



Nigerian Brain Exports:

The Optimal Path to Growing
the Nigerian Economy



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Chapter Outline



- 01 Introduction: Nigeria's Development Path and PwC's position on the way forward
- 02 The Current Nigerian Situation
- 03 Historic Analysis of Nigerian Export: Crude Oil vs Brain Capital
- 04 Brain Capital and the Economy: Global and Nigerian Perspectives
- 05 Brain Export Case Studies: India and Kenya
- 06 Brain Exports As A Tool for Spreading Regional Prosperity
- 07 The Conclusion



1

Introduction: Nigeria's Development Path and PwC's position on the way forward





What is Nigeria's best development path towards prosperity given its unique circumstances and position in the world today? How can Nigeria achieve global superpower status in about 10-20 years? These are the guiding thoughts behind this paper. We recommend placing Nigerians in high-end Global Value Chains (GVCs). This position became apparent after significantly evaluating relevant trends impacting today's global business landscape.



The path to development

Development as a concept has evolved. It once connoted industrialisation but recently has become a metric for assessing a people's quality of life, measured by factors such as access to wealth and opportunities for individual or national growth. As a result, development remains the goal of every forward-looking nation, even those that have achieved industrialisation. The traditional path of development is to transition from agricultural production to low-value manufacturing before engaging in higher value-added manufacturing. Unsurprisingly, there are suggestions that Nigeria follows this path to climb the proverbial economic ladder.

In the last few decades, this traditional approach to development has led countries including Taiwan, South Korea, and the People's Republic of China down the path of growing manufacturing capabilities, leveraging relatively cheap labour amongst other comparative advantages. It took South Korea 54 years (1953 - 2006) to attain a GDP per capita of USD21,700 with a population of 48 million people; while Taiwan took 59 years (1952 - 2011) to have a GDP per capita of USD20,100 with a population of 23 million people. Even China, now considered a world power, is still developing, 44 years after its long history of internal

fragmentation and internationally detrimental treaties, with a GDP per capita of USD10,400 as of 2020 for a population of 1.41 billion people. The results of following the traditional development path for these three Asian countries have been quite clear and remarkable. However, the time it took, or is still taking in the case of China, is important to note.

Nigeria is a country that possesses vast resources. However, this wealth has not translated to the country's economic development. Rather, the Nigerian economy faces rising poverty, volatile commodity prices and import dependency. To combat these problems, the African Development Bank (AfDB) suggested that Nigeria increase its industrial manufacturing level.

The Federal Government has attempted development via this traditional path. In 2014, the government launched the Nigerian Industrial Revolution Plan (NIRP) to transform Nigeria into the preferred manufacturing hub of Africa. The opening paragraph of the NIRP states, "Industry multiplies National Wealth," this reflects both the aim of the NIRP and the traditional ideology of developing step by step from agriculture to low-value manufacturing before finally moving into higher value-added manufacturing.



The lessons from the Asians are a valid reference for Nigeria’s success. But if Nigeria continues to pursue development along the traditional path, the process may last several decades. Nigeria is in its longest consecutive civilian rule (22 years) since its independence in 1960. Several civilian governments have attempted to develop the country for over two decades, but Nigeria’s GDP per capita has only increased 3.7x from USD568 in 2000 to USD2,097 in 2020.

We believe that the traditional strategy for development is not the most efficient path to improve the quality of life for Nigerians, it takes too long to deliver the expected benefits and Nigeria has not been successful in following the traditional path of development. Given the times we live in, with advancements in research with technology and ways of working there is a new optimal development path, one that is strengthened by changing circumstances and Nigeria’s unique assets and attributes. A path where Nigeria exports Brain Capital into higher value-added global services markets.

Nigeria’s Brain Capital Advantage

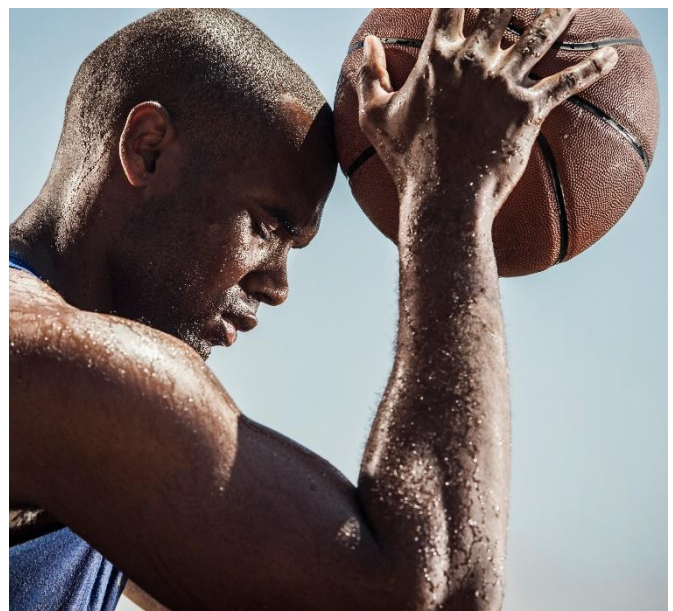
The OECD describes Brain Capital as a measure of brain health and brain skills encompassing emotional, behavioural and cognitive health across an individual’s lifespan. that enables their productivity. In an increasingly digitised and global economy, brain capital is crucial seeing as brain skills such as creativity, intelligence, systems thinking and more are leading to innovation - a measurable and crucial ‘deliverable’ of worker productivity today.

Nigeria has a significant Brain Capital advantage with a large youthful population of an average age of 19 years. Considering the ageing population in countries such as Germany, Japan, Italy and the United States, it is estimated that the worldwide working-age population will see a 10% decline by 2060. Japan in particular tops this list with 28% of its population above 65 and Italy comes second with 23%. In contrast, only 2.7% of the Nigerian population is above 65 which means Nigeria is strategically positioned to supply labour to the global market, a strong comparative advantage.

Global Service Delivery by Nigerians has Already Started

Nigeria has shown, across several service sectors, including entertainment and sports, that it has talent that can compete and win opportunities in the global market. Earnings of Nigerians who have tapped into GVCs significantly outclass their counterparts who may be considered equally capable but who operate only in the Nigerian market. Theophilus Afelokhai is currently the highest-earning player in the Nigerian Premier League (NPL) in 2022 and now plays for Rivers United, earning ~USD35,000 annually. Odion Ighalo, on the other hand, is a Nigerian professional footballer who started his career in the NPL and currently plays as a striker for Saudi club Al Hilal where he earns ~USD8.16 Mn annually. Kelechi Iheanacho, another Nigerian professional footballer who started his career in Nigeria, currently plays for Leicester City in the English Premier League (EPL) and earns ~USD5.76 Mn annually. These earnings when compared to the earnings of Nigeria’s highest paid local players would be more than 150x, reflecting a significant gap though with tremendous potential for Nigerians to tap into the global value chain. This disparity can further be seen in other sports, for winning the 100 meter hurdle and breaking the world record at the 2022 World Championship, Tobi Amusan earned USD170,000, which is ~5x of

Theophilus’ annual earnings. Giannis Antetokounmpo, who plays for the Milwaukee Bucks is one of the highest paid players in the NBA, with a yearly salary of ~USD42.49 Mn and a 5 year contract worth more than USD228 Mn. These are staggering economic differences between athletes participating in the GVC and those confined to just the Nigerian market.





