

## **The future of vocational training in Nigeria: Addressing skill gaps for economic development**

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### **Abstract**

The future of vocational training in Nigeria holds significant promise for addressing the country's critical skill gaps and driving economic development. With an expanding youth population and a rapidly evolving global economy, Nigeria faces a pressing need to equip its workforce with relevant, market-driven skills. This paper explores the role of vocational education and training (VET) in bridging the widening skill gap, focusing on key sectors such as agriculture, manufacturing, technology, and construction. It examines the challenges facing Nigeria's vocational training system, including inadequate infrastructure, outdated curricula, and limited industry partnerships, while also highlighting innovative approaches such as public-private collaborations, technology-enhanced learning, and the integration of soft skills. By aligning vocational training programmes with the demands of the labour market and fostering entrepreneurship, Nigeria can create a skilled workforce capable of driving sustainable economic growth, reducing unemployment, and enhancing national competitiveness in the global market. The paper concludes with policy recommendations to strengthen vocational training, promoting lifelong learning and skills development as pivotal components of Nigeria's economic transformation.

Key words: Vocational training, Skills, Gaps, Education, Infrastructure, Economic development.

### **Introduction**

Nigeria, with its population exceeding 200 million, stands as one of the largest economies in Africa. However, despite its significant economic potential, the country faces persistent challenges in its labour market, most notably a mismatch between the skills acquired through formal education and those demanded by the fast-evolving industries. This skills gap has been a major contributor to high unemployment rates, particularly among the youth, which has steadily increased in recent years. The International Labour Organization (ILO) reported that youth unemployment in Nigeria stood at 35.2% in 2021, one of the highest in the world (ILO, 2021). This growing crisis necessitates urgent action, with vocational education and training (VET) emerging as a critical solution to bridging these gaps and aligning the workforce with current and future market demands.

Vocational training, which equips individuals with practical skills and knowledge tailored to specific trades, has the potential to catalyse significant socio-economic transformation. In contrast to traditional academic education, which often emphasizes theoretical knowledge, vocational training focuses on equipping students with hands-on skills in areas such as construction, healthcare, information technology, and agriculture. This approach aligns well with Nigeria's economic diversification goals, as the country seeks to reduce its dependency on oil and develop other sectors, such as manufacturing, technology, and renewable energy. However, the current state of vocational training in Nigeria is characterized by outdated curricula, limited infrastructure, and an overall lack of alignment with the rapidly changing labour market. According to a 2023 report by the Nigerian Economic Summit Group (NESG), the country's vocational training institutions are underfunded and often fail to equip students with the skills needed to thrive in sectors such as technology and green energy (NESG, 2023). Furthermore, there is a limited focus on soft skills like problem-solving, critical thinking, and communication, which are increasingly necessary in modern workplaces. The problem is compounded by significant regional disparities in access to vocational education, with rural areas particularly disadvantaged in terms of available opportunities.

To address these challenges and enhance Nigeria's competitive advantage in the global economy, it is crucial to invest in the modernization and expansion of vocational education. Recent global trends highlight the growing importance of vocational training, with countries like Germany and Singapore serving as models. In these nations, vocational education is closely integrated with industry needs, ensuring that graduates are immediately employable and equipped to contribute to economic growth. In the context of Nigeria, adopting best practices from these nations, along with leveraging technology and fostering greater collaboration between the public and private sectors, could significantly improve the outcomes of vocational education. As we look toward the future, vocational training in Nigeria holds the potential to play a central role in addressing youth unemployment, fostering economic development, and meeting the workforce needs of emerging industries. By bridging skill gaps, expanding access to education, and modernizing curricula to reflect the changing demands of the global economy, Nigeria can ensure that its youth are well-equipped to drive its economic transformation. This publication explores these key challenges and opportunities, offering a roadmap for reforming vocational training to position Nigeria as a global leader in skilled labour development.

### **The current state of vocational training in Nigeria**

Vocational training plays a pivotal role in developing a skilled workforce, essential for driving Nigeria's economic transformation. However, the vocational education landscape in Nigeria faces numerous challenges that hinder its effectiveness. These challenges include outdated curricula, insufficient infrastructure, lack of funding, and a disconnect between the skills being taught and those required by emerging industries. As a result, vocational training has not yet achieved its full potential in addressing the nation's unemployment crisis, particularly among the youth, which remains one of the highest in the world (ILO, 2021). This section provides an in-depth analysis of the current state of vocational training in Nigeria, exploring the strengths, challenges, and opportunities for reform in the sector.

**Existing vocational education institutions:** Vocational education and training (VET) in Nigeria are offered by a range of institutions, including government-funded technical colleges, polytechnics, and private training centers. The Nigerian government has established several initiatives to promote vocational training, such as the National Board for Technical Education (NBTE), which oversees the accreditation and quality control of TVET institutions across the country. However, despite these institutions' prevalence, their impact remains limited due to several factors:

*Institutional Disparities:* A major issue in the Nigerian vocational training system is the unequal distribution of vocational institutions across the country. Most of the well-established and well-funded institutions are located in urban centers, leaving rural areas underserved. This geographical imbalance limits access to vocational education, particularly in underserved and marginalized communities (Ogunyemi & Ayodele, 2020).

*Underfunding and Lack of Infrastructure:* A recurrent challenge facing vocational institutions in Nigeria is the chronic underfunding of educational facilities. The budget allocated for vocational and technical education in Nigeria is often inadequate, with outdated equipment and poorly maintained facilities that hinder the training process (Bello & Ibrahim, 2022). A report from the Nigerian Economic Summit Group (NESG, 2023) indicated that many training centers lack up-to-date tools for practical training, leading to graduates who are ill-equipped to meet industry standards.

