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## Emerging Technologies and Its Implications on The Future Of Work

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### ABSTRACT

Automation as a phenomenon is not new to modern society. The idea of replacing man with machines dates 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.

**Keywords:** Emerging Technologies, Implications

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### 1. INTRODUCTION

There is no doubt that the advent of emerging technologies has revolutionized the landscape of work across various industries. Notable innovations such as artificial intelligence (AI), machine learning, blockchain, the Internet of Things (IoT), and advanced robotics and many others are not only transforming how tasks are performed but also reshaping job roles and organizational structures. Nascent technologies, particularly AI, have altered work landscape by automating routine and repetitive tasks, leading to significant changes in the workforce. Brynjolfsson and McAfee (2014) posited that automation can increase efficiency and productivity, yet can raise concerns about job displacement. Same view was shared by McKinsey Global Institute (2017), estimating that by 2030, up to 800 million jobs worldwide could be lost to automation, and consequently result in a major shift in workforce skills and employment strategies. As routine jobs continued to get automated, the demand for high-skilled workers in technology-driven fields will be on the increase.

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In response to the various changes in the workplace, the World Economic Forum (2020), highlighted critical thinking, problem-solving, and proficiency in digital technologies as critical skills required in the modern work environment. It is imperative for educational institutions therefore, to focus on reskilling and upskilling its curriculum content, robust enough to prepare the workforce for these new demands. It is important to also note that the apart from the demand placed on workers skills, emerging technologies, has also placed a demand on organizations to rethink their structures and processes. Deloitte (2019) reiterated that businesses are increasingly adopting agile methodologies and decentralized decision-making to leverage technological advancements effectively. The adoption of new structures and processes ultimately require a cultural change of continuous learning and adaptability among employees. From the foregoing, this research effort attempts to explore the multifaceted impact of emerging technologies on the future of work, examining both the opportunities and challenges they present.

### **1.1 Statement of the Problem**

The rapid advancement of emerging technologies, particularly in the realms of artificial intelligence, automation, and robotics, has fundamentally altered the landscape of the workplace. These innovations have transformed the nature of work, leading to significant changes in job structures, skill requirements, and employment dynamics. While these technologies offer the potential for increased efficiency and economic growth, they also pose substantial risks, including job displacement and increased inequality. Understanding the implications of these technological advancements on the future of work is crucial, hence the need for this research work. .

### **1.2 Purpose of the Study**

The purpose of this study is to investigate the implications of emerging technologies on the future of work. Specifically, the study aims to explore how advancements in artificial intelligence, automation, and robotics are reshaping job roles, skill requirements, and employment patterns. The research will also examine the potential socioeconomic impacts, including job displacement and income inequality, and identify strategies to mitigate adverse effects while maximizing the benefits of technological progress.

### **1.3 Significance of the Study**

This study on Emerging Technologies and Its Implications on the future of work is of paramount importance for following reasons:

- The study will provide comprehensive analysis of how emerging technologies such as artificial intelligence, automation, are reshaping the workplace, hence the need to offer valuable insights for policymakers.
- The study will serve as a guide to employers, to understanding the impact of emerging technologies on job roles and skill requirements thereby help them make informed decisions about workforce planning, training, and development, ensuring that their organizations remain competitive and their employees are well-equipped to handle new technological demands.

- Other areas of significance of the study are the provision of crucial information crucial information about the changing nature of work and need to understand which skills will be in demand. This will position the workers proactively adapt, seek relevant training, and remain employable.

The study will help re-echo the need by Educational institutions to update and design curricula that better prepare students and professionals for the future of work. This will consequently mitigate possible socioeconomic impacts of emerging technologies, such as job displacement and income inequality. Summarily, the study will add to the growing body of academic literature on the future of work, by providing empirical data and theoretical insights that can serve as a foundation for further research efforts.



**Fig. 1: Crafting a Future of Work Strategy**

Source: <https://www.gartner.com/en/articles/how-to-craft-a-highly-effective-future-of-work-strategy>

### 1.4 Research Questions

1. What are the ways through which emerging technologies, such as artificial intelligence, automation, and robotics, reshaping job roles and skill requirements in various industries?
2. What are the potential socioeconomic impacts of these technological advancements on employment patterns, particularly concerning job displacement and income inequality?
3. What strategies can policymakers, employers, and workers employ to mitigate the adverse effects of emerging technologies while maximizing their benefits for the future of work?