The music industry paints an equally vivid picture of the opportunity that is Nigeria’s way forward. Unlike football, where the Nigerian ecosystem loses talent, music produced in Nigeria can be consumed anywhere in the world while the artists remain in the country. “Essence”, a collaboration between Wizkid, a top Nigerian music export, and Tems, another Nigerian artist, maintained the #1 spot for at least 12 weeks on the Billboard World Digital Song Sales Chart. It was also the first African song to enter the top 10 on the Billboard Top 100. Wizkid and other top Nigerian artists like Burna Boy and Davido earn as much as USD200,000 per show. For context, Chris Brown, a renowned American artist who has been officially active in the global music scene since 2005, earns

USD300,000 for an appearance, only 1.5x what top Nigerian artists who have tapped into the global music value chain now earn.

Wizkid’s “Made in Lagos” album generated a total of ~USD13.4 Mn with over 1.36 billion streams across YouTube, Apple Music, Spotify, AudioMack and Boomplay as of the end of 2021. Looking at Spotify’s Top 20 Tracks of 2021 for Nigeria, we see that the tracks are all by Nigerian artists (which may not have been the case in the early 2000s). At least 45% of these individuals are signed to international record labels in addition to a local record label, i.e. 45% of the artists have tapped into the music GVC. Nigerians have the capability to serve global markets, and Nigeria can benefit immensely from this service.

Nigerian Export of super valued music and sports



Theophilus Afelokhai
Highest earning player in Nigerian Premier League.

Earns USD35,000



Odion Ighalo
Nigerian professional footballer who started his career in the NPL and plays for Al Hilal.

Earns USD8.16Mn



Kelechi Iheanacho
Nigerian footballer playing for Leicester City in English Premier League (EPL).

Earns USD5.76MN




Tobi Amusan
Broke the world record at the 2022 100 meter hurdle World Championship

Prize money earned USD170,000




Giannis Antetokounmpo
Plays for Milwaukee Bucks and is one of the highest paid players in the NBA.

Earns USD42,49Mn




“Essence”
A collaboration between Wizkid and Tems, maintained the #1 spot for at least 12 weeks on the billboard world digital song sales chart.



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Global Value Chains (GVCs)

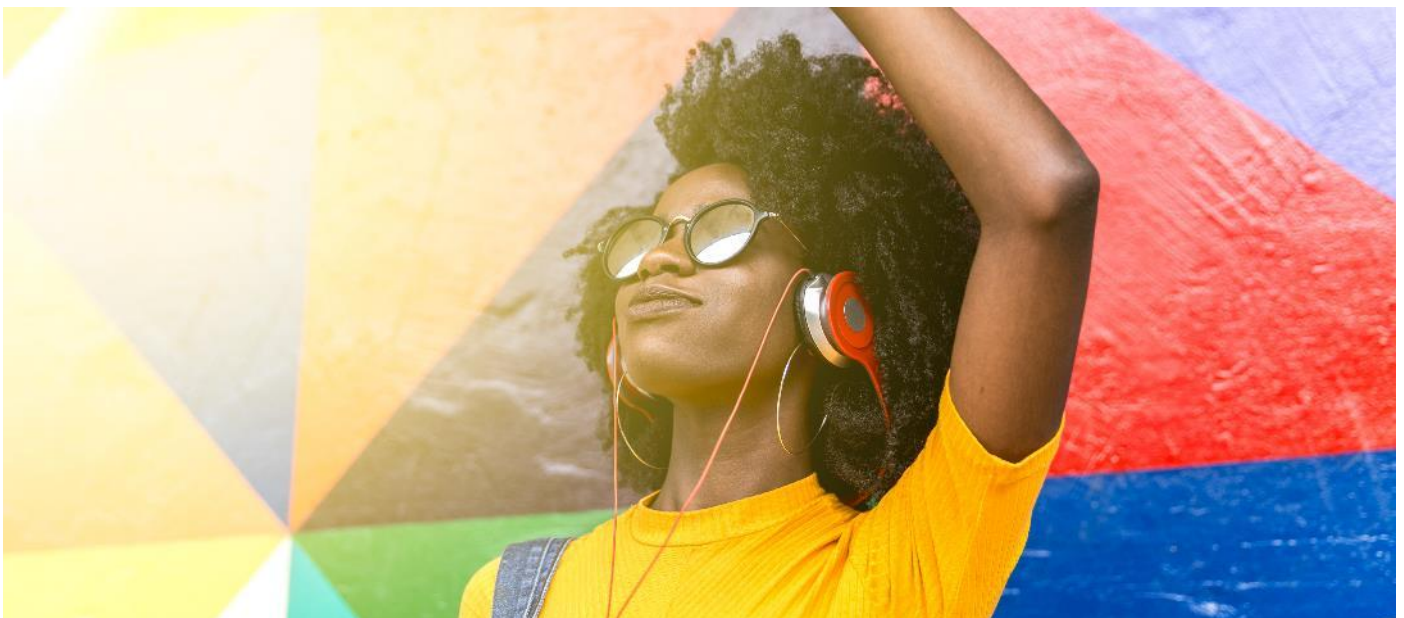
In the past, entering into the global value chain would require getting the right education, migrating and joining the diaspora. Today, the cost associated with this entering has reduced as barriers to entry including acquiring education have been lowered. In addition, the remote work culture accelerated by the global Covid-19 lockdown has also supported the growth and ease of entry into GVCs. Declining data costs, ubiquitous e-learning platforms and a global increase in Business Process Outsourcing (BPO) are factors leading to lowered costs. In economic terms, the cost of exporting high value-added services have shifted significantly in favour of Nigeria's integration into GVCs. Nigeria must now respond by moving from exporting the lowest value-add product (crude oil) to Brain Exports: exporting Nigerian Brain Capital and receiving foreign cash flow along with other value-adding benefits critical for economic development.

According to ScienceDirect, GVCs refer to international production sharing, a phenomenon which breaks production into activities and tasks in different countries. It is the full range of activities (design, distribution, marketing, production, and support to the final customers, etc.) that are divided among multiple firms and workers across geographies to bring products from the concept stage to their end use and beyond. GVCs are the physical representation of globalisation, which is fundamentally about the flow of materials, goods, information, knowledge, finance, and people.

In Nigeria (Q4, 2021), services constituted about 55%

of Real GDP, with trade (16%), information & communication (12%), real estate (6%), professional, scientific & technical services (4%), and financial & insurance services (3%) making the largest contributions. The Arts, Entertainment and Recreation sector (including sports), together with the Motion Pictures, Sound recording and Music production sector contributed 1.1% to Nigeria's Real GDP (Q4, 2021) with the music production growing ~5% (Q4, 2021), in nominal terms.