*Outdated Curriculum and Skill Mismatch:* The vocational curriculum in many Nigerian institutions remains largely outdated, focusing on skills that are no longer in high demand. For

example, while there is a significant global push toward green technology and digital skills, many Nigerian institutions continue to emphasize traditional sectors like automotive mechanics and bricklaying, which may not have sufficient demand in the future labour market (Ogunyemi & Ayodele, 2020). This mismatch between training and market demand exacerbates the skills gap in key sectors like IT, renewable energy, and healthcare.

**Challenges in aligning skills with industry needs:** One of the most pressing issues in the Nigerian vocational training system is the misalignment between the skills taught and the skills needed by industries. Nigeria's economy is undergoing structural changes, with growing emphasis on sectors like technology, renewable energy, and agriculture. However, many vocational institutions are still largely focused on sectors that are in decline or have limited growth prospects (Akinwumi, 2023). This skills mismatch results in a significant portion of graduates from vocational institutions being unemployable, further exacerbating youth unemployment. The Nigerian business community has long voiced concerns over the inadequacy of vocational training in meeting the needs of the labour market. For instance, according to the Manufacturers Association of Nigeria (MAN), more than 80% of manufacturing firms face challenges in finding workers with the necessary technical skills (MAN, 2021). This is a result of the skills gap in key industries, where vocational institutions are not sufficiently adapting their curricula to meet the evolving needs of employers.

Additionally, there is a lack of coordination between government agencies, educational institutions, and the private sector in determining the skills required in the workforce. For instance, the Nigerian Labour Market Information System (NLMIS) has been underutilized in matching job seekers with appropriate training opportunities (Mabogunje et al., 2022). Without better collaboration and data sharing, vocational training will continue to be out of sync with the evolving demands of Nigeria's labour market.

**The role of private sector and informal training:** While public institutions play a significant role in vocational education, the private sector has also become increasingly involved in addressing skill shortages. Numerous private companies and non-governmental organizations (NGOs) offer vocational training programs to equip individuals with specific skills. These private initiatives are more responsive to industry needs and often provide more up-to-date training in emerging sectors like digital technology, mobile development, and renewable energy. For example, the Digital Skills Program by Google Nigeria, in partnership with the National Information Technology Development Agency (NITDA), provides young Nigerians with the technical know-how to thrive in the digital economy (Google Nigeria, 2024).

Moreover, informal apprenticeships and training, particularly in the crafts and trade sectors, continue to play a critical role in Nigeria's vocational training landscape. In many urban and rural settings, young people learn skills informally through on-the-job training under the mentorship of skilled artisans. These apprenticeships, while valuable, often lack standardization and formal certification, limiting their recognition within formal labour markets (Eze, 2020). Although informal training offers an important avenue for skills development, it does not have the same level of access, quality, or scalability as formal vocational education systems.

**Gender disparities and inclusivity in vocational education:** Gender inequality is another significant challenge in Nigeria's vocational training system. Women and girls are often underrepresented in vocational education, especially in technical fields traditionally dominated by men, such as engineering and information technology. According to the World Economic Forum (2023), women account for only 17% of students in Nigerian polytechnics, with even fewer pursuing vocational courses in STEM (science, technology, engineering, and

mathematics) fields. This gender disparity limits women's participation in the high-demand sectors of the labour market, exacerbating the gender gap in employment opportunities and economic development.

Efforts to increase female participation in vocational training have been made, with initiatives like the United Nations Development Programme (UNDP)'s Women in Technology program, which encourages more women to pursue skills in IT, cybersecurity, and software development. However, significant barriers remain, including societal perceptions about gender roles, lack of mentorship, and inadequate support structures for female trainees (UNDP, 2022).

**Government policies and initiatives:** The Nigerian government has acknowledged the importance of vocational education in addressing unemployment and skill gaps and has launched several initiatives aimed at reforming the sector. One of the key initiatives is the National Skills Development Policy (NSDP), which seeks to enhance the quality and relevance of vocational education by integrating it with industry needs (Federal Ministry of Education, 2023). The government has also launched programs such as the National Youth Employment and Social Support Operation (NYESO), designed to provide vocational training and employment opportunities for young Nigerians (World Bank, 2023).

However, despite these efforts, the execution of these policies has been slow, and challenges related to funding, political will, and infrastructural deficits persist. Additionally, there has been limited impact on the overall quality of vocational training across the country, as many institutions remain underfunded and inadequately equipped to provide the necessary training for the modern labour market.

### Identifying skill gaps in the Nigerian economy

Nigeria's economy, Africa's largest in terms of GDP, is undergoing rapid transformation, with growth sectors emerging in technology, agriculture, renewable energy, manufacturing, and services. However, a critical challenge hindering Nigeria's economic potential is the significant skills gap within its workforce. Despite a large pool of youth entering the labour market annually, many employers report difficulties in finding workers with the technical and soft skills needed to meet the demands of these fast-developing industries. This section examines the key skill gaps in Nigeria's economy, their causes, and the implications for sustainable economic growth and development.

### Skills gaps in key sectors

*Technology and digital skills:* The global economy is increasingly driven by digital transformation, and Nigeria is no exception. The rise of fintech, e-commerce, telecommunications, and digital services has created a surge in demand for skilled workers in technology and digital fields. However, the country faces a substantial gap in digital literacy and technical expertise, hindering its capacity to fully leverage opportunities in the digital economy. According to a report by the World Economic Forum (2023), Nigeria has a deficit of qualified workers in software development, cybersecurity, data analysis, and artificial intelligence. Despite the growing number of tech startups and the government's push to digitalize various sectors, the supply of trained professionals is insufficient to meet demand. The National Information Technology Development Agency (NITDA) has highlighted the need for specialized skills in software engineering, cloud computing, and cybersecurity to support Nigeria's burgeoning digital economy (NITDA, 2022). Furthermore, Nigeria's youth are increasingly interested in tech-related careers, but many vocational institutions and universities still fail to provide relevant and up-to-date training in these fields. A study by the

Nigerian Economic Summit Group (2023) found that nearly 60% of tech companies in Nigeria are unable to find qualified software developers, pointing to a critical skills gap in the IT sector.

