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The Impact of Artificial Intelligence on the Global Workforce

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Abstract: ***This paper intends to investigate the impact of artificial intelligence (AI) on the global workforce. The objectives of the study are to find out whether the use of AI systems in industries promotes job efficiency, leads to a diminishing/increasing workforce, and leads to an imbalance workforce. The methodology adopted is the use of questionnaire that is administered on a total of fifty-three (53) respondents drawn from industries that have partially implemented AI systems across three (3) countries - the United States of America (12), United Kingdom (12), and Nigeria (29). The major findings of this research show that the integration of AI systems in industries has made the workforce more efficient in terms of service delivery, displays the potential of creating more new jobs amidst fears of job losses, and in some cases, it has been perceived to be creating an imbalance workforce.***

Keywords: impact, artificial intelligence, global workforce, imbalance workforce

1.Introduction

There is a popular notion that rapid technological growth and innovations can threaten employment. A survey has this assertion that the adoption of Artificial Intelligence (AI) by businesses has risen by 270% within the last 4 years [1]. Notably, the world's economy today is seen to be faced with enormous challenges, ranging from declining workforce and uncontrollable rising inflation trends. It, therefore, becomes imperative that thinking out of the box is needed in order to strike a balance between the workforce and the productive industries on one hand, and on the other hand, weighing the implications of the rapid rise of calls for automation of tasks by industries on the workforce. This is what the induction of Artificial Intelligence systems alongside human workforce has brought to bear in today's world stage. Contrary to popular perception that Artificial Intelligence (AI) is taking away many jobs, the author intends to duress the point that AI is more of a compliment to institutional growth than a replacement to human workforce. This paper intends to investigate the impact of the application of AI systems by organizations on the global workforce.

2.Problem Definition

The automation of tasks in organizations is on the rise. This raises fears that sooner or later most human jobs will be overtaken by Artificial Intelligence (AI) systems. This fear is further compounded by the fact that robotic installations by industries has risen significantly over the last decade amounting to more worries of potential job losses. The perception that automation of tasks is more rewarding has placed the workforce in a state of job adjustments. This study intends to unravel the impact that the rising quest for automation of industries has on the workforce.

3.Objectives of the study

This study intends to –

1. Find out whether the use of AI systems by organizations promotes job efficiency.
2. Find out whether the use of AI systems by organizations leads to a diminishing/increasing workforce.
3. Find out whether the use of AI systems by organizations leads to an imbalance workforce.

4.Research Questions

The research questions advanced for this study are as follows:

1. Could the adoption of AI systems by organizations promote job efficiency?
2. Could the use of AI systems by organizations lead to a diminishing/increasing workforce?
3. Could the use of AI systems by organizations lead to an imbalance workforce?

5.Literature Survey

Artificial Intelligence (AI) technology has enormous potentials geared towards making the workforce more viable in terms of productivity, speed and accuracy of its performance. AI systems is seen to perform mainly routine tasks, and some non- routine tasks [2]. Similarly, the effective and accurate execution of tasks is based on AI's capability of learning and improving itself through machine learning. Several tasks such as information retrieval, logistics coordination, financial services provision, business report writing, and even disease diagnoses are done accurately, timely, and at a lesser cost by AI systems [3]. AI is bringing about major improvements in the workplace as it enhances the meeting up of goods demand [4]. AI systems have been seen to be cost-effective due to the fact that its production output is always very huge [5] [6] [7]. ChatGPT (Generative Pre-

trained Transformer), an AI app launched in 2023, has the potential of helping the workforce achieve their goals easily. For example, teachers can easily develop teaching materials as well as identify its' students that commit plagiarism when given an assignment or thesis to write [8]. Robotic installations by especially the manufacturing and retail industries are on the rise. The year 2023 has experienced a rapid growth in robotic installations. Global inventory has shown that over 3.5 million functional robots are so far in use with steady rising demands for robots worth over fifteen billion US dollars ($15,000,000,000) this 2023. Robotic technology has helped industries in enhancing production output by consuming less energy thereby saving both costs and time of production. Today's robots are made to be user-friendly as they collaborate with the available workforce to make them more efficient [9].

Unlike other technologies ever developed, AI is seen to be exceptional as it tends to compete with the human workforce on a higher scale. It is therefore, perceived that it is definitely a threat to the global workforce [11] [12] [13] [14]. Several jobs are now taken over by AI systems which is tantamount to substitution of labour. This means that certain job titles will soon become obsolete [12] [13] [14]. AI systems are having tremendous impact on jobs as it performs diverse tasks through automation. Workers are expected to upskill on their new modified roles in order to retain their jobs. This makes employment to be driven by the upskilling of the populace with AI tools to make them employable [15] [16] [17]. It is highlighted by [17] that educational level vis-à-vis employment is key to staying at job. The core working skills needed are ranked with the foremost seen to be "analytical thinking" and followed by "creative thinking".