The demand of the global high value services job market provides Nigerians with substantial opportunities, particularly in the ICT and software development spaces. For instance, there were 26.8 million active software developers worldwide in 2021 according to Future Processing and the projected number by 2030 is 45 million (a 68% increase). This means the addition of 18.2 million new jobs in just 10 years. Nigeria can work towards capturing 2 million of these jobs (12% of the total) through GVC insertions. PwC Nigeria thinks this should be a national objective of high priority particularly when you consider the potential impact on FX inflow into the country. For instance, a junior software developer earns between USD27,500 and USD132,000 per year according to ZipRecruiters,. Assuming each of the 2 million Nigerians working remotely from Nigerian can earn a conservative USD 20,000 yearly income this would amount to USD40 Bn a year for the country in FX remittances, a sum that could solve Nigeria's balance of payment problem.



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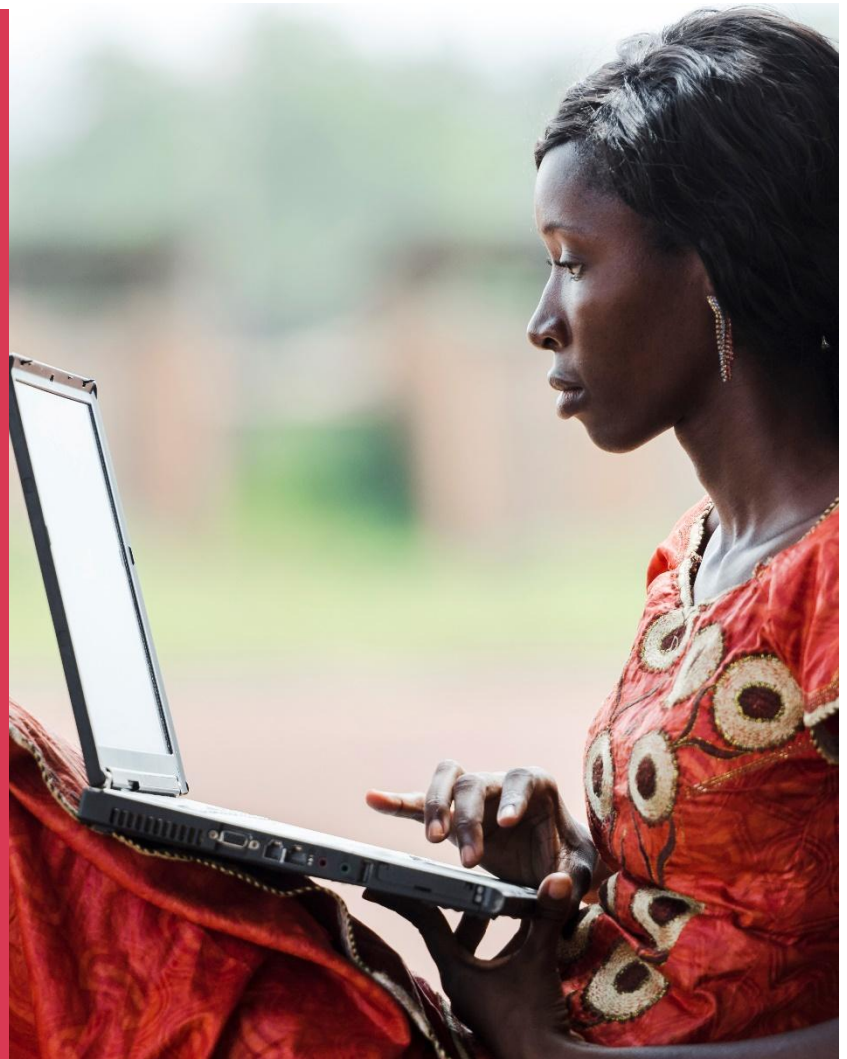
The Current Nigerian Situation





Nigeria has great potential as a nation for exporting Brain Capital. However, to achieve this, the country must focus on integrating its vast Brain Capital base into GVCs to deliver high value-added services and earn foreign exchange.

The export of high-value added services is already happening, as we have seen in high skill areas like music and football and it is growing fast. It is also happening with both local companies (like Outsource Global, Rovedana and Lonadek) and global companies setting up in Nigeria (like Microsoft-Tek Experts and iSON Xperiences). The trend is equally growing at an individual level, as increasingly we see lone Nigerians, in Nigeria, hired to work for international firms at global or close to global incomes. These lone Brain Exports have not needed government intervention and this is one strong reason the high-end service value chain proposal is likely to be very effective. There are a select number of achievable things that the government needs to focus on.



Looking Beyond Oil

PwC has previously written papers on the need for Nigeria to explore opportunities for economic growth beyond the oil sector. *Looking Beyond Oil* is a report published in 2016 that explores the drawbacks of Nigeria's overdependence on crude oil, a single, finite natural resource with a volatile price and negative environmental impact. Diversifying from crude exports is essential to unlocking sustainable economic value in Nigeria.

The most pressing reason for diversification is that Nigeria's oil production per capita is insufficient to launch its citizens into prosperity. The 2020 average daily production value of 1.8 million barrels of crude oil means the country averages ~3.3 barrels per Nigerian per year before equity cuts (Nigeria does not own 100% of its oil ventures). The delayed reform of Nigeria's Petroleum Industry, as seen in the Petroleum Industry Bill (PIB), has also prevented massive amounts of investment which could have unlocked significant value.

The general decline in oil prices is also unfavourable. The supply of crude oil in the global market rose by 200,000 barrels per day (6.09%) from mid-2014 to 2019. There was also a significant drop in price by ~35% from ~US\$99 per barrel within the same time frame (important to note that the increase in supply was not necessarily the cause of the price decline). Oil prices recently reached ~\$100 per barrel in early March 2022 after Russia's invasion of Ukraine began, but the price has remained volatile and as oil production costs are typically fixed and do not vary with the volatility in price, this means that the net realisable value of crude oil for Nigeria declines when the price of crude drops.

Also, with a decline in daily production of oil (daily crude oil production has decreased to ~1 million barrels per day) and an increasing population, oil per capita is rapidly dwindling. In addition, oil does not solve the employment problem of the country as the oil and gas sector accounts for less than 1% of total



employment in Nigeria. This coupled with the impact of oil on climate and growth of green energy, paints a very clear picture suggesting that the future of Nigeria is one far removed from the dependence on crude.



The Contenders

Our 2016 paper on *Looking Beyond Oil* considered the hydrocarbon sector (outside of just crude oil exports) as one with the potential to help grow the Nigerian economy. Nigeria is the largest market in Africa and a major crude oil and gas producer. This advantage puts the country in a unique position to invest across the downstream oil sector to develop petrochemicals, fertilisers, methanol and gas refining capacities relevant to industrial and consumer products which Nigeria currently imports. Although a number of plants are being planned or are under construction, notably the Dangote Refinery and Fertiliser plant, the largest plant in Nigeria currently is Indorama Eleme, with an annual installed capacity of 630,000 metric tonnes, according to the NIRP. This is less than 1% of Saudi Basic Industries Corporation’s (SBIC’s) capacity which contributes 10% to Saudi Arabia’s total exports and 62% to non-oil exports. The Russian-Ukrainian war has also opened up opportunities for Nigerian gas as European member states and entities who could not invest in gas-related projects abroad can now do so due to efforts to diversify away from Russian gas.

