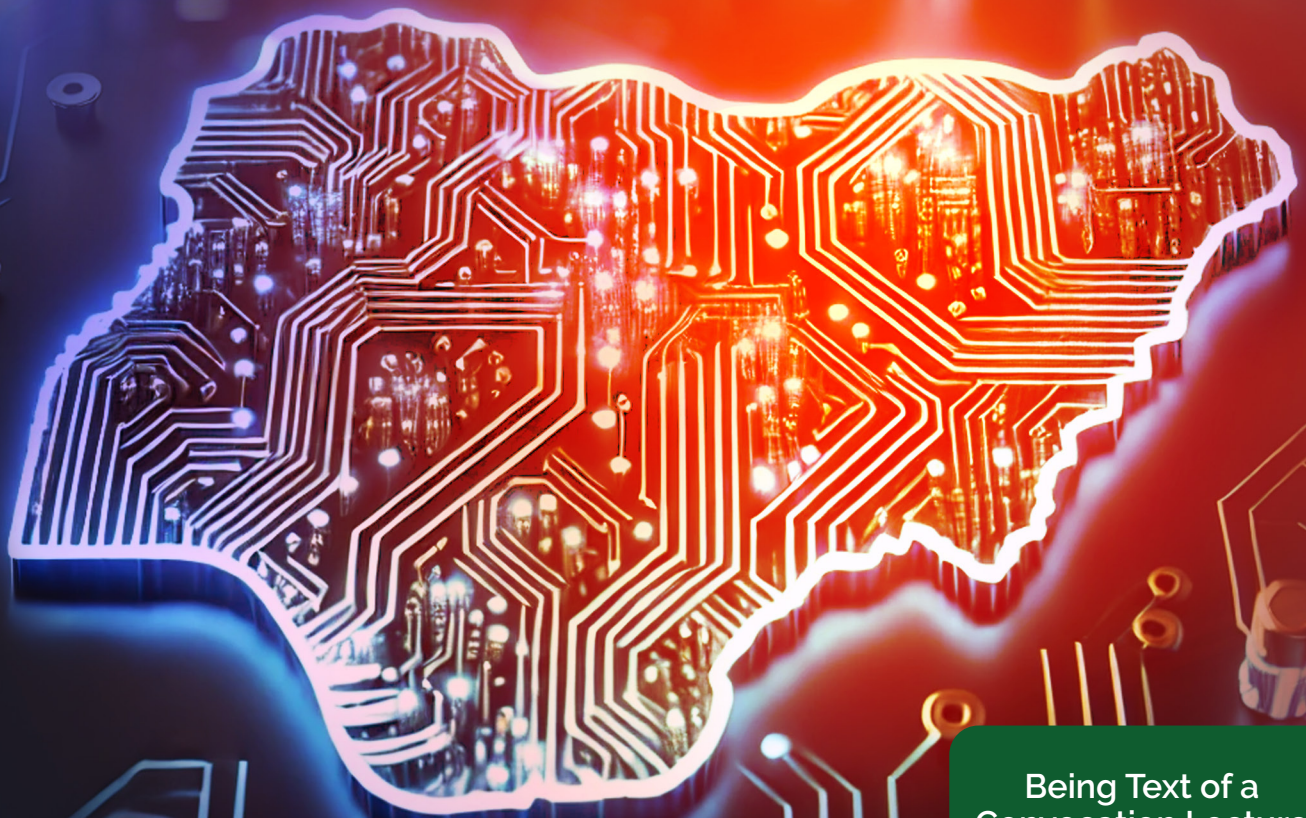




From Crisis to Prosperity:

Harnessing Technology to Drive Nigeria's Transformation Agenda

Rt. Hon. Abbas Tajudeen, PhD, GCON
Speaker, House of Representatives
Federal Republic of Nigeria



Being Text of a
Convocation Lecture
delivered at the
Federal University of
Technology, Minna,
Niger State on Friday,
31st January, 2025

CONTENT

Introduction	5
Understanding the Context: Nigeria's Socioeconomic Challenges	6
Literature Review: Theoretical and Empirical Perspectives on Technology-Driven Transformation	10
Empirical Evidence on the Role of Technology in National Development	12
Technology-Driven Economic Growth in Emerging Economies.	12
China's Digital Transformation	13
Rwanda's Integration of ICT in Governance and Business	14
The Role of Digital Governance in Public Sector Transformation	15
Blockchain in Public Finance Management in Developing Countries	15
The Transformative Power of Technology.	17
Harnessing Technology for Nigeria's Transformation	19
The Role of Nigerian Universities in Driving Technological Transformation	21
Curriculum Reform to Align with Industry Needs	22
Perception of University Degrees versus Technical Diplomas	23
Quality of Graduates and Faculty Challenges	24
Funding Challenges and the Debate on University Expansion.	25
Prioritising STEM, AI, and Digital Literacy in Education.	26
Strengthening University-Industry Collaboration	27
Encouraging Research-Commercialisation Partnerships	27
Incubation Hubs for Tech-Driven Entrepreneurship.	27
Empowering the Next Generation of Innovators	29
Charting Nigeria's Digital Future: Harnessing Technology for National Development and the Next Steps Forward	30
Conclusion: Embracing Technology for National Prosperity.	33
References	35



INTRODUCTION

Distinguished Vice-Chancellor, esteemed Governing Council and Senate members, dedicated faculty and staff, honoured graduands, esteemed guests, especially my colleagues from the National Assembly here present, ladies and gentlemen.

I am deeply honoured to stand before you today at the 33rd Convocation Ceremony of the Federal University of Technology, Minna. My heartfelt appreciation goes to the Vice-Chancellor and the entire university community for extending this invitation. It is a privilege to share this significant occasion with you all.

Convocation ceremonies are more than mere formalities; they represent the culmination of years of dedication and hard work. Today, we celebrate not only our graduates' achievements but also the fundamental role that universities play in national development. Higher education institutions foster economic growth, social progress, and technological advancement. They serve as hubs for knowledge creation, innovation, and the cultivation of skilled professionals essential for a nation's prosperity.

Universities of technology, in particular, hold a unique position in this landscape. They are at the forefront of driving technological innovation, conducting research that addresses real-world challenges, and producing graduates equipped to navigate and shape the complexities of the modern world. Their focus on applied sciences and engineering disciplines ensures that they contribute directly to industrial development and the advancement of society.

This lecture delves into a critical subject: **“From Crisis to Prosperity: Harnessing Technology to Drive Nigeria’s Transformation.”** In an age characterised by rapid technological advancements that are fundamentally altering economies and societies, it is imperative for Nigeria to seize opportunities for growth and innovation. By strategically leveraging technology, the nation can effectively confront pressing challenges, stimulate economic development, and improve the overall quality of life for its citizens. This discourse will analyse how the strategic adoption and implementation of technological solutions can transition Nigeria from its current crises toward a trajectory of sustainable prosperity.

As we delve into this discussion, let us consider the critical role that institutions like the Federal University of Technology, Minna, play in this transformative journey. Through research, innovation, and the development of skilled graduates, universities of technology are not just participants but leaders in driving national development and technological progress.

In conclusion, today's convocation recognises academic achievement and highlights the potential of technology and education in addressing challenges and fostering a prosperous future for Nigeria.



UNDERSTANDING THE CONTEXT: NIGERIA'S SOCIOECONOMIC CHALLENGES

As Africa's most populous nation and largest economy, Nigeria faces many socioeconomic challenges that hinder its development trajectory. Addressing these issues is crucial for the nation's progress. This lecture focuses on how technology can transform Nigeria from a state of crisis to one of prosperity, offering innovative solutions to longstanding problems.

Nigeria has experienced multiple economic recessions, notably in 2016 and 2020, leading to significant contractions in Gross Domestic Product (GDP). These downturns have exacerbated unemployment rates, which reached an unprecedented 56.1% in 2020, pushing approximately 133 million Nigerians into multidimensional poverty (Brookings Institution, 2023). The National Bureau of Statistics (NBS) reported that the unemployment rate remained high in the second quarter of 2024, reflecting ongoing economic challenges (NBS, 2024).

The nation grapples with persistent security issues, including insurgencies in the northeast, banditry in the northwest, and rising cyber threats. These security challenges have not only led to loss of lives and displacement but have also deterred investment and disrupted economic activities. The United Nations (2025) has appealed for \$910 million to address the humanitarian crisis in Nigeria's northeast, underscoring the severity of the situation (Reuters, 2025).

As I noted in my recent convocation lecture at Al-Hikmah University, Ilorin, Nigeria faces significant infrastructure deficits across multiple sectors, including transportation, energy, and healthcare, which have not kept pace with its rapidly growing population. According to the U.S. Department of State (2024), regulatory uncertainties and inadequate infrastructure continue to deter investor confidence, further exacerbating the challenges of infrastructure development.

In the transportation sector, Nigeria's road network is severely underdeveloped, with only about 60,000 kilometres of paved roads out of a total road network of approximately 200,000 kilometres. This leaves nearly 70% of roads unpaved, contributing to high transportation costs and inefficiencies (World Bank, 2023). The rail sector is equally deficient, with only about 3,800 kilometres of operational rail lines, far below the African average of 7,000 kilometres for countries of comparable size. This limited rail connectivity hampers regional trade and economic integration (African Development Bank, 2022).

In the energy sector, Nigeria struggles with chronic power shortages, with an estimated 45% of the population lacking access to electricity. Even for those connected to the grid, power supply is unreliable, with frequent outages and an average daily supply of only 4-6 hours in many regions (International Energy Agency, 2023). The country's electricity generation capacity stands at around 13,000 megawatts (MW), but only about 4,000 MW is effectively distributed, leaving a significant gap between supply and demand (Nigerian Electricity Regulatory Commission, 2023).

