



Using AI and Data Analytics to Reduce Unemployment in Nigeria: A youth Empowerment Approach

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Abstract

Unemployment among the youth still remains as one of the most acute socio-economic problems of Nigeria, which is very dangerous to the national growth and social integration. Traditional job market policies have failed in most instances to match the gap that is becoming increasingly bigger between labour market demands and the youth skills. In the current paper, it is discussed that potential solutions to youth unemployment presented by artificial intelligence (AI) and data analytics can serve as effective and powerful tools to support the process of expanding and improving efficient and youth-oriented labour market participation. It suggests the holistic approach based on AI-powered skills training, data-driven job alignment, and AI-powered entrepreneurship, in particular in the gig economy. The analysis highlights the need to change the policy in a synchronised manner and carry out institutional changes to facilitate an environment where AI integration would be possible through the coordinated actions of government bodies, educational meetings, and the private sector. Finally, this paper is a call to transform the reactive and politically driven models of employment into proactive, data-driven models that would provide Nigerian youth with the competencies related to the economic environment and connect them to the long-term economic prospects. It is emphasised that to realise the potential of Nigeria population (youth), to become an innovative society, and to maintain economic growth, a youth-centric AI empowerment approach is necessary. This plan does not only address the issue of unemployment but also prepares the youthful generation in Nigeria to be the driving force of a digital age national development.

Keywords: Youth unemployment, Artificial intelligence, Data analytics, Skills development, Job matching, Youth empowerment.

Introduction

Unemployment among the youth has become a significant developmental issue in Nigeria with far-reaching implications on the economic performance, social stability as well as national security. Despite the high and increasing number of youths in the country, this has ended up putting a lot of pressure in an already weak labour market rather than acting as a great demographic benefit to the country. There is poor job creation (Abisuga-Oyekunle et al., 2020), high rate of underemployment and dominance of informal work which has left many youth financially unstable resulting in growing poverty, social marginalisation and crime exposure and susceptibility to conflict and crime (Umoh, 2025). As a result, the problem of youth unemployment is not merely an employment issue but

a multifaceted development problem that needs some unconventional and quick solutions.

Subsequently, different Nigerian governments have come up with various employment and empowerment programmes that focus on enhancing the lives of the youth and curbing unemployment. Although such initiatives act as a definite policy intention, their general performances have been minimal. Most conventional job intervention strategies tend to be short-term in character (Muhammad, 2023), have inadequate coordination among organizations, and are loosely connected to the requirements of the private sector, and cannot be maintained over time (Okorie et al., 2024). Moreover, these programmes in many cases do not take into account the underlying



structural limits in the economy such as limited industrial productivity, low levels of technological absorption and poor match between educational output and labour market demands.

The inadequate utilisation of sound and timely information on labour market is one of the key weaknesses of the traditional employment policies in Nigeria. The design of policies and implementation of the programmes are often done without strong evidence regarding the changing skills needs and industry trends of growth and the regional patterns of employment (Ajeniwani et al., 2024). Maharjan (2025) stated that such incomplete planning has supported the existence of chronic skill-mismatches where the youths obtain qualifications that fail to yield employment opportunities. Consequently, a number of beneficiaries of training schemes funded by the government still lack employment or are under-employed despite heavy investment by the government.

Globally, however, there is an increasing transformation in the labour markets due to the influence of AI and data analytics that helps to make evidence-based decisions and can be used to plan workforce more efficiently. Predictive analytics, machine learning, and intelligent job matching systems are some of the tools that allow the stakeholders to predict their employment trends (Shron et al., 2025), find out the competencies that are in demand, and enhance the process of matching job seekers with opportunities (Jooss et al., 2024). In the case of developing nations such as Nigeria, the technologies offer an avenue through which information gaps would be minimized (Aderibigbe et al., 2023), productivity may be enhanced, and job strategies are modeled with better response to the changing economic environments.

In this context, this opinion paper suggests that artificial intelligence and data analytics should be integrated into the employment and youth empowerment strategies in Nigeria, and this recommendation is timely and requisite. It recommends a radical change in the current reactive, politically driven employment interventions to youth based and data driven approaches that utilise technology to discover the maximum youth productive potential. The paper advances the bigger policy and academic debate on sustainable and long-term unemployment solutions in Nigeria by making youth empowerment the focus of AI facilitated labour market reforms.