The hydrocarbon sector can contribute significantly to economic growth but significant investment is required per venture, USD19 Bn in the case of the Dangote establishment. The time to completion for major projects such as are required for a refining plant are also prone to uncertainty, in the case of the Dangote project, the plan was unveiled in 2013, the project commenced in 2016, and completion was scheduled for late 2018 but as at June 2022, more than three years past the expected delivery date, the project is yet to be completed. Finally, single large projects carry substantial risk, as does the Dangote refinery, whose products face the headwinds of increased focus on achieving carbon neutrality.

The 2016 paper on *Looking Beyond Oil* also considered the agricultural sector’s potential to diversify the

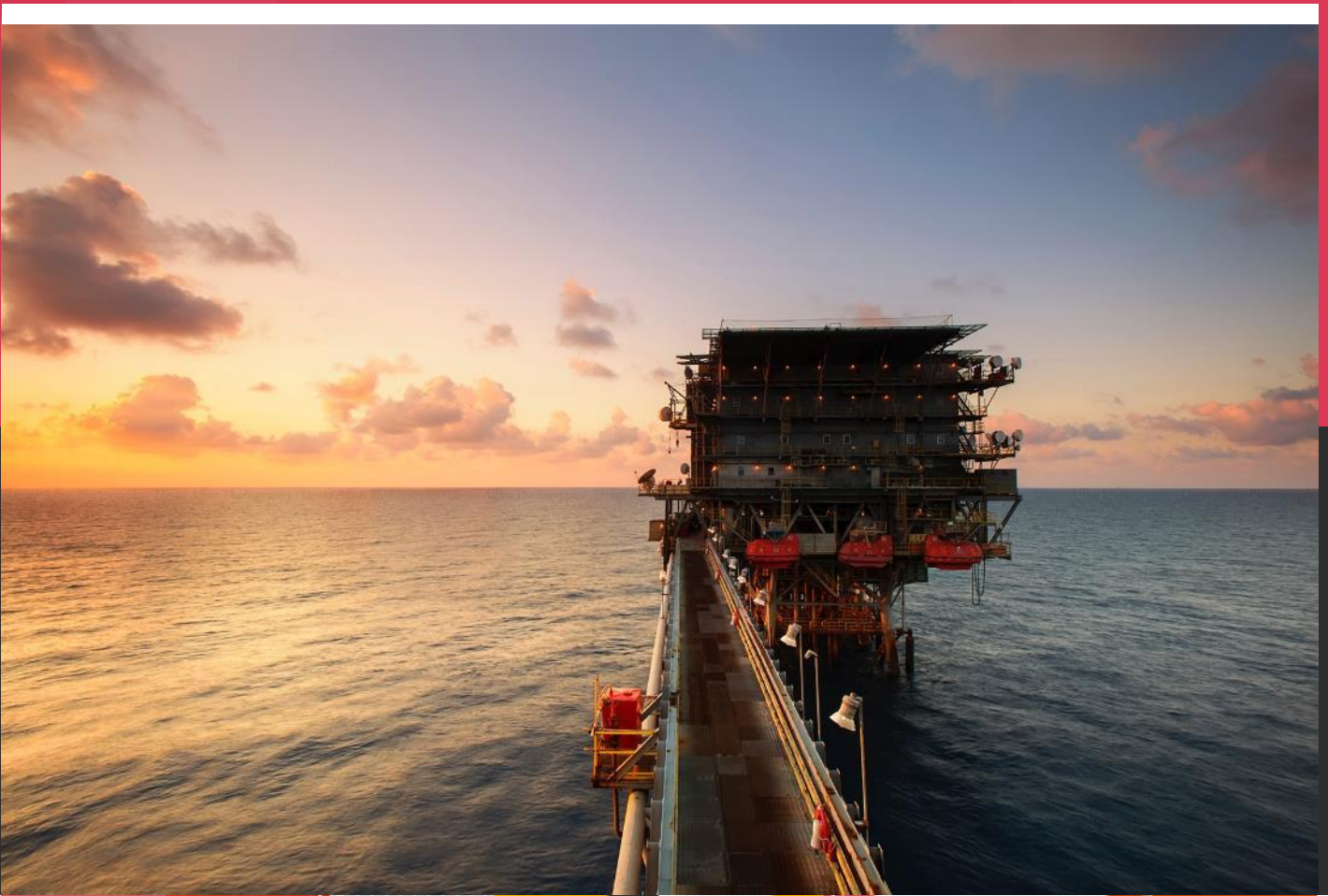
economy. Nigeria started post-independence as a leader in agricultural exports. However, by the mid-1980s, these exports collapsed as the country shifted to crude oil exploitation. By the 1990s, Nigeria’s share in world exports of Agriculture had declined to less than 0.1%. Besides being a core source of revenue for Nigeria, agriculture also provided abundant employment opportunities. Some reforms such as the Agriculture Transformation Agenda which implemented a set of initiatives in 2011 to improve competitiveness in the agriculture sector and reduce reliance on imports have helped boost agricultural exports. At PwC we estimate that Nigeria’s agriculture exports could reach USD59 Bn (2014: USD8 Bn) in 2030 if current reforms are sustained, implying a growth of 9.6% per year.

These efforts will require raising yields through greater use of fertiliser, seeds and mechanised tools and increasing the amount of land under cultivation. Achieving this will be no mean feat. Especially as Agriculture in Nigeria is predominantly practised by many small-scale subsistence farmers, according to the Food and Agriculture Organisation of the United Nations, who are not sufficiently trained or equipped to operate optimally and who likely cannot afford the cost of implementing improved practices. Finally, agriculture is highly susceptible to climate change, pests and diseases and as the upsurge in locust in the horn of East Africa has shown, these threats can be a significant reality. A single square kilometre swarm of locusts can and has been consuming as much food in a day as 35,000 people across Kenya, Ethiopia and Somalia.

While these contending sectors may have their long term place in the Nigerian economy the length of time needed to actualize their impact on the economy is significant. There is a serious need for the nation to tap into low hanging fruits such as Brain Capital investments to reach our objective of exponential economic growth.