The healthcare sector is also severely constrained, with only 0.5 hospital beds per 1,000 people, far below the World Health Organization (WHO) recommended standard of 5 beds per 1,000 people. Additionally, Nigeria has a doctor-to-patient ratio of 1:5,000, compared to the WHO benchmark of 1:600, highlighting a critical shortage of medical personnel (Lancet Global Health, 2021). Many healthcare facilities lack essential equipment and medications, further limiting access to quality care for a significant portion of the population.

Nigeria's over-reliance on oil exports has significantly stifled the growth of other critical sectors, leaving our economy vulnerable to external shocks and hindering sustainable development. According to the World Bank (2023), oil revenues account for approximately 90% of our export earnings and nearly 50% of government revenues, making our economy highly susceptible to global oil price fluctuations. This lack of economic diversification has constrained the potential of sectors such as agriculture, manufacturing, and services, which collectively contribute less than 20% to our export earnings despite their capacity to drive inclusive growth (National Bureau of Statistics, 2023).

I recently emphasised the urgent need for Nigeria to diversify its economy and reduce its dependence on oil. In the lecture, I highlighted that our over-reliance on oil exports has created structural imbalances and exacerbated unemployment, poverty, and inequality. I pointed out that our agricultural sector, which employs over 70% of our population, remains underdeveloped due to inadequate investment, poor infrastructure, and limited access to modern technologies. Similarly, our manufacturing sector, which could serve as a catalyst



for industrialisation, contributes less than 10% to our GDP due to persistent challenges such as erratic power supply, high production costs, and weak regulatory frameworks.

My key message during the lecture was clear: **“We must urgently diversify our economy by investing in critical sectors such as agriculture, manufacturing, and renewable energy. This will not only reduce our vulnerability to oil price shocks but also create jobs, reduce poverty, and ensure sustainable development for future generations.”**

The ‘**Japa**’ syndrome has particularly affected critical sectors such as healthcare and information technology. For instance, the Nigerian Medical Association (NMA) reports that over 5,000 doctors have migrated to the United Kingdom, Canada, and the United States in the last five years, leaving the country with a doctor-to-patient ratio of 1:5,000, far below the World Health Organization’s recommended standard of 1:600 (NMA, 2023). Similarly, the mass migration of nurses and IT experts has created significant gaps in these sectors. A 2023 report by the Nigerian Association of IT Professionals revealed that over 10,000 IT experts left the country in the last two years, drawn by better-paying jobs and improved working conditions abroad (BusinessDay, 2024).

This exodus of young professionals deprives Nigeria of the critical human capital needed for sustainable development. The loss of skilled workers in healthcare, technology, and other key sectors undermines service delivery and hampers the country's ability to innovate and compete globally.

Agriculture, which employs over 70% of Nigeria's population, continues to suffer from low productivity due to outdated farming practices, limited access to modern technology, and inadequate infrastructure. Despite its potential to drive economic growth and ensure food security, the sector contributes only about 23% to the country's GDP, far below its capacity (National Bureau of Statistics, 2023). Smallholder farmers, who dominate the sector, face challenges such as poor access to credit, insufficient irrigation systems, and post-harvest losses estimated at 40% annually due to inadequate storage and transportation facilities (Food and Agriculture Organization, 2023). These inefficiencies have kept agricultural yields low, with Nigeria's cereal productivity averaging 1.5 tons per hectare, compared to the global average of 4 tons per hectare (World Bank, 2023).

However, significant opportunities abound in the agriculture sector. With over 84 million hectares of arable land, of which only 40% is currently cultivated, Nigeria has the potential to become a global agricultural powerhouse (Federal Ministry of Agriculture and Rural Development, 2023). Investments in mechanised farming, improved seed varieties, and agro-processing industries could transform the sector, creating millions of jobs and boosting exports. For instance, the livestock sub-sector alone, which contributes about 17% to agricultural GDP, holds immense potential for growth if modernised (NBS, 2023). Additionally, Nigeria's vast water resources and favourable climate provide opportunities for year-round farming, particularly in the production of cash crops such as cocoa, cashew, and sesame, which are in high demand globally.

In contrast, the education and health sectors are underperforming due to chronic underfunding and poor infrastructure. According to UNESCO (2023), Nigeria allocates only 7% of its annual budget to education, far below the recommended 15--20% benchmark. This underinvestment has resulted in overcrowded classrooms, a shortage of qualified teachers, and poor learning outcomes. For example, over 60% of primary school children in Nigeria cannot read or write at the appropriate grade level (UNICEF, 2023). Similarly, the health sector is plagued by inadequate funding, with Nigeria spending less than 5% of its GDP on healthcare, compared to the global average of 10% (World Health Organization, 2023). This has led to a shortage of medical personnel, with a doctor-to-patient ratio of 1:5,000, and limited access to essential medicines and equipment, particularly in rural areas.

These deficiencies in agriculture, education, and healthcare have contributed to Nigeria's low Human Development Index (HDI) ranking of 163 out of 191 countries, as reported by the United Nations Development Programme (UNDP, 2023). Addressing these challenges requires targeted investments, policy reforms, and partnerships with the private sector to unlock the potential of these critical sectors and improve the quality of life for Nigerians.

LITERATURE REVIEW: THEORETICAL AND EMPIRICAL PERSPECTIVES ON TECHNOLOGY-DRIVEN TRANSFORMATION

Technological innovation has long been recognised as a crucial driver of economic and societal transformation. In the context of Nigeria's development trajectory, leveraging technology effectively could serve as a fundamental tool for addressing economic stagnation, insecurity, and infrastructure deficiencies. This literature review explores the theoretical and empirical perspectives that underpin the role of technology in driving national transformation, drawing from well-established economic and social theories and supported by empirical evidence.

One of the most influential theories in understanding technological transformation is Schumpeter's Theory of Innovation and Economic Growth. Joseph Schumpeter (1942) introduced the concept of creative destruction, which describes the process whereby new technologies and innovations disrupt existing economic structures, rendering outdated industries obsolete while fostering the development of new ones. This cycle of technological advancement drives economic growth by increasing productivity, stimulating entrepreneurship, and fostering competition. Schumpeter argued that innovation is the key mechanism through which economies evolve, and he identified entrepreneurs as the central figures in this process. This perspective is particularly relevant to Nigeria's case, where fostering a culture of technological entrepreneurship could accelerate industrialisation and economic diversification.

Closely related to Schumpeter's ideas is Modernisation Theory, which posits that technological advancements are fundamental to societal progress. According to this theory, economic and social development occurs in stages, with technological innovation acting as a catalyst for the transition from traditional to modern societies (Inglehart and Welzel, 2005). Technological progress facilitates improvements in governance, education, and healthcare, ultimately fostering economic stability and social cohesion. The theory suggests that societies embracing technological change are more likely to experience enhanced administrative efficiency, improved public service delivery, and overall institutional development. In Nigeria, where governance inefficiencies and service delivery constraints remain major challenges, the application of technology in government operations, such as digital governance, e-learning, and telemedicine, could significantly improve state capacity and institutional effectiveness.

A further theoretical perspective relevant to this discourse is Everett Rogers' (1962) Diffusion of Innovation Theory, which explains how new technologies and ideas spread within societies. Rogers identified five categories of adopters: innovators, early adopters, early majority, late majority, and laggards. He argued that the speed at which an innovation

is adopted depends on factors such as its perceived relative advantage, compatibility with existing systems, complexity, trialability, and observability. This theory is particularly useful in understanding the varied pace at which different regions and sectors in Nigeria adopt new technologies. For instance, while urban centres like Lagos and Abuja have witnessed rapid adoption of digital financial services, e-commerce, and smart governance solutions, rural areas often lag due to infrastructural limitations and digital illiteracy.

As of 2023, only about 45% of Nigeria's adult population operates bank accounts, reflecting significant gaps in financial inclusion despite the growth of digital banking platforms (World Bank, 2023). Bank penetration remains uneven, with urban areas accounting for over 70% of banking activity, while rural areas, where the majority of the population resides, have limited access to formal financial services (Central Bank of Nigeria, 2023). This disparity highlights the challenges of achieving widespread technological adoption in a country with significant infrastructural and educational gaps. Bridging this divide requires targeted policies that facilitate broader access to technology, improve digital infrastructure, and promote awareness of the benefits of technological adoption. For example, expanding mobile banking services and agent networks in rural areas could help increase financial inclusion and drive the adoption of digital innovations.

Empirical evidence further supports the transformative potential of technology in economic development. Klimek, Hausmann, and Thurner (2012) examined global trade patterns and found strong evidence of Schumpeterian creative destruction in how new industries emerge and old ones decline. Their research demonstrated that economies that embrace technological innovation tend to experience sustained economic growth and increased competitiveness in global markets. Similarly, Comin and Mestieri (2013) analysed the diffusion of technology across different economies and concluded that countries with proactive technology policies, supportive infrastructure, and innovation-friendly regulatory environments tend to experience faster economic progress. These findings highlight the importance of institutional and policy frameworks in shaping the impact of technology on development.

Bringing these theories together, it is evident that technological advancement plays a central role in Nigeria's path from crisis to prosperity. Schumpeter's creative destruction underscores the necessity of fostering an innovation-driven economy, Modernisation Theory highlights the role of technology in governance and institutional development, and Rogers' Diffusion of Innovation framework provides insights into how technology adoption can be effectively managed. The intersection of these theories suggests that Nigeria needs a multi-pronged approach to achieve sustainable development. This approach should promote entrepreneurship and innovation, strengthen governance through technological modernisation, and ensure widespread access to new technologies. By aligning technological policies with these theoretical foundations, we can transition towards a more dynamic, resilient, and globally competitive economy.