Unemployment Amongst the Youths in Nigeria: A Structural Approach

Unemployment among the youth in Nigeria is not a temporary economic downturn but merely a result of structural deficiencies in the economy that have taken place over a long period of time. The current trends in employment show that the youth are always more susceptible to unemployment, underemployment, and unstable working conditions as compared to the elderly (Mehta & Awasthi, 2025). Most of the youths are reduced to low income jobs, informal jobs, or unstable jobs even in employment that offer minimal career progression and social security (Sumberg et al., 2021). This extreme vulnerability exposes them more to poverty and economic insecurity, enhances social exclusion, and eventually undermines their capacity to make significant contributions to the development of the nation.

The persistence of the mismatch between the skills generated by the education system and the labour market has been one of the major structural causes of youth unemployment. There are numerous education programmes that do not match industry expectations, in terms of giving little emphasis on practical experience, digital capability, and critical problem solving skills (Goulart et al., 2022). Thus, many graduates find themselves in the labour market lacking relevant or marketable skills, at the same time, employers complain that they are unable to hire people with sufficient skills. This imbalance has upset the process of school to work and lowered the efficiency of schooling as a productive work force.

Youth unemployment in Nigeria is a problem that is complicated by the high regional, gender and socio-economic inequalities. Insecurity has been known to increase the level of joblessness and underemployment especially in rural communities and areas which are prone to insecurity where the availability of infrastructure and economic opportunities is limited (Adenike, 2021). The gender inequalities are also important factors since youth females often face more challenges due to the social rules, their lack of access to educational opportunities and finances, and a disproportionate burden of care (Baxter et al., 2022). Similarly, youth of poor socio economic status are more likely to be unemployed longer since they lack access to quality education, technology and working contacts.



These overlapping inequalities show that there is no one uniform youth unemployment as it is diverse and depends a lot on the geographic location, gender and even socio economic status. One size fits all employment policies are thus unlikely to work and they could contribute to the existing disparities unwittingly (Wolf, 2020). To solve the problem of unemployment among the youths, there is need to take specific and contextual intervention which should take into consideration the various challenges that different groups of youths are experiencing in the country.

Considering these structural realities, integrating the concept of youth empowerment into the heart of employment strategies is crucial in order to deliver sustainable results. The empowerment process should not focus only on getting employment; it should also include gaining of the right skills, access to digital tools, access to entrepreneurial opportunities, and participation in the decision-making process (Adejoke, 2025; Shukla et al., 2021). With investment in future-oriented capabilities and taking youth proactively in the development of solutions to labour market, Nigeria can reinvent the youthful population as a key driver to inclusive economic growth and long term development.

Artificial Intelligence and Data Analytics: Revolutionising the Labour Markets

Artificial intelligence (AI) and data analytics are becoming someone who is increasingly defining the form and functionality of the labour markets across the globe. AI includes technologies that allow machines to mimic human mental processes, including learning, recognition, and decision making, and data analytics deals with deriving significant information out of massive and complicated data sets (Safitra et al., 2024; Sarker, 2022). When applied to the employment system, these tools help make assessments of the labour market more accurate, the planning of the workforce more productive, and alignment of the accessible skills and the needs of employers more successful.

In other parts of the world, AI-based technologies have been implemented to enhance job services and human capital development. Automated recruitment systems, smart career advice systems, and job-matching algorithms are now used by many countries to facilitate the fast hiring of workers and increase the availability of jobs (Soni, 2024). There is also a tendency towards data-driven strategies in the work of the public institutions aimed at predicting

skills shortage, the emergence of new industries, and developing reskilling and upskilling programmes based on the labour market trends (Nyangoma et al., 2023; Johnson et al., 2021). These international experiences demonstrate how AI can enhance the employment congruency as well as the long-term labour market sustainability.

