

Japa: The Causes and Effects of the Migration of Information Technology Professionals in Nigeria

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Abstract

This study focuses causes and effects of the migration of IT professionals in Nigeria. It begins by providing a background on the notion of migration before proceeding to describe information technology professionals and the various categories they fall into. The report then went on to explore and describe the many effects of the exodus of IT professionals on Nigeria's industries. The study came to the conclusion that the number of IT professionals leaving Nigeria will increase as long as the difficult economic, political, and social situation in Nigeria is not improved. This trend will be exacerbated by the growing demand for IT specialists around the world, particularly in Europe. The net effect is negative impacts across the various sectors in the Nigeria.

Keywords: Japa, Information Technology Professionals, Migration, Causes and Consequences, Nigeria, Tech.

Introduction

Human migration is not a recent phenomenon. Since the beginning of recorded history, migration has been an element of the human condition. The commercial age, from around 1500 to 1800, saw the arrival of merchant capitalists from Europe who went to Africa to establish protectorates and live on vast tracts of land for more than three hundred years. This is when the phenomena of migration first emerged¹. Furthermore, according to the National Geographic Society², migration has occurred throughout human history, beginning with the earliest groups of people moving from East Africa to their current location in the cosmos. Because of how widespread migration is, both industrialised and developing nations view it as their top national security threat. When people migrate, either alone or in groups, it may be said that they are responding to a crisis that has economic, political, and sociocultural components in order to survive. International migrants primarily aim to enter developed economies. According to Wachter³, colonial ties between Europeans and Africans had an impact on current global migratory movements. Additionally, the majority of economies in the universe experience external migration as a result of high unemployment rates, a lack of social amenities, poverty, economic crises, political instability, insecurity, low pay, and other undesirable factors. Youths in Nigeria have no choice but to emigrate because the labor market is unable to give them jobs.

For the economies of the developing and developed world, external migration has repercussions with regard to economic, sociocultural, and political factors. For instance, some international migrants had to deal with the tight immigration laws put in place by governments of major destinations countries to address the issues associated with external migration. Additionally, due to incorrect documentation, the majority of these immigrants have lost their rights to health care, freedom of travel, employment, and education, among other rights. Once more, some migrants

¹ Goldin, I. & Reinert, K. (2006). *Globalization for Development: Trade, Finance, Aid, Migration, and Policy*. Washington, DC: World Bank and Palgrave Macmillan.
<https://openknowledge.worldbank.org/handle/10986/6996>

² Ranjana Disha. "Human trafficking: *A study exploring its causes, current efforts and challenges*." Society, National Geographic. (2015)

³ Wachter and Rohrmose (2008). "*Migration at the Southern borders of the European Union: "The EUs migration policy."*

may adopt hedonistic lifestyles in order to survive. According to Yang⁴, these unacceptable lifestyles include armed robbery, rising crime, prostitution, and pickpocketing. These lifestyles give rise to some vocations that are referred to as "3D employment."

These are laborious, hazardous, and nasty jobs. The economic, political, and social drivers of migration are typically overcome as a result of these difficulties. According to statistics from the World Migration Report of 2020, there were 272 million international migrants in the world in 2019⁵. This is equivalent to 3.5% of the world's population. Additionally, male and female migrants made up 52% and 48% of the total international migrant population, respectively. Additionally, 74% of immigrants from abroad were between the ages of 20 and 64 when they began working. Additionally, with 17.5 million migrants, India was the top country of origin for international migrants. With 11.8 and 10.7 million foreign migrants, respectively, Mexico and China are in second and third place. However, with 50.7 million international migrants, the United States continued to be the top destination for migration. Again, according to the IOM, more than 600 000 African migrants have entered Italy since 2014 via the perilous Central Mediterranean route⁶.

However, just in 2017, about 120 000 African migrants arrived in Italy. It is understandable why Ranjana⁷ noted that "it has become a serious issue of the twenty-first century due to rapid globalisation, industrialisation, urbanisation, and related migration patterns which are forcing people to move from one place to another in search of livelihood options and employment opportunities". Nevertheless, Abedi-Lartey⁸ noted that migration has been identified as a survival tactic used by the poor,

⁴ Yang, D. (2008). "International migration, remittances and investment: Evidence from Philippine migrants' exchange rate shocks." *The Economic Journal*,: 591 - 630.

⁵ McAuliffe B, & Khadria M. (2020). "Providing perspective on migration and mobility in increasingly uncertain times. In M. McAuliffe & B. Khadria (Eds.), *World Migration Report*." Geneva IOM, 1-498.

⁶ Kirwin, M. & Anderson, J. (2018). *Identifying the factors driving West African migration*. West African Papers. OECD Publishing.

⁷ Ranjana. D. (2015). "Human trafficking: A study exploring its causes, current efforts and challenges."

Society, National Geographic.

⁸ Abedi-Lartey, Michael. "Causes of rural-urban migration on Sankana in the Nadowli-Kalio District of Ghana and its effects on community development" (2016).

particularly the rural populace as a catalyst in the transformation process of not only the destiny of individual migrants, but also the conditions of family members left behind, local communities, and the wider regions through remittances.

In order to understand the potential push and pull forces causing the high rate of external migration in the nation, it was necessary to examine the causes and effects of international migration in Nigeria. Understanding the fundamental drivers of migration internationally and illustrating the complex repercussions of external migration in Nigeria would help policymakers make the best judgments possible about this matter and shed light on the best economic development measures to implement. despite all of the federal, state, and local governments' efforts.

Population movement can be divided into three categories: emigration from the country, migration into the country, and internal migration inside the country's borders. In Nigeria, all three types of migration are present, and each has a unique impact on the national economy⁹. The remainder of this essay will refer to international migration whenever the word "migration" is used.

