



TECHNOLOGICAL ADVANCEMENTS AND AFRICAN WORKFORCE: THE NEED FOR UPSKILLING AND RESKILLING

Esther O. MOFOLUWAWO¹; Elizabeth I. WAHAB²; Olufemi OLADOSU³, Akintunde I. OGUNMODEDE⁴ & Abiodun E. ADESINA⁵

^{1&2}Social Studies and Civic Education ³Political Science Education ⁴Creative Art Education

⁵Biology & Integrated Science Education

Emmanuel Alayande University of Education, Oyo, Nigeria

Abstract

Technology represents the systematic application of scientific knowledge and principles to develop tools, processes, and systems that address human needs and challenges. It involves a blend of techniques, skills, processes, design, and products used in various sectors like industry, education, commerce, and everyday life. Technological advancements have had a profound impact on fields such as agriculture, health, education, communication, transportation, art, recreation, and politics. The level of technology plays a crucial role in economic growth, with innovations driving rapid progress in developed nations. Changes in technology have led to improved working conditions, reduced hours, and increased productivity, enhancing the efficiency of human resources. Emerging technologies like block chain, data science, machine learning, and artificial intelligence are reshaping the world, creating value and causing shifts in societal norms. Skills development is essential for success in the modern labor market, where automation and digitalization are transforming job requirements. This paper contends that upskilling and reskilling are key to adapting to technological advancements and ensuring job security and better opportunities. The paper recommends that organizations and governments must collaborate to address skills gaps, promote upskilling and reskilling, and prepare the workforce for the future. Educational institutions should update their curricula to include both technical and soft skills, while individuals should embrace lifelong learning to stay relevant in a rapidly changing world.

Keywords: Technological advancements, African workforce, Need for upskilling and reskilling

Introduction

Technology, as defined by Arntz, Gregory, and Zierahn (2016), is "the state of knowledge concerning ways of converting resources into outputs." This encompasses both the scientific principles underlying technological advancements and the practical applications that result. Invention, the creation of new scientific principles and processes, is the first step in technological development. Innovation, the application of these principles to create useful products or processes, is the second. The impact of new technologies on the economy and society depends on their widespread adoption. General-purpose technologies (GPTs), capable of influencing various industries and organizations, have a broader impact than technologies designed for specific functions (Jovanovic & Rousseau, 2018).

The convergence of the Industrial Revolution and the Internet of Things is set to

accelerate technological advancement globally.

To capitalize on these developments, African employers will require a significantly expanded pool of highly skilled talent. Demographic projections indicate that Africa will constitute 42% of the world's youth population by 2030, comprising 60% of its total populace (World Economic Forum, 2022). This demographic shift, coupled with the continent's growing share of the global workforce, underscores the urgent need for robust talent development strategies. Arntz, Gregory, and Zierahn (2016) highlight the necessity for developing both cognitive STEM-based skills and non-cognitive soft skills to meet the demands of the evolving workforce. Digital automation technologies will impact the future world of work, leaving many workers around the world feeling anxious they will lose their jobs to automation.

The African civil service, as the primary instrument for implementing public policy, plays



a pivotal role in achieving the state's developmental objectives. Its effectiveness in driving economic and political growth is contingent upon its capacity to catalyze continuous skill development within the civil and public service sectors. Workforce training and development improves employees' morale, gives them a sense of security, and hones in them the requisite competencies required in a dynamic work environment (Walters & Rodriguez, 2017) the quality of service delivered by the civil service significantly influences the material well-being of the citizenry. Bureaucratic activities, including approvals, licensing, project execution, and supervision, exert a substantial impact on a nation's developmental trajectory (Philips, 1990).

Most third world labour force, in the opinion of Numberg (1994), are characterized by over bloated sizes, insufficient productivity, lowly motivated force, and poorly linked techno-force bureaucracy. Addressing these challenges through restructuring, downsizing and cost cutting strategies have further demoralized the workforce (Lienert, 1998). The workforce is thus replete with absenteeism, ghost work force and other sundry forms of bureaucratic corruption. Thus, the need for reskilling and upskilling for tackling multifarious hinderances to a productive, efficient and responsible service delivery.

