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THE EFFECTS OF MODERN TECHNOLOGY ON JOB'S SECURITY IN NIGERIA

Barnabas Nuhu Yakubu[1]*, Ritter Krisztián[2]

[1]MATE, Doctoral School of Economics and Regional Sciences
[2]MATE Institute of Rural Development and Sustainable Economy, Department of Rural- and Regional Development

The impact of modern technology around the globe on both humans and other physical environments cannot be overstated. Technology has widely affected general ways of life and events. The level of technology has continued spreading to many developing nations, which is not only affecting human lives but has a great impact on employment and business activities as well. This situation is analysed from two perspectives in this paper; concerning the negative and positive effects. The study gives a short overview on how work was done before and after the advent of digital technology, and with the help of collecting problems resulting from modern technology, it suggests possible ways of minimisation the negative effects of the technology, especially in developing nations struggling to adapt to new changes.

Keywords: technology, jobs' security, employment

Introduction

Technology may have diverse exact definitions but always means the same thing. It can be viewed as the set of knowledge, skills, experience and technicalities adopted by humans to ensure easy carrying out activities through creations of diverse tools, equipment and machines that aids the change and transformation of human activities. The origin of technology can be traced back to Stone Age and through the present digital communication time. It changes from time to time due to increase in human's knowledge in making different innovations that lesser their works. Many natural resources are transformed into tools and equipment such as machines and engines that make human activities look easy and satisfactory. Today, the world has witnessed many products of technology such as smartphones, locomotives, computers, cars, trains, airplanes, bulbs, tablets, microchips and artificial intelligence amongst many others, whose presence have not only made lives easier but also faster and more accurate in carrying out complex tasks and achieving positive results.

The impact of technology has infiltrated into banking systems, education, aviation, transportation, commerce, security and military services amongst many others. This has helped the activities of different agencies but it also has replaced the number of humans needed to perform numerous tasks. To some extent, this reduced the numbers of employees in many agencies, thereby creating more struggles for people to secure employment which results in increasing unemployment rates.

The banking sector has witnessed a great achievement through e-banking that has positively shaped its activities. The performance of the banking industry in Nigeria has recently increased and is providing better services to their numerous customers even far away from the banks. In addition, Quresh, Zafar and Khan (2008) described online banking as time saving and also an evolution of services through the use of improved technology, and Idowu, Aliu and Adagunodo (2002) stated that Nigerian banks have discovered that through the use of technology they can get competitive advantage over their numerous competitors.

From the educational aspects of the country, it has positively enhanced the delivery of information services that has brought various levels of development in education. The modern technology has brought great achievements in the library services within the country through information and communication. This can be seen through the automated cataloguing, acquisition and circulating systems. This has led to improved services and management of library in the country institutions where the technology had been adopted. The usage of internet services in the universities and colleges has made research to be easily carried out compared to the previous usage of printed materials for searching information. Lewis (2007) considered that it is beyond doubts that the application of Information and Communication Technology has provided the best innovation in changing libraries' and librarians' roles in an unprecedented shape. Al-Qallaf (2006) noted that "today, librarians provide access to eclectic e-collections, create and maintain digital content, support e-learning, provide real time e-reference, negotiate contracts and licensing agreements and struggle with the economics of electronic information".

The business sector is also witnessing a vast usage of the technology for its commercial activities that enable buying and selling online through creations of websites and various social media for easy transactions. However, despites the huge advantages brought by technology into the business sectors, there exists a militating controversy against technology usage amongst employees in their workplace and which influences the behaviours of employees to work. Joyce et al. (2018) pointed out that this has been a major conflicting point between management and employee at various levels. Katzenbach, Oelschlegel and Thomas (2016) noted that, despite the fact that the advent of the modern technology is not intending to replace workers, it will be good to note that those without the basic technological knowledge and skills and also unwilling to learn, will surely be replaced soon.

Zezulka et al. (2016) suggested that the production and logistic system of an organization in this digital age must be adjusted to meet the new trend of the technologies. He added that the current systems of production should be customers centred, meeting with the requirement of the implementation of industry 4.0. The main goal of the European Green Deal is the digitalization of industry as a condition of reaching the targets set in the deal. The industry 4.0 implementation will result in better usage of infrastructure, energy, logistics and transportation achieving sustainable manufacturing.