Objectives of the Study

The objectives of this study are to:

- i. Provide a comprehensive analysis and insights into the root causes of the migration of IT professionals from Nigeria, and
- ii. Explore the effects of this migration on Nigeria's economy and some sectors such as IT, Banking, Healthcare, Defense, etc.

Methodology

The methodology adopted for this study was to conduct a comprehensive review of existing literature on the subject, including academic studies, government reports, and news articles. This was to provide a foundation of knowledge on the current state of IT migration in Nigeria, as well as existing theories and research on the topic.

⁹ Karzanova, V. & Adedokun. I. "Impact of migration on the economy of Nigeria: Recent Trends." Vestnik NSUEM 3 - 9. (2019)

Literature Review

The migration of IT professionals in Nigeria has been a subject of study for researchers and scholars in recent years. Several studies have examined the causes and effects of this migration, as well as its implications for Nigeria's economy and future prospects.

One study¹⁰ explored the reasons for the migration of IT professionals in Nigeria, using data from a survey of 200 IT professionals. The study identified factors such as poor remuneration, lack of job satisfaction, and poor working conditions as the main reasons for the migration of IT professionals in Nigeria. The study also noted that the migration of IT professionals could have negative effects on Nigeria's economy, such as a loss of human capital and a reduction in the country's ability to compete globally in the IT sector.

Another study¹¹ examined the effects of the migration of IT professionals on Nigeria's economy, using data from the National Bureau of Statistics. The study found that the migration of IT professionals could have negative effects on Nigeria's economy, such as a loss of human capital, reduced competitiveness in the IT sector, and a drain on the country's financial resources.

A study by Udejaja and Bello¹² explored the future prospects of Nigeria's IT sector in the face of the migration of IT professionals. The study noted that the migration of IT professionals could create opportunities for the development of local talent and the establishment of new IT companies in Nigeria.

¹⁰ Ogunyomi, O. P., & Agboola, O. P. (2018). An Assessment of the Causes and Consequences of Brain Drain in the Nigerian Information Technology Sector. *International Journal of Social Sciences and Humanities Reviews*, 9(2), 93-105. Adeoti, J. O., & Adekunle, O. I. (2018). Effects of Brain Drain on Nigeria's Economy: A Critical Analysis. *Journal of Emerging Trends in Economics and Management Sciences (JETEMS)*, 9(1), 28-38.

¹¹ Adeoti, J. O., & Adekunle, O. I. (2018). Effects of Brain Drain on Nigeria's Economy: A Critical Analysis. *Journal of Emerging Trends in Economics and Management Sciences (JETEMS)*, 9(1), 28-38.

¹² Udejaja, C. C., & Bello, O. O. (2017). Brain Drain and Its Implications for the Development of Nigeria's Information Technology Industry. *International Journal of Applied Engineering Research*, 12(19), 8814-8824.

The migration of IT professionals in Nigeria is a complex issue that has significant implications for Nigeria's economy and future prospects. The studies reviewed in this literature review suggest that the migration of IT professionals is driven by factors such as poor remuneration, lack of job satisfaction, and poor working conditions. The migration of IT professionals can have negative effects on Nigeria's economy, such as a loss of human capital and reduced competitiveness in the IT sector. However, the migration of IT professionals could also create opportunities for the development of local talent and the establishment of new IT companies in Nigeria, provided that the government implements policies and programs to support the growth of the IT sector.

Information Technology Professionals (ITP)

The majority of the world's 100 million computer users have no idea how a computer works inside and out. The excitement of opening the box is comparable to that of raising a car's hood. The needs of users for designing, locating, retrieving, using, configuring, programming, maintaining, and comprehending computers, networks, applications, and digital objects are addressed by technology professionals. They anticipate academic computer science to foster the development of computing professionals, keep abreast of emerging technologies, and sustain research initiatives that advance these goals. Professionally minded students look to faculty for a thorough, current understanding of a world with many disparate parts, for help making sense of quickly evolving technologies, for help formulating and providing answers to significant problems, and for instruction in efficient professional practices. In other words, everyone now depends just as much on IT specialists as they do on information technologies.

Information technology (IT) professionals are individuals who possess technical skills and expertise in various areas of the IT industry, including software development, system administration, cybersecurity, database management, and network engineering. They play a critical role in designing, developing, and maintaining technology infrastructure in organizations¹³. According to the United States Bureau of Labor Statistics (BLS), the demand for IT professionals is expected to grow faster than the

¹³ Battista, A., & Batsakis, S. (2019). The impact of digitalization on the IT job market: A review. *Technological Forecasting and Social Change*, 146, 950-961.

average for all occupations, with an estimated increase of 11% from 2019 to 2029¹⁴.

The role of IT professionals has become increasingly important as organizations rely more on technology to support their operations and meet customer demands¹⁵. However, there is a global shortage of skilled IT professionals, leading to a phenomenon known as "IT brain drain," where professionals migrate from their home countries to seek better job opportunities and working conditions elsewhere¹⁶.

In Nigeria, the IT industry is still developing, and there is a shortage of skilled professionals to meet the growing demand¹⁷. This has led to a significant number of Nigerian IT professionals migrating to other countries in search of better opportunities and higher salaries. The migration of IT professionals from Nigeria has significant economic, social, and political implications for the country, and understanding the causes and effects of this phenomenon is critical for policymakers, employers, and IT professionals themselves.

Compared to computer scientists and engineers, they make up a significantly larger and more varied group. As stated in Table 1, they are classified into three professional groups. The first category covers the intellectual core of the field's primary technical IT areas. The second category consists of other well-established areas that heavily utilize IT; even while their practitioners concentrate on problems unique to their fields, they make significant use of IT and frequently contribute fresh IT innovations. The third category includes the knowledge and expertise required to support the IT infrastructures that are used by everyone.

¹⁴ Bureau of Labor Statistics. (2021). Occupational outlook handbook: Computer and information technology occupations. U.S. Department of Labor. Retrieved from <https://www.bls.gov/ooh/computer-and-information-technology/home.htm>

¹⁵ Wu, J., & Li, N. (2018). The impact of technology on the future of work. *Journal of Business Research*, 88, 141-146.