In the same vein, Ajayi (1998) submitted that the efficiency and productivity of the workforce in the African context generally contend with such malaise as overstaffing, poor remuneration of workforce, poor assessment of manpower needs and the use of wrong criteria for manpower needs assessment. The workforce is also affected by non-suitability to manage a technologically driven service delivery system. These issues can be addressed through appropriate re-evaluation of the skill gap in the workforce.

The introduction of any technology has various consequences. These impacts occur in the environment, to existing and future technological developments, financial and social system in which the new technology is embedded. The development and diffusion of new technologies has been widely studied. Some studies have indicated that the

introduction of advanced technologies have resulted in higher wages (Census, 1993). A number of economists who have been echoed by politicians have raised concerns on the negative impact of the introduction of technological innovations (Zachay, 1996, Archibald, 1996). Archibald (1996) contends that in the long run natural market forces will bring the economy toward full employment and therefore jobs will be neither be created nor destroyed as the result of technology transfer.

Technological innovation is often correlated with increased industrial productivity, subsequently influencing enterprise scaling. While technological advancements can lead to job displacement, historical evidence, as supported by the National Research Council, suggests that these effects are often transitory. Coupled with economic growth and requisite workforce upskilling, the overall impact of technology on employment tends to be positive (Ansal, 1996).

The emergence of information technology (IT) serves as a contemporary case study in the transformative effects of technological advancements on employment structures. Some economic theorists posit that IT's influence eclipses that of any prior technological advancement. A prevailing viewpoint among experts, such as Ethan Kapstein, Council on Foreign Relations, is that the rapid evolution of IT, compounded by intensified global competition, is contributing to worker dissatisfaction, economic inequality, unemployment, and widespread poverty. (Cardullo, 1996). However, new technologies and processes are the main driving force behind economic growth and increased living standards. Economic growth is coupled with technological development to achieve greater productivity and limited resources. The past 126 years have witnessed a profound transformation driven by technological innovation and its subsequent application to enhance productivity. This paper therefore seeks to answer one question: how can African nations effectively adapt their workforces to rapid technological advancements to ensure their citizens remain competitive in the global economy and prevent job displacement?



Conceptual Clarifications

The concepts of upskilling and reskilling are two strategic approaches to addressing the peculiar needs of the workforce in Africa. The workforce of the third world states exhibits incompetent traits to meet up with the demands and challenges of a twenty first century workplace. The 21st century workplace is highly digitized, capital intensive and technology driven.

Upskilling

Upskilling refers to the process of training workers to gain novel skills or improve existing skills so that they can take on new or higher-level positions. generally, it helps workers to remain relevant in a highly competitive global economy. The need for a master plan to digitize processes in the workplace is apt. Similarly, strategies to promote inclusive service delivery need to be integrated into the plan of action for public service. Such actions would drive transparency, accountability, motivation and performance. Upskilling refers to the process of learning new skills or of teaching workers new skills. This process entails equipping employees with novel, advanced competencies to bridge existing skill deficiencies. Employees are taken through continuous education to advance their career path. The believe is that employee development initiatives will help shore up the skill gap, improve handling of technology and support internal initiatives.

Within the Eurozone, the upskilling initiative was announced in 2016 (European Commission, 2016) as a joint agenda for commitment to strategic job growth and labour competitiveness. It supports low-skilled labour to acquire a minimum level of literacy, numeracy and digital skill. It is a progressive route by which low-skilled individual moves to improve basic skill levels. Achievement of upskilling requires coherent policy coordination and flexibility in learning.

Reskilling

Reskilling refers to the process of retraining workers who have lost their jobs arising from innovative changes in the economy or new developmental challenges thrown up by technological advancement. It is the process of

learning new skills so that an individual can do a different job. Reskilled employees often possess a complementary skill set. Given the rapid pace of technological advancement, this adaptability has become indispensable in contemporary workplaces.

Upskilling and Reskilling in the Workplace

Both upskilling and reskilling can be implemented in a workplace through the provision of workers with well-structured career pathing. Empowering employees enables them to forge their own futures with the windows of opportunities offered by the management for workers to envision and work towards a career path that aligns with their skills and life plans. The development of competency-based search functions allows workers to search for roles that fit their skills and visions. The result is the increment in lateral and vertical mobility with the labour force and retention of organization's valuable workforce.