In the agricultural sector there is no overstatement in saying that the usage of mobile phones and internet has made getting agricultural information

and market prices operations of agricultural products and access to veterinary and extension workers easier. This has really brought development in most developing nations that were relying on obsolete technologies in the farming sectors. Kashem (2010) pointed out that the Philippines adopted the usage of mobile phones and other tools of communication technologies among farmers to feed their extension officers about related development on their farms and also seek information about farm inputs as well as market prices of their products. Nowadays farmers have access to information about modern agricultural inputs, new technologies and also market for their products. The role of the Information and Communication Technologies is vital in the economic development and ensuring market effectiveness, productivity and competitiveness (Noor Sharifah, 2003). With the help of Information and Communication Technologies farmers can take the decisions on when and where to sell their products. However, while the farmers use new technologies on their farms, farm's labourers suffer the effect of job loss as a majority of the farm works are replaced by the use of machines and herbicides.

The aim of this paper is to evaluate the effects of introduction of the modern technology into Nigerian ministries/parastatals/agencies and organisation and its impacts on jobs' security in Nigeria.

Literature Review

Technology usage and employees' behaviours

Technology usage has to do with acceptance and continuous use of a given technology and this has to do with the employee's behaviour toward the technology. According to Demaerschalk et al. (2012) employee behaviour means the reaction of an employee to a certain situation at his/her workplace. Adding to the employees' behaviour Ehikhamenor (2003) noted that employee and organisation cultures shape and nurture employees' behaviours and he further portrayed as a norm of every organisation that each employee must behave well in order to be promoted to the next cadre.

Figure 1 shows the conceptual framework of deploying new technology to an organisation for an activity. It shows that once the technology is adopted it will influence the performance or behaviour of the employee, which in turn improves the organisation productivity, and this justifies the investment made in the technology by the management.

However, where the new technology is rejected or abused by the employees it will negate the expectations of the managements. There is no doubt that once a new technology is introduced to an organisation that tends to supplement human efforts, it creates fears in the mind of the employees who assume that the change in jobs' description will result in their retrenchment or being redundant at work. A good example can be taken from the introduction of artificial intelligence that replaces human works and whenever a new technology that relates to robots is introduced the fear remains that some works are going to be assigned to the robots (Forson, 2012).

Technology and employment

Like in many developed countries of the world, Nigeria is shifting from using conventional skills and labour into sophisticated technical orientation in its operations in most of its agencies. This results from modernization of the technology and its improvement in the country. This has greatly influenced the smooth and fast running of tasks within appreciable time frames, but at the same time it has affected interactions and many affairs at the place of work. However, many people who are not able to run the new technology always live at the fear of losing their values or jobs at large (Griep et al., 2021).

This shift in technology created fear in many workers of possibility of losing their jobs and in the unemployed of not getting chance to be reemployed as the thought of the Artificial Intelligence to replace most