## 2. METHODOLOGY

The research approach adopted for this study is quantitative approaches. This design is chosen to provide a comprehensive understanding of the implications of emerging technologies on the future of work; a stratified random sampling method was used to ensure representation across different, job roles. The target population for the study was made lecturers in higher institutions in South west Nigeria teaching course related to STEM. The researchers employed the use of structured questionnaires for data collection methods.

The research questionnaire was submitted to experts for content validity, whereas the reliability of the instruments was found to be 0.73 at .05 level of significance after which they were distributed among the sample of the population. A total of 134 questionnaires were filled and returned which made up the total sample used for the study. Basic descriptive statistics (percentage) was used to summarize data harvested from the questionnaire.

## 3. RESULTS AND DISCUSSION

The results from the analysis of data gathered from the respondents were presented and discussed thus:

**Table 1: Responses on How Emerging Technologies are Reshaping Job Roles and Skill Requirements in the Work Place**

S/No	Question Items	A	%	D	%
1	Specific job roles are most susceptible to automation and AI integration in different industries?	108	80.6	26	19.4
2	Skill requirements in the workplace is heavily impacted by emerging technologies, such as artificial intelligence	118	88.1	16	11.9
3	Impact of emerging technologies on the workplace necessitates need by educational institutions to develop trainings that will address the new skill demands.	128	95.5	6	4.46
4	The impact of Emerging technology has compelled employers to restructure the workforce to accommodate the changing roles.	112	83.6	22	16.41

The research data in the table above presents responses to questions regarding the impact of emerging technologies on the workplace. An inference shows a significant majority (80.6%) of respondents agree that specific job roles are highly susceptible to automation and AI integration across different job roles. This indicates a strong recognition of the potential for these technologies to replace certain types of jobs. A majority (88.1%) of respondents believe that skill requirements in the workplace are heavily impacted by emerging technologies, such as artificial intelligence, which suggests a widespread acknowledgment that the skill sets needed in the workplace are evolving due to technological advancements.

Also overwhelming majority (95.5%) agree that the impact of emerging technologies on the workplace necessitates educational institutions to develop training programs that address new skill demands; this highlights a consensus on the importance of updating educational curricula to better prepare the future workforce. One hundred and twelve respondents, representing 83.6% agree that the impact of emerging technologies has compelled employers to restructure their workforce to accommodate changing roles. This underscore the importance for employers of labor to adapt their workforce structures in response to technological changes.

**Table 2: Responses on the Socio-economic Impacts of Emerging Technologies on employment Patters, Job Displacement and Income Inequality**

S/No	Question Item	A	%	D	%
1	Specific demographic groups are most at risk of job displacement due to automation and AI?	117	87.3	17	12.7
2	Adoption of emerging technology in the workplace has the propensity to create income inequality	124	92.5	10	7.5
3	Adoption of emerging technology such as AI by employers create long term employment trends	116	86.6	18	13.4
4	Emerging technologies have socioeconomic impacts on their labor markets?	95	70.9	39	29.1

Responses from the table 2 indicate that majority (87.3%) of respondents are of the opinion that specific demographic groups are most at risk of job displacement due to automation and AI. This indicates a strong concern that certain segments of the workforce, possibly those in lower-skilled positions or in certain age groups, are more vulnerable to losing their jobs as these technologies are adopted. One hundred and twenty four respondents, representing 92.5% believe that the adoption of emerging technology in the workplace has the propensity to create income inequality. This suggests a widespread recognition that technological advancements may disproportionately benefit higher-skilled workers, leading to a widening income gap. In same vein, one hundred and sixteen respondents, representing 86.6% agreed that the adoption of emerging technology such as AI by employers creates long-term employment trends. This response affirm the general consensus that AI and similar technologies are not just temporary changes but will have enduring impacts on employment patterns and job structures.

Ninety five respondent (70.9%) concurred that emerging technologies have socioeconomic impacts on their labor markets. This creates a broad awareness that these technologies affect not only employment but also broader economic and social factors, potentially influencing labor market dynamics and societal well-being.