Reskilling and upskilling strategies can be introduced to each worker to assist them in breaking down steps required to attain organizational long-term career goals. The concepts require in-depth understanding of the knowledge, skills and individual traits needed and the need to close any identified gap in specialized skill or additional training needed to meet the specific target and goal in the workplace.

The consequences of the COVID-19 global pandemic which make economics to be run through social distancing and this has unprecedented consequences on the labour market. Digital and technological economics replace manual and labour-intensivemethod, with general changes economic and social inclusion. This is associated with increasing job losses (ILO, 2020).

Reskilling and upskilling thus provide that every individual enjoys lifelong opportunities to incrementally and continuously improve and update their skill to meet up with the demand of a post COVID-19 era. This era has witnessed a drop in working hours. The high-risk disruption brought by social distancing reduces the hours of labour supply on a global scale, (Pouliakas and Branka, 2020). Acquisition of new skills enables workers to navigate through unpredictable and



constantly changing work environment. The idea of inclusivity embedded in Goal 4 of the Sustainable Development Goal makes the right to education a universal pillar of development. Training and long-life learning helps workers to maintain and acquire skills for optimum participation in the society and in the labour market. In fact, this is one of the cardinal goals of the European Union Commission (European Commission, 2016).

Arising from the idea of social inclusivity, States in Africa promote and implement strategies of reskilling and upskilling as a foundation for sustainable employability, economic growth and socialization. African States could perhaps borrow a leaf from the European Commission by adopting at the African Union level, that every adult has the chance to realize his potentials through update of the new skills for employability, competitiveness and strengthening of human capital.

Positive and Negative Impacts of Technology on the Labour Market

In every function of any element, Robert K. Merton (1936) argues that there are always manifest (unanticipated/ unintended) effects. This is also evident in innovation of technology especially the form it takes in the world of work. The positive effects (intended functions) of technology on the workforce include but is not limited to the following:

- I. It enhances communication in the workplace:** In modern workplaces, new technological tools (phone computers, email and other instant messaging tools etc) are now used to facilitate the flow of information, decision making processes, better service to customers and promotion of new products or services to targeted customers.
- II. It increases production:** Technologies help businesses automate tasks which eventually results in increased production and efficiency.
- III. It saves time and reduces error:** Technologies when and where effectively used or deployed, lead to time saving as things are done faster, and reduces error associated with human efforts.

IV. It enhances data storage: Now technologies provide opportunities to store and secure business data, peradventure disasters such as fire, flood or physical vandalization occur. Databases and remote storage facilities are very useful in preserving business information/data and makes them accessible at any location outside the physical work location or organisations.

V. It leads to specialisation: Since tasks are broken down into pieces, individuals handling various aspects would in no time become specialists in their areas of operation.

Despite these positive benefits, there are also negative benefits (unintended functions) which include but is not limited to the following:

I. It increases occupational hazards which threaten the mental, physical, emotional and psychological well-being of workers. This could be in form of exposure to toxic or dangerous substances, work postures, sitting behind a computer all day and so on.

II. It leads to displacement of labour/loss of job: The adoption of technologies leads to greater efficiency but at a cost to workers, the adoption of technology leads to replacement of human beings who eventually have to lose their jobs especially in manufacturing organisations.

III. Technology also leads to loss of interpersonal communications: as workers may have fewer opportunities to relate, form social groups and have a sense of belonging. In organisations where teleworking is adopted, workers hardly maintain physical relationship with colleagues, bosses and co-workers.

IV. Technological advancements have often been accompanied by concerns about deskilling, an argument with historical roots in the work of Karl Marx, (Omolawal, 2023)

V. Technologies have also been argued to lead to alienation in different forms such as: alienation from process of production; alienation from one's finished products; alienation from one's co-workers and alienation from oneself.

Over the years, arguments have emerged on the



effects of technologies on the workers and there are two broad schools of argument and argumentators namely the occupational downgrading or deskilling school championed by Karl Marx, Harry Braverman etc, and the occupational upgrading or Upskilling School championed by the World Economic Forum in preparation for the Fourth Industrial Revolution, (World Economic Forum, 2023).