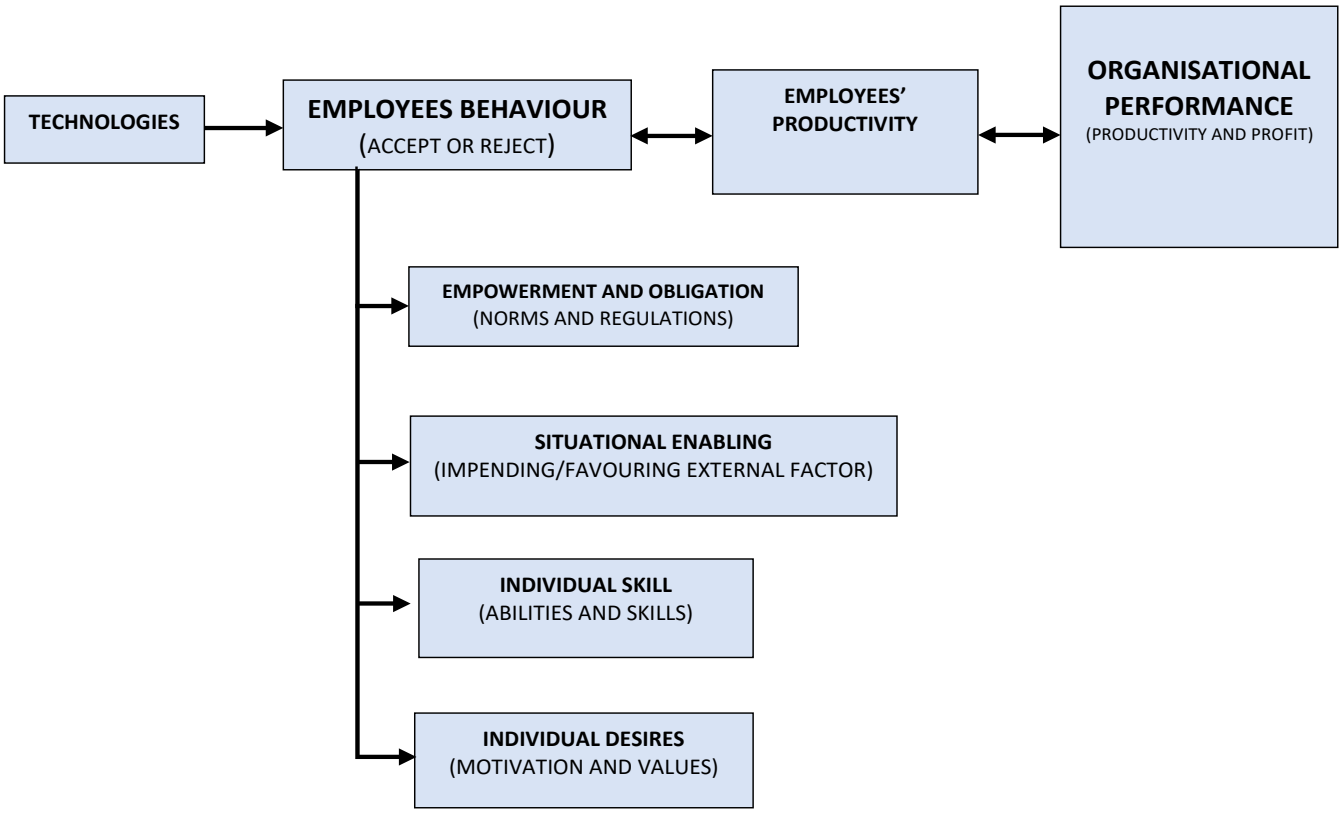

Figure 1 Conceptual Framework of deploying new technology
Source: Forson, 2012

operations still grieves many individuals who still believe that it will increase the rate of unemployment in the country. There is a huge anxiety that most jobs will be taken over by the usage of Artificial intelligence or any other sophisticated technology that requires fewer human attention. There is no doubt that Nigeria like many other African and developing countries faces some challenges, but there are lots of opportunities attached to the challenges, through the opportunities requiring systematic tackling through adopting the new movement of the digital economy (Atiku, Genty and Akinlabi, 2011).

According to Gillwald, Odufuwa and Mothobi (2018) Information and Communication Technologies has created almost 2.5 billion jobs in Nigeria in the past few years. In addition, there was unofficial prediction by a Nigerian business typhoon (Dangote) that "five of the twelve million jobs needed in Africa soon must be created in Nigeria" (https://www.thedaily-ng.com/five-of-the-twelve-million-jobs-needed-in-africa-soon-must-be-created-in-nigeria-dangote-tells-un/). This is in line with the efforts seen between the Nigerian youths in welcoming and utilising the new technologies over decades. It is of great importance to note that technology has played vital roles in jobs creation in Nigeria and other developing countries, but this opportunity is only for those that are adjusted to the new innovations. The job creation in the fast-changing global economy entails enhancing entrepreneurship and governments to really harness the benefits that the new innovations bring so as to enable the improvement of the local workforce in their countries. Many benefits are derived from the ability of the digital economy in connecting people with businesses, organisations and governments in providing not only services, but also opportunities to employ smart users of the technology. To build and sustain the Nigerian economy there should be greater effort done in utilising the digital economy in all its agencies (Odum et al., 2018).

Before the inception of the digital technology in the Nigerian economy, advertisements for employments into offices were done through newspapers, radio or television. Graduates had to locate newspapers stands almost every morning seeking any available opportunities advertised on the papers and if there was/were vacancy(ies), application should be submitted physically or via posting in post office that took time before reaching the required agencies or ministries. Interviews or any other contacts requiring physical appearance of the applicants were always tough and challenging. The successful application for all jobs required physical appearance for interview and there were challenges like sickness and others. It entirely affects the work as there may not be way to communicate and assign the work to be carried out by another person.