*Manufacturing and industrial skills:* Manufacturing is a cornerstone of Nigeria's diversification agenda, with the government prioritizing industrialization to reduce the country's dependence on oil exports. However, the manufacturing sector is also grappling with significant skill shortages, especially in areas that require high technical proficiency such as machinery maintenance, welding, fabrication, and quality control. According to the Manufacturers Association of Nigeria (MAN), over 80% of manufacturing firms in the country report difficulties in hiring workers with the necessary technical and engineering skills (MAN, 2021). This skills gap has been exacerbated by the limited training infrastructure available in technical colleges and polytechnics, as well as a lack of industry-academic collaboration to ensure that the curriculum aligns with real-world demands. For instance, while the government has invested in industrial parks and economic zones, there is still a shortage of skilled workers to operate the advanced machinery necessary for modern manufacturing.

*Agriculture and Agro-processing:* Agriculture remains a vital sector of the Nigerian economy, contributing significantly to GDP and employing a large portion of the population. However, modernizing the agricultural sector requires a skilled workforce with knowledge of new farming technologies, Agro-processing, and sustainable agricultural practices. The agricultural skills gap is especially apparent in mechanized farming, post-harvest handling, and food processing, which are critical to improving productivity and adding value to raw agricultural products. According to the Food and Agriculture Organization (FAO, 2022), Nigerian farmers often lack the skills to effectively utilize modern farming equipment, leading to low productivity and high post-harvest losses. The need for skilled workers in Agro-processing is also critical as Nigeria seeks to add value to its agricultural produce and reduce dependency on raw exports. Additionally, Nigeria's agricultural education institutions have not kept pace with innovations in agriculture. While many universities and colleges offer agriculture-related programs, the focus remains largely on traditional methods, with insufficient training in areas such as precision farming, irrigation management, and agribusiness (Ogunyemi, 2020). To address this gap, the Nigerian government, in partnership with international organizations like the World Bank and the African Development Bank, is working to create a more responsive agricultural training system.

*Renewable energy and environmental skills:* As global awareness of climate change increases, the need for skilled workers in the renewable energy sector is becoming more urgent. Nigeria, blessed with vast natural resources such as sunlight and wind, has significant potential to tap into the renewable energy sector to address power shortages and reduce carbon emissions. However, there is a severe shortage of skilled professionals in solar energy, wind energy, and energy efficiency technologies. The Renewable Energy Association of Nigeria (REAN, 2023) reports that the renewable energy sector is growing, but there is a lack of trained technicians, engineers, and project managers capable of designing, installing, and maintaining renewable energy systems. Despite some efforts by the government to promote clean energy, including tax incentives for renewable energy companies and training programs for technicians, the skills gap remains a key barrier to large-scale adoption of renewable energy solutions. The lack of educational programs focused on renewable energy and environmental sustainability in Nigerian universities and vocational training centers further exacerbates this issue.

*Healthcare and medical services:* In Nigeria, the healthcare sector faces a critical shortage of skilled professionals, particularly in specialized fields such as surgery, radiology, and nursing. This is compounded by the country's high population growth rate, which continues to increase the demand for medical services. According to the World Health Organization (WHO, 2022),

Nigeria has one of the lowest doctor-patient ratios globally, with approximately one doctor for every 5,000 people, far below the global standard of one doctor per 1,000 people. The skills gap is not only limited to medical practitioners but also extends to allied health professionals such as laboratory scientists, radiographers, and pharmacists. Additionally, many of the country's medical schools and training hospitals face infrastructural challenges, limiting the quality of education and clinical training available to students. The National Health Policy (2022) has acknowledged these gaps and highlighted the need for targeted investments in healthcare education and workforce development to address the shortage of skilled professionals.

### **Soft skills deficiency**

In addition to technical skills, soft skills such as communication, leadership, critical thinking, problem-solving, and emotional intelligence are increasingly important in the modern workforce. Unfortunately, these skills are often neglected in vocational training programs across Nigeria. The World Bank (2023) noted that Nigerian graduates, regardless of their field of study, often lack essential soft skills that are crucial for success in the workplace. Employers in various sectors have repeatedly pointed out the deficiency in communication skills, teamwork, and adaptability, which hampers productivity and performance in the workplace. The National Bureau of Statistics (NBS) also reports that many graduates struggle to transition from education to employment because they lack the interpersonal skills and critical thinking abilities required by employers.

### **Causes of skill gaps**

The skill gaps identified in Nigeria's economy can be attributed to a combination of factors:

*Inadequate alignment between education and industry needs:* There remains a significant disconnect between the skills taught in Nigerian educational institutions and the needs of the labour market. Curricula are often outdated, focusing on theoretical knowledge rather than practical skills required by emerging sectors (Bello & Ibrahim, 2022).

*Underinvestment in education and training:* Nigeria's education and training sector has long suffered from insufficient funding and resources. This affects the quality of vocational education and reduces the capacity of institutions to provide up-to-date and relevant training (Akinwumi, 2023).

*Geographical disparities in access to training:* There are significant regional disparities in access to vocational education and skills training. Rural areas, in particular, face limited access to training opportunities, which exacerbates skill gaps and unemployment in these regions (Ogunyemi & Ayodele, 2020).

*Rapid technological change:* As industries evolve, the demand for new skills increases, but the pace of technological change often outstrips the ability of education and training systems to adapt. This results in a workforce that is ill-prepared to meet the challenges of a rapidly changing job market.

### **Switzerland: The Swiss vocational education and training (VET) model**

Switzerland's VET system is another global leader in vocational education. Like Germany, Switzerland places significant emphasis on apprenticeships and the integration of vocational training with the labour market. The Swiss system is known for its flexibility, high quality, and the strong involvement of the private sector in the development and delivery of training programs with the following key features:

*Dual system of learning:* Swiss apprentices spend part of their time in vocational schools and the rest in a company, where they receive hands-on training. More than two-thirds of Swiss students choose vocational training after completing their basic education, and the apprenticeship system has been linked to low unemployment rates and high levels of job satisfaction (Swiss Federal Department of Economic Affairs, 2021).