Predictive ability is one of the biggest contributions of AI and data analytics in the labour markets. Predictive analytics allows the stakeholders to predict future changes in the demand of the employment opportunities and also determine the future skills by analysing the historical trends and real-time data (Adekunle et al., 2021). Smart matching systems also boost the efficiency of labour market as it matches the job seekers and employers after careful examination of the skills, qualifications and preferences (Mokrani et al., 2024). This minimizes information lapses, reduces the cost of recruitment and enhances employment matches.

In the case of developing economies such as Nigeria, the applicability of these technologies is more so. The AI and data analytics can be used to solve issues that include incomplete information on the labour market, the poor compatibility of education providers and employers, and insufficient evidence-based policymaking (Khan et al., 2025). As labour market intelligence increases, institutions and policymakers will have a better way of aligning training programmes to the economic priorities and labour inputs, particularly in the case of the younger population.

However, to make AI successful in developing economies one has to pay due consideration to local conditions and inclusivity. It is necessary to invest enough in digital infrastructures, human capacity building, and data security systems to facilitate fair access and prudent usage. When properly tapped, AI and data analytics can be revolutionary in transforming labour markets and broadening the employment opportunities, as well as contributing to sustainable economic development in Nigeria.

The Youth Empowerment, AI-driven and Proved in Nigeria

The high number of youth in Nigeria is commonly seen as a potential demographic dividend that given due utilization would go a long way in developing and being economically innovative. Nevertheless, the unemployment rates of youth are high and indicate that this potential is most likely to be



not exploited. Artificial intelligence (AI) and data analytics do hold promising opportunities to empower youth in Nigeria by equipping them with the skills and knowledge and opportunities they need to succeed in a modern labour market (Olagunju, 2024). With the implementation of these technologies, youth will have a better chance of training the needs of the digital economy and have a more active role in the development of the country.

The youths of Nigeria are digital natives, and they are accustomed to technology and social media, which provides a solid base of incorporating AI-based learning and job solutions specific to their needs. Youth can build on their relevant competencies more easily by using AI-driven platforms that are able to provide them with personalised skills training, adaptive learning experiences, and real-time feedback (Strielkowski et al., 2025). Also, the data analytics would help identify new employment patterns and skills requirements (Alibasic et al., 2022), which would facilitate the smarter career choices of youths and prevent investments in overcrowded or depreciating industries.

The labour market information plays a significant role in the bridging of the education level and employment in Nigeria. Using AI to review information in a labour market, policymakers and educators will be able to tailor their curricula and training programmes to meet the present and future demands of employers (Bukartaite & Hooper, 2023). Through this strategy, there are fewer cases of skill mismatches to be witnessed and there is an increased chance that the youths will get meaningful jobs. Additionally, Ajjam and Al-Raweshidy (2025) stated that job-matching systems based on AI can be more practical in employing job seekers and employers, reducing the time and cost involved in the search of the job market and enhancing the employment results.

In addition to traditional jobs, AI and data mining can also encourage youth to become entrepreneurs and join the gig economy. Intelligent platforms may be used to recognize business prospects, match freelancers and customers, and gain access to financial means and support services (Sahnoun & Elhadjamor, 2024). This increases economic inclusion of the youths and also promotes innovation and independence in areas which traditional modes of employment usually overlook.

In order to optimize the gains of AI-based youth empowerment, Nigeria needs to invest in technology implementation, as well as digital literacy,

infrastructure, and inclusive policies. There is a need to make AI tools accessible to various genders, regions, and socio-economic groups equally to prevent the further marginalisation of vulnerable groups (Lainjo, 2020). When used in a wise manner in Nigeria, AI and data analytics can turn the youther generation into a strong, adaptable, and empowered labor force, able to drive a continuous economic growth and social development.

Opinion Framework: AI and Data analytics to Reduce Unemployment

Data analytics and artificial intelligence (AI) are the potent and combined solution to the issue of youth unemployment by transforming the cycle of skill acquisition, employment placement, and formation of entrepreneurs. By using these technologies, the country can develop smarter, more efficient, and youther labour market policies that can adapt to the evolving economic trends. The strategy is designed based on three main elements: skill creation and reskilling through AI, job matching and career advice based on data, and entrepreneurship in the gig economy made easier with the help of AI.