Positive impact of modern technology

There is no doubt about the positive impact of the modern technology in the Nigerian economy through creation of employment opportunities. Many works are done by digital technology, where application can be made, analysed and even interview can be conducted through virtual applications. The use of ICT has also made communication amongst workers easy, where smart phones, tablets and computers are used to communicate through many social applications such as Zoom, Skype, Teams etc. With these applications it becomes possible to hold a video conference with various comforts of the employee's homes. Documents and texts are now sent through emails and social media which have reduced the use of printed materials for communication and have enabled easy access and reply. Technology has also enhanced work via tele-conferencing, co-working, and remote-working which have made work-from-home a possible phenomenon; where office work can be done outside the office. This is achieved through applications such as Teams, Zoom, Skype, etc. Through Google maps one can easily navigate through unfamiliar places and locate working place within a minimum period of time (Idowu, Aliu and Adagunodo, 2002).

Adding to this, in organisational work, technology has kept business completely organised by software such as Facility Management Software, Project Management Software, SaaS Tools that are used to replace manual tasks by automating the tasks. The automation and use of the digital technology have greatly enhanced the quality and efficiency of works and their outputs in an organisation (Ehikhamenor, 2003).

Through Technology the security of confidential information can be assured as well. This is achieved through an end-to-end encryption of data on software and hardware, and retrieving them is possible through the usage of passwords, face recognition and fingerprints. Lockers/safes containing hardcopy data are also secured by using locking code (Ehikhamenor, 2003).

By CCTV, Clocking system etc. accountability of employees in their places of works can be monitored etc. Technology can be used to train employees and different applications are able to improve their professionalism (Qureshi, 2008).

Negative impact of modern technology

Despite all the positive impacts that come with the introduction of modern technology in the country, still the fears remain that technological change will lead to mass unemployment. Wassily (1983) considered that it may be very difficult or impossible for most workers to adjust to the rapid pace of modern technology (MacLean, 1992). This has truly come to pass as many workers were kicked out from their jobs because of machines that could work faster and more effectively within shortest time. This has resulted in increase in unemployment rate and also level of poverty in Nigeria. Though some economists have argued Wassily (983) claimed that since Industrial Revolution, jobs and workplace always change and people normally adapt to the new trends of their jobs. However, Wassily assentation is more reflected as over the decades many private agencies especially banking sectors have retrenched their workers as a result of the introduction of technology that make the works to be lesser demanding of human's efforts.

Atiku et al. (2011) stated that "Internet or online banking and telephone banking services create challenges to job stability and employment of customer relations officer since most of the information that ought to be provided by the customer relations officer are already available on the bank web site. Adoption of automated teller machine and other e-payment systems also affect job stability and employment of teller officers in the Nigerian banking sector". This clearly shows that the advent of the digital economy comes with challenges that even those who adopt the technology may likely lose their jobs.

The digital technology has also created a challenge between work life and home life, as employees sent emails or made calls while at home to carry out a task to meet a dateline. Even while on leave some employees are contacted to carry out specific functions, these result to stress, ineffectiveness and health challenges due to poor rest (Atiku, Genty and Akinlabi, 2011).

It is also important to note that the technology requires computers and other electronics that depend on electricity, where this is the major challenge in Nigeria that struggles to have a steady power supplied. As a result of power shortage, works may be redundant and where there is no backup it may result in loss of data due to frequent on and off in the power transmission (Agba and Emmanuel, 2012).

Materials and methods

Based on the literature and the tendencies described above we have the following Research Questions:

1. Does modern technology have positive impact on job creation in Nigeria?
2. What are the negative impacts of modern technology on jobs' security in Nigeria?
3. How do Nigerian employees response to changes brought by the modern technology in their working environment?

The objectives are the following:

1. To examine the impact of modern technology on job creation in Nigeria.
2. To evaluate the impact of modern technology on the employees' job security in Nigerian.

Research hypothesis are as follows:

H0: Qualification does not affect the ability to adapt a new technology.

H1: Qualification affects the ability to adapt a new technology.

The research is designed through semi-structured interviews and questionnaires. The sample framework adopted includes employees from the Karim Lamido Local Government Area of Taraba State, the Shongom Local Government Area of Gombe State, the Girei Local Government Area of Adamawa and the Alkaleri Local Government Area of Bauchi State in Nigeria.