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Historic Analysis of Nigerian Export: Crude Oil vs Brain Capital





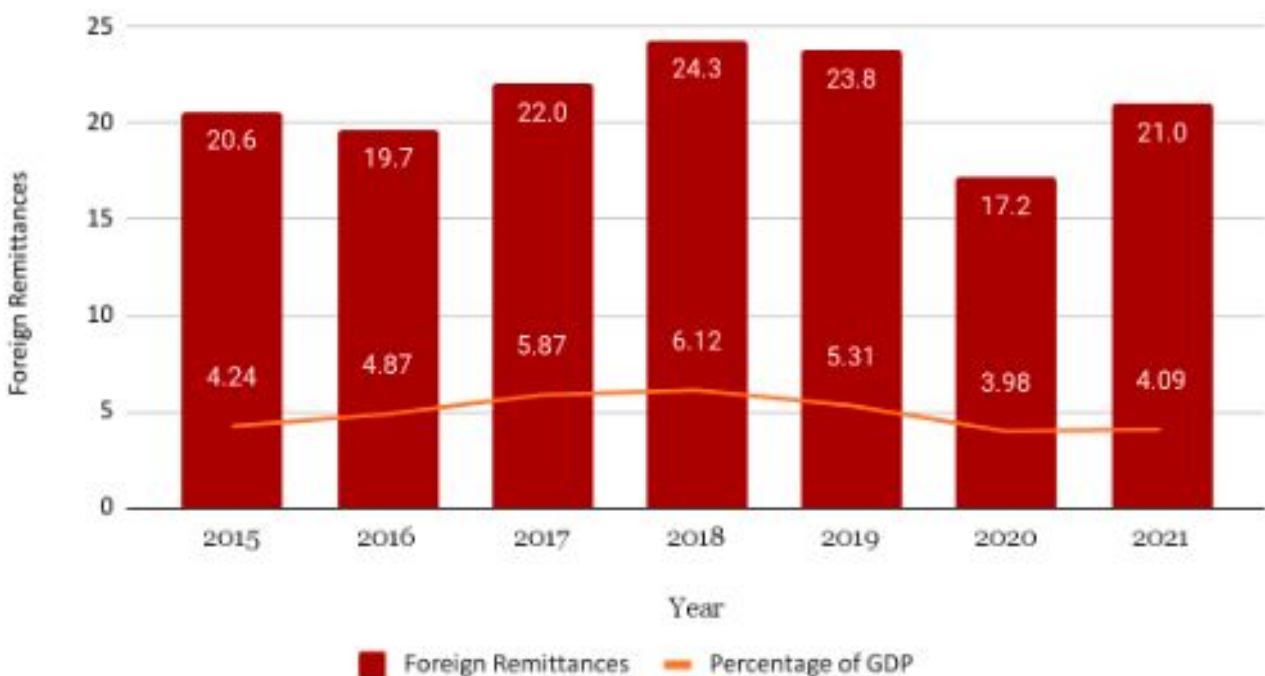
Strength from abroad: The economic power of Nigeria's diaspora is another previous paper, published in 2019, that supports our position and gives a strong sense of the value of our proposition for Nigeria. In that paper, we look closely at the volume and value of remittance flows into Nigeria and the positive impact on the country's economy. In this paper, we argue that Nigeria is already harnessing the potential of Brain Capital through foreign remittances.

According to the IMF, remittances represent household income from foreign economies arising mainly from people's temporary or permanent movement to those economies. Remittances include cash and non-cash items that flow through formal channels such as electronic wire, or through informal channels, such as money or goods carried across borders.

On the other hand, Nigeria and its sweet crude with low corrosive effects on refinery infrastructure have become known and highly demanded in the global oil value chain. Nigeria is currently Africa's largest oil producer and the 11th largest globally with 18 pipelines in operation. From 2015 to 2019, Nigeria earned ~USD206 Bn in gross oil revenue accounting for 7.32% of GDP on average during this period. Nigeria's largest customers, India and Spain, received 20% and 11% of its crude oil exports in 2019. The Dangote refinery, with a capacity of 650,000 barrels per day, equivalent to 36% of Nigeria's 2020 production volume, can become the country's single largest crude consumer. Oil revenues have been a significant source of cash flow and foreign exchange for Nigeria. Still, looking forward, even with the Dangote refinery, revenues generated from crude oil sales and potential savings from the cancellation of the petrol subsidy program are unlikely to drive the growth that Nigeria truly needs.



Foreign Remittances in Billion USD



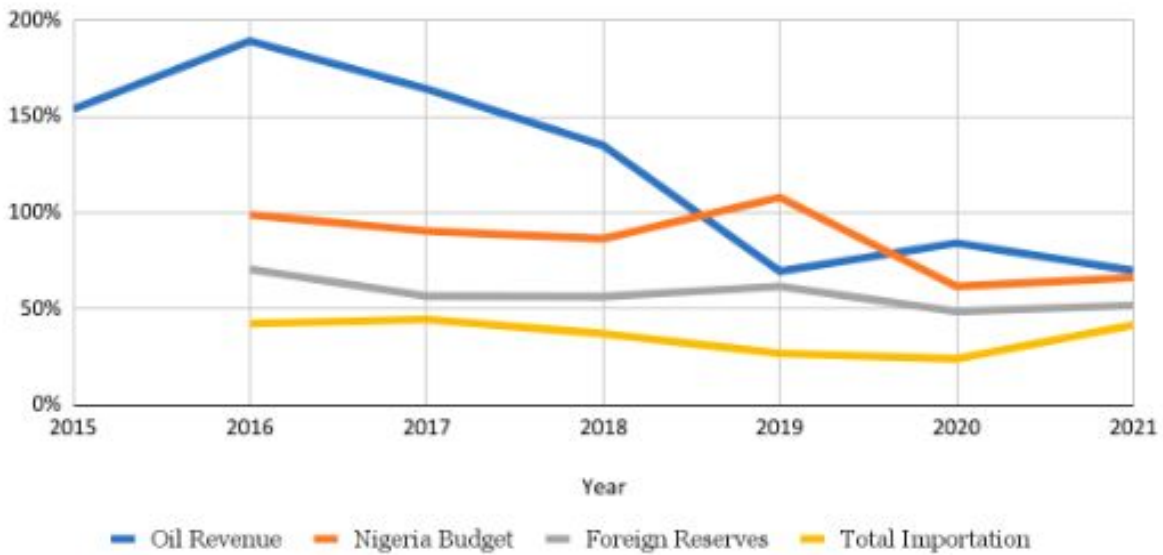
Sources: Worldbank, Agosto Analysis by PwC



The graph above shows the value of remittances' net cash flows. Given that remitters have already paid their taxes and other living expenses in the country where they reside, 100% of the remittances goes to the recipient .

The year 2021 recorded a remittance inflow of USD21 Bn, a 3.79% increase immediately on the amount received in 2020 when the pandemic shut down global economies. Remittances also grew faster from 2020 to 2021 when compared to GDP; remittances were 4.09% of GDP in 2021 and 3.98% of GDP in 2020.