*Comprehensive career guidance:* One of the most striking features of the Swiss system is the emphasis on career counselling and guidance. From a young age, students are provided with information about different career paths and the educational requirements for each. This ensures that students are well-informed when choosing between vocational training and higher education (Kuhn, 2021).

*Strong employer participation:* In Switzerland, employers actively participate in the design and delivery of training programs, ensuring that curricula are tailored to meet industry needs. This close collaboration between educational institutions and the private sector helps prevent skill mismatches in the labour market.

*Impact on the economy:* Switzerland has one of the lowest youth unemployment rates in Europe, with youth unemployment at just 3.1% in 2020 (Swiss Federal Statistical Office, 2020). The VET system is credited with producing a highly skilled workforce that meets the demands of a competitive global economy. This model has also contributed to Switzerland's status as a global leader in sectors such as finance, pharmaceuticals, and engineering.

### **Singapore: A skills-based approach to vocational education**

Singapore's vocational education and training system has been instrumental in transforming the city-state into a global hub for finance, technology, and manufacturing. The country's focus on continuous learning, skill development, and industry relevance has made it a model for vocational education in Asia with the following key features:

*Skills future initiative:* One of the key features of Singapore's approach to vocational education is the *Skills Future* initiative, which encourages lifelong learning and skill development. Launched in 2015, Skills Future provides funding for citizens to pursue a wide range of training programs, including those in vocational and technical fields. The initiative emphasizes the importance of upskilling workers to meet the changing needs of the economy (Skills Future Singapore, 2023).

*Integration of work and study:* Similar to the German and Swiss systems, Singapore promotes the integration of academic learning with hands-on experience. Students in the Institute of Technical Education (ITE) and polytechnics participate in industry attachments, where they gain practical experience working with employers. This helps bridge the gap between education and industry requirements.

*Industry partnerships:* Singapore has strong partnerships between educational institutions and industry players. Companies such as Singapore Airlines, DBS Bank, and Rolls-Royce collaborate with vocational institutions to design training programs that align with labour market needs (Tan, 2022).

*Impact on the economy:* Singapore's emphasis on skills development has helped the country maintain a competitive edge in high-value sectors such as biotechnology, information technology, and finance. The country has one of the highest labour productivity rates in the world, and its vocational education system has contributed significantly to this achievement. The youth unemployment rate in Singapore is consistently low, with a 2022 rate of 5.3% (Ministry of Manpower Singapore, 2022).

### **Australia: The Australian apprenticeship and traineeship system**

Australia has developed a robust system of apprenticeships and traineeships that provide pathways for young people into a wide variety of trades and professions. This system is designed to meet the needs of a diverse economy, ranging from construction and hospitality to information technology and healthcare with the following key features:

*Nationally recognized training (NRT):* Australia's vocational education system is governed by a nationally recognized framework that ensures the quality and consistency of training programs across the country. The Australian Qualifications Framework (AQF) provides clear guidelines for vocational education providers, ensuring that training is aligned with industry needs (Australian Skills Quality Authority, 2022).

*Apprenticeships and traineeships:* Apprenticeships in Australia are available in a wide range of industries, including trades, hospitality, and health. These programs combine practical training with formal study, and many are supported by government subsidies to make them more accessible to young people and employers. The Australian government's *Australian Apprenticeships* program provides financial incentives for employers who take on apprentices, ensuring that businesses have access to a skilled workforce.

*Support for employers and apprentices:* Australia offers extensive support services to both employers and apprentices, including mentoring, training resources, and financial incentives. This support system helps ensure that apprenticeships are successful and that employers are able to find skilled workers for their businesses.

*Impact on the economy:* Australia's apprenticeship system has been crucial in meeting the needs of its diverse industries. The system's success in providing highly skilled workers has contributed to the country's strong performance in sectors such as construction, mining, and healthcare. The youth unemployment rate in Australia stood at 9.6% in 2022, a testament to the effectiveness of vocational training programs in ensuring employment opportunities for young people (Australian Bureau of Statistics, 2022).

The best practices demonstrated by Germany, Switzerland, Singapore, and Australia underscore the importance of integrating vocational training with labour market demands through industry collaboration, apprenticeship programs, and strong policy frameworks. These countries have shown that by aligning education with the needs of the economy and ensuring continuous learning, nations can create a skilled, adaptable workforce that drives economic growth and reduces unemployment. For Nigeria, adopting elements of these international models, such as strengthening the role of the private sector in vocational education, creating industry-specific training programs, and emphasizing lifelong learning, could play a pivotal role in addressing its skill gaps. By modernizing its vocational education system, Nigeria can better prepare its youth for the demands of the global labour market and contribute to its long-term economic development.

### **Policy recommendations for enhancing vocational training in Nigeria**

Nigeria, Africa's most populous nation and largest economy, faces significant challenges in its efforts to enhance vocational education and training (VET). The country has a rapidly growing youth population that requires relevant skills to meet the demands of an evolving labour market. However, Nigeria's current vocational training system is inadequate to address the growing skills gap, with many employers complaining about the lack of job-ready graduates. In light of these challenges, the Nigerian government must implement strategic policy reforms to improve vocational training, close skill gaps, and boost economic development. This section offers policy recommendations for enhancing vocational training in Nigeria, drawing on international best practices and adapting them to Nigeria's unique context.