Skills Development and Reskilling with AI Enablement

The ability to build personalized learning systems and adaptive training platforms based on AI is a revolutionary method of skill development (Kaswan et al., 2024). These technologies personalize the content and speed to each individual, unlike the traditional educational systems that use a standard curriculum and impose them on all learners, despite their needs, learning styles and levels of proficiency.

They also give constant feedback and evaluation that enable the youth to correct particular areas of competence deficiency and acquire the skills required in the modern workplace. Furthermore, using data analytics to monitor the trends in the labour market and anticipate new demands, such platforms can help maintain training to be current and progressive (Rahaman & Bari, 2024). Such targeted reskilling would allow youth to develop the much-needed digital literacy, critical thinking, and technical skills that would be crucial to succeed in a more overtaken and technologically automated world.

Intelligent Job Matching and Career Advice

AI-driven intelligent employment platforms are critical in reducing information disparity between



the job seekers and the employers (Kyriakidou et al., 2025). Such systems examine the profiles of the candidates such as their skills, experience, and preferences and match them better with employer requirements using algorithms. This leads to better job placements, less time wasted by people in seeking jobs and cost of recruitment is lessened by employers (Hirst et al., 2023).

Moreover, career guidance solutions based on AI provide more personalized guidance that is based on current labour market data and helps youth individuals to make informed choices regarding career options, additional education, and career changes. These technologies enhance the efficiency and inclusiveness of the labour market by minimising supply and demand gaps.

Artificial Intelligence-enabled Entrepreneurship and the Gig Economy

Also via AI and data analytics, youth can be empowered to innovate and enter the world of entrepreneurship, especially the gig economy. Platforms that are sound can assist entrepreneurs at their youth ages to discover business opportunities, meet potential clients and collaborators, and get financial service and other support facilities (Hamzat et al., 2023). Gig and remote work offer an alternative source of income and can be a valuable experience in terms of the desired professional experience, as people cannot find a formal job (Myhill et al., 2023). Projects, customer relations and performance indicators are also managed with the help of AI and help startups and freelancers compete successfully in online marketplaces. Diversifying the job opportunities and economic resilience enable the Nigerian youth by encouraging them to pursue entrepreneurship and support an ecosystem (Abdulrazaq & Lambe, 2024).

To sum up, the use of AI and data analytics in skills acquisition, employment, and entrepreneurship is a holistic approach to lowering unemployment among youth. Not only these technologies enhance the quality and relevance of workforce training, but also enhance the transparency of the labour market and provide new economic opportunities (Babashahi ET AL., 2024). In the case of Nigeria, the implementation of this AI-based model can open the full potential of the youth population to the country and lead to the increase in the economic growth in the long term.

Policy and Institutional Implications

Addressing the problem of youth unemployment in Nigeria using artificial intelligence (AI) and data analytics would require a multi-faceted policy intervention including the government, educational institutions, and the business sector. Implementing AI-driven solutions to the labour market successfully involves more than the use of technology alone, it involves the creation of frameworks that support it with the aim of fostering collaboration, maintaining ethical practices, and being inclusive (Challoumis, 2024). This section will delineate the fundamental functions the government agencies, the educational institutions, and the players in the private sector should play to make the approach to youth employment through AI be sustainable.

Government and Public Sector

The government should play a lead role in ensuring that it creates an environment that will support the adoption of AI in the employment policies and programs (Folorunso et al., 2024). The most important effort would be creating a national AI labour market intelligence system an integrated system through which labour market data are collected, processed, and shared in real-time. Using AI and data analytics, this system would offer accurate information about employment patterns, skills needs, and sector development to enable the policy makers predict changes and react suitably (Johnson et al., 2021). The use of such a data-driven approach improves transparency, decreases the use of outdated or anecdotal data, and it also allows employment interventions to be tailored more appropriately.

The shift towards evidence-based formulation of employment policy is also crucial. Governments must switch to reactive and politicized models of government to models that are based on data analysis and AI-based predictions (Kuziemski & Misuraca, 2020). The use of AI tools in the policy making process enables simulating, identifying gaps and adequately allocating resources (Aderibigbe et al., 2023). This will assure that youth empowerment programmes are applicable, reproducible and be consistent with real labour market requirements and eventually assist in sustainable employment results. Additionally, the governments have to implement laws to regulate the use of AI, which safeguard privacy, are more equitable, and eliminates abuses to foster public trust in AI-based systems.