¹⁶ Mazzarol, T., & Soutar, G. N. (2002). "Push" and "pull" factors influencing international student destination choice. *International Journal of Educational Management*, 16(2), 82-90.

¹⁷ Jegede, D. A., Salami, A. O., & Agunbiade, O. M. (2019). An appraisal of the Nigerian information technology industry: Challenges and prospects. *Cogent Social Sciences*, 5(1), 1-15. <https://doi.org/10.1080/23311886.2019.1582791>

Table 1: Categories of Information Technology Professional

Information Technology Professional		
IT-Specific Disciplines	IT-Intensive Disciplines	IT-Supportive Occupations
<ul style="list-style-type: none"> • Artificial intelligence • Computer science • Computer engineering • Computational science • Database engineering • Computer graphics • Human-computer interaction • Network engineering • Operating systems • Performance engineering • Robotics • Scientific computing • Software architecture • Software engineering • System security 	<ul style="list-style-type: none"> • Aerospace engineering • Bioinformatics • Cognitive science • Digital library science • E-commerce • Financial services • Genetic engineering • Information science • Information systems • Public policy and privacy • Instructional design • Knowledge engineering • Management information systems • Multimedia design • Telecommunications • Transportation 	<ul style="list-style-type: none"> • Computer technician • Help desk technician • Network technician • Professional IT trainer • Security specialist • System administrator • Web services designer • Web identity designer • Database administrator

The Nigeria IT Sector (Before Now)

Before now, the IT sector in Nigeria was characterized by a lack of infrastructure, low internet penetration, and a shortage of skilled professionals. However, the Nigerian government recognized the potential of the IT industry to drive economic growth and has made several efforts to support its development¹⁸.

One of the major initiatives was the establishment of the National Information Technology Development Agency (NITDA) in 2001, which has been responsible for the development and implementation of policies and programs aimed at promoting the growth of the IT industry in Nigeria¹⁹. The government has also introduced policies to encourage local content

¹⁸ Iroegbu, P. (2018). Nigeria's tech sector is growing fast, but it's still facing a number of challenges. CNBC. Retrieved from <https://www.cnbc.com/2018/08/16/nigeria-tech-sector-growth.html>

¹⁹ Jegede, D. A., Salami, A. O., & Agunbiade, O. M. (2019). An appraisal of the Nigerian information technology industry: Challenges and prospects. *Cogent Social Sciences*, 5(1), 1-15. <https://doi.org/10.1080/23311886.2019.1582791>

development and reduce the reliance on foreign technology products. The growth of the IT sector has also been driven by private sector investments, with many local and foreign companies investing in the development of IT infrastructure and services²⁰. The rise of technology hubs, such as the Co-Creation Hub in Lagos, has also played a crucial role in fostering innovation and entrepreneurship in the sector²¹. However, the IT sector in Nigeria still faces significant challenges. These include a shortage of skilled professionals, limited access to funding for startups, and a lack of regulatory clarity¹⁷. Additionally, the country's poor infrastructure, including unreliable power supply and limited internet connectivity, has also hindered the growth of the sector¹⁸.

The IT sector in Nigeria is one of the fastest-growing industries is the information and communications technology sector (often known as the "tech sector"). In 2020, the sector produced 15% of the nation's GDP, second only to agriculture, despite the COVID-19 epidemic. This maintained a five-year pattern, with the industry growing at an average rate of 18% from 2016 to 2019. Nigeria is now the largest IT market on the African continent, with 90 tech centers and a sizable and growing client base²². 72% of the population, or more than 200 million people, currently have access to a mobile phone, and by 2025, internet penetration is anticipated to rise from 2% to 65.3 percent. The biggest tech corporations in the world are all represented there, including IBM, Microsoft, Google, and Cisco. Even Twitter, which was restricted in the country, is aware of how important the sector is. By 2027, according to Jobberman's prediction, the sector would add 88 billion US dollars to the GDP. Unfortunately, despite this rise, more young people in Nigeria did not manage to obtain employment.

²⁰ Jegede, D. A., Salami, A. O., & Agunbiade, O. M. (2019). An appraisal of the Nigerian information technology industry: Challenges and prospects. *Cogent Social Sciences*, 5(1), 1-15. <https://doi.org/10.1080/23311886.2019.1582791>

²¹ Iroegbu, P. (2018). Nigeria's tech sector is growing fast, but it's still facing a number of challenges. *CNBC*. Retrieved from <https://www.cnbc.com/2018/08/16/nigeria-tech-sector-growth.html>

²² World Bank. (2021). *Migration and Remittances: Recent Developments and Outlook*. Retrieved from <https://www.worldbank.org/en/topic/migrationremittances/brief/migration-and-remittances-recent-developments-and-outlook>

In 2017, only 497,000 persons, or 1% of the workforce, were employed in the sector. This was caused by the lack of computer literacy among young people, who felt unprepared for the employment¹⁹. Despite the fact that this is a key component of the country's new National Digital Economy Policy and Strategy 2020–30, Nigeria was ranked 122 out of 140 countries for the development of digital skills in the Global Competitiveness Report¹⁹. The infrastructure for tech training was not appropriately constructed to teach more advanced digital skills, despite the fact that the Nigerian economy required them. Despite Nigeria's dire need for more skilled tech workers, many prefer to look for chances elsewhere-Japa. There aren't any reliable statistics on the migration of tech workers, but it's safe to say that major businesses in Nigerian migrants' primary countries are numerous. However, this does not imply that all such migration results in a "brain drain"; on the contrary, it sometimes benefits the migrant as well as their communities of origin and destination. One of the first internet start-ups in Nigeria was Jumia, which was formed in 2012 by two Nigerian graduates of the Harvard Business School. Many diaspora returnees have established businesses that employ thousands of people. Iroko TV, Flutterwave, and Bamboo are a few tech startups started by diaspora returnees. However, in Nigeria, this function of migrants as generators of human capital and job generation is rarely brought up. One region that is ideally positioned to gain from Nigerian tech talent is Europe.