***Strengthening industry-academic collaboration:*** A fundamental barrier to effective vocational training in Nigeria is the disconnect between educational institutions and industries. Many training programs are outdated, with curricula that do not match the current skills required by employers. This results in a skills mismatch, contributing to high unemployment and underemployment rates among young Nigerians. Strengthening the partnership between educational institutions and the private sector is critical to ensuring that vocational training is responsive to labour market needs. Recommended policies are: *Establish Industry-Academic Advisory Boards.* The Nigerian government should encourage the creation of advisory boards at both the national and regional levels, where key representatives from industries, government agencies, and educational institutions come together to regularly review and update vocational curricula. This collaboration would ensure that vocational programs remain relevant to evolving market demands. For instance, the collaboration between companies like Siemens and vocational institutions in Germany has proven highly effective in maintaining a dynamic link between training and industry needs (BMBF, 2020). *Promote Industry-Specific Curriculum Development.* In alignment with the advisory boards, the Ministry of Education and the National Board for Technical Education (NBTE) should work with industry stakeholders to design curricula that reflect emerging industry trends. For example, sectors like renewable energy, fintech, and agribusiness should be integrated into technical programs, as these industries are poised for growth in Nigeria (NITDA, 2022).

***Expanding apprenticeships and on-the-job training:*** Apprenticeships are a cornerstone of effective vocational education systems globally. The dual training system practiced in countries like Germany and Switzerland combines classroom-based learning with practical experience in the workplace. In Nigeria, although informal apprenticeship systems exist, there is a lack of formalized, structured programs that guarantee the same level of skill development and certification. Recommended policies are: *Formalize and Expand Apprenticeship Programmes.* The government should establish formal apprenticeship programs that are aligned with national skill development strategies. These programs should be regulated by a national body that ensures quality control and consistency in training. In the UK, for example, the apprenticeship levy has incentivized businesses to invest in training by providing financial support and ensuring that apprenticeships are standardized (UK Government, 2021). Nigeria can adapt such models by offering tax incentives or subsidies to employers who engage in apprenticeship schemes. *Enhance Public-Private Sector Partnerships for Apprenticeships.* A collaboration between the government, the private sector, and vocational institutions should be encouraged to expand apprenticeship opportunities across critical sectors like construction, manufacturing, technology, and agriculture. This partnership could include joint funding for training programs and offering a mix of online and hands-on learning to enhance flexibility (Akinwumi, 2023).

***Improving the quality of vocational training institutions:*** Currently, many of Nigeria's vocational training institutions face challenges related to outdated infrastructure, limited resources, and a lack of well-trained instructors. These institutions are crucial in equipping the youth with the practical skills needed to succeed in the labour market. Improving their capacity and quality is essential for addressing skill gaps. Recommended policies are: *Increase Funding for Vocational Education:* The Nigerian government should allocate a larger portion of the national budget to vocational education and training, ensuring that institutions have the resources they need to modernize their infrastructure, purchase equipment, and update curricula. Additionally, funding should be directed toward the professional development of instructors, ensuring they are well-versed in current industry standards and technologies. International examples, such as Singapore's investment in its technical education system through the *Skills Future* initiative, show how government commitment can enhance educational outcomes (Skills Future Singapore, 2023). *Promote Accreditation and*

**Certification Standards.** To ensure that vocational training is credible and meets national and international standards, Nigeria should adopt a rigorous accreditation and certification process. Collaboration with global accrediting bodies, such as the International Labour Organization (ILO) or the WorldSkills Foundation, could help raise standards and ensure that Nigerian vocational programs are globally recognized (ILO, 2021).

**Incorporating digital and green skills into vocational training:** With the rapid advancements in technology and the increasing focus on sustainability, vocational training in Nigeria must evolve to incorporate digital and green skills. These skills are essential for ensuring that the workforce can adapt to the changing demands of the global economy, particularly in areas like information technology, renewable energy, and sustainable agriculture. Recommended policies are: *Integrate Digital Skills in Vocational Training:* The Nigerian government should prioritize the integration of digital skills into vocational training curricula. Skills in areas like coding, data analysis, cybersecurity, and digital marketing are crucial for today's job market. For example, in India, the government has implemented the *Digital India* initiative, which focuses on equipping youth with digital literacy to enhance their employability in a tech-driven economy (NASSCOM, 2021). Nigeria could implement similar programs within vocational institutions, particularly in rural and underserved areas. *Promote Green Skills and Sustainability Education.* Nigeria's focus on diversifying its economy must include an emphasis on green skills that can support sectors such as renewable energy, sustainable agriculture, and waste management. These areas are becoming increasingly important globally, and equipping the Nigerian workforce with these skills can position the country as a leader in sustainable industries. The government can collaborate with international development partners, such as the United Nations Development Programme (UNDP), to integrate sustainability into vocational training programs (UNDP, 2022).

**Enhancing career guidance and employment support services:** Many young Nigerians struggle to transition from vocational training to employment due to inadequate career guidance and job placement support. By strengthening career services and linking vocational graduates directly to employers, Nigeria can significantly improve the employability of its youth. Recommended policies are: *Strengthen Career Counselling Services in Schools.* Career guidance and counselling should be integrated into the vocational education system, starting at the secondary school level. The government should establish dedicated career services in vocational institutions that can help students navigate the labour market, identify career opportunities, and prepare for interviews or entrepreneurial ventures. A model like the one in Finland, where students receive personalized career counselling as part of their educational journey, could be adapted to Nigeria (Finnish National Agency for Education, 2020). *Create a National Job Matching Platform:* A government-supported job matching platform should be developed to connect graduates of vocational programs with potential employers. This platform could facilitate internships, apprenticeships, and full-time job placements, ensuring that young people have access to relevant opportunities upon completing their training.

**Promoting inclusivity in vocational training:** Gender disparities and regional inequalities persist in Nigeria's education system, with certain groups, particularly women and people in rural areas, facing barriers to accessing quality vocational training. Ensuring that all Nigerians, regardless of gender or geographic location, have access to training opportunities is essential for inclusive economic growth. Recommended policies are: *Promote Gender-Sensitive Vocational Programs.* The Nigerian government should implement policies aimed at increasing female participation in traditionally male-dominated fields like engineering, construction, and technology. This could include scholarships, mentorship programs, and awareness campaigns to challenge societal norms and encourage women to pursue careers in

these sectors (World Economic Forum, 2023). *Expand Access to Training in Rural Areas.* To address regional disparities, the government should increase access to vocational training centers in rural and underserved regions. This could be achieved by establishing mobile training units, partnering with local community centers, or offering online training programs. This approach would ensure that youth in remote areas are not left behind in the quest for skills development.