AI is predicted by several authors to eventually lead to job losses due to the automation of several tasks in industries. However, every technological change era from history has been proven to create some new jobs just as it phases out some others [1] [15] [17] [18] [19] [20]. The rapid transition of occupations from what it used to be implies that the workers need to embrace the change by upskilling themselves to fit into their new roles [17]. Figure 1 shows the ratings of job growths (in percentages) in the year 2023.

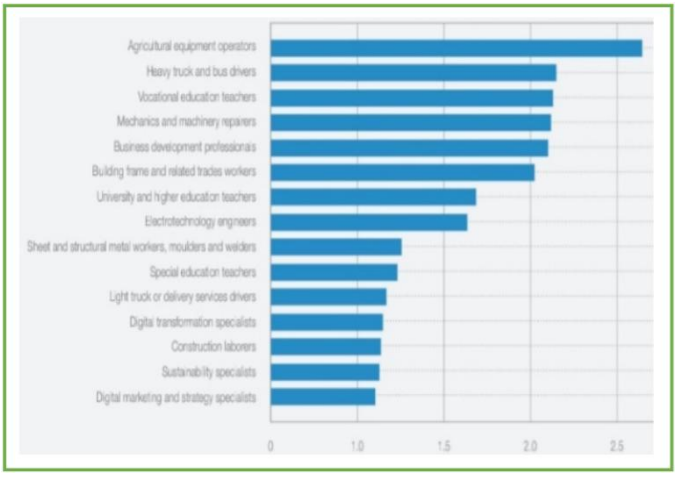

Figure 1: Largest job growth in 2023 [17]

On the other hand, figure 2 shows the percentage ratings of largest jobs decline in the year 2023.

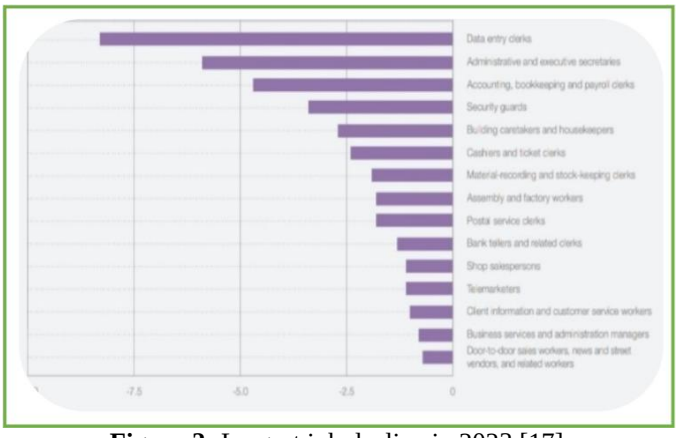

Figure 2: Largest job decline in 2023 [17]

One of the major drawbacks of AI systems is the fact that it can be trained to be bias. Individuals can be marginalized in one way or the other. They have the potential of being bias and discriminatory once the algorithm that was used to train it is bias. Also, AI systems are susceptible to cyberattacks [16]. A published assessment has it that the employment sectors in Finland, Germany and across Europe will be affected by automation at the rates of 35%, 59% and 45 to 60% respectively [21].

6.Methodology

The main instrument used in carrying out this research is the questionnaire. A total of nine (9) questions is drawn from the three (3) research questions earlier stated, and administered on fifty-three (53) respondents working in organizations that are partially automated. A total of twelve (12), twelve (12), and twenty-nine (29) of the respondents were workers based in the United States of America, the United Kingdom, and Nigeria respectively. The author will derive its assertions through the analysis of the responses obtained, and compare same to already existing findings by other authors on the subject matter – Artificial Intelligence. Table 1 shows the questions and their respective responses.

Table I: Questions and their respective responses.