The number of tech professionals employed in the European Union (EU) increased by one-third between 2005 and 2015, and another ten percent growth is anticipated by 2025¹⁹. Similar to Nigeria, there are fewer people available in Europe to fill these positions, and the training and education sector has not been able to keep up with demand from employers. Once more, the industry has appeared immune to the pandemic's impacts, and the need for skilled workers is only getting worse¹⁹. As can be seen in Figure 1, there is a lack of workers in the IT sector in 24 Member States.

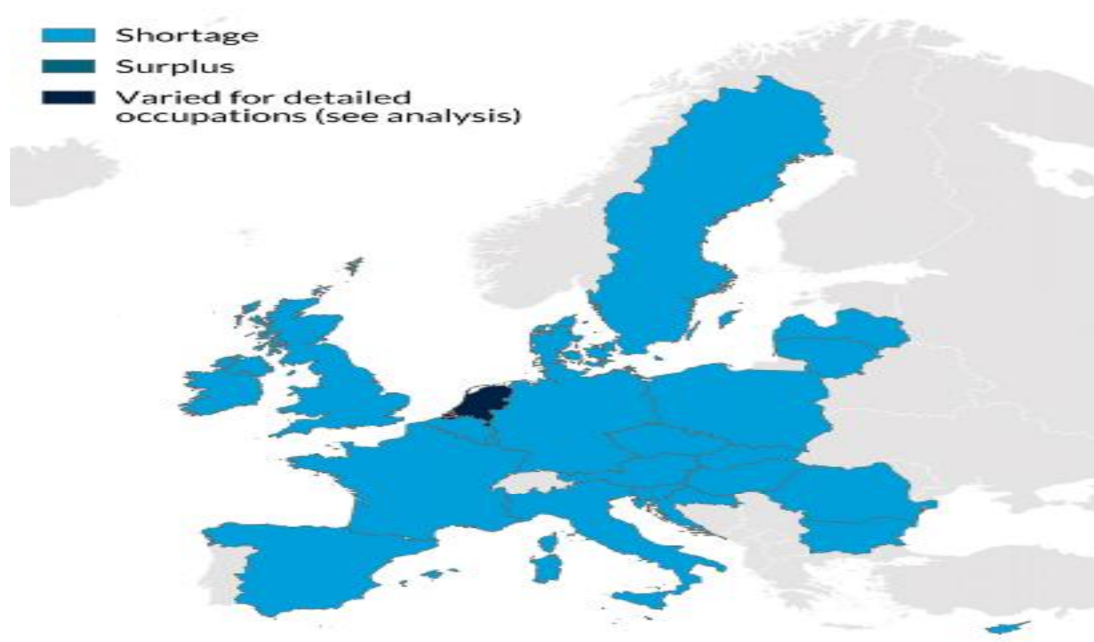


Figure 1: The need for IT professionals in 24 European Union (EU) Member States

Causes of the Migration of Information Technology Professionals

This unprecedented voluntary migration from Nigeria—which has not occurred since World War II—appears to be driven by five key factors. These include the need for better career opportunities, the country's increased level of insecurity, the obligation to ensure a better future for one's children, the necessity of further education, and Nigeria's poor governance²³.

A recent research survey reveals that about 45% of Nigeria's adult population plans to relocate to a different nation in five years. Nigerians placed first out of the 12 nations questioned from Africa, the Middle East, Europe, and North America among those who strongly want to move abroad²¹. Seven out of ten Nigerians planned to relocate if the chance presents, according to a poll conducted in 2021. The recent rush of Nigerians leaving the country marks the biggest emigration from the nation since the civil war's end, more than 50 years ago. The characteristics of those who are moving are important. They are primarily young adults with

²³ Kirwin, M. and Anderson, J. (2018). Identifying the factors driving West African migration. West African Papers. OECD Publishing, 2018.

skills, such as medical professionals, nurses, IT specialists, university professors, and technicians. They also include young people who finished their education overseas but choose to remain in their home country because it had little to offer them in the way of employment possibilities, career opportunities, or even basic safety. Some of them hold degrees from top universities both domestically and overseas²⁴. This population is more detrimental to the possibilities for national progress.

Our growing demographic hemorrhage's main strategic worry is the emigration of young, educated Nigerians. Our future depends on the ones who are departing. Our sharpest minds and energies are being depleted. Our IT geniuses, medical researchers, economists, biotechnologists, and other professionals are boarding planes to warmer climates in droves. Many of them don't have any immediate intentions to go back home. A worrying pessimism that things won't get better anytime soon permeates the mindset of many of these young people who are running away. They are relocating because the location we call home has become a wasteland of disasters, with no chances or hope. The country's unemployment rate increased five-fold between 2010 and 2020 (from 6.4% to 33.3%), which results in a lack of employment options.

A rise in unemployment, as shown by Nigeria's figures, indicates more individuals are being driven below the poverty line because unemployment either causes or enhances the likelihood of poverty. In recent months, youth unemployment and poverty have been particularly prevalent, and punishing inflation has made matters worse. More individuals are now living in poverty as inflation has increased from roughly 7% a decade ago to over 20.52% recently (August 2022).

With the steady increase of societal tensions caused by the actions of kidnappers, bandits, secessionists, terrorists, and other types of criminality, the security challenge is getting worse by the day. With 8,281 deaths in nine months and 3,490 kidnappings in just eight months in 2021, the level of insecurity has grown to be a serious concern²⁵. With no apparent plan,

²⁴ Karzanova V, and Adedokun I (2019). "Impact of migration on the economy of Nigeria: Recent Trends." *Vestnik NSUEM*, 2019: 3 - 9.