**Table 3: Responses on the Strategies that Employers Adopt to Mitigate the Adverse Effects of Emerging Technologies on the Future of Work**

S/No	Question Items	A	%	D	%
1	Government should implement policies to support workers displaced by automation and AI?	109	81.34	25	18.66
2	employers can effectively manage the transition to an automated workforce while maintaining employee morale and productivity	118	88.1	16	11.9
3	Educational institutions have roles to play in preparing the future workforce for the demands of a technology-driven job market?	121	90.3	13	9.7
4	Labour unions and worker organizations should advocate for fair practices in the adoption of emerging technologies by employers of Labour	112	83.6	22	16.4

Responses from table 3 above reflect agreement of 81.34% by respondents that government should implement policies to support workers displaced by automation and AI. This signals an indication of need by governmental to provide safety nets and retraining programs for affected workers. One hundred and eighteen respondents, representing 88.1% believe that employers can effectively manage the transition to an automated workforce while maintaining employee morale and productivity, indicating strong confidence in employers' abilities to navigate the challenges of automation, through transparent communication, reskilling initiatives, and supportive workplace practices. The important role of educational institutions is supported by 90.3% respondents who agreed that educational institutions have roles to play in preparing the future workforce for the demands of a technology-driven job market. The role of labour unions was also highlighted by a significant portion of the respondents (83.6%), which underscore the need by labour unions to advocate for fair practices in the adoption of emerging technologies by employers.

#### 4. SUMMARY OF FINDINGS:

Research data from this study reveals a strong consensus among respondents regarding the profound socioeconomic impacts of emerging technologies on the labor market and workplace. This findings is reflected as follows Respondents recognize the significant risk of job displacement for specific demographic groups due to automation and AI, resulting in notable increase in income inequality as a result of technological advancements.

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The study also indicates creation of long-term employment trends driven by AI and automation with broader socioeconomic impacts on labor markets. Further to these, there is widespread agreement on the susceptibility of certain job roles to automation and AI integration, which is as a result of emerging technologies altering skill requirements, necessitating updated training programs by educational institutions. These resultant impacts stress the compelling need by employers to restructure their workforce to accommodate changing roles and ensure employees remain relevant.

The study also highlighted the importance of government intervention through policies that can support workers displaced by automation and AI. It is believed that should be capable of effectively managing the transition to an automated workforce while maintaining employee morale and productivity. Finally, The study reiterated the important role of two stakeholders Educational institutions as key players in the transition are expected to prepare the future workforce for the demands of a technology-driven job market. Labor unions and worker organizations are also viewed as essential advocates for fair practices in the adoption of emerging technologies by employers.

## 5. CONCLUSION

The research reveals a strong consensus among respondents regarding the profound socioeconomic impacts of emerging technologies on the labor market and workplace. The key findings highlight several critical areas of concern and opportunity. First is the socio-economic impact of job displacement. The study affirmed the existence of a significant risk for job displacement among specific demographic groups due to automation and AI. This has the propensity to further heighten concern about possible increase in income inequality as a result of technological advancements. As a result of long-term employment trends and broader socioeconomic impacts on labor markets, certain job roles will become highly susceptible to automation and AI integration; leading to change in skill requirements, and need for updated training programs by educational institutions. This will further place a demand on employers to restructure their workforce to adapt to changing roles and ensure employees remain relevant.

## 5. RECOMMENDATIONS

Based on these findings, the following recommendations are proposed to address the impacts of emerging technologies on the workforce and promote a more equitable and inclusive technological transition:

### 1. Government Policies and Support:

- Develop and implement comprehensive policies to support workers displaced by automation and AI, including retraining programs and social safety nets.
- Encourage public-private partnerships to create job opportunities in emerging sectors.

2. **Employer Strategies:**
  - Employers should invest in reskilling and upskilling programs to help employees transition to new roles created by technological advancements.
  - Adopt transparent communication and change management strategies to maintain employee morale and productivity during transitions to automation.
3. **Educational Institutions:**
  - Update curricula and training programs to align with the evolving skill requirements of a technology-driven job market.
  - Collaborate with industry leaders to ensure that educational programs are relevant and responsive to market needs.
4. **Labor Unions and Worker Organizations:**
  - Advocate for fair labor practices and equitable adoption of emerging technologies by employers.
  - Work with employers to develop frameworks that protect workers' rights and ensure fair compensation and working conditions.

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