The Role of Governments, Organisations and Individual Employees in Enhancing Skills and Employability

According to Adeleke, (2000) and Sanusi, (2000), governments, organizations and individual employees have varying and crucial responsibilities in enhancing skills and employability, and this can be done several ways.

Organizations' Responsibility

Organizations, in Africa in particular, must be aware of the global trends affecting their business operations so that they can assist their workforce acquire the necessary skills for future needs. This is achievable in the following ways:

- i. African work organizations need to be proactive by creating a strategic workforce plan and do skills mapping to determine talent gaps. This can be complemented with the classifications of the current skills needed to enable African work organizations to be ready for the future.
- ii. Organizations should launch specific upskilling programmes, including adopting new methods of learning. Organizations, having identified employee skill shortage, can develop learning interventions to bridge those gaps. Such interventions should be channeled to take full advantage of the rapidly emerging learning techniques and technologies.
- iii. African work organizations are also enjoined to introduce and maintain an enterprise-wide upskilling culture. Learning culture will enhance the success of training and developmental programmes. Efforts should also be made to provide the appropriate incentives for employees' learning. Human Resource processes such as talent and performance management must be aligned

with upskilling efforts. Employee should also be encouraged to be ready for a continuous growth mind-set and learn on their jobs with managers serving as the coaches. Skill building must be regarded as a long-term investment within the learning culture introduced in their work organizations. (Omo Lawal, 2023).

- iv. More importantly, organizations should not limit their upskilling efforts to their organizations alone, rather these should be extended to the larger society. To build the future workforce. organizations should take responsibility for providing training for the society so as to be ready for the future. This may be done in a number of ways including collaborating with relevant agencies of the government agencies and educational institutions to provide internships, industrial attachments that provide opportunities for practical experience with classroom study.

Governments' Responsibility

It is a well-known fact that training programmes provided by many African governments are not popular because of poor or lack of adequate infrastructure, Nevertheless, governments can maintain a pivotal role in bolstering citizen support and economic growth by fostering collaborations between educational institutions, both public and private, and industry to facilitate upskilling and reskilling initiatives. This can be done in several ways:

- i. African governments should, on regular basis, carry out workforce forecast and skills gaps in their countries. Like work organizations, governments also need to embark on this strategic line of action of having workforce plan and skills map. This way, specific workforce gaps and skill mismatches in the economy can easily be identified and then strategies developed to address them.
- ii. Governments should play a more active role in aligning skills with job demands, particularly in the public sector, which is responsible for implementing public policies. After identifying areas of significant skill imbalances, policymakers should



deliberately and specifically work to bridge these gaps. This could involve collaboration with the business community, educational institutions, and non-governmental organizations.

In many countries, governments have already taken steps to address this issue. For instance, Nigeria has established institutions like the Administrative Staff College of Nigeria (ASCON) and the Centre for Management Development (CMD) to foster a strong connection between theory and practice and improve the efficiency of the labor market. However, the effectiveness of these initiatives remains a question that requires further investigation.

iii. Governments of African countries need to bolster up their educational system. Curricula of many African public institutions of learning are designed largely for citizens to feel a sense of Western education and not to actively prepare them for the world of work with the necessary hard skills. Public sector educational institutions should therefore refresh their curricula to include hard skills, such as artificial intelligence, coding, and soft skills that contemporary workers see as vital for advancement. Such curricula should also incorporate creativity, collaboration, communication, problem solving, as well as critical thinking. Classes should be re-designed to appeal to the learning preferences of different categories of people, and the combination of online and offline platforms for lifelong learning.

iv. Another way forward is for Governments to ensure that relevant information for future job market is available to the youth, as well as having a chance to acquire required skills on the job. For example, what options are available for students when they finish a certain level of education? Do they need any vocational training? Is mandatory apprenticeship required? Policy makers in African nations should decide, based on their peculiarities, on the policy that will prepare the young generations for the future world of work.

v. There is also the need for Governments to

provide incentives for corporate spending on learning. Tax relief and other inducements can be used to encourage private organisations to devote resources to training and development strategies. This may not be a popular idea for African countries where governments rely substantially on private organisations from whom they generate so much funds by ways of taxes and other levies.