²⁵ Abedi-Lartey, A. (2016). "Causes of rural-urban migration on Sankana in the Nadowli-Kalio District of Ghana and its effects on community development." 2016.

ASUU has been on strike for almost nine months. Students at universities therefore stay at home. To "japa" is the only way to solve these specific Nigerian issues (a Yoruba slang for escape). Young people, even parents in the middle of their careers, would flee Nigeria at the first chance if its sociopolitical and economic environments remain unfavorable and strangulating. It is unlikely that this trend will change soon. Tragically, the regions most important to our country are also the ones most negatively impacted by the current migrant flow. Due to the massive emigration, we might quickly lose our comparative and competitive advantages in fields like IT, engineering, medicine, and other highly skilled occupations. The opportunity cost of this relocation may be too large to consider in the future. The irony in certain situations is that the majority of these travelers acquired their education and training at public institutions supported by the Nigerian government, and developed nations would merely collect the benefits that should have gone to Nigeria (a reversed aid from Nigeria to developed countries).

Effects of the Migration of ITP in Nigeria

Although some studies have indicated that migration has both good and adverse impact on sustainable development, in the Nigerian economy, the negative effects seem to have outweighed the benefits. Regarding beneficial effects, the remittances sent by the diasporas support economic expansion and development. The migration of IT professionals from Nigeria has had both positive and negative effects on the country's economy, education, IT sector, healthcare, banking, defense, and other sectors. The rest part of this paper presents a critical discussion on these effects.

Effects on the Economy

Nigeria has been facing a significant brain drain of its skilled workforce in recent years. This includes IT professionals who migrate to other countries for better job opportunities and higher salaries. The loss of these skilled workers is detrimental to the Nigerian economy, as it loses human capital, which is a vital factor for economic growth²⁶. On the other hand, remittances from Nigerian migrants have been a significant source of foreign exchange for the country. According to data from the World Bank, Nigeria received personal remittances worth \$22 billion in 2017, or roughly

²⁶ Odeyemi, T. I. (2021). Brain drain and the Nigerian educational system: Analysis and way forward. *European Journal of Education Studies*, 8(4), 311-325.

5.86% of its GDP. The average transaction cost of sending remittances home in the same year was 18.30% of the country's GDP, but the growth rate of GDP in the same year was 0.801%, hence this had little to no effect on the country's growth and development. In 2019, remittances from Nigerians living abroad were estimated at \$25 billion, which is about 5% of the country's GDP²⁷. These remittances have helped to boost the country's foreign reserves and support the economy.

Effects on Education

One positive effect of the migration of IT professionals on the education sector in Nigeria is the potential for knowledge transfer and capacity building. Skilled IT professionals can bring with them a wealth of knowledge and expertise that can be shared with educators and students in Nigeria. This knowledge transfer can help to develop the IT education sector in Nigeria, leading to the development of new courses and programs that can benefit both the IT industry and other sectors of the economy²⁸.

Another potential positive effect of the migration of IT professionals on the education sector in Nigeria is the potential for international collaborations and partnerships. As skilled IT professionals migrate to other countries, they can establish links with universities and research institutions, leading to potential collaborations and partnerships in areas such as research, training, and curriculum development. Such collaborations can help to strengthen the IT education sector in Nigeria and promote innovation and knowledge exchange²⁹.

However, the migration of IT professionals can also have negative impacts on the education sector in Nigeria. One potential negative effect is the loss of skilled teachers and educators. When skilled IT professionals leave Nigeria, they take with them the knowledge and expertise that they have

²⁷ World Bank. (2021). Migration and Remittances: Recent Developments and Outlook. Retrieved from

<https://www.worldbank.org/en/topic/migrationremittances/brief/migration-and-remittances-recent-developments-and-outlook>

²⁸ Ojo, S. O., & Oyelade, O. J. (2019). Information technology (IT) education in Nigeria: A review. *International Journal of Emerging Technologies in Learning (iJET)*, 14(06), 123-139. doi: 10.3991/ijet.v14i06.9443

²⁹ Akande, T. M., Salami, A. O., & Sanusi, A. R. (2020). Brain drain and its implications on Nigeria's educational system: A critical review. *Journal of Education and Practice*, 11(2), 1-7.

gained through years of teaching and research. This loss can be particularly damaging for the education sector, which relies heavily on specialized knowledge and expertise. According to³⁰, the migration of skilled IT professionals can result in a brain drain, leading to a shortage of skilled teachers and educators in the IT education sector.

Another potential negative effect of the migration of IT professionals on the education sector in Nigeria is the risk of brain drain and negative economic impacts. The migration of highly skilled IT professionals can lead to increased competition for jobs and higher salaries in destination countries, which can in turn lead to brain drain and negative economic impacts in Nigeria. This brain drain can further exacerbate the shortage of skilled teachers and educators in the IT education sector³¹.

In addition to these potential positive and negative effects, the migration of IT professionals can also have broader societal impacts in Nigeria. For example, the migration of skilled IT professionals can lead to a loss of role models for students, particularly those from underrepresented groups in the IT field. However, according to³², the migration of skilled IT professionals can also inspire students to pursue careers in the IT industry and can lead to greater international awareness and exposure.

Effects on IT

One positive effect of the migration of IT professionals on the IT industry in Nigeria is the potential for knowledge transfer and skill development. Skilled IT professionals can bring with them a wealth of knowledge and expertise that can be shared with their colleagues in Nigeria. This knowledge transfer can help to develop the IT industry in Nigeria, leading

³⁰ Adegbuyi, O. A., & Adeleke, A. A. (2021). Brain drain and its impact on the Nigerian education sector. *Journal of Education and Practice*, 12(13), 84-91.

³¹ Okeke, N. N. (2019). Rural infrastructure development in Nigeria: Lessons and policy implications. *Journal of Rural Studies*, 70, 88-95.