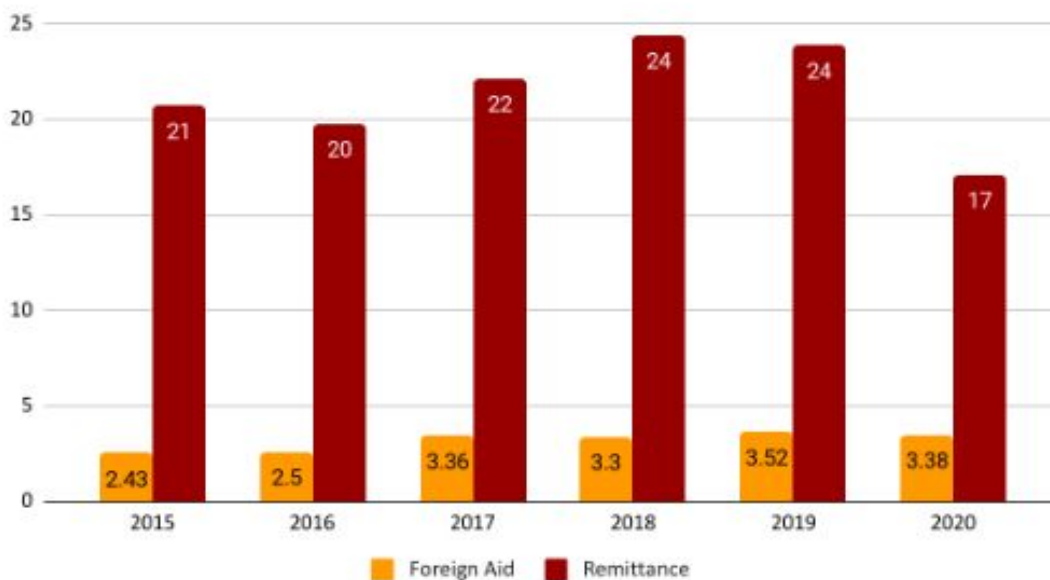
Foreign Remittance Expressed as a Percentage of Selected Nigerian Metrics



Nairametrics, Budget Office of the Federation, Punch, Dataphyte, Budget, The Cable Analysis by PwC

Despite the impact of Covid-19, official remittances remain significant compared to other major Nigerian cash flows (actual remittances may be even higher because of informal channels). For the year ended 2021, remittances were 42%, 52%, 66% and 70% of Nigeria's Total Importation, Foreign Reserves, Budget and Oil Revenue, respectively. Compared to Foreign Aid, remittances cover the financial support received by Nigeria 6.9 times on average in the six years to 2020.

Foreign Aid vs Remittance in Billion USD

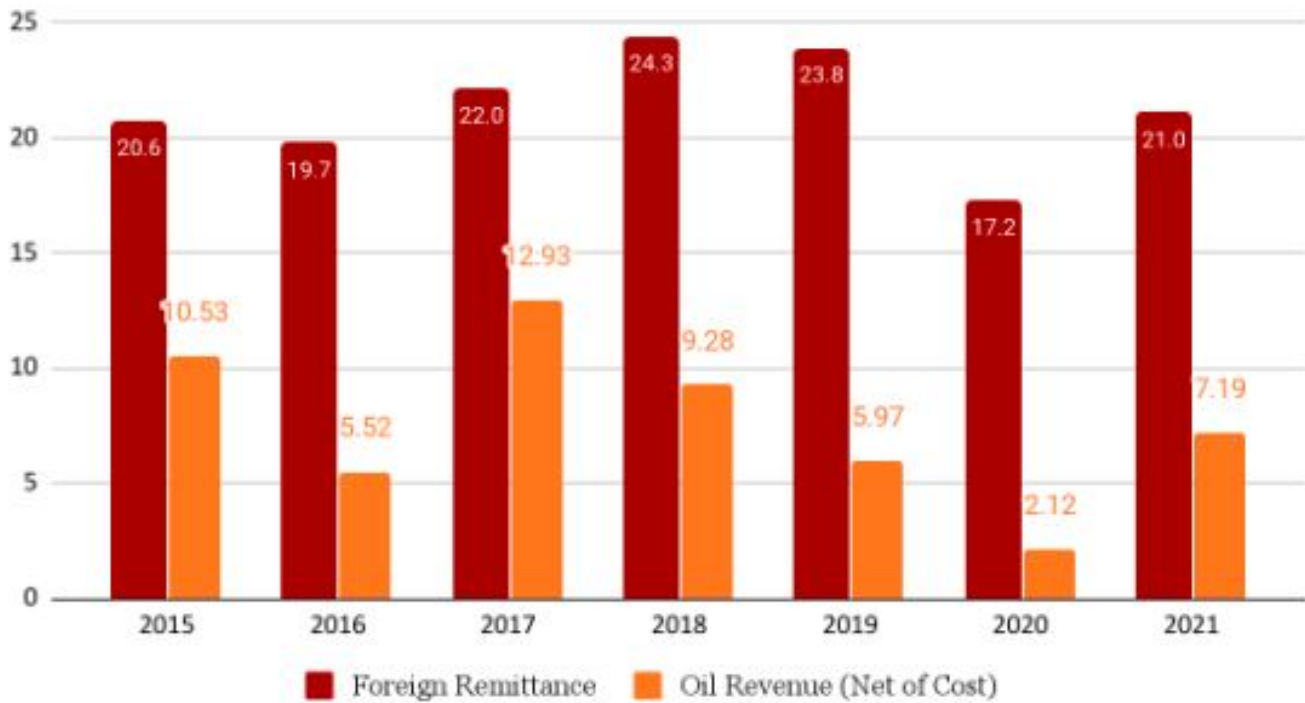


Sources: World Bank, Agosto & Co Analysis by PwC



When evaluating oil revenues, the costs are rarely a consideration. On average, it costs Nigeria USD31.60 to produce every barrel of crude oil. This is 1.5x, 3.2x and 3.7x what it costs Algeria, Saudi Arabia and Kuwait, respectively. When adjusted for costs (most of which never reach Nigeria as these are dollar costs for foreign equipment, maintenance and foreign workers), we see a clearer picture of the relationship between oil revenue and remittances, which have been more in absolute terms, than net crude oil flows in the 7 years to 2021. Remittances appear to be more resilient in the face of global economic changes, as seen from the trendlines in the chart below.

Foreign Remittance vs Oil Revenue in Billion USD



Source: Punch, Dataphyte, Worldbank Analysis by PwC

The Nigerian oil sector is also facing a significant problem of oil theft. Losses from theft amounted to USD2.77 Bn in 2019, according to the Nigerian Extractive Industries Transparency Initiative (NEITI). The government has raised concerns about the exit of International Oil Companies (IOCs) from the country due to the global push for net zero carbon emissions. The concern for Nigeria here is that new players who are likely to be less experienced than the IOCs will likely be less efficient at production and therefore have a higher average cost than the current USD31.60 per barrel.

When we look at the net oil performance side by side with remittances, we can see more clearly that Nigerian brains working in the diaspora contribute more to the economy than oil. In addition to the trends reshaping the global human capital value chain, Nigerians have shown they can consistently generate significant cash flow from foreign economies. Nigeria can continue to grow its FX cash flow by inserting more citizens into GVCs. In the past this would imply becoming members

of the diaspora, however the world has now changed making it much easier for the insertion of people into the GVC. Nigeria can continue to grow its Brain Capital exports and FX earnings without talent leaving the country.