EMPIRICAL EVIDENCE ON THE ROLE OF TECHNOLOGY IN NATIONAL DEVELOPMENT

Technological innovation has served as a fundamental driver of economic development in numerous countries, facilitating the transition from agrarian economies to industrialised ones. This section examines empirical evidence of technology-driven economic growth in emerging economies, focusing on South Korea, China, and Rwanda.

Technology-Driven Economic Growth in Emerging Economies

South Korea's rapid economic development, often called the "Miracle on the Han River," exemplifies the profound impact of technology on national growth. In the 1960s, South Korea was primarily an agrarian society with a low-income economy. Through strategic investments in education, research and development (R&D), and technology adoption, the nation transitioned into a leading industrial economy. The government's focus on developing the semiconductor industry, which accounted for 8% of the national GDP and 18.9% of total exports in 2022, underscores the critical role of technology in this transformation (International Trade Administration, 2023). Additionally, South Korea's emphasis on human-centred technologies, such as artificial intelligence (AI) and blockchain, has further solidified its position as a global leader in innovation (World Economic Forum, 2025).



China's Digital Transformation

Similarly, China's rapid transformation from an agrarian society to an industrial powerhouse provides another compelling example. In the late 1970s, agriculture contributed over 70% of China's GDP, but by 2022, this figure had dropped to just 7.3%, while industry and services now dominate the economy (World Bank, 2023). This shift was driven by massive investments in infrastructure, technology, and education, as well as policies that encouraged foreign direct investment and export-oriented manufacturing. China's focus on technological innovation, particularly in sectors like telecommunications, renewable energy, and high-speed rail, has enabled it to become the world's second-largest economy. For instance, China's high-tech exports reached \$943 billion in 2022, accounting for 28% of its total exports (United Nations Comtrade Database, 2023).

China's economic ascent is also closely linked to its digital transformation initiatives. The nation's digital economy expanded from 11 trillion yuan in 2012 to 50.2 trillion yuan (approximately \$6.99 trillion) in 2022, highlighting the significant role of digitalisation in economic growth (Xia, 2023). The integration of advanced technologies like AI, 5G, and big data into traditional industries has enhanced productivity and spurred innovation. For example, the "Made in China 2025" strategy emphasises upgrading manufacturing capabilities through technological advancements, aiming to position China as a leader in high-tech industries (Reuters, 2024). These examples highlight how strategic investments in technology and innovation can drive rapid economic transformation and position nations as global leaders.



Rwanda's Integration of ICT in Governance and Business

Rwanda presents a compelling case for leveraging information and communication technology (ICT) for national development. Following the 1994 genocide, Rwanda prioritised ICT as a cornerstone of its economic recovery and modernisation strategy. By 2023, Rwanda's ICT sector contributed approximately 5% to the country's GDP, up from less than 1% in the early 2000s, reflecting significant growth driven by strategic investments (National Institute of Statistics Rwanda, 2023). The implementation of e-government services has been transformative, with over 90% of government services now available online, significantly improving public sector efficiency, transparency, and citizen engagement (Rwanda Utilities Regulatory Authority, 2023).

Initiatives like the Kigali Innovation City, a \$2 billion project, aim to position Rwanda as a hub for technology-driven innovation in Africa. The project has already attracted major global tech companies and institutions, including Carnegie Mellon University Africa and the African Institute for Mathematical Sciences, fostering a knowledge-based economy (Kigali Innovation City Report, 2023). Additionally, Rwanda's focus on digital literacy has resulted in over 60% of the population having access to the internet, with mobile penetration reaching 80% as of 2023 (GSMA Intelligence, 2023). These efforts have spurred domestic attracted international investments, with Rwanda ranking among the top three African countries for ease of doing business (World Bank, 2023). In fact, Rwanda has become a favourite destination for Nigerians on an exchange of experience visits. The country's success in leveraging ICT for development underscores the transformative potential of technology in driving economic growth and improving governance.

The Role of Digital Governance in Public Sector Transformation

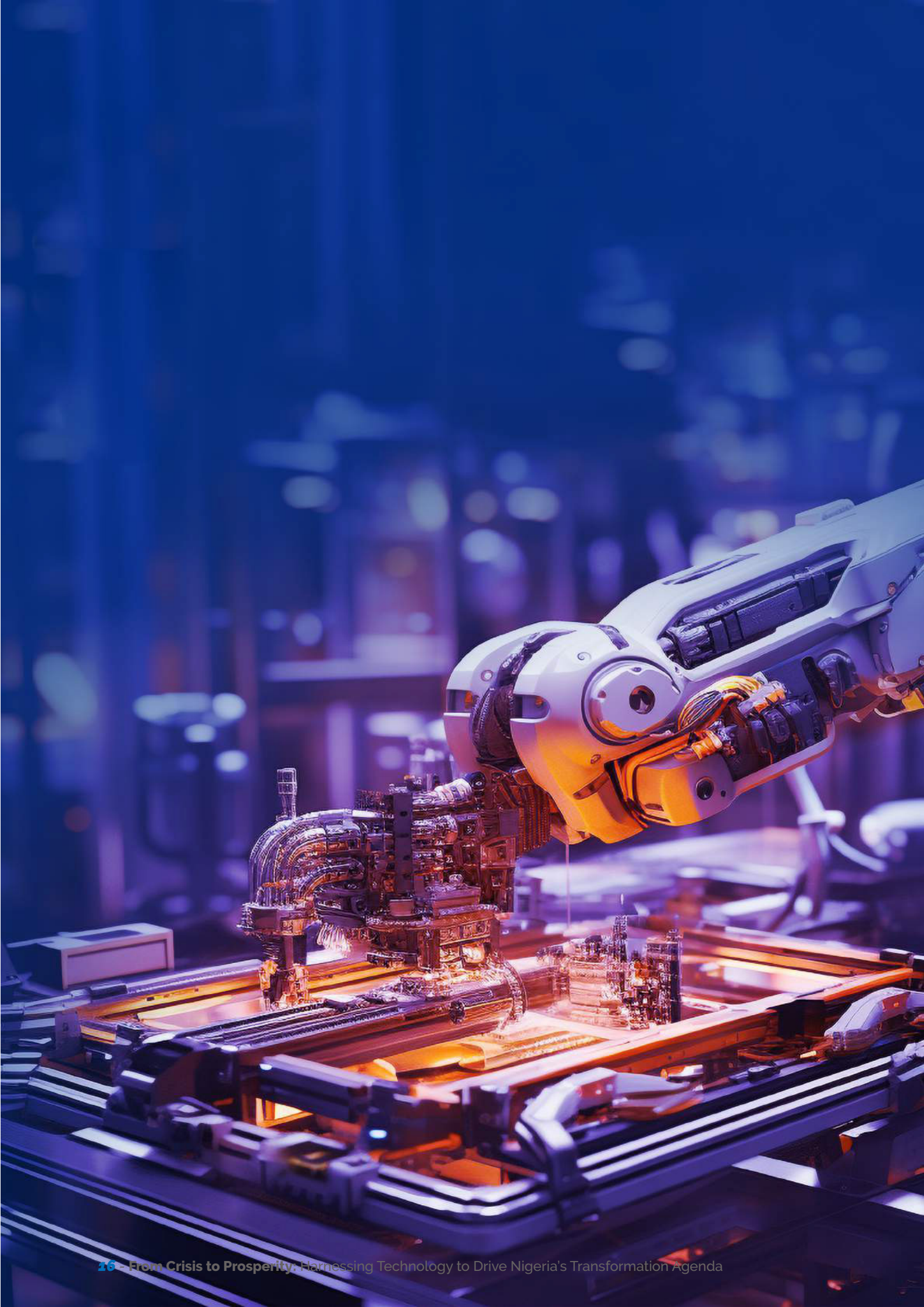
Digital governance has emerged as a critical factor in enhancing public sector efficiency, transparency, and service delivery. Estonia is renowned for its advanced e-government system, which enables citizens to access various public services online, including voting, tax filing, and healthcare services. This digital infrastructure has streamlined administrative processes, reduced bureaucratic inefficiencies, and enhanced transparency. The widespread adoption of digital signatures and secure online identification has further bolstered trust in government services, setting a benchmark for digital governance globally (European Commission, 2022).

Similarly, India and Kenya provide compelling examples of countries that have successfully leveraged digital governance to transform public service delivery, particularly in contexts similar to Nigeria. India's Aadhaar system, a biometric-based digital identification program, has enrolled over 1.3 billion citizens, enabling seamless access to government services, financial inclusion, and social welfare programs. The system has significantly reduced fraud and inefficiencies in public service delivery, saving the government an estimated \$20 billion annually (World Bank, 2023). Additionally, India's Unified Payments Interface (UPI) has revolutionised digital payments, with over 10 billion transactions processed monthly, making it one of the most advanced digital payment systems globally (Reserve Bank of India, 2023).

Kenya, on the other hand, has made remarkable strides in digital governance through its e-citizen platform, which consolidates over 5,000 government services into a single online portal. Since its launch, the platform has processed over 1.2 billion transactions, significantly reducing corruption and improving service delivery (Kenya ICT Authority, 2023). Kenya's success in mobile money through M-Pesa has also been transformative, with over 80% of the population using mobile financial services, driving financial inclusion and economic growth (GSMA, 2023). These examples demonstrate how countries with similar challenges to Nigeria have harnessed digital governance to improve transparency, efficiency, and citizen engagement, offering valuable lessons for Nigeria's digital transformation journey.