³² Ojo, S. O., & Oyelade, O. J. (2019). Information technology (IT) education in Nigeria: A review. *International Journal of Emerging Technologies in Learning (iJET)*, 14(06), 123-139. doi: 10.3991/ijet.v14i06.9443

to the development of new technologies and systems that can benefit both the IT industry and other sectors of the economy³³.

However, the migration of IT professionals can also have negative impacts on the IT industry in Nigeria. One potential negative effect is the loss of critical knowledge and expertise. When skilled IT professionals leave Nigeria, they take with them the knowledge and expertise that they have gained through years of training and experience³⁴. This loss can be particularly damaging for the IT industry, which relies heavily on specialized knowledge and expertise. According to³⁵, the migration of skilled IT professionals can result in a brain drain, leading to a shortage of skilled workers in the IT industry. The lack of skilled IT professionals has led to a skills gap in the industry, which has slowed down the growth and development of the sector³⁶. The IT sector in Nigeria is still in its early stages and needs to develop further to compete with other countries. The migration of skilled professionals reduces the sector's potential to grow and innovate.

Another potential negative effect of the migration of IT professionals on the IT industry in Nigeria is the risk of intellectual property loss. The use of intellectual property in the IT industry requires careful management and protection. When skilled IT professionals move to new countries, there is a risk that they will take with them intellectual property or confidential business information. This can be particularly concerning for the IT industry, which relies heavily on the protection of intellectual property.

³³ Ajayi, O. A., Ibikunle, F., & Okolie, C. U. (2021). Brain Drain and National Development in Nigeria: The Information Technology Industry Experience. In *Proceedings of the 2nd International Conference on Computing, Mathematics and Engineering Technologies (ICOMET 2021)*: 349-356.

³⁴ Auta, A., Strickland-Hodge, B., & Mazhar, M. (2018). Electronic health records and healthcare quality in Nigeria: A systematic review. *Journal of health informatics in developing countries*, 12(1), 33-48.

³⁵ Adebayo, O. A., Adeyemo, A. A., & Adeyemo, D. A. (2021). Brain drain and the Nigerian information technology sector. *Journal of Business and Social Sciences Research*, 5(1), 25-36.

³⁶ Adekoya, F. (2021). Nigeria's IT sector struggles with skills gap. *Financial Times*. Retrieved from <https://www.ft.com/content/07921c3a-a2b1-4e64-8d1e-200fbd7b52a9>

According to³⁷, Nigeria's weak legal framework for intellectual property protection can increase the risk of intellectual property loss by IT professionals who migrate to other countries.

Effects on Healthcare

The migration of IT professionals has had limited effects on Nigeria's healthcare sector. Nigeria has one of the lowest ratios of healthcare workers to patients in the world, with only 0.2 doctors per 1,000 people³⁸. The migration of IT professionals has not affected this ratio significantly, as healthcare professionals are already in short supply in the country. However, the use of IT in healthcare has been slow to develop in Nigeria, and the migration of skilled IT professionals could have been beneficial to the sector's development. One positive effect of the migration of IT professionals on the health sector in Nigeria is the potential for improved healthcare services. Skilled IT professionals can bring with them a wealth of knowledge and expertise that can lead to the development of new technologies and systems that can benefit the healthcare sector. For instance, the use of electronic health records (EHRs) can improve the quality of healthcare by reducing errors and improving communication among healthcare providers³⁹.

However, the migration of IT professionals can also have negative impacts on the health sector in Nigeria. One potential negative effect is the loss of critical knowledge and expertise. When skilled IT professionals leave Nigeria, they take with them the knowledge and expertise that they have gained through years of training and experience. This loss can be particularly damaging for the health sector, which relies heavily on specialized knowledge and expertise. The migration of skilled IT

³⁷ Odeyemi, T. O., & Adewoye, O. J. (2019). The impact of intellectual property laws on the development of the Nigerian software industry. *International Journal of Law and Management*, 61(6)

³⁸ World Bank. (2021). *Migration and Remittances: Recent Developments and Outlook*. Retrieved from <https://www.worldbank.org/en/topic/migrationremittances/brief/migration-and-remittances-recent-developments-and-outlook>

³⁹ Auta, A., Strickland-Hodge, B., & Mazhar, M. (2018). Electronic health records and healthcare quality in Nigeria: A systematic review. *Journal of health informatics in developing countries*, 12(1), 33-48.

professionals can result in a brain drain, leading to a shortage of skilled workers in the health sector.

Another potential negative effect of the migration of IT professionals on the health sector in Nigeria is the risk of data breaches and cybersecurity threats. The use of EHRs and other health technologies requires careful management of sensitive patient data. When skilled IT professionals move to new countries, there is a risk that they will take with them sensitive information or intellectual property. This can be particularly concerning for the health sector, which relies heavily on the protection of sensitive patient information. Nigeria's lack of a strong cybersecurity framework can increase the risk of data breaches and cybersecurity threats by IT professionals who migrate to other countries⁴⁰.

Effects on Banking

One positive effect of the migration of IT professionals on the banking sector in Nigeria is the potential for increased innovation and technological advancement. Skilled IT professionals can bring with them a wealth of knowledge and expertise that can lead to the development of new technologies and systems that can benefit the banking sector. The migration of skilled IT professionals can contribute to the development of innovative payment systems, which is critical for the growth of the banking sector⁴¹. However, the migration of IT professionals can also have negative impacts on the banking sector in Nigeria. One potential negative effect is the loss of critical knowledge and expertise. When skilled IT professionals leave Nigeria, they take with them the knowledge and expertise that they have gained through years of training and experience. This loss can be particularly damaging for the banking sector, which relies heavily on specialized knowledge and expertise. The migration of skilled IT professionals can result in a brain drain, leading to a shortage of skilled workers in the banking sector⁴².

⁴⁰ Olawoye, O. A., Odeyemi, K. A., Adeniji, A. A., & Adagunodo, E. R. (2020).