Training and Education Institutions

Educational and training organisations play a critical role in equipping Nigeria youth with skills to operate in a labour market that is being technologically inclined. It is also essential to introduce AI literacy in the curricula of every educational level to provide students with the basic understanding of AI, data analytics, and their real-world applications (Chiu et al., 2024). In addition to technical capabilities, digital ethics, critical thinking, and adaptability should also be taught in the curricula to enable students to adapt to the changing career environments. This incorporation must not only be on specialized courses but also on general STEM education and vocational programs to cover a large population of learners.

It is also necessary to improve the interaction between academia and the industry in order to bridge the education and employment gap. Collaborations with the organizations of the private sector can assist in the creation of curricula, provide practical training opportunities such as internship and apprentice programs, and promote the sharing of experience (Бородієнко et al., 2021). Through such relationships, training is made to meet the current demands of the industry as well as new technologies making graduates more employable. In addition, Dada et al (2024) stated that collaborative research activities may lead to the innovation of AI-based applications that address the economic situation in Nigeria and produce solutions to the problem of youth unemployment that are more locally relevant.

Development Partners and the Private Sector

The tech companies, startups, and employers are part of the private sector, which can play a key role in the implementation of AI solutions and the expansion of youth employment programs. It is important to stress that ethical AI implementation is essential to make sure that technologies are applied in a transparent, responsible, and unbiased manner (Mensah, 2023). The users should urge the private actors to ensure the safety of user data, shun discrimination in AI-driven recruitment and training devices, and promote inclusivity. These ethical norms can safeguard people and enhance the effectiveness and legitimacy of AI-based job programs.

Public-privately partnerships (PPPs) are an efficient way of joining forces, experience, and innovation to develop youth employment. The PPPs can be strengthened by development partners like NGOs, international bodies and donors in terms of

technical support, funding and capacity building (Chileshe et al., 2023). Such partnerships will be able to experiment with AI-driven jobs, scale effective models, and promote the empowering policies. Through the combination, the public and the private stakeholders may develop a more active and open ecosystem of the labour market, increasing the access of youth to the training process, employment, and entrepreneurial assistance (Erdogan et al., 2021).

To sum up, to make AI and data analytics effective in reducing youth unemployment in Nigeria, there should be an integrated policy and institutional approach. The government should be on the forefront in policymaking and regulation, education suppliers should change their curricula and develop industry relationships, and the industry should maintain ethically responsible AI practices and collaborate (Schiff, 2022). These combined efforts can be used to build an effective base to utilize AI and empower youth and ensure sustainable economic development.

Ethical, Social, and Implementation Issues

With the adoption of artificial intelligence (AI) and data analytics to fight unemployment among youth in Nigeria, the ethical, social, and practical implications of such technologies must be considered and tackled. Although AI is highly transformative, the application should be informed by the principles that can ensure fairness, transparency, and inclusiveness (Hosseini-Tabaghdehi & Ayaz, 2025). The following section dwells upon such critical topics as digital divide, stereotypical algorithms, data privacy, regulation, and the need to implement AI responsibly.

Since the fight against youth unemployment in Nigeria is now entering the field of artificial intelligence (AI) and data analytics, the ethical, social, and practical issues raised by these technologies must be considered and resolved accordingly. Some of the crucial points highlighted in this section include the inequality of internet connections, algorithm discrimination, data privacy, regulation, and the need to have responsible AI implementation.

One of the issues is the digital divide and unequal access to technology. There are also large disparities among urban and rural locations, various socio-economic classes, and sexes in Nigeria in terms of having access to digital devices, stable internet, and digital literacy. Unless deliberate actions are undertaken to bridge these gaps, AI-based job programs have a tendency to benefit individuals that are already digitally advantaged, and consequently



expand the current disparities (Hammerschmidt et al., 2025). To ensure that AI solutions are inclusive of all youth Nigerians, it is important to ensure that digital tools and connectivity are affordable as well as widely accessible.