Suffice it to stress that, African governments must reduce incidents of brain-drain. A huge percentage of educated and trained Africans reside in more developed countries, and many others are also interested in migrating. This trend can be stemmed by governments providing enabling environment and security among others for the masses.

Individuals Responsibility

With the current globalised world economy, there is also the need for individuals to be their own best teachers and coaches to acquire the skills needed for their jobs now and for the future. Below are possible lines of action for consideration:

i. Individuals must possess a personal plan: Personal plans are useful for individuals just as they are useful for organisations and governments. Every individual must work out his career plan with identification of the nature of work he wants to do and the skills that will be required for the job. This is very vital to make him competitive in the dynamic labour market. A plan may begin with determining the skills which will give them a competitive advantage over others with similar or comparable jobs and other things that may personalise their brands to distinguish them from other individuals. Specific approaches may include taking concrete actions to advance their career plan, decide on the digital tools to capitalise on, the relationships to cultivate and maintain, as well as courses and projects to take among others (Omo Lawal, 2023).

ii. Individuals should inculcate a culture of continuous learning: Learning culture has the ability of enhancing the preparedness of individuals for better results in the society



and individuals wishing to thrive in an evolving world should inculcate this culture. For example, freelancers may devote more time and resources to training than an average or regular professional colleague, to enhance their suitability and employability. Also, people with full-time works may adopt the same approach and be proactive about what skills they need or would need in the future.

- iii. It is also important for people to take full advantage of the courses run by professional organisations and consultants, or even enroll in virtual classes to acquire a specific new skill. All these approaches stand to benefit individuals and prepare them for the present as well as the future. Another strategy is for individuals to adopt a lifelong learning mindset. Today's dynamic labour market calls for individuals to have a mind set to be equipped for changing conditions, ways of leaning, ways of working and general trends in the marketplace. For example, learning modern skills with appropriate digital tools may lead to easier adaptation and even for multiple professions over one's span of career.

Technical expertise is no longer exclusively limited or confined to the IT unit alone, but has become requirement for individuals, organisation and societies across the globe. The overwhelming influence of digital technologies can be seen in every area of business operation and for effective utilization. The firms prefer workers who possess relevant knowledge and capabilities. The new generations of workers entering the labour market bring these digital knowledge and talents to the workplace. Older workers, therefore, need to be upskilled so that while retaining their industry experience and expertise, they can easily adapt to the changes so as not to become redundant.

Conclusion

Like never before, the world of work is witnessing an unprecedented technological development across all its spheres. This can both be a blessing and a curse. African States must ensure their workforce continues to upskill and reskill to match technological advancements in the labour market. This can promote

socioeconomic development and prevent job loss.

All stakeholders, governments, organisations as well as individual employees have roles to play in making this happen. Governments should invest in education, align skills with job demands, and foster collaboration between educational institutions and industry. Organizations should create strategic workforce plans, introduce upskilling programs, and cultivate a learning culture. Individuals must embrace lifelong learning, develop personal plans, and actively seek new skills. By adopting these strategies, African nations can harness the power of technology to drive economic growth, improve productivity, and ensure its workforce stay ahead of the curve.

Recommendations

Based on the foregoing, the paper recommends as follows:

- Governments should invest in education curricula that equip citizens with the necessary skills for the 21st century workforce.
- They must conduct regular workforce skills gap analyses to identify and address specific skill imbalances and match jobs and workers to skills.
- Governments should also foster collaboration between educational institutions, industry, and non-governmental organizations to facilitate upskilling and reskilling initiatives. Additionally, they should implement policies to retain skilled talent within the country and attract foreign investment.
- Organizations should create strategic workforce plans to address talent gaps and ensure they have the necessary skills for future success.
- They should provide opportunities for employees to acquire new skills or improve existing ones through upskilling programs.
- Organizations should also foster a culture of continuous learning and innovation within the organization.
- Individuals should embrace lifelong learning and stay updated on industry trends.
- They should create career plans that align



with personal goals and identify the skills needed for success.

- Individuals should also actively seek new skills and take advantage of opportunities to acquire them.

By implementing these recommendations, African nations can effectively adapt to the changing technological landscape and ensure a prosperous future for their citizens.

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