The data were collected through pre-tested interview guide that obtained the respondents information. A total of two hundred copies of questionnaires were administered, fifty from each local government area. The questionnaires were administered randomly amongst employees of the study area. Out of the two hundred questionnaires administered, one hundred and ninety-five were successfully retrieved back.

Data collected were edited, coded and analysed through SPSS. Descriptive statistical methods (frequencies) and cross tabulation were used for categorical variables. Hypothesis was set to test the relationship between qualification and ability to adapt to new technologies. The hypothesis was tested by Pearson's Chi Square Test. If P value is less than 0.05, the result is considered to be significant. This shows that there exists relationship between the variables under consideration (95% true that there was not accidental relationship).

This paper concentrates only on the results of the questionnaires and the descriptive analysis. The findings are presented using graphs and charts. For validity purposes, the respondents' demographical data were analysed first. Out of the 195 respondents, 120 (61.5%) were males and 75 (38.5%) were females. 33.33% of the respondents fall within 28–37 age group, 27.69% are in the 38–47, 24.62% fall within 48–57 while 9.23% and 5.13% fall within 18–27 and above 58 age groups respectively.

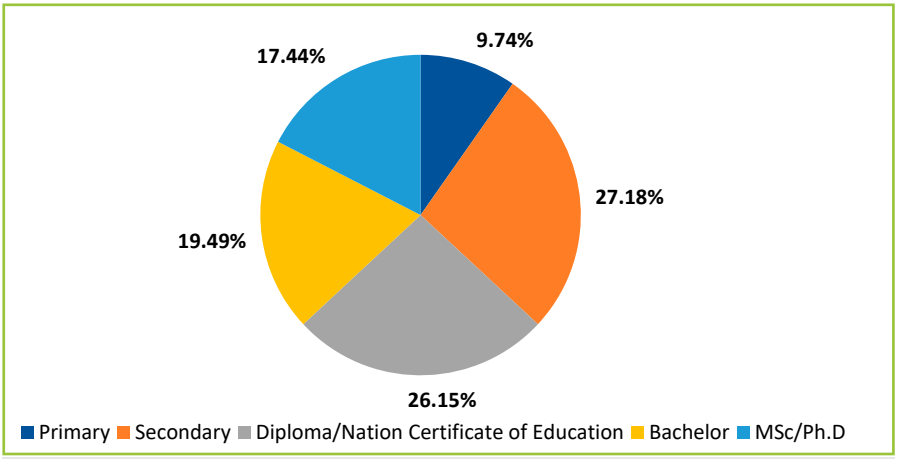

Figure 2 Distribution of the respondents by their academic qualification (%)
Source: Own research and edition, 2022

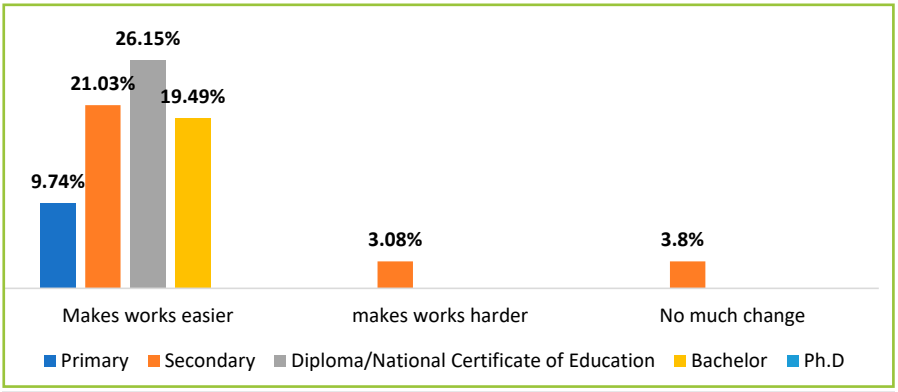

Figure 3 Impact of modern Technology on Employee Performance (%)
Source: Own research and edition, 2022

Results and discussion

The results are presented and discussed based on the analysis of the information obtained from the respondents and they are presented in charts, diagrams and tables.

27.18% of the respondents are secondary school graduates, where 26.15% have Diploma or National Certificate of Education (Figure 2). 19.49% have Bachelor degree, 17.44% have either Master degree or Doctorate degree while 9.74% of the respondents have primary certificate as their highest qualification.