Another group of critical issues is represented by algorithmic bias and data privacy. The quality of the data used to train AI systems is very important, and in case it is biased or incomplete, the algorithms will deliver unfair or discriminatory results, which will favor youth in a disproportional way in terms of their gender, ethnicity, location, or economic status. Moreover, the personal data gathered during the use of AI resources should be strictly guarded against misuse and abuse to protect the privacy of individuals and ensure the trust of the population (Gabriel, 2023). Addressing these problems will involve an open design of AI, frequent audits of algorithms, and powerful data protection legislation that is consistent with international standards.

Policies and appropriate governance are also central to having ethical use of AI in employment. Nigeria should have far-reaching policies and institutions that monitor AI creation and implementation, balancing innovation and responsibility (Okonkwo et al., 2024). They should provide clear guidelines on how data should be managed, how to deal fairly with the decisions made by algorithms, as well as provide mechanisms that resolve disputes. All these elements can yield better legitimacy and responsiveness in the regulation of AI technologies, through the involvement of more stakeholders in governance structures, especially government, the private sector, civil society, and youth representatives.

The responsibility to make AI utilization inclusive and responsible will be to instill ethical concerns at every phase of the AI-based employment programs lifecycle (Chang & Ke, 2024). This means to create systems by involvement of various groups of youths, conducting an extensive impact evaluation, and ensuring that youth are adequately digital literate in order to critically interact with AI systems. It is vital to carry out continuous monitoring and evaluation to notice unintended consequences and implement the required changes (Oliver et al., 2020). Nigeria can create trust and enhance equitable empowerment of the youth by ensuring fairness, inclusivity, accountability, maximizing the benefits of AI and minimizing the risks, as a means of maximizing the advantages of AI and reducing the risks involved.

Finally, the ethical and social and implementation concerns should be core to a strategy on youth unemployment reduction using AI. A digital divide, avoiding bias in algorithms, maintaining data confidentiality, enhancing oversight, and promoting responsible AI usage are all essential measures to make sure that these technological solutions will be efficient and fair to the entire population of the Nigerian youth.

Way Forward: AI Youth Empowerment Agenda

In order to effectively use artificial intelligence (AI) and data analytics to address the issue of unemployment among youth, Nigeria should create a distinct strategy with youth focus, specifying specific actions that can be followed. This strategy ought to occur priorities on the short-, medium, and long-term basis to make the initiatives viable and sustainable. The short-term cognizance should be on the digital infrastructure expansion, increasing AI literacy rates among youth, and initiating pilot projects focusing on AI-based training and job-matching systems, which will prove the workability (Sey & Mudongo, 2021).

In the medium term, the focus should be put on the further expansion of the demonstrated programs, the further enhancement of the relationships between the government and educational establishments, as well as the government and the sphere of work, and the use of AI tools in education and workforce policy. In the long term, it ought to institutionalize AI in the system of labour market, periodically modernize the skills training program to keep up with technological progress and promote the culture of innovation and adaptability among the youth Nigerians.

Another equally important element is the development of effective monitoring and evaluation to ensure that the progress and impact of youth empowerment programs propelled by AI are followed. The constant data collection and analysis will enable the stakeholders to assess the success, the sources of poor performance, and the effective adjustments that can be made to improve performance (Umana et al., 2022). Open reporting and participation of all stakeholders will assist in the establishment of accountability, inclusivity, and confidence in AI-enabled interventions.

Conclusion

As it has been highlighted in this paper, artificial intelligence and data analytics are transformative to enhance the employment prospects of youth in Nigeria through making strategies adopted by the labour market more targeted, efficient, and responsive. Its main thesis is based on the idea that it is time to move beyond the traditional, reactive modes of employment and focus on the data-driven and evidence-based policy that would provide youth individuals with the appropriate skills and connect them to the relevant employment opportunities. This would only be possible through the collective efforts of policy makers, educators, the business community and development partners to create ethical, inclusive, and sustainable AI-driven job systems.

This potential needs to be unlocked by acting quickly and decisively. With a youth-focused AI empowerment strategy, Nigeria will be able to harness the youthful energies and innovation to become a country that grows economically and socially. Inclusion and careful consideration of the advanced technologies into the youth employment sector is the key to the future of this field and such a challenge is not merely the technological one but also an essential national concern.

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