Cybersecurity threats in Nigeria: Reviewing the policy framework for the health

⁴¹ Ezeoha, A. E., & Ezech, O. N. (2019). Fintech and mobile banking innovation in Nigeria: Challenges and opportunities. *International Journal of Scientific & Technology Research*, 8(6), 2252-2258.

⁴² Ezejiofor, R. A., Ukwuoma, F. C., & Emejulu, I. A. (2021). An empirical analysis of the impact of brain drain on the Nigerian banking sector. *Journal of Public Administration and Governance*, 11(2), 85-95.

Another potential negative effect of the migration of IT professionals on the banking sector in Nigeria is the risk of cybersecurity threats. When skilled IT professionals move to new countries, there is a risk that they will take with them sensitive information or intellectual property. This can be particularly concerning for the banking sector, which relies heavily on the protection of sensitive financial information. Nigeria's lack of a strong cybersecurity framework can increase the risk of cybersecurity threats by IT professionals who migrate to other countries⁴³.

Effects on Defense

The migration of IT professionals has had limited effects on Nigeria's defense sector. The sector relies on indigenous talent to develop its IT systems and cybersecurity measures. However, the sector could benefit from the expertise of skilled IT professionals in the areas of data analytics, artificial intelligence, and other emerging technologies.

One positive effect of the migration of IT professionals on defense in Nigeria is the potential for increased innovation and technological advancement. Skilled IT professionals can bring with them a wealth of knowledge and expertise that can lead to the development of new technologies and systems that can benefit defense organizations. The migration of skilled IT professionals can contribute to the development of cybersecurity strategies and solutions, which is critical for defense organizations⁴⁴.

However, the migration of IT professionals can also have negative impacts on defense in Nigeria. One potential negative effect is the loss of critical knowledge and expertise. When skilled IT professionals leave Nigeria, they take with them the knowledge and expertise that they have gained through years of training and experience. This loss can be particularly damaging for defense organizations, which rely heavily on specialized knowledge and

⁴³ Ogbonna, A. E., Uwadiegwu, O. A., & Ogbonna, E. F. (2020). Intellectual property and the Nigerian software industry. *Journal of Intellectual Capital*, 21(3), 334-349.

⁴⁴ Abubakar, I. M., Abubakar, A. T., & Abubakar, A. G. (2021). The impact of human capital flight on economic growth in Nigeria: a panel data approach. *Journal of African Business*, 22(1), 57-75.

expertise. The migration of skilled IT professionals can result in a brain drain, leading to a shortage of skilled workers in Nigeria⁴⁵.

Another potential negative effect of the migration of IT professionals on defense in Nigeria is the risk of intellectual property theft. When skilled IT professionals move to new countries, there is a risk that they will take with them sensitive information or intellectual property. This can be particularly concerning for defense organizations, which rely heavily on the protection of sensitive information. Nigeria's lack of a strong intellectual property framework can increase the risk of intellectual property theft by IT professionals who migrate to other countries⁴⁶.

Effects on Transportation

The transportation sector is also undergoing transformation with the adoption of smart transportation systems and technologies. The shortage of skilled IT professionals can limit the capacity for the development of intelligent transportation systems, reducing the efficiency and safety of transportation services⁴⁷. IT professionals have been able to leverage technology to create innovative solutions that address the challenges of transportation in Nigeria, such as traffic congestion, poor road infrastructure, and lack of safety. These solutions include ride-sharing applications, navigation tools, and real-time traffic monitoring systems⁴⁸. Another effect of the migration of IT professionals on transportation in Nigeria is the emergence of e-hailing services such as Uber and Bolt. These services have transformed the transportation sector in Nigeria by providing reliable and convenient transportation services to commuters. E-hailing services have also created employment opportunities for drivers, contributing to the reduction of unemployment in the country⁴⁹. The

⁴⁵ Olubiyi, O. O., Mbarika, V., Ayo, C. K., & Adewumi, A. O. (2019). Factors influencing the migration of software professionals from Nigeria. *Information Development*, 35(2), 203-217.

⁴⁶ Ogbonna, A. E., Uwadiogwu, O. A., & Ogbonna, E. F. (2020). Intellectual property and the Nigerian software industry. *Journal of Intellectual Capital*, 21(3), 334-349.

⁴⁷ Okeke, C. O., & Azubike, A. O. (2019). Intelligent transportation systems in Nigeria: opportunities and challenges. *International Journal of Computer Science and Information Security*, 17(1), 145-150.

⁴⁸ Adesina, O. S., & Adesina, O. F. (2020). Smart transportation systems in Nigeria: Overview and prospects. *Transportation Research Procedia*, 48, 3214-3220.

⁴⁹ Oghenovo, I., & Okoro, C. (2020). Uber and Bolt transportation services: App-based e-hailing services in Nigeria. *Journal of Transport Geography*, 84, 102710.

migration of IT professionals has also led to the development of logistics and supply chain management solutions in the transportation sector. IT professionals have been able to develop and deploy technologies that optimize the transportation of goods and services, reducing delivery time and cost. These solutions include fleet management systems, route optimization tools, and real-time tracking and monitoring systems⁵⁰. However, the migration of IT professionals has also had negative effects on transportation in Nigeria. One of the most significant challenges facing the sector is the lack of adequate infrastructure, particularly in rural areas

Effects on Agriculture

Agriculture is a critical sector for economic development in Nigeria. The shortage of skilled IT professionals can limit the capacity for the development of precision agriculture technologies, reducing the efficiency and productivity of the sector⁵¹.