Figure 3 shows the impact of modern technology on the employees' performance, 94% of the respondents admitted that technology has really made work easier, whereas 6% considered the modern technology has made work harder or no change at all to the nature of works. It is good to note that those that form the major parts of the workforce from diploma to doctorate level all admitted the simplification of work through the use of modern technology in their places of work.

Figure 4 shows that 92% of the respondents across all qualification admitted that the usage of modern technology such as computers, the Internet, software has definitely increased accuracy at work and only less than 8% have not decided on the accuracy.

Figure 5 shows the responses on responsibilities of work. Where 7.69% considered the use of the new technology has no any effects on their responsibilities while 21.03% considered the new technology has added more responsibilities to them, 65.28% of the respondents discovered that the new technology has reduced their responsibilities at works. Majority of those that admitted technology has

lessened their responsibilities fall within the higher qualifications.

Figure 6 revealed the respondents' views about losing their jobs due to introduction of any new technology. 65.64% of the respondents believed that only those employees that are not willing to adapt to the new technologies may likely to lose their jobs at the cost of a new technology. 33.33% of the respondents thought that unskilled workers may likely lost their jobs at the expense of new technology while only 1.03% considered new employees to likely lost their jobs to new technology.

Table 1 revealed the perception of the respondents in respect to the effects of technology on various employment aspects.

54.4% of the respondents either disagreed or strongly disagreed that the introduction of new technology will result to early retirement of employees and 53.8% agreed that technology creates new employment opportunities. In addition, over 65% of the respondents viewed new technology in Nigeria has the tendencies of displacing and retrenching employees from their work. Over 95% of the respondents considered that the new technology dehumanises the works thereby creating high level of redundancy at work and also over 95% of the respondents viewed that there is tendency of losing unskilled workers due to the used of new technology and this increases the level of employees' insecurity at work. Over 97% of the respondents unanimously agreed or strongly agreed that technology increases organisation productivity and also significantly increases employees' skills and performance.

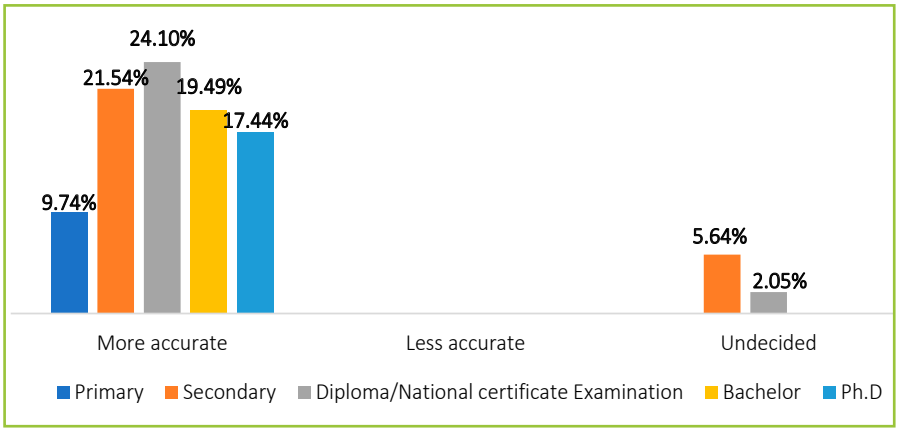

Figure 4 Impact of Technology on work accuracy (%)
Source: Own research and edition, 2022