Blockchain in Public Finance Management in Developing Countries

Blockchain technology offers promising applications in public finance management, particularly in enhancing transparency and reducing corruption. By providing immutable and transparent records of transactions, blockchain can improve the tracking of public expenditures and ensure accountability. For example, in countries like Ghana and Kenya, pilot projects utilising blockchain for land registries and public procurement processes have demonstrated the potential to mitigate fraud and promote trust in public institutions (World Bank, 2018).



THE TRANSFORMATIVE POWER OF TECHNOLOGY

Technological advancements are reshaping various sectors, driving efficiency, fostering innovation, and serving as a transformative tool for national development. Across the globe, technology is propelling economic prosperity, cultivating innovation, and enhancing governance, with the digital economy—encompassing information technology, telecommunications, and digital financial services—emerging as a major driver of modern economies. In Nigeria, the digital economy has become a crucial contributor to national development, with advancements in mobile banking, digital commerce, and e-governance significantly impacting economic participation (Pantami, 2021). Similarly, countries like India, Brazil, and Vietnam have demonstrated how technology can drive economic growth, improve service delivery, and position nations as global leaders in innovation.

Artificial intelligence (AI) and automation are transforming industrial processes by enhancing productivity and reducing operational costs. In the United States, under the Trump administration, there was a significant push towards revitalising manufacturing through advanced technologies, with initiatives aimed at promoting AI and automation to strengthen domestic production capabilities (Executive Office of the President, 2020). Similarly, China has aggressively invested in AI and automation as part of its “Made in China 2025” strategy, aiming to lead in high-tech industries and upgrade its manufacturing sector (Reuters, 2024). These advancements are not limited to industrialised nations; emerging economies are also leveraging AI to optimise supply chains, enhance predictive analytics, and reduce human error, positioning themselves at the forefront of global innovation (McKinsey & Company, 2024).

Financial technology (FinTech) has played a transformative role in promoting financial inclusion, particularly in Africa. In Nigeria, platforms like Paga and Flutterwave have facilitated mobile payments and expanded access to financial services. At the same time, Kenya’s M-Pesa has revolutionised mobile banking, enabling millions to perform financial transactions via mobile phones (GSMA, 2020). Similarly, South Africa’s Jumo and Ghana’s ExpressPay have bridged the financial inclusion gap, promoting economic participation among previously unbanked populations. Blockchain technology has further enhanced financial transactions by improving transparency, reducing fraud, and expanding access to banking services, particularly in developing countries where mobile money and digital wallets have enabled millions to participate in the formal economy (Acropolium, 2024).

In the agricultural sector, the integration of smart agriculture and biotechnology is addressing food security challenges. Precision farming techniques, utilising sensors, drones, and data analytics, have optimised crop management and increased yields. For instance, in India, satellite imagery and AI-driven analytics have enabled farmers to make informed decisions, significantly enhancing productivity (Food and Agriculture Organization, 2019). Ghana provides another compelling example of how precision farming and digital

agriculture platforms have transformed the sector. Initiatives such as drone technology for precision spraying and soil analysis have optimised agricultural output. Similarly, mobile platforms like Esoko have connected farmers directly with buyers, reducing exploitation by middlemen and ensuring fair pricing (World Bank, 2021). These innovations illustrate how targeted technological interventions can enhance productivity and sustainability in key economic sectors.

Renewable energy and sustainable technologies are also driving long-term economic development. Advances in solar, wind, and hydroelectric power are reducing dependency on fossil fuels while decreasing carbon emissions. Countries that have integrated these technologies into their national policies are not only mitigating environmental risks but also ensuring long-term energy security. For example, Vietnam's rapid economic growth has been largely driven by its embrace of technology, positioning itself as a hub for technology manufacturing and services, with a surge in exports of electronic goods contributing significantly to its GDP growth.

Digital governance has emerged as a critical factor in enhancing public sector efficiency, transparency, and service delivery. Estonia is renowned for its advanced e-government system, which enables citizens to access various public services online, including voting, tax filing, and healthcare services. This digital infrastructure has streamlined administrative processes, reduced bureaucratic inefficiencies, and enhanced transparency, setting a benchmark for digital governance globally (European Commission, 2022). Similarly, India's Digital India initiative has expanded internet connectivity, promoted digital literacy, and encouraged e-governance, leading to increased economic participation and service delivery efficiency. The growth of India's IT sector has not only contributed to domestic economic development but has also positioned the country as a global hub for software development and digital services.

These examples provide critical lessons for Nigeria, reinforcing the need for policies that promote technological adoption across various sectors. By leveraging technology strategically, Nigeria can drive inclusive growth, foster economic resilience, and transition from crisis to sustainable prosperity.



HARNESSING TECHNOLOGY FOR NIGERIA'S TRANSFORMATION

Effective policy frameworks, robust legislation, and strong institutional support are essential in fostering technological innovation and driving national development. In Nigeria, legislative interventions have been instrumental in shaping the digital economy. The recent transmission of Tax Reform Bills to the National Assembly by President Bola Ahmed Tinubu in October 2024 aims to modernise Nigeria's tax system, streamline administration, and broaden the tax base to align with global best practices (NEITI, 2025). These bills propose the consolidation of legal frameworks, taxation of digital assets, and measures to curb tax evasion, reflecting a commitment to fiscal transparency and efficiency. The Nigeria Extractive Industries Transparency Initiative (NEITI) has endorsed these reforms, highlighting their potential to positively impact revenue generation and economic opportunities (Channels TV, 2025).

In the realm of cybersecurity and data protection, Nigeria has established laws such as Cybercrime (Prohibition, Prevention, etc.) Act of 2015 and the Nigeria Data Protection Regulation (NDPR) of 2019. While these frameworks provide a foundation for safeguarding digital activities, there is a need for continuous updates to address emerging threats and align with international standards. Strengthening these laws will enhance trust in Nigeria's digital ecosystem and promote technological adoption.

Investment in Research and Development (R&D) is crucial for fostering innovation and sustaining economic growth. However, Nigeria's expenditure on R&D remains low, accounting for only 0.13% of its GDP in 2022 (Statista, 2023). This figure is significantly lower than the global average and pales compared to countries like South Korea and Israel, which invest over 4% of their GDP in R&D (World Bank, 2024). To bridge this gap, increased funding for university research centres is essential. Enhancing public-private partnerships can also play a key role in technological development. Collaborations among academic institutions, industry, and government entities contribute significantly to the commercialization of research outputs, thereby fostering economic growth. Notable instances can be observed in the agricultural sector, where cooperative endeavours have resulted in the advancement of enhanced crop varieties and farming techniques.

Bridging the digital divide is vital for inclusive development. As of 2022, Nigeria's internet penetration stood at approximately 36%, indicating that a significant portion of the population remains unconnected (World Bank, 2024). This rate is lower than comparable countries with similar populations, such as Indonesia, which boasts an internet penetration rate of over 50%. Investment in digital infrastructure is crucial to enhance connectivity. Comparatively, Nigeria's investment in digital infrastructure falls behind other African countries like Kenya and South Africa, which have made significant strides in expanding internet access. Access to affordable technology in rural communities is critical for fostering equitable development. Initiatives such as community internet centres and subsidised data plans serve to enhance digital inclusion, thereby enabling rural populations to engage in the digital economy.



THE ROLE OF NIGERIAN UNIVERSITIES IN DRIVING TECHNOLOGICAL TRANSFORMATION

Nigerian universities have historically been beacons of academic excellence, attracting scholars from around the globe. In the mid-to-late 20th century, these institutions were at the forefront of intellectual discourse, rigorous scholarship, and groundbreaking research. The University of Ibadan was renowned for its academic rigour and contributions to African historiography, with esteemed scholars such as Professor Kenneth Dike, the first African to complete Western historical professional training, instrumental in establishing robust academic traditions (Nwaubani, 2000). During this golden era, Nigeria's universities were not only centres of knowledge but also hubs of intellectual debate and critical inquiry that shaped national and continental discourse.

Ahmadu Bello University (ABU), Zaria, was a key site of this intellectual ferment, hosting some of the most famous ideological debates in Nigerian academic history. Scholars like Yusuf Bangura and Yusuf Bala Usman engaged in intense theoretical discussions that critiqued socio-political structures and sought solutions to Nigeria's developmental

challenges. These debates were not confined to academic circles but influenced public policy and governance, demonstrating the direct impact of university scholarship on national development. Similarly, the University of Jos attracted leading global intellectuals, including the celebrated Kenyan scholar Professor Ali Mazrui, who conducted research and taught in Nigeria during this period. His presence, alongside other renowned academics, underscored the high reputation of Nigerian universities in the global academic community.

During this period, Nigerian universities were highly respected across Africa and beyond. They attracted students, researchers, and lecturers from different parts of the world, and their graduates were sought after for leadership positions across the continent. The intellectual vibrancy of these institutions was reflected in their robust research output, active academic presses, and strong connections to global scholarly networks. Unfortunately, over the decades, the prestige of these universities has diminished due to a combination of factors, including inadequate funding, political instability, and brain drain. Today, many Nigerian universities struggle to maintain their positions in continental and global rankings. In the Times Higher Education World University Rankings 2025, only a few Nigerian institutions are listed, with Covenant University being the highest-ranked within the 801–1000 bracket globally. Federal University of Technology, Minna, is ranked 1201 out of 1500 in the 2025 World University Rankings. In contrast, South African universities have maintained stronger positions, with the University of Cape Town leading in Africa at 180th globally. Stellenbosch University and the University of the Witwatersrand are placed in the 301–350 bracket. Egyptian institutions also perform comparatively better, with the Egypt-Japan University of Science and Technology ranked in the 501–600 bracket. These disparities underscore the challenges Nigerian universities face in maintaining competitive standards and highlight the urgent need for reforms to restore their former academic excellence.