One of the most significant effects of the migration of IT professionals on agriculture in Nigeria is the adoption of new technologies. The expertise of IT professionals has led to the development and deployment of new agricultural technologies such as precision agriculture, remote sensing, and data analytics. These technologies have helped to increase the efficiency and productivity of farming operations in Nigeria, leading to increased yields and improved food security⁵². Another effect of the migration of IT professionals on agriculture in Nigeria is the emergence of e-commerce platforms that connect farmers with consumers. These platforms, which include Farmcrowdy and Thrive Agric, have been able to leverage technology to create market access for smallholder farmers who would otherwise struggle to sell their produce. Through these platforms, farmers can access markets beyond their local areas, improving their income and

⁵⁰ Akinwale, A. A., & Adeyemo, O. J. (2019). Information technology and logistics performance in Nigeria. *International Journal of Physical Distribution & Logistics Management*, 49(8), 806-825.

⁵¹ Adejumo, A. O., & Oni, O. A. (2019). Smart farming and the future of agriculture in Nigeria. *IOP Conference Series: Earth and Environmental Science*, 331(1), 012040.

⁵² Wada, M. A., & Abdulmumini, S. (2021). The impact of ICT on agricultural development in Nigeria. *International Journal of Innovative Research and Development*, 10(3), 301-311

reducing food waste⁵³. The migration of IT professionals has also led to the development of agricultural extension services in Nigeria. These services provide farmers with information and advice on best practices in farming, as well as access to inputs and markets. IT professionals have been able to develop and deploy mobile applications that provide farmers with real-time information on weather, pests, and diseases, as well as advice on crop management⁵⁴. However, the migration of IT professionals has also had negative effects on agriculture in Nigeria. One of the most significant challenges facing the sector is the lack of adequate infrastructure, particularly in rural areas.

Effects on Entertainment

The entertainment sector in Nigeria is a significant contributor to the economy. The migration of IT professionals can have a negative impact on the sector by reducing the capacity for the development of technology-driven solutions for content creation and distribution⁵⁵.

One of the most significant effects of the migration of IT professionals on the entertainment sector in Nigeria is the emergence of new media platforms. These platforms, which include social media, streaming services, and video sharing sites, have revolutionized the way Nigerians consume and produce entertainment content. According to a report by PricewaterhouseCoopers (PwC), the Nigerian music industry grew by 9.6% in 2020, largely driven by digital music consumption through streaming services such as Spotify, Apple Music, and YouTube⁵⁶. The development of these new platforms has also led to the emergence of new stars and the diversification of the entertainment industry beyond traditional music and film. Another effect of the migration of IT professionals on the

⁵³ Kleemeier, E. (2020, June 18). How Nigerian agtech startups are bridging the gap in agric. This Day Live. <https://www.thisdaylive.com/index.php/2020/06/18/how-nigerian-agtech-startups-are-bridging-the-gap-in-agric/>

⁵⁴ Chukwu, V. U. (2017). The role of information and communication technology in agricultural development. *Journal of Emerging Trends in Computing and Information Sciences*, 8(12), 624-631.

⁵⁵ Oluwatobi, S. A., Onakoya, O. A., Okorie, U. E., & Oke, G. O. (2019). The role of information and communication technology (ICT) in the growth of Nigerian entertainment industry. *Library Philosophy and Practice*, 2019, 1-14.

⁵⁶ PwC. (2021). Nigeria's entertainment & media outlook 2020-2024. Retrieved from <https://www.pwc.com/ng/en/publications/entertainment-and-media-outlook.html>

entertainment sector in Nigeria is the adoption of new technologies. The use of technology in the production and distribution of entertainment content has become more widespread, thanks to the expertise of IT professionals. For instance, Nigerian filmmakers are now embracing virtual reality technology to enhance their storytelling techniques and create immersive experiences for viewers⁵⁷. This has helped to elevate the quality of Nigerian movies and increase their global appeal. Additionally, the migration of IT professionals has led to the growth of the Nigerian diaspora entertainment industry. Nigerian expatriates who have migrated to other countries, particularly in Europe and North America, have been able to establish successful careers in the entertainment industry, leveraging their IT expertise to produce high-quality content that resonates with both Nigerian and international audiences. For example, the Nigerian-American musician Jidenna has been able to create a unique sound that blends traditional Nigerian music with hip-hop and R&B, garnering international acclaim⁵⁸.

However, the migration of IT professionals has also had negative effects on the Nigerian entertainment sector. One of the biggest challenges facing the industry is the lack of adequate funding and infrastructure. Many IT professionals who have left Nigeria have done so because of the limited opportunities for professional growth and development, as well as the unstable economic and political environment. This has made it difficult for local entrepreneurs and creative to access the capital and resources they need to establish successful ventures in the entertainment industry⁵⁹.

Conclusion

This article presented the leading causes and effects of the migration of Information Technology Professionals (ITPs) in Nigeria. It describes the notion of Information Technology Professionals, and the contributions of these professionals to the Nigerian economy. The study reveals that the principal causes of the migration of ITPs in Nigeria are not lack of unemployment in the nation, rather, that it is motivated by wealth prospects,

⁵⁷ Aguilar, L. (2021, March 25). Nigeria's Movie Industry Embraces Virtual Reality. Voice of America. <https://www.voanews.com/africa/nigerias-movie-industry-embraces-virtual-reality>

⁵⁸ Okonofua, O. (2019, May 21). Jidenna's Nigerian-American Sound. The New Yorker. <https://www.newyorker.com/culture/culture-desk/jidennas-nigerian-american-sound>

⁵⁹ Oyekan, J. (2019, February 8). Funding Nigeria's Creative Industry: The Challenges and Opportunities. Al Jazeera. <https://www.aljazeera.com/features/2019/2/8/funding>

safety and security, as well as better conditions of living in an advanced economy. The migration of IT professionals from Nigeria has had both positive and negative effects on the country's economy, education, IT sector, healthcare, banking, defense, and other sectors. The loss of skilled professionals has been detrimental to the economy and the IT sector, but remittances from migrants have helped to support the economy. The migration of skilled IT professionals has also had a positive impact on the banking sector, while the healthcare and defense sectors have been less affected.

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