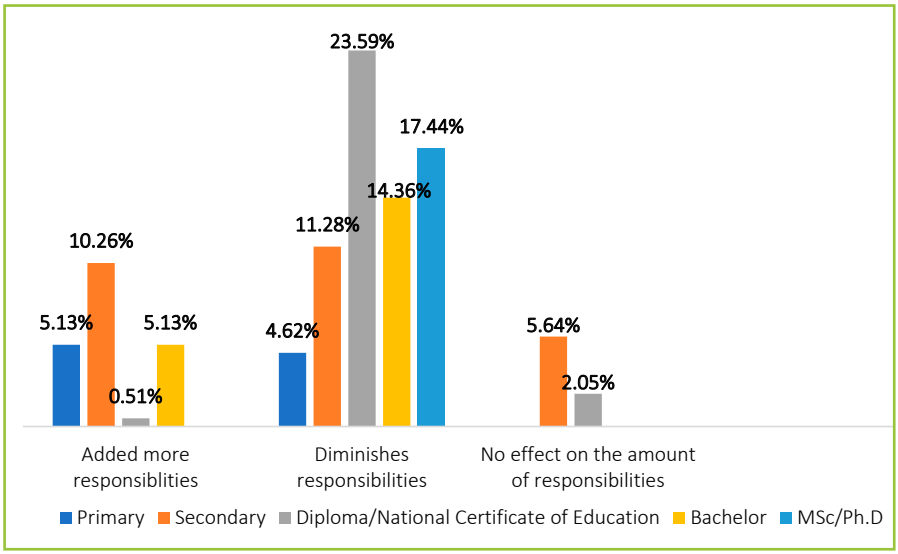

Figure 5 Impact of technology on job responsibilities (%)
Source: Own research and edition, 2022

Table 1 Ranking the effects of technology on employees

Effects	Strongly agreed (%)	Agreed (%)	Undecided (%)	Disagreed (%)	Strongly disagreed (%)
It reduces the number of employees	31.3	59.5	1.5	6.2	1.5
Contributes to early retirement of staff	13.3	18.5	13.8	30.3	24.1
Contributes to retrenchment of workers	13.3	72.3	11.3	3.1	0.0
Leads to displacement of employees	11.3	55.9	20.5	5.6	6.7
It increases employment opportunities	0.0	53.8	19.0	21.5	5.6
Increases the level of employee's job insecurity	4.1	90.8	3.1	2.1	0.0
It results in the loss of unskilled workers in the industry	10.3	86.7	3.0	0.0	0.0
It dehumanizes the work organization	12.3	80.5	7.2	0.0	0.0
High level of redundancy at work	9.2	85.6	3.1	2.1	0.0
Technological usage boost productivity	16.9	83.1	0.0	0.0	0.0
Technological change significantly raises employee skills and performance	22.1	77.9	0.0	0.0	0.0

Source: authors' editing based on questionnaire survey, 2022

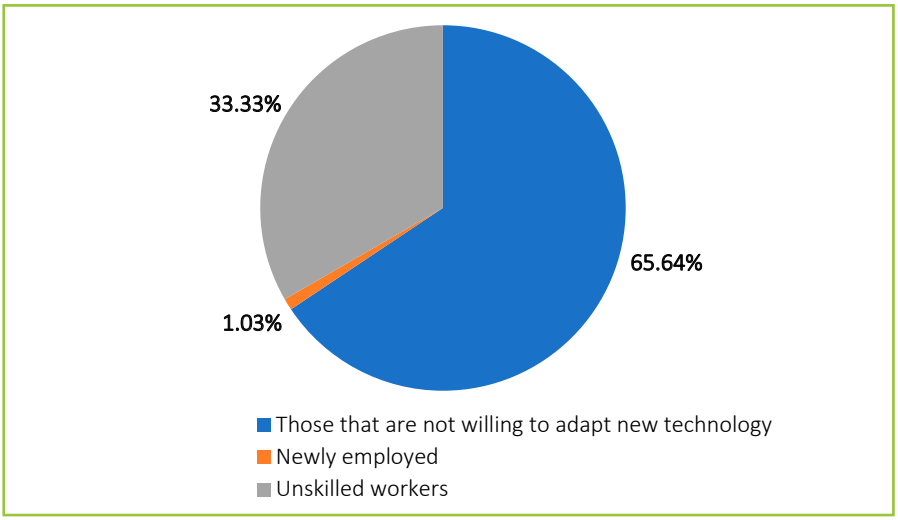

Figure 6 Those likely to lose their jobs due to introduction of new technology in their work places (%)
Source: Own research and edition, 2022