Enhancing vocational training in Nigeria is essential for addressing the country's skills gap, reducing unemployment, and fostering economic growth. By adopting the policy recommendations outlined above strengthening industry-academic collaboration, formalizing apprenticeship programs, improving the quality of training institutions, integrating digital and green skills, providing better career guidance, and promoting inclusivity Nigeria can create a vocational education system that better aligns with the needs of its growing economy. These reforms, supported by both the public and private sectors, can help Nigeria leverage its human capital to achieve sustainable development in the 21st century.

### **The role of technology in the future of vocational training in Nigeria**

Technology is playing an increasingly pivotal role in shaping the future of vocational education and training (VET) across the globe, and Nigeria is no exception. As the country grapples with significant skill gaps and high unemployment rates, the adoption of technology in vocational training has the potential to revolutionize the education sector, making it more accessible, efficient, and aligned with the demands of the 21st-century labour market. With advancements in digital tools, online platforms, artificial intelligence (AI), and virtual reality (VR), vocational training in Nigeria can overcome many of the traditional barriers that have limited its effectiveness.

***Enhancing access to vocational education through digital platforms:*** One of the main barriers to effective vocational education in Nigeria is accessibility. Many Nigerians, especially those in rural or underserved areas, struggle to access quality vocational training due to the limited number of training centers, inadequate infrastructure, and geographical constraints. Digital technology presents an opportunity to bridge this gap by offering flexible, scalable, and affordable training solutions through online platforms. This can be achieved through Expansion of Online Learning Platforms; the Nigerian government and private sector should invest in the development and expansion of online learning platforms that provide access to vocational education. These platforms should offer accredited courses in high-demand fields such as information technology, agriculture, and renewable energy. Programs like Coursera, LinkedIn Learning, and Udemy have already demonstrated the power of online education, providing learners with access to quality content from top global institutions. Nigeria can emulate this model by creating tailored platforms that offer content specific to local industries (KPMG, 2021). Also, through Collaborations with International EdTech Providers, collaboration between Nigerian educational institutions and global EdTech companies could help local institutions benefit from proven technologies that enhance the learning experience. For instance, Nigeria's National Open University has already embraced online learning to provide flexible education options for non-traditional students (UNESCO, 2020). Expanding such initiatives into vocational training can ensure that more Nigerians, particularly those in rural regions, have access to skills development programs.

***The role of artificial intelligence and automation in vocational training:*** As industries worldwide embrace automation and AI, there is a growing need for a workforce that is equipped with the skills necessary to work with emerging technologies. AI and automation can also enhance vocational education itself by providing personalized learning experiences, real-time feedback, and predictive analytics to improve training outcomes. This can be achieved through

Incorporate AI-Powered Learning Tools, the Nigerian government should encourage the integration of AI in vocational training programs. AI can be used to create personalized learning experiences by assessing learners' strengths, weaknesses, and progress, thus enabling tailored instruction. For example, AI-based systems such as chatbots and intelligent tutoring systems can assist students in learning complex concepts by providing on-demand support and feedback. In countries like South Korea, AI-based tools have been implemented in vocational education to deliver personalized content, helping students learn at their own pace (OECD, 2022). Nigeria can similarly adopt AI tools to make vocational training more adaptable to the needs of each learner. Also, through Skill Development in AI and Automation, Nigeria should also focus on equipping its youth with skills in AI, machine learning, and robotics. As automation becomes more prevalent across industries such as manufacturing, agriculture, and logistics, there will be a growing demand for technicians, operators, and developers skilled in these technologies. The Nigerian government should encourage the inclusion of AI-related modules in vocational training curricula to prepare the workforce for the future of work.

***Virtual reality (VR) and augmented reality (AR) for practical, hands-on training:*** While traditional vocational education emphasizes hands-on experience in real-world settings, certain industries—especially those that require high levels of precision or are highly technical—face significant barriers in providing such training due to resource constraints, safety concerns, or geographical limitations. Virtual Reality (VR) and Augmented Reality (AR) technologies offer innovative solutions to these challenges by providing immersive, interactive training experiences. The Nigerian government should invest in VR and AR technologies to create virtual environments where students can engage in realistic simulations without the need for physical equipment or facilities. For instance, VR can be used in fields such as construction, engineering, and medicine to simulate real-world scenarios. In Nigeria, VR training could be especially useful in industries like healthcare, where students could practice surgical procedures or diagnostic techniques in a risk-free, virtual environment (Zhao, 2021). Similarly, AR can be used to enhance on-the-job training, allowing workers to receive real-time guidance as they perform tasks, improving both efficiency and safety. Also, Collaboration with tech companies that specialize in VR and AR could help develop customized training simulations for vocational programs. For example, initiatives like “immersive learning” have been used in countries like the UK and the US to train workers in manufacturing and industrial sectors, providing them with a safe environment to practice skills (PwC, 2020). Nigeria could benefit from these partnerships by providing students with state-of-the-art training tools that make learning more engaging and effective.

***Mobile technology for expanding reach in remote areas:*** Nigeria's mobile phone penetration rate is among the highest in Africa, with millions of Nigerians owning smartphones. This widespread access to mobile technology offers a unique opportunity to reach underserved populations, especially in rural areas where traditional educational infrastructure is limited. The Nigerian government, in collaboration with tech companies, should create mobile-compatible vocational training content. Mobile learning (m-learning) can provide a cost-effective way for individuals to acquire skills without needing access to a computer or fixed location. For example, mobile-based apps and SMS platforms can be used to deliver training materials, quizzes, and certification programs. This can be especially impactful in rural areas where there may be a lack of physical training centers (UNESCO, 2020). Programs focused on agriculture, craftsmanship, and small business development can be particularly suited to mobile learning formats. To encourage youth participation in mobile-based vocational education, the government could offer incentives such as subsidized data plans or low-cost smartphones to students from disadvantaged backgrounds. Partnerships with mobile network providers could help reduce the cost of data access, enabling broader participation in digital learning initiatives.