Sn.	Question	Yes	No	Uncertain
1.	Are jobs done more accurately than before?	46 (87%)	5 (9%)	2 (4%)
2.	Is automation of tasks cost-effective?	49 (92%)	1 (2%)	3 (6%)
3.	Has automation made your job easier?	43 (81%)	6(11%)	4 (8%)
4.	Are some of your jobs taken over by AI systems?	48 (91%)	2 (4%)	3 (6%)
5.	Are you afraid of possibly losing your job to AI systems?	39 (74%)	11 (21%)	3 (6%)
6.	Can the advent of AI systems lead to job creation in the long run?	34 (64%)	15 (28%)	4 (8%)
7.	Do you feel that some AI systems can be made to be bias?	41 (77%)	11 (21%)	1 (2%)
8.	Are you comfortable with your job taken over by AI systems?	42 (79%)	4 (8%)	7 (13%)
9.	Can AI be used to bridge your rights and privacy?	45 (85%)	5 (9%)	3 (6%)

7.Results and Discussions

This research paper is geared towards ascertaining the impact of Artificial Intelligence (AI) on the global workforce. The findings will be discussed based on the three (3) research questions posed to the respondents by the author. Research question one (1) seeks to ascertain whether the adoption of AI systems by organizations promotes job efficiency. Questions one (1) to three (3) were framed to address this. To investigate whether jobs are done more accurately than before, a total of 46 workers representing 87% of the respondents concur to this. This assertion is in line with the findings of [2], [3] and [4] which ascertain that AI systems are more effective and can always produce accurate results. Question two (2) seeks to verify whether the automation of tasks is cost-effective, and 92% of the respondents responded positively to the question. This assertion is in line with the findings of [5], [6], and [7] which state that AI systems has been seen to be cost-effective due to the fact that it's use yields huge production output. In like manner, the assertion is in line with the finding of [3] when it says that several tasks are done accurately, timely and at a lower cost. Question three (3) seeks to find out whether automation has made the job done by the workforce easier. From the responses gathered, 43 representing a total of 81% of the workers agree that automation makes their work easier. This assertion is in line with the finding of [9] which says that the use of robots in industries has made the workforce to be more efficient. Similarly, it is also in line with the finding of [8] which says that chatGPT has the potential of helping the workforce achieve their goals easily. Figure 3 shows a bar chart that represents the variants of the respondent's responses with regards to questions 1 to 3. From the responses, it is therefore, established that the adoption of AI systems promotes job efficiency.

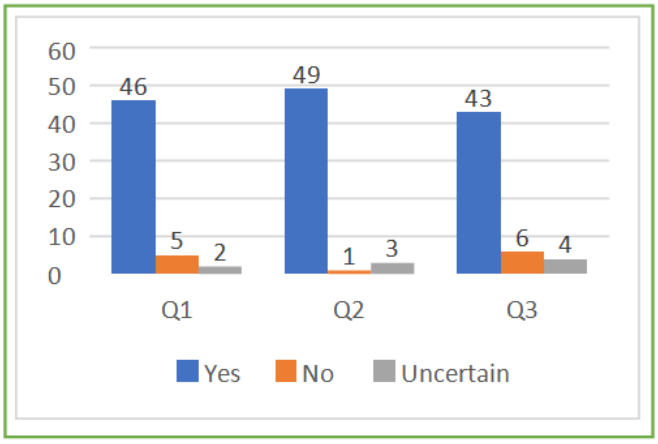

Figure 3: AI promotes job efficiency

Question 4 seeks to know whether some of their jobs are taken over by AI systems. Overwhelmingly, 48 of the respondents representing 91% say "yes". This assertion is in line with the findings of [15], [16], and [17] which say that AI is having significant impact on jobs as it performs diverse tasks through automation. Similarly, the findings of [11], [12] and [13] is in accordance to the above assertion when they say that the taking over of jobs by AI amounts to substitution of labour. Question 5 seeks to ascertain whether the workforce is afraid of possibly losing their jobs to AI systems. From the responses, 39 representing 74% and 11 representing 21% of the respondents answered "yes" and "no" respectively. The assertion is in line with the findings of [11], [12], [13], and [14] when they point out that AI is perceived to be a threat to the global workforce. Similarly, the findings of [15], [16], and [17] align with the assertion when they say that the fear of job losses has led to the growing quest of workers for upskilling so that they would remain employable. Finally, question 6 seeks to know whether the advent of AI systems can lead to the creation of more new jobs in the long run. The respondents that says "yes" is 34 representing 64% of the respondents as against 15 and 4 respondents that say "no" and "uncertain" respectively. This assertion is in line with the findings of [1], [15], [17], [18], [19], and [20] when they say that

technological change leads to the creation of some new jobs as it phases out some others. Questions four (4) to six (6) are meant to answer the second research question that seeks to establish whether the use of AI systems by organizations can lead to a diminishing/increasing workforce. The findings show that the use of AI systems by organizations leads to a diminishing workforce on one hand, while on the other hand it would lead to an increasing workforce in the long run as it creates more jobs. Figure 4 shows a bar chart that represents the responses obtained from questions 4 to 6 that seeks to establish whether AI leads to a diminishing/increasing workforce.