Curriculum Reform to Align with Industry Needs

The curricula of Nigerian universities have long been criticised for their lack of alignment with industry requirements, a challenge that continues to hinder the employability of graduates. Many academic programs remain rooted in colonial-era educational frameworks, emphasising theoretical knowledge over practical, industry-relevant skills. This misalignment has resulted in a significant skills gap, with a 2022 report by the National Bureau of Statistics (NBS) revealing that only 17% of Nigerian graduates possess the technical and vocational skills demanded by employers (NBS, 2022). The persistence of outdated curricula, coupled with an overemphasis on paper qualifications, has created a workforce that lacks essential real-world competencies, such as critical thinking, problem-solving, and digital literacy.

A 2023 study by the British Council found that 60% of Nigerian employers reported dissatisfaction with the quality of graduates, citing inadequate preparation for the modern workforce as a major concern (British Council, 2023). This disconnect is further exacerbated by discrepancies in curricula across institutions, which create inconsistencies in educational standards and graduate outcomes. For instance, while some universities have begun incorporating technology and entrepreneurship courses into their programs, many

continue to rely on outdated syllabi that fail to address emerging trends in fields such as artificial intelligence, renewable energy, and data science (World Bank, 2023).

The lack of standardised examinations across Nigerian universities and other tertiary institutions further compounds these challenges. Unlike countries such as the United Kingdom, where standardised tests like the A-levels ensure uniformity in educational assessment, Nigeria's higher education system lacks a cohesive framework for evaluating student performance. This inconsistency makes it difficult to objectively rate student excellence and compare academic achievements across institutions. According to a 2021 report by the Association of African Universities (AAU), the absence of standardised examinations has contributed to varying degrees of academic rigour and quality, undermining the credibility of Nigerian degrees in the global job market (AAU, 2021). Standardised testing would not only ensure uniformity in academic standards but also provide a fair and transparent mechanism for assessing student competence, thereby enhancing the employability of graduates.

The consequences of these systemic issues are evident in Nigeria's high youth unemployment rate, which stood at 19.6% in 2023, with underemployment affecting an additional 16.9% of the youth population (NBS, 2023). Graduates often find themselves ill-equipped to compete in a rapidly evolving job market, where employers increasingly prioritise practical skills and adaptability. For example, a survey by the Nigerian Economic Summit Group (NESG) revealed that only 25% of graduates from Nigerian universities meet the skill requirements of the country's growing tech industry despite the sector's potential to create millions of jobs (NESG, 2023).

To address these challenges, there is an urgent need for curriculum reforms that align academic programs with industry needs. Initiatives such as partnerships between universities and private sector organisations, the integration of internships and hands-on training into degree programs, and the adoption of competency-based education models could help bridge the skills gap. Additionally, the implementation of standardised examinations across universities and tertiary institutions, as seen in other parts of the world, would ensure consistency in educational standards and provide a reliable measure of student excellence. Countries like South Africa and Kenya have made significant strides in this regard, with reforms that emphasise STEM education, vocational training, and industry collaboration, resulting in improved graduate employability and economic outcomes (UNESCO, 2023).

Perception of University Degrees versus Technical Diplomas

In Nigeria, there exists a pervasive belief that university degrees are inherently superior to diplomas from technical polytechnics and colleges. This perception has led to an overwhelming demand for university admissions, often at the expense of technical and vocational education. Consequently, there is an erosion of technical skills essential for industrial development. Ironically, many university graduates find themselves pursuing vocational skills after graduation, such as hairdressing, makeup artistry, and catering, that could have been more comprehensively acquired through technical education. In contrast,



countries like the United Kingdom and Germany have robust technical education systems where polytechnics and vocational schools are integral to driving industrial innovation. Nigeria must learn from such models by strengthening its technical education sector to meet industry demands.

Quality of Graduates and Faculty Challenges

The declining quality of graduates from Nigerian universities is a reflection of broader systemic issues, particularly the insufficient number and lack of quality of academic staff. Nigeria faces a significant shortage of qualified lecturers, with the lecturer-to-student ratio far exceeding global standards. According to the National Universities Commission (NUC), the average lecturer-to-student ratio in Nigerian universities is 1:90, compared to the global benchmark of 1:15 recommended by the United Nations Educational, Scientific and Cultural Organization (UNESCO, 2023). This overcrowding severely limits the ability of lecturers to provide personalised attention and quality instruction, undermining the learning experience for students.

The shortage of qualified academic staff is further exacerbated by inadequate remuneration and limited opportunities for professional development. A 2022 report by the Academic Staff Union of Universities (ASUU) revealed that over 60% of Nigerian lecturers earn below

the living wage, leading to low morale and brain drain as many seek better opportunities abroad (ASUU, 2022). This has resulted in a situation where underqualified or overburdened lecturers are tasked with delivering quality education, often without the necessary resources or training. For instance, a study by the World Bank (2023) found that only 35% of Nigerian lecturers possess PhD qualifications, compared to the global average of 70%, highlighting a significant gap in academic expertise.

Compounding these challenges is the commercialisation of education, which has led to unethical practices such as exchanging grades for money or sexual favours. A 2023 survey by Transparency International revealed that 40% of Nigerian university students reported experiencing or witnessing some form of academic corruption, including bribery and sexual harassment (Transparency International, 2023). These practices not only tarnish the integrity of academic institutions but also erode public trust in the quality of education being delivered.

The consequences of these systemic issues are evident in the poor performance of Nigerian universities in global rankings. Furthermore, the lack of qualified lecturers has contributed to a skills gap among graduates, with employers reporting that only 20% of Nigerian university graduates meet the competency requirements for entry-level positions (British Council, 2023).

To address these challenges, there is an urgent need for targeted interventions, including increased funding for higher education, improved remuneration for academic staff, and expanded opportunities for professional development. Additionally, stricter enforcement of ethical standards and the implementation of transparent evaluation systems could help curb academic corruption and restore the integrity of Nigerian universities. By investing in the quality and quantity of academic staff, Nigeria can improve the standard of education, enhance

Funding Challenges and the Debate on University Expansion

Nigerian universities face chronic underfunding, which has severely impacted infrastructure, research capabilities, and overall educational quality. While the expansion of universities aims to increase access to higher education, it often leads to stretched resources and diminished quality. A more strategic approach would focus on enhancing existing institutions through improved funding and resource allocation, drawing lessons from successful funding models employed by universities globally and within Africa.

Globally, universities adopt diverse funding models that reduce reliance on government allocations. In the United Kingdom, higher education funding is a shared responsibility between taxpayers and graduates. The government covers approximately 35% of teaching costs, while graduates contribute 65% through tuition fees and loans. Additionally, the UK government allocates around £6 billion annually to support research in higher education, with universities also generating significant income from private donations, endowments,



and research grants (UK Parliament, 2023). Similarly, in the United States, universities rely on a mix of government funding, private donations, endowments, and income from research grants. For example, Harvard University’s endowment stood at \$53.2 billion in 2023, providing a stable financial base for its operations and research initiatives (Harvard University Financial Report, 2023).

In Africa, several universities have successfully diversified their funding sources to reduce dependence on government allocations. The University of Cape Town (UCT) in South Africa, for instance, generates over 60% of its revenue from non-governmental sources, including tuition fees, research grants, and partnerships with private sector organisations. UCT’s research funding alone reached R2.3 billion (approximately \$120 million) in 2023, enabling it to maintain world-class research facilities and attract top-tier faculty (UCT

Annual Report, 2023). Similarly, Makerere University in Uganda has implemented a public-private partnership model, leveraging collaborations with international organisations and private companies to fund infrastructure projects and research initiatives. In 2022, Makerere secured \$15 million in research grants from organisations such as the Bill & Melinda Gates Foundation and the World Bank, significantly boosting its research output and institutional capacity (Makerere University Report, 2022).

In contrast, Nigerian universities remain heavily reliant on government funding, which is often inadequate and irregular. According to the National Universities Commission (NUC), government allocations to universities cover less than 30% of their operational needs, leaving institutions to struggle with outdated facilities, insufficient research funding, and poor staff welfare (NUC, 2023). This over-reliance on government funding has stifled innovation and limited the ability of universities to compete globally.

To address these challenges, Nigerian universities must diversify their funding streams by actively seeking research grants, forging partnerships with private sector organizations, and exploring alternative revenue sources such as endowments and alumni contributions. For instance, the University of Lagos (UNILAG) has begun to adopt this approach, securing partnerships with companies like MTN and Shell to fund infrastructure projects and research initiatives. However, more needs to be done to scale these efforts across the higher education sector.

By emulating successful funding models from the UK, US, and leading African universities, Nigerian institutions can reduce dependence on government funding, improve infrastructure, and enhance research capabilities. This shift would elevate the quality of education and position Nigerian universities as globally competitive institutions capable of driving innovation and economic development.

Prioritising STEM, AI, and Digital Literacy in Education

To drive technological transformation, Nigerian universities must prioritise education in Science, Technology, Engineering, and Mathematics (STEM), as well as emerging fields like Artificial Intelligence (AI) and digital literacy. This can be achieved by updating curricula to include contemporary technological advancements, investing in modern laboratories and research facilities, and fostering partnerships with industry stakeholders to ensure educational programs align with current and future market needs. Additionally, integrating digital literacy across all disciplines will equip students with the skills necessary to thrive in an increasingly digital world.