Overall, while the Oil and Gas as well as other sectors may have their merits, the investment required and the gestation period to achieve the objective of exponential economic growth is significant. The Dangote refinery, for instance, is expected to employ between 40,000 and 57,000 workers meaning an average capita per factory worker of USD333,000 to USD475,000. In addition, the risks are real and may be difficult to avoid by diversifying. Investments in Brain Exports like Outsource Global and Microsoft Tek Experts, however, could be significantly less (a Call Centre worker's station costs between USD2,500 and USD10,000) and lead to more confidence around higher value capital investments for Nigeria in the future. The distributed nature of opportunities arising from Brain Exports ensures that the risk associated with investments in



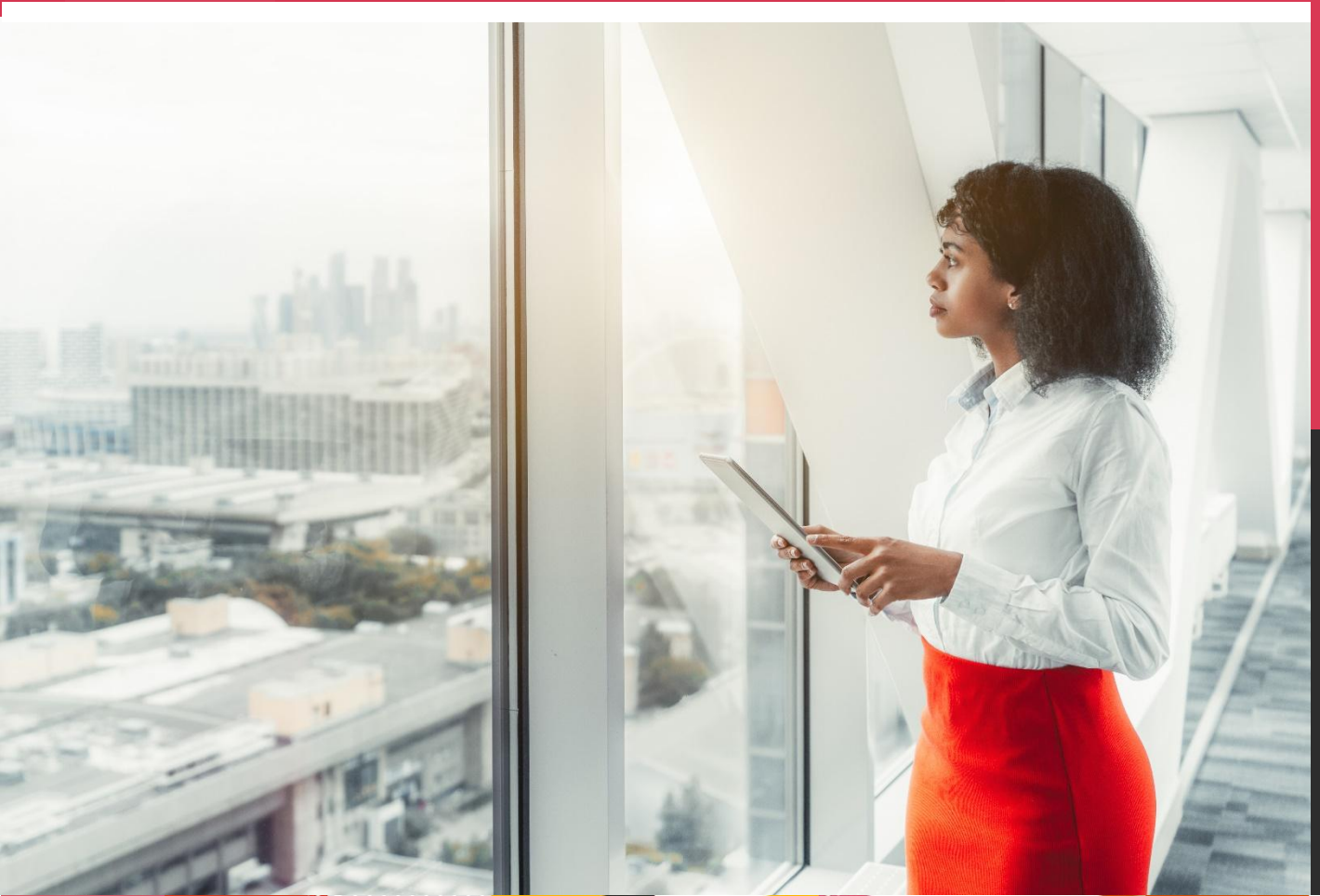
mega projects are mitigated against as these opportunities are modular and scaled once targets are met.

Nigeria has not historically been a favourite destination for large, long-term capital investments. So investors are less likely to be willing to put down USD300,000 per employee but these same investors may be willing to bet the USD10,000 per employee needed to kick-off Brain Exports operations.



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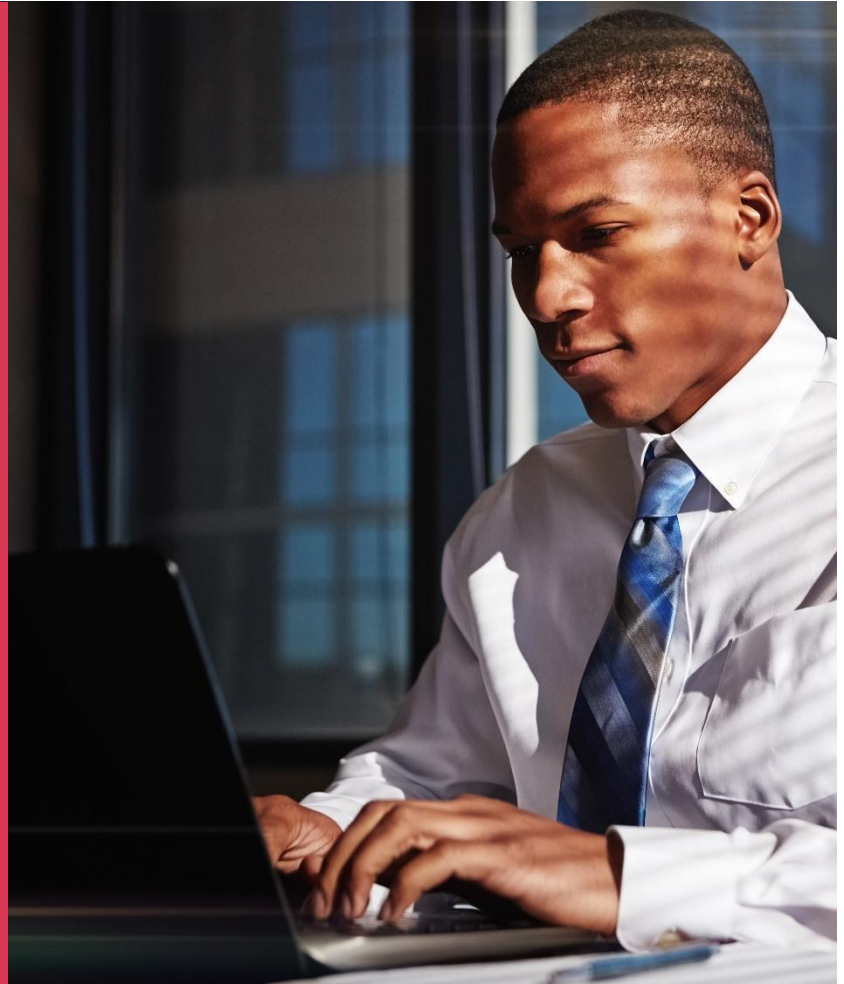
Brain Capital and the Economy: Global and Nigerian Perspectives





Decades ago, all services needed to run the operations of a business smoothly would typically have to be co-located or have infrastructure that could facilitate the communications necessary for its operations. Today, this is not the case.