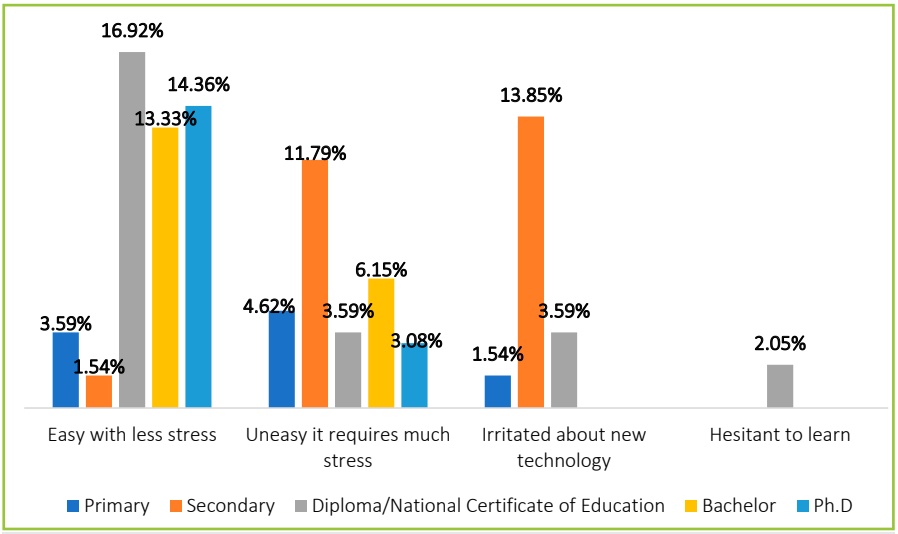

Figure 7 Ability in adapting new technology (%)
Source: Own research and edition, 2022

Table 2 Relationship between Qualification and ability to adapt new technology Chi-Square Tests

	Value	Df	Asymptotic significance (2-sided)
Pearson Chi-square	99.518a	12	0.000
Likelihood ratio	115.428	12	0.000
Linear-by-linear association	41.716	1	0.000
N of valid cases	195		

Source: authors' editing based on questionnaire survey, 2022
a – 6 cells (30.0%) have expected count less than 5. The minimum expected count is 39

Therefore, the careful analysis of the table revealed the negative effect of technology is higher on the unskilled or professional employees than the general employees.

Figure 7 gives more information on ability of individuals to adapt to the new technology according to the educational qualification. Those with the higher qualification ranging from diploma to doctorate degree showed more abilities in adopting the new technology than those with just primary or secondary results.

Ability to adapt new technology

Qualification was used to know the employees' ability in adapting to new technology at work through a set hypothesis, which was tested and decision was taken on the null hypothesis.

The Pearson's Chi-square was used in testing the following hypothesis:

H0: Qualification does not affect the ability to adapt to new technology.

H1: Qualification affects the ability to adapt to new technology.

Table 2 shows the Pearson's chi-square test for the hypothesis qualification does not affect the ability to adapt to new technology. The test significantly proved that there is a relationship between qualification and ability to adapt to new technology. The P value is less than 0.05, which means the confident level is above 95%. This means that the highly qualified individuals are more willing to adapt to the new technology than the lower educated employees who considered technology as uneasy or irritating to learn. The null hypothesis is rejected.

Conclusion/ recommendations

As a conclusion, it is clear that the modern technology has both positive and negative impacts in providing employment. While it displaces people from their work places it can be seen at the same time it creates other opportunities to reabsorb them into other sectors as the technology itself comes with jobs creation but only for those that are ready to adapt to the new technology.

Those at the higher risk of losing their jobs are those with less education qualification that occupy the unskilled labour where technology can reduce their numbers to greater extend.

The ability to adapt to new technology is very important as no one can easily ascertain what will happen tomorrow. A good example can be seen with the pandemic that has changed the

faces of works and education to online bases. However, where the technology is found challenging works and education have crippled. Nigeria following the announcement of the lockdown by the presidential task force on Covid-19 from March 2020, had to close schools till the end of September due to the fact that it lacks the technology to continue with online education. This really implies that with digital economy trend, many developing nations that will not speedily meet up and adopt the new technology driving it, are at doom of facing many economic challenges coupled with high unemployment rates and increase in social vices.

Despite that, technology enhances satisfaction, effectiveness and jobs quality and sustainable competitive advantage, and efforts should be put in place by the Nigerian agencies and parastatals to ensure that adoption of new technology in all sectors as it does not result in direct loss of jobs and retrenchment of employees. All agencies, parastatals and sectors should ensure that humans are trained to meet any new technology being introduced, for without human resource performance, other resource accomplishments such as raw-materials, capital and technology among many others have no meaning.

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Contact address

Yakubu, Barnabas Nuhu, MATE, Doctoral School of Economics and Regional Sciences, Department of Rural- and Regional Development

ynuhub@yahoo.com