In all, Nigerian universities have a vital role in the nation's technological advancement. Addressing challenges related to curriculum relevance, perceptions of technical education, faculty quality, funding, and the prioritisation of STEM and digital literacy is essential. Through comprehensive reforms and strategic investments, these institutions can reclaim their former glory and serve as catalysts for Nigeria's technological transformation.

Strengthening University-Industry Collaboration

In Nigeria, the collaboration between universities and industries remains underdeveloped, hindering the nation's capacity for innovation and economic growth. A study by Oyelaran-Oyeyinka and Adebawale (2012) highlights that the types, intensity, and impact of such collaborations are limited, with both universities and firms engaging minimally with each other. This weak linkage results in graduates who are often ill-prepared for industry demands and a lack of industry-driven research initiatives. Factors contributing to this insufficiency include a lack of interest from industries, limited awareness of the benefits of collaboration, and inadequate institutional frameworks to facilitate partnerships (Ogbodo et al., 2013).

Encouraging Research-Commercialisation Partnerships

To bridge the gap between academia and industry, fostering research-commercialization partnerships is essential. Such collaborations can lead to the development of innovative products and services, driving economic transformation. For instance, Nigerian conglomerates like Dangote Group and telecommunications giants such as MTN Nigeria could partner with universities to fund research in areas like materials science, telecommunications, and information technology. These partnerships would not only enhance the practical relevance of academic research but also provide industries with cutting-edge solutions and a pipeline of skilled graduates. Given the limitations of government in providing employment, the private sector's role becomes crucial. By investing in university research and development, industries can cultivate a workforce tailored to their needs, thereby reducing unemployment and fostering economic growth.

Incubation Hubs for Tech-Driven Entrepreneurship

The Nigerian government has initiated efforts to promote tech-driven entrepreneurship through the establishment of Technology Incubation Centres (TICs). These centres aim to support startups by providing workspace, financial aid, networks, and mentoring (Techbuild Africa, 2020). However, these initiatives often lack systematic implementation and scalability, limiting their impact on the broader entrepreneurial ecosystem. To enhance their effectiveness, Nigeria can draw lessons from successful models in other countries, where well-structured innovation hubs have created vibrant ecosystems by fostering collaboration among startups, investors, and academia.

One notable example is Kenya's iHub, which has become a cornerstone of the country's tech ecosystem. Since its launch in 2010, iHub has supported over 1,000 startups, facilitated \$40 million in investments, and created more than 10,000 jobs. Its success lies in its ability to connect entrepreneurs with mentors, investors, and global networks while offering training programs and access to cutting-edge technologies (iHub Annual Report, 2023). Similarly, Rwanda's kLab has emerged as a leading innovation hub, providing startups with co-working spaces, mentorship, and access to funding. Since its inception, kLab has incubated over 200

startups, with several securing international investments and expanding their operations across Africa (kLab Impact Report, 2023).

Beyond Africa, countries like Israel and the United States offer valuable lessons in fostering tech-driven entrepreneurship. Israel's Startup Nation initiative has transformed the country into a global innovation powerhouse, with over 6,000 startups and a thriving venture capital ecosystem. The government's proactive approach, including tax incentives, R&D grants, and the establishment of innovation hubs like Tel Aviv's SOSA, has been instrumental in this success. In 2022 alone, Israeli startups raised \$25 billion in funding, accounting for 20% of the country's GDP (Startup Nation Central, 2023). In the United States, Silicon Valley remains the gold standard for tech entrepreneurship, with its ecosystem of venture capital firms, accelerators, and world-class universities like Stanford and UC Berkeley driving innovation. In 2023, Silicon Valley startups raised over \$100 billion in funding, accounting for nearly 40% of total venture capital investments in the U.S. (PitchBook, 2023).

To replicate its successes, Nigeria must systematise and scale up its Technology and Innovation Centres (TICs) through clear operational frameworks, sustainable funding, and partnerships with private sector stakeholders. Collaborating with global tech giants like Google, Microsoft, and Amazon who have demonstrated interest in supporting African startups via initiatives such as Google for Startups and Microsoft's Africa Development Centre will be crucial. Additionally, teaming up with local banks and venture capital firms could provide the necessary financial backing to scale promising startups. By learning from successful models, we can transform our TICs into vibrant hubs of innovation and entrepreneurship, ultimately boosting job creation and economic growth while positioning itself as a leading player in the global tech ecosystem.

Empowering the Next Generation of Innovators

Empowering students with funding, mentorship, and practical experience is vital for nurturing future innovators. Providing financial support and mentorship for student-led startups can stimulate entrepreneurial activities within universities. Programs like the Tony Elumelu Foundation Entrepreneurship Programme offer grants and mentorship to young African entrepreneurs, serving as a model that Nigerian universities can emulate. Additionally, expanding internship opportunities in tech-related fields allows students to gain hands-on experience, bridging the gap between theoretical knowledge and practical application. Collaborations between universities and tech companies can facilitate such internships, ensuring that graduates are well-equipped to meet industry demands.

In sum, strengthening university-industry collaboration in Nigeria requires deliberate efforts to foster research-commercialization partnerships, enhance incubation hubs, and empower students through funding and practical experience. By addressing these areas, Nigeria can harness the potential of its academic institutions and industries to drive technological transformation and economic development.



CHARTING NIGERIA'S DIGITAL FUTURE: HARNESSING TECHNOLOGY FOR NATIONAL DEVELOPMENT AND THE NEXT STEPS FORWARD

Nigeria presents a substantial opportunity to utilise technology as a driving force for economic growth and sustainable development. Achieving this vision necessitates coordinated efforts among government agencies, the private sector, academic institutions, and the nation's engaged youth.

Government is crucial in creating an environment conducive to innovation and investment. Implementing enabling policies is paramount. The National Digital Economy Policy and Strategy (NDEPS), launched in 2019, aims to reposition the Nigerian economy to take advantage of the many opportunities that digital technologies provide. This strategy underscores the government's commitment to integrating digital innovation across various sectors (Federal Ministry of Communications and Digital Economy, 2019).

Strengthening digital infrastructure and governance is of paramount importance. Investments in broadband expansion and e-governance platforms are critical for unlocking Nigeria's digital potential. Such strategic investments not only enhance connectivity but also stimulate economic growth by facilitating efficient service delivery and fostering innovation (International Trade Administration, 2024).

The private sector plays a vital role in advancing technological progress and economic diversification. Increasing investment in technology is a pivotal step. For instance, companies like Moniepoint, a Nigerian fintech firm, exemplify the significance of substantial financial commitment; having secured \$110 million to broaden digital payment and banking solutions across Africa, these investments strengthen the tech ecosystem and mitigate infrastructure deficiencies within the financial sector (Reuters, 2024).

Supporting local startups presents an additional pathway for private sector involvement. Initiatives such as technology incubators and accelerators offer emerging entrepreneurs essential resources and mentorship, thereby nurturing local talent and promoting innovation. These platforms are indispensable for transforming innovative concepts into viable business ventures, ultimately propelling economic transformation (TechCrunch, 2024).

Academic institutions serve as the foundation of research and development (R&D) and are pivotal in enhancing science, technology, engineering, and mathematics (STEM) education. Prioritization of R&D encompasses not only the acquisition of funding but also the cultivation of an innovative culture within universities. Enhancing STEM education is imperative for equipping students with the skills necessary to succeed in a technology-driven landscape.

In Europe, Oxford and Cambridge are currently discussing developing a “European Silicon Valley” to create a world-class innovation hub designed to attract investment, talent, and cutting-edge research. This initiative, still in the planning stages, seeks to boost the UK economy by £78 billion over the next decade through proposed infrastructure improvements and the expansion of high-tech industries.

Nigerian universities must rise to this challenge by envisioning and developing a “Nigerian Innovation Corridor” that fosters collaboration between academia, industry, and government. By positioning themselves as drivers of technological transformation, Nigerian institutions can create a thriving ecosystem that competes globally and propels the nation into a future powered by innovation.

The youth of Nigeria represent an invaluable asset to the nation. They exemplify qualities of intelligence, resilience, and a strong inclination towards innovation, particularly in the realm of technology. It is essential to leverage digital tools for personal development and entrepreneurial ventures. Young Nigerians are encouraged to utilise online learning platforms, engage in coding boot camps, and participate actively in technology communities to enhance their skills and entrepreneurial capabilities.

The imperative for youth engagement is more pressing than ever, particularly in a rapidly evolving global economy driven by technology and innovation. The Nigerian government, under the leadership of President Bola Ahmed Tinubu, GCFR, has demonstrated its commitment to fostering an environment that supports young innovators through various initiatives. These initiatives aim to promote technological advancement by implementing policies that facilitate access to funding, mentorship programs, and platforms that stimulate innovation and entrepreneurship.

A significant step in this direction is the increased allocation for technology and innovation in the 2024 and 2025 national budgets. In the 2024 budget, the government allocated N250 billion (approximately \$320 million) to the technology and innovation sector, marking a 35% increase from the previous year. This funding is earmarked for initiatives such as the National Digital Economy Strategy, the establishment of innovation hubs, and grants for tech startups (Federal Ministry of Finance, 2024). Additionally, the 2025 budget proposal includes a further increase, with N300 billion (\$385 million) allocated to support research and development (R&D), digital infrastructure, and youth-focused entrepreneurship programs (National Planning Commission, 2025). These investments reflect the government's recognition of technology as a critical driver of economic growth and job creation.