**Data-driven decision making in vocational training:** Data analytics plays a crucial role in improving educational outcomes by identifying trends, monitoring progress, and predicting future needs. The use of data in vocational training can help policymakers and educational institutions design programs that are better aligned with labour market trends and individual learning needs. The Nigerian government should develop a national framework for collecting and analysing data related to vocational training outcomes. This data can be used to assess the effectiveness of different training programs, identify areas for improvement, and align curricula with job market requirements. Governments and training providers could use analytics tools to track the performance of students in real-time, offering insights into which areas of training require further attention (Deloitte, 2021). The Nigerian government should establish research bodies or collaborations with universities to conduct labour market research focused on future skills demands. Data gathered from industries can help inform educational strategies, ensuring that vocational training programs remain relevant and effective in preparing students for future employment opportunities.

Technology holds immense potential to transform vocational education and training in Nigeria. By embracing digital platforms, AI-powered learning tools, VR/AR simulations, mobile technology, and data analytics, Nigeria can enhance the quality, accessibility, and relevance of its vocational training system. The government's role in facilitating these technological innovations is crucial, as it can provide the necessary infrastructure, policy support, and incentives to ensure that technology is harnessed effectively. As Nigeria continues to evolve and face new economic challenges, integrating technology into vocational training will be key to building a skilled, adaptable workforce capable of driving the country's future economic growth.

### **Strategic vision for the future of vocational education reforms in Nigeria**

Nigeria, as Africa's largest economy, faces a critical challenge in transforming its educational system to meet the demands of an increasingly dynamic labour market. The country's vocational education and training (VET) sector plays a pivotal role in developing a workforce capable of driving economic growth, reducing unemployment, and addressing the skills gaps that currently limit industrial and technological advancement. The strategic vision for the future of vocational education reforms in Nigeria must be centered around innovation, inclusivity, quality, and alignment with global and local market needs. This vision should aim to create a system that offers relevant, accessible, and high-quality training, ultimately contributing to the broader goal of economic diversification and sustainable development.

**Aligning vocational education with labor market demands:** The skills gap in Nigeria is partly due to the misalignment between the output of vocational institutions and the needs of the labour market. The future of vocational education reforms in Nigeria must focus on creating a system that is flexible and responsive to the evolving needs of both local and global industries. This requires ongoing collaboration between educational institutions, industry stakeholders, and government bodies. One of the key strategic priorities should be to foster strong, long-term partnerships between vocational institutions and industry players. By establishing advisory councils composed of leaders from key industries, educational programs can be regularly updated to reflect the latest technological advancements and market trends. For example, sectors like digital technology, renewable energy, and healthcare require specific skills that vocational institutions must prioritize (Akinwumi, 2023). Industry-led curricula can help ensure that graduates are job-ready and able to meet immediate labour market needs. The future vocational education system in Nigeria should be focused on equipping students with skills that align directly with market demands. This includes updating training programs regularly based on labour market forecasts and industry reports. Collaborative models, such as those seen

in countries like Germany, where vocational training is highly integrated with industry needs, could serve as a useful framework for Nigeria (BMBF, 2020). Nigeria's National Board for Technical Education (NBTE) should play a central role in facilitating this collaboration.

***Technological integration and innovation in vocational training:*** As technological advancements reshape the global workforce; Nigeria's vocational education system must be at the forefront of incorporating these innovations into its training methods. From digital platforms and online learning to Artificial Intelligence (AI) and Virtual Reality (VR), the role of technology in shaping the future of vocational education in Nigeria cannot be overstated. A significant focus should be placed on integrating digital platforms into vocational training to reach a broader audience, including those in remote and underserved areas. Online courses and e-learning platforms can help provide affordable and accessible vocational education options, especially in fields like information technology, business management, and technical trades. Nigeria can build on the success of mobile learning platforms like Coursera and Udemy, which have made vocational education accessible to millions of people globally (KPMG, 2021). The integration of virtual reality (VR) and Augmented Reality (AR) can revolutionize vocational education by providing simulated hands-on experience without the need for expensive equipment or physical facilities. For instance, VR can be used in fields such as healthcare, construction, and engineering, where students can practice complex skills in a controlled environment. This approach is already in use in advanced countries, with simulations improving training outcomes in various industries (PwC, 2020). Also, Artificial intelligence and data analytics have the potential to greatly enhance vocational education by personalizing learning experiences, providing real-time feedback, and tracking student progress. AI can be used to develop adaptive learning technologies that tailor the pace and content of lessons to individual needs, helping students learn more effectively. Additionally, predictive data analytics can provide valuable insights into labour market trends, allowing educators to adjust training programs in real time based on emerging skill demands (OECD, 2022).

***Building a more inclusive vocational education system:*** Nigeria's vocational education system has struggled with inequality, with significant disparities in access to quality training between urban and rural areas, as well as among different socio-economic and gender groups. In the future, vocational education reforms should aim to be more inclusive, providing equal opportunities for all Nigerians, regardless of their background or geographical location. To ensure that all Nigerians benefit from vocational training, the future system must incorporate mobile learning solutions and virtual classrooms that can reach people in remote areas. This could involve partnerships with mobile network providers to create affordable, data-light e-learning solutions. Additionally, the government should invest in the expansion of training centers in underserved regions and offer financial support or scholarships to students from disadvantaged backgrounds (UNESCO, 2020). Such measures could help bridge the gap between rural and urban areas in terms of access to quality education. Also, to address gender imbalances in the workforce, vocational education reforms should prioritize gender-sensitive policies that encourage female participation in traditionally male-dominated fields such as engineering, construction, and technology. The Nigerian government could incentivize companies to hire female trainees or offer scholarships specifically for women pursuing non-traditional vocations (World Economic Forum, 2023). Additionally, vocational institutions should offer mentorship programs and create a more inclusive learning environment that challenges stereotypes and promotes gender equality.