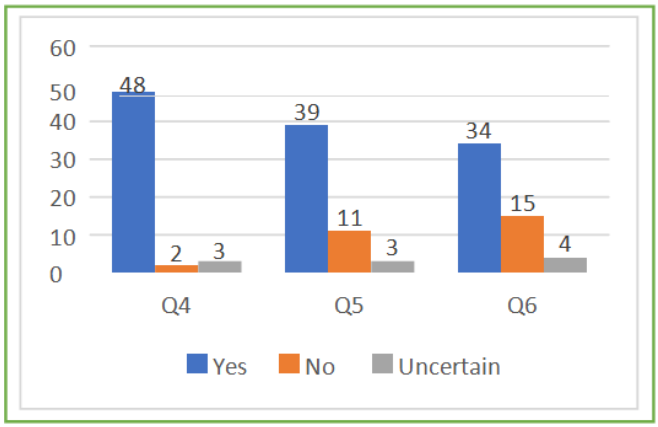

Figure 4: AI systems use leads to a diminishing/increasing workforce

Questions 7, 8, and 9 are designed to address the research question 3 which intends to find out whether the use of AI systems in industries can lead to an imbalance workforce. Question 7 samples the responses of the respondents on whether they feel that AI systems can be made to be bias. A total of 41 representing 77% of the respondents said "yes". This assertion is in line with the finding of [16] when it says that AI systems have the potential of being bias and discriminatory once the algorithm used to train it is bias. Question 8 tries to ascertain how the workers feel on the fact that AI systems are taking their jobs. In response a total of 42 representing 79% of the respondents says 'yes'. This assertion is in line with the finding of [17] which says that the workers need to embrace the change by upskilling themselves to fit into their new roles. Question 9 is posed to ascertain whether workers know that AI can be used to bridge their rights and privacy. In response, 45 representing 85% of the respondents said "yes". This assertion is in line with the finding of [16] which says that AI systems are susceptible to cyberattacks. Cyberattacks can be perpetuated by dubious persons both within and outside the organization to steal people's personal information. Figure 6 shows the bar chart representation of the responses to questions 7, 8, and 9 which are targeted at answering the research question 3 that seeks to know whether the use of AI systems can lead to an imbalanced workforce. The findings, therefore, show that AI systems in organizations can be abused in one way or the other to create an imbalanced workforce.

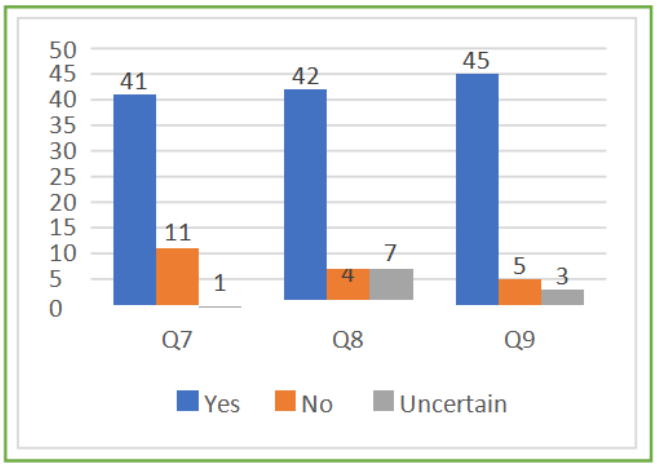

Figure 5: AI systems use can lead to an imbalanced workforce.

8.Conclusion

The workplace over the last decades has been experiencing a lot of transformations that has directly or indirectly affected the workforce. The findings of this study have shown that the implementation of AI systems by industries does the following –

a) Promotes job efficiency as it delivers jobs more accurately at less cost, and eases the workforce from doing herculean tasks;
b) Amidst fears of job losses, the workforce has the opportunity of reskilling / upskilling to fit into new roles, and by so doing will remain employable;
c) The potential of the use of AI systems leading to creation of more new jobs in the long run is factual; and
d) An imbalance workforce can be created if proper legislation is not proffered to guide against making some ai systems to be biased or exposed to cyberattacks.

9.Recommendation

Today's workforce is faced with evolving rapid transformation of jobs, and the immense need for them to upskill in order to remain relevant in this digital age. Employers, government and workers need informed collaboration to ensure that job disruptions and displacements are effectively managed for the betterment of all and sundry. In the part of the employers, effective communication is key to convince their already employed workforce on the need for their retraining to remain relevant. The government needs to formulate good policy guidelines that would guarantee privacy and security of the vast individual data that AI systems now access. Skills identified to be very risky, which are handled by AI systems, need to be protected for better outcomes to ensure that unscrupulous elements do not highjack it. Finally, the workforce and all stakeholders need to embrace these unformidable transitions in order to offset the imbalance between AI skills acquisition and the workforce.

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