To ensure the effective utilisation of these funds, the government has launched programs such as the Nigeria Innovation Fund, which provides seed funding and grants to young tech entrepreneurs. In its first year of operation, the fund disbursed N10 billion (\$12.8 million) to over 500 startups, enabling them to develop innovative solutions in sectors such as fintech, agritech, and healthtech (National Information Technology Development Agency, 2024). Furthermore, partnerships with private sector stakeholders, including global tech giants like Google and Microsoft, have been established to provide mentorship, training, and access to global markets for Nigerian startups.

These efforts are already yielding positive results. For instance, the number of tech startups in Nigeria increased by 25% in 2023, with the sector attracting over \$1.5 billion in venture capital investments, according to the African Private Equity and Venture Capital Association (AVCA, 2024). Platforms like the Lagos Tech Fair and the Abuja Innovation Summit have also provided young innovators with opportunities to showcase their ideas, network with investors, and gain visibility on the global stage.

By prioritising youth engagement and increasing funding for technology and innovation, the Nigerian government is laying the foundation for a more inclusive and dynamic economy. These initiatives empower young Nigerians to harness their creative potential and position the country as a hub for innovation and entrepreneurship in Africa.



CONCLUSION: EMBRACING TECHNOLOGY FOR NATIONAL PROSPERITY

Distinguished guests, esteemed faculty, proud families, and, above all, our graduates.

Today marks not just the completion of an academic journey but the beginning of a new chapter that will define the trajectory of your careers and, more importantly, the future of Nigeria. As we stand at the crossroads of history, one truth is indisputable: technology will determine whether we move forward with purpose or remain stagnant. Across the world, nations that have embraced technological innovation are setting the pace in economic growth, security, governance, and social development. Nigeria must do the same.

Technology is no longer an abstract concept. It is the foundation upon which modern economies are built. As shown throughout this paper, countries that have invested in research digital infrastructure and industrial innovation are reaping the benefits of high productivity, competitive economies, and resilient governance structures. Nigeria has no reason to lag behind. The opportunities before us are vast, from artificial intelligence to smart agriculture, from financial technology to biotechnology. We have the resources and talent to lead Africa's digital revolution. What is missing is the urgency and deliberate action to make it happen.

I wish to make it clear to the graduates of this esteemed institution that you are stepping into a world where competence, not paper credentials, determines success. The knowledge you have gained here must not be stored in certificates but applied in ways that solve real-world problems. The responsibility of changing the narrative of Nigeria's technological advancement rests with you. Will you take your place as pioneers in artificial intelligence, digital finance, cybersecurity, and sustainable energy, or will you simply join the ranks of those who lament the state of the nation? The choice is clear. Every great transformation in history has been led by those who refused to accept mediocrity, who defied the odds, and who saw opportunities where others saw obstacles. You are now in that position.

Nigeria possesses significant potential; however, the absence of effective structures prevents this potential from translating into impactful outcomes. This critical moment calls for not only optimism but decisive action from all sectors. The collective responsibility of the government, private sector, and academia is to formulate and implement policies and initiatives that nurture innovation and encourage investment in technology. Together, these entities must recognise that long-term sustainability is intrinsically linked to their ability to adapt and integrate with emerging trends and challenges.

Universities must rise beyond outdated teaching models and become centres of cutting-edge research. If the world's best universities are aligning themselves with industry to drive economic growth, why should Nigerian universities not be at the forefront of Africa's technological transformation? It is time for universities in this country to rethink their purpose – not just as institutions that confer degrees but as incubators of ideas that shape economies.

A heartfelt thank you to the families, mentors, and faculty members who have played a pivotal role in shaping today's graduates. Your dedication to these young minds is a powerful contribution to Nigeria's future, and we truly appreciate the sacrifices you have made.

Dear Graduates, you are about to embark on a journey filled with great responsibility. Please know that a solid foundation of support is firmly in place to guide you along the way. President Bola Ahmed Tinubu's administration is actively fostering an environment where innovation, entrepreneurship, and digital transformation flourish. Remember, while valuable government policies and initiatives exist, your drive, creativity, and determination will truly propel you forward. This country does not need passive observers; it needs thinkers, builders, and leaders. It needs those who will break barriers, defy conventions, and set new standards. Do not wait for change to happen; be the architects of it. The future of Nigeria will not be determined in distant boardrooms or foreign capitals; it will be shaped by what you do with your talents, your knowledge, and your ambition.

Congratulations, Class of 2025. Now, go and build the future Nigeria deserves.

REFERENCES

1. Acropolium (2024). Top Financial Technology Trends Transforming Fintech. Available at: <https://acropolium.com/blog/top-financial-technology-trends-transforming-fintech/> (Accessed: 29 January 2025).
2. African Private Equity and Venture Capital Association (AVCA). (2024). Venture Capital Investments in African Tech Startups.
3. Brookings Institution (2023). Nigeria in 2023: Bridging the productivity gap and building economic resilience. Available at: <https://www.brookings.edu/articles/nigeria-in-2023-bridging-the-productivity-gap-and-building-economic-resilience/> (Accessed: 29 January 2025).
4. BusinessDay (2024). 'Disaggregating the latest NBS data for policy recalibration.' Available at: <https://businessday.ng/backpage/article/disaggregating-the-latest-nbs-data-for-policy-recalibration/> (Accessed: 29 January 2025).
5. Channels TV (2025). 'NEITI Backs Tax Reform Bills.' Available at: <https://www.channelstv.com/2025/01/22/neiti-backs-tax-reform-bills/> (Accessed: 29 January 2025).
6. Comin, D. and Mestieri, M. (2013) 'If Technology Has Arrived Everywhere, Why has Income Diverged?', NBER Working Paper No. 19010. Available at: <https://www.nber.org/papers/w19010> (Accessed: 29 January 2025).
7. Eneh, A.N. and Eneh, O.C. (2015). 'Rethinking the Curriculum of Nigerian University Education: Functionality Challenges', Sustainable Human Development Review, 7(1-4), pp. 39-50.
8. European Commission (2022). eGovernment in Estonia. Available at: <https://joinup.ec.europa.eu/collection/egovernment/egovernment-estonia> (Accessed: 29 January 2025).
9. Executive Office of the President (2020). Artificial Intelligence for the American People. Available at: <https://trumpwhitehouse.archives.gov/ai/> (Accessed: 29 January 2025).
10. Federal Ministry of Agriculture and Rural Development. (2023). Report on Arable Land Utilization in Nigeria.
11. Federal Ministry of Communications and Digital Economy (2019). National Digital Economy Policy and Strategy (2020-2030). Available at: <https://www.ncc.gov.ng/accessible/documents/883-national-digital-economy-policy-and-strategy> (Accessed: 29 January 2025).
12. Federal Ministry of Finance. (2024). 2024 National Budget Allocation for Technology and Innovation.
13. Food and Agriculture Organization (2019). The State of Food and Agriculture 2019: Moving Forward on Food Loss and Waste Reduction. Rome: FAO.
14. Food and Agriculture Organization (FAO). (2023). Post-Harvest Losses and Agricultural Productivity in Nigeria.

15. Georgetown Journal of International Affairs (2021). 'The Failure of Governance in Nigeria: An Epistocratic Challenge'. Available at: <https://gjia.georgetown.edu/2021/04/12/the-failure-of-governance-in-nigeria-an-epistocratic-challenge/> (Accessed: 29 January 2025).
16. GSMA (2020). State of the Industry Report on Mobile Money 2019. Available at: <https://www.gsma.com/sotir/wp-content>
17. GSMA Intelligence. (2023). Mobile Penetration and Internet Access in Rwanda.
18. Harvard University Financial Report. (2023). Endowment and Revenue Streams.
19. iHub Annual Report. (2023). Impact and Achievements of Kenya's iHub.
20. Inglehart, R. and Welzel, C. (2005) Modernization, Cultural Change, and Democracy: The Human Development Sequence. New York: Cambridge University Press.
21. International Trade Administration (2024). 'Nigeria - Digital Economy'. Available at: <https://www.trade.gov/country-commercial-guides/nigeria-digital-economy> (Accessed: 29 January 2025).
22. Jack, W. and Suri, T. (2016). 'The long-run poverty and gender impacts of mobile money', *Science*, 354(6317), pp. 1288–1292. Available at: <https://www.science.org/doi/10.1126/science.aaf8363> (Accessed: 29 January 2025).
23. Kigali Innovation City. (2023). Annual Progress Report and Investment Attraction.
24. Klimek, P., Hausmann, R. and Thurner, S. (2012) 'Empirical confirmation of creative destruction from world trade data', *PLoS ONE*, 7(6), e38924. Available at: <https://doi.org/10.1371/journal.pone.0038924> (Accessed: 29 January 2025).
25. Makerere University Report. (2022). Public-Private Partnerships and Research Funding.
26. McKinsey & Company (2024). The Top Trends in Tech. Available at: <https://www.mckinsey.com/capabilities/mckinsey-digital/our-insights/the-top-trends-in-tech> (Accessed: 29 January 2025).
27. National Bureau of Statistics (NBS) (2024). Nigeria Labour Force Survey Q2 2024. Available at: <https://www.nigerianstat.gov.ng/> (Accessed: 29 January 2025).
28. National Bureau of Statistics (NBS). (2023). Nigeria Gross Domestic Product Report: Q4 2023.
29. National Bureau of Statistics (NBS). (2023). Nigeria Labour Force Statistics: Q4 2023 Report.
30. National Information Technology Development Agency. (2024). Nigeria Innovation Fund: Disbursement and Impact Report.
31. National Planning Commission. (2024). 2025 Budget Proposal: Funding for Research and Development.

