeria about what would happen to jobs and workers if they are not reskilled to keep pace with technological advancements.

Significant Imperatives

Discussions about the impact of emerging technologies occasioned by the development of artificial intelligence is not new, and has given birth to a new concept called the 4th industrial revolution (4IR). The first industrial revolution began in the early 19th Century, and brought with it the power of steam and water, this dramatically increased the productivity of human (physical) labour. The second revolution came 100 years later with electricity as its key driver. This led to mass industrial production mass consumption and mass productivity gains. The third revolution followed 70 years after with information technology: the use of computing in industry and the development of personal computers. The fourth industrial revolution (4IR) started some 30 years ago and brought about what is now called the digital revolution. The 4th revolution refers to an era of emergent disruptive technologies, like the AI which will destroy old jobs, displace unskilled workers and replace them with robots.

While countries like India, China, Japan, UAE, Singapore, Sweden, Qatar, South Korea and even South Africa, are adopting and exploiting these technologies,

Nigeria still relishing in the third if not the second industrial revolution. For example, these advanced technologies are yet to reflect in our health system; even our educational system which is expected to serve as the fulcrum for the adoption and training of relevant manpower has collapsed. It is therefore crucial for relevant stakeholders, particularly the government to engage these developments and build an educated workforce capable of leveraging the technology that exists.

Conclusion

The Conclusion of this paper is that the world of work is currently witnessing massive developments propelled by advancement in technology. The advancements is redefining the nature of jobs and how they are discharged. Advancements in technology is also shifting employers' focus from educational qualification to skills possession. This change is based on the fact that new jobs call for updated skills by workers. Also, impact of advancements in tech in the work place is shifting employers focus on certificates to skills. Invariably, this signals the need by our educational sector to restructure and adjust content of what is taught in the school to meet the needs of the emerging future of work. As a result of tech changes brought about by AI, there is need for workers to update their skills so that can be in tune with the developments in AI and its application to their work.

Recommendations

In line with the findings of this paper, the following recommendations are put forward;

1. Educational institutions should keep pace with rapidly evolving technology, to enable individuals to be future ready and reduce their rate of job loss.
2. Employers who have the intention of using AI in their place of work need to retrain their staff to new tasks as the old ones are taken over by artificial intelligence enabled machines.

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