***Enhancing the quality and capacity of vocational education institutions:*** Despite the importance of vocational training in Nigeria's development, the quality of many vocational education institutions remains inconsistent. Insufficient resources, outdated equipment, and

inadequately trained instructors have all contributed to the challenges facing the sector. Moving forward, the government must prioritize reforms aimed at improving the quality and capacity of these institutions. A major component of the strategic vision should be substantial investment in vocational education infrastructure. This includes modernizing training facilities, acquiring up-to-date equipment, and ensuring access to technology tools that reflect industry standards. Similar to Singapore's *Skills Future* initiative, which continuously invests in educational infrastructure to ensure that its vocational institutions remain state-of-the-art, Nigeria can adopt similar approaches to modernize its training centers (Skills Future Singapore, 2023). Ensuring that instructors are skilled and knowledgeable in their fields is essential for the success of any vocational education reform. Teacher training programs should be expanded and regularly updated to reflect the latest industry trends and technological developments. The government could collaborate with international organizations, such as the International Labour Organization (ILO), to offer capacity-building workshops and certification programs for vocational educators (ILO, 2021).

***Strengthening public-private partnerships for sustainable growth:*** Vocational education reforms in Nigeria will require significant investment and collaboration between the public and private sectors. Public-private partnerships (PPPs) can help improve the quality of vocational education, expand access to training opportunities, and create pathways to employment for graduates. The government should establish incentives for private companies to invest in vocational education, either through direct funding or by offering apprenticeship and internship opportunities for students. Private companies can also play an essential role in the development of curricula and in the provision of job placement services for graduates. Similar to the success of apprenticeship models in the UK, the Nigerian government could create policies that encourage industries to directly engage with vocational training providers to meet their workforce needs (UK Government, 2021). Nigeria can learn from countries like South Korea, where multinational companies actively collaborate with the government to develop skills in critical sectors such as technology and manufacturing. By engaging global corporations in skills development programs, Nigeria can ensure that its workforce is equipped with the knowledge and practical experience needed to thrive in a global economy (UNDP, 2022).

The future of vocational education reforms in Nigeria is one that aligns with the country's evolving labour market needs, incorporates technological innovations, and addresses issues of access, quality, and inclusivity. By fostering strong partnerships between government, industry, and educational institutions, Nigeria can develop a vocational education system that is responsive, forward-looking, and capable of equipping the workforce with the skills necessary for economic growth. Through substantial investments in infrastructure, teacher training, and the adoption of cutting-edge technologies, Nigeria can create an education system that meets the demands of the future while ensuring that all Nigerians have the opportunity to participate in the country's economic development.

## Conclusion

The future of vocational education and training (VET) in Nigeria holds immense potential to shape the nation's economic development and empower its youth to become productive, skilled contributors to various sectors of the economy. With the growing challenges of skill mismatches, high unemployment, and underemployment, especially among the youth, the need for comprehensive reforms in the vocational education system is urgent. A strategic vision for VET reforms in Nigeria must focus on aligning educational outcomes with labour market demands, integrating technology into the learning process, ensuring inclusivity across gender and geographical divides, and strengthening the capacity of training institutions to provide world-class education. The integration of digital platforms, Artificial Intelligence (AI),

Virtual Reality (VR), and mobile technologies will be critical in enhancing access to vocational training, particularly for underserved populations in rural areas. Leveraging these innovations can provide more flexible and personalized learning experiences, empowering individuals to acquire relevant skills at their own pace and according to industry standards. These technological solutions will not only enhance the quality of training but also allow Nigeria to keep pace with global trends in automation, digitalization, and the future of work.

Furthermore, a key pillar of the strategic vision for Nigeria's VET reform must be the active collaboration between the government, industry stakeholders, and educational institutions. Partnerships with the private sector are essential for designing curricula that are market-driven and responsive to the evolving needs of the labour market. This collaboration can also facilitate the creation of apprenticeship programs, internships, and job placement initiatives that directly link training to employment opportunities. To ensure that vocational training reaches all segments of society, it is imperative that future reforms focus on improving access for marginalized groups, such as women, rural dwellers, and individuals from low-income backgrounds. Inclusive policies that provide financial support, scholarships, and gender-sensitive training opportunities can ensure that no one is left behind in the quest for economic empowerment. Initiatives such as mobile learning platforms and low-cost data programs should be explored to overcome geographical and financial barriers to education. Equally important is the need for investments in the quality and capacity of vocational education institutions. Modernizing infrastructure, upgrading equipment, enhancing teacher training, and aligning curricula with international best practices will be key to improving the overall standard of vocational education in Nigeria. By drawing inspiration from successful models like Germany's dual system and Singapore's Skills Future initiative, Nigeria can create a dynamic and robust VET system that caters to its unique socio-economic context.

The transformation of vocational education in Nigeria is a vital component of the country's broader development agenda. By aligning educational outcomes with labour market needs, incorporating advanced technologies, fostering public-private partnerships, and ensuring inclusivity, Nigeria can build a future-ready workforce that drives economic growth, reduces unemployment, and contributes to sustainable development. As Nigeria moves towards achieving these reforms, the commitment of all stakeholders including government, industry, educational institutions, and international partners will be essential in realizing the full potential of vocational education to meet the challenges and opportunities of the future. With a well-coordinated and visionary approach, Nigeria can position itself as a leader in vocational education and training, equipping its citizens with the skills necessary to thrive in an increasingly interconnected and technology-driven world.

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