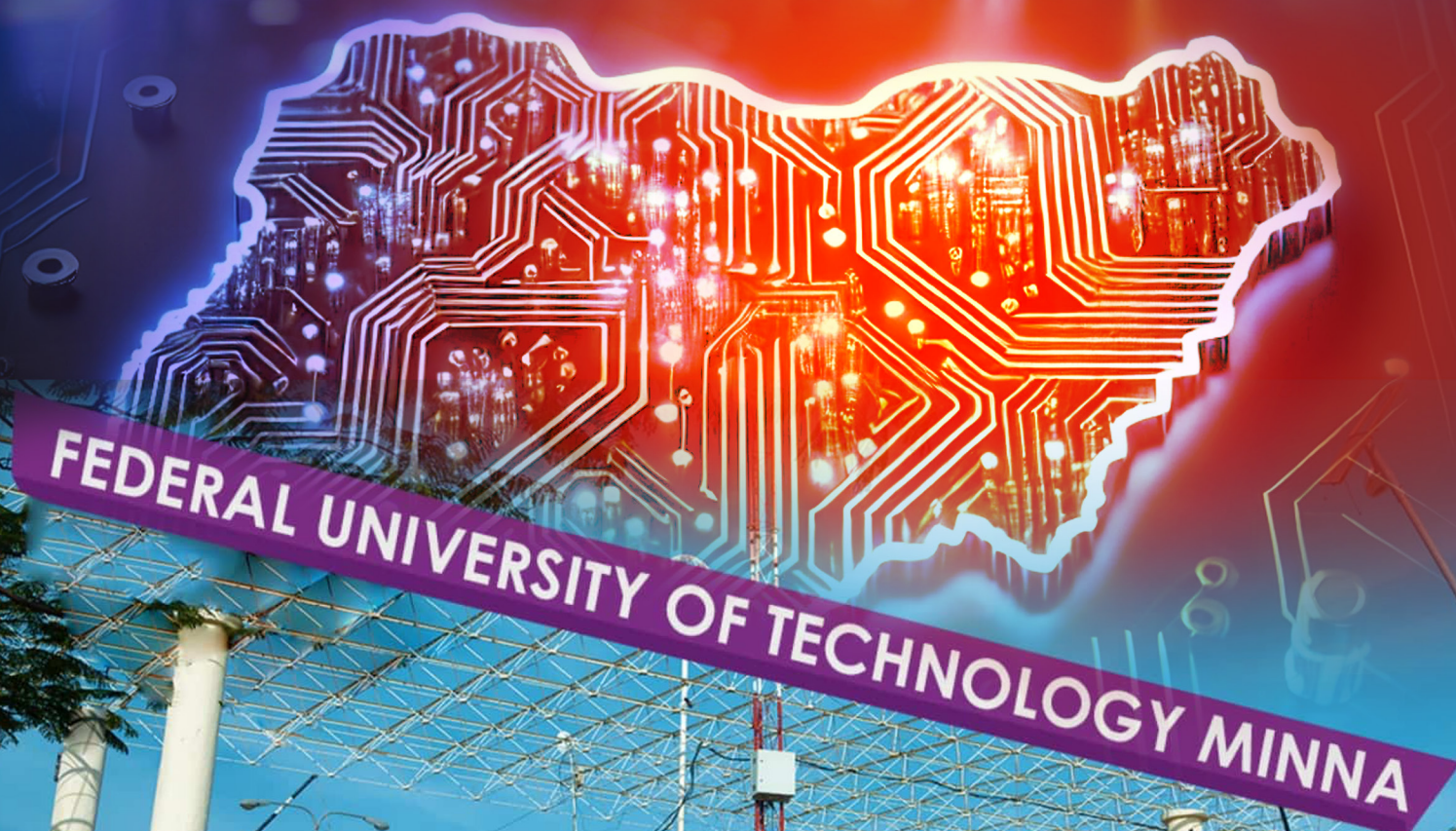
32. National Universities Commission (NUC). (2023). Government Allocations to Nigerian Universities.
33. NEITI (2025). 'NEITI Backs Tax Reform Bills'. Available at: <https://www.channelstv.com/2025/01/22/neiti-backs-tax-reform-bills/> (Accessed: 29 January 2025).
34. Nigerian Association of IT Professionals. (2023). Migration Trends Among Nigerian IT Experts.
35. Nigerian Medical Association (NMA). (2023). Report on Medical Brain Drain in Nigeria.
36. Nwaubani, E. (2000). 'Kenneth Onwuka Dike, 'Trade And Politics,' and the Restoration of the African in History', *History in Africa*, 27, pp. 229-248.
37. Ogbodo, C. M., Efanga, S. I., and Ikpe, I. K. (2013). 'University-Industry Collaboration and Graduates' Unemployment in Nigeria', *Mediterranean Journal of Social Sciences*, 4(4), pp. 105-110.
38. Okojie, J. (2008). 'Quality Assurance in Nigerian Universities: The Role of the National Universities Commission', *Nigerian Universities Commission*, [Online]. Available at: <https://www.nuc.edu.ng/quality-assurance-in-nigerian-universities-the-role-of-the-national-universities-commission/> (Accessed: 29 January 2025).
39. Oyelaran-Oyeyinka, B., and Adebowale, B. A. (2012). 'University-Industry Collaboration as a Determinant of Innovation in Nigeria', *Institutions and Economies*, 4(1), pp. 21-46.
40. Pantami, I. (2021). The Role of Digital Economy for National Economic Development. Available at: https://isaalipantami.com/wp-content/uploads/2021/06/Federal-University-of-Kashere_Convocation-Speech.pdf (Accessed: 29 January 2025).
41. PitchBook. (2023). Venture Capital Investments in Silicon Valley.
42. Reuters (2024). 'Google among investors putting \$110 million into Nigeria's Moniepoint'. Available at: <https://www.reuters.com/technology/google-among-investors-putting-110-million-into-nigerias-moniepoint-2024-10-29/> (Accessed: 29 January 2025).
43. Reuters (2025). 'UN seeks \$910 million for humanitarian crisis in Nigeria's northeast'. Available at: <https://www.reuters.com/world/africa/un-seeks-910-million-humanitarian-crisis-nigerias-northeast-2025-01-22/> (Accessed: 29 January 2025).
44. Rogers, E.M. (1962) *Diffusion of Innovations*. 1st ed. New York: Free Press.
45. Rwanda Utilities Regulatory Authority. (2023). E-Government Services and Digital Transformation Report.
46. Schumpeter, J.A. (1942) *Capitalism, Socialism and Democracy*. New York: Harper & Brothers.
47. Startup Nation Central. (2023). Israel's Startup Ecosystem: Key Statistics and Trends.
48. Statista (2023). 'Nigeria: expenditure on R&D as GDP share 2020-2022'. Available at: <https://www.statista.com/statistics/1345422/gross-domestic-expenditure-on-randd-as-percentage-of-gdp-in-nigeria/> (Accessed: 29 January 2025).

49. Techbuild Africa (2020). 'Review: Technology Incubation Centres in Nigeria.' Available at: <https://techbuild.africa/review-technology-incubation-centres-in-nigeria/> (Accessed: 29 January 2025).
50. TechCrunch (2024). 'Google and DPI back African fintech Moniepoint in \$110M round.' Available at: <https://techcrunch.com/2024/10/29/google-dpi-backs-moniepoint-in-110m-round/> (Accessed: 29 January 2025).
51. The Guardian. (2025, 28 January). Reeves plans to create 'Silicon Valley' between Oxford and Cambridge. Retrieved from https://www.theguardian.com/business/2025/jan/28/reeves-plans-to-create-silicon-valley-between-oxford-and-cambridge?utm_source=chatgpt.com
52. Times Higher Education. (2023). World University Rankings 2023.
53. Transparency International. (2023). Survey on Academic Corruption in Nigerian Universities.
54. UK Parliament (2023). 'Higher Education Funding in England', UK Parliament, [Online]. Available at: <https://commonslibrary.parliament.uk/research-briefings/cbp-7973/> (Accessed: 29 January 2025).
55. U.S. Department of State (2024). 2024 Investment Climate Statements: Nigeria. Available at: <https://www.state.gov/reports/2024-investment-climate-statements/nigeria/> (Accessed: 29 January 2025).
56. United Nations Comtrade Database. (2023). *China's High-Tech Exports Data.
57. United Nations Development Programme (UNDP). (2023). Human Development Index Report 2023.
58. University of Cape Town (UCT) Annual Report. (2023). Funding and Research Income.
59. World Bank (2021). Ghana: Digital Agriculture and Climate Resilience. Available at: <https://www.worldbank.org/en/news/feature/2021/05/17/ghana-digital-agriculture-and-climate-resilience> (Accessed: 29 January 2025).
60. World Bank (2023). Nigeria Overview: Development news, research, data. Available at: <https://www.worldbank.org/en/country/nigeria/overview> (Accessed: 29 January 2025).
61. World Bank. (2023). Agricultural Productivity and Opportunities in Sub-Saharan Africa.
62. World Bank. (2023). China Economic Update: Structural Transformation and Growth.
63. World Bank. (2023). Quality of Academic Staff in Sub-Saharan African Universities.
64. World Bank. (2024). 'Research and development expenditure (% of GDP)'. Available at: <https://data.worldbank.org/indicator/GB.XPD.RSDV.GD.ZS> (Accessed: 29 January 2025).
65. World Health Organization (WHO). (2023). Health Sector Financing and Performance in Nigeria.
66. Xia, L. (2023). China's Digital Economy: Growth and Impact.

From Crisis to Prosperity:

Harnessing Technology to Drive
Nigeria's Transformation Agenda

January 2025



FEDERAL UNIVERSITY OF TECHNOLOGY MINNA