Take the Japanese animation (anime) industry as an example. A 13-episode anime production costs about USD2 Mn, and the average pay for animators in Japan is ~USD13,400 a year. For context, an anime episode lasts between 20-30 minutes and ~1500 sketches are required for just a three minute video. In the past, production roles were filled in-country and in cases where “foreign” experts were needed, they would have to be flown in. Technological advancements have created opportunities for outsourcing to countries with relatively lower labour costs than Japan, like Indonesia (which saves as much as 44% on animator pay), reducing the total cost of production and improving profitability.



Scaling Nigeria to the World

We have shown the potential benefits of exporting brains from Nigeria, however, the question that lingers is: can we scale it to the point where it has an impact on Nigeria’s prosperity?

Nigeria already has a large diaspora, and the wealth of young talent in Nigeria are strong assets that give the country an edge. Nigeria’s target markets will primarily be Europe and North America.

Europe’s old-age dependency ratio (people aged 65 or more as a percentage of the working-age population) is expected to increase from 27.8% to 39.5% by 2030. This increases the risk of European countries being unable to replace retiring members of their workforce. More so, employment opportunities are expected to grow further increasing the risk of Europe being unable to meet this increment in job demand. In particular, according to the European Union Digital Economy and Society Index (DESI) report, there is an indication of a shortage of IT specialists in the labour market, with over half of the enterprises reporting difficulties in filling vacancies. About a million IT professionals are needed

to fill the gap.

The United States of America faces alarming skills gaps and mismatches that negatively affect its economic performance according to the Wilson Center. Between 2019 and 2020, employment in the US dropped by about 10 million to 147 million. In 2021, the US had nearly 7.4 million job openings (ranging from professional and business service to information technology). However, just about 5.7 million jobs were filled due to lack of qualified candidates. According to the National Skills Coalition (NSC), 53% of US jobs are middle-skill (more education & training than a high school diploma but less than a four-year college degree). However, only 43% of US workers are trained at this level, and this skill shortage could cost the US economy about USD2.5 Tn in lost output over the next decade.

The declining workforce in America and Europe and the need for talent to sustain economic performance in these regions indicate that exporting Nigerian skills and expertise will benefit all parties. Nigeria exports Brain



Capital and these markets provide jobs.

Nigeria has a tremendous opportunity, as we enter GVCs, to build-in gender parity from the beginning. Currently in the ICT world, 1 in 6 people are women and this means that the nation is not tapping into all the skill sets available. A deliberate strategy to grow Brain Exports will address this.



BC Game Changers

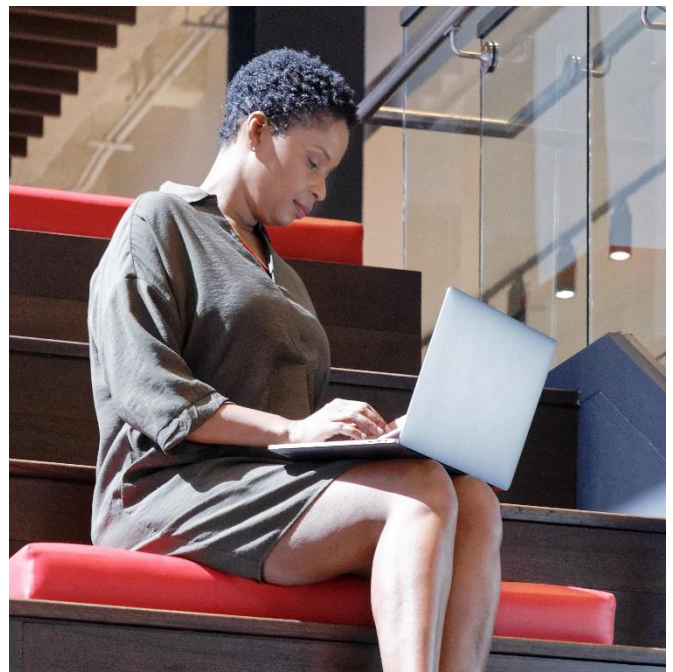
Technology and uncertainties such as COVID-19 have altered the deployment of Brain Capital globally. This change is primarily due to a greater willingness of the global workforce to find ways to be more productive, showing humanity's resilience in facing challenges.

COVID-19 was an enabler for the global adoption of remote work; it broke through the barriers that had previously prevented widespread adoption. A recent Gartner CFO survey of 317 Global CFOs and Finance leaders indicates that 74% intend to permanently shift employees to remote work once the crisis is over. Due to the pandemic, people experienced what many have described as the comfort of working from home, increasing the chances that we may never fully return to the pre-COVID normal of operating from traditional office buildings. PwC's survey on remote work in the US post-COVID-19 reveals that many executives consider remote work to be successful and are open to adopting it for their employees. However, they note the need for investment in technology that supports virtual collaboration to enhance productivity among remote team members. These investments on technology tools and infrastructure such as reliable broadband, cyber security and cloud computing did not only create a new way of working but increased business efficiency exponentially.

The pandemic has caused many companies to rethink how they engage their people and may have radically changed work culture according to Dina Gerdeman of the Harvard Business School. Teams working together through connected devices challenge the traditional idea of an office. Gartner's research indicates that as many as 39% of knowledge workers could leave if employers insist on a 'hard return' to full on-site work. These trends may have several benefits and/or costs but they carry tenets of Brain Export, meaning that Nigeria's window of opportunity is likely to remain open for the foreseeable future.

The remote work model presents a significant opportunity for Nigerians to tap into GVCs. It is also likely to positively impact local Brain Capital development and spending power of talent who participate in GVCs.

In recent times, Mobile technologies and services in Africa have created about 1.7 million direct jobs, contributed USD144 Bn in economic value and about USD15.6 Bn in taxation according to The Brookings Institute. OECD estimates that 32% of jobs across its member countries are likely to change radically, and the World Economic Forum (WEF) has clearly spelt out that proficiency in new technologies is an essential part of the skills required to develop the Brain Capital of any country in today's climate. Technology is a major game changer for BC, and any forward-looking economy needs to lay the foundation that technology adoption needs to flourish.





Reversing the exodus of Doctors

It is estimated that Nigeria has spent USD2.5Bn training doctors alone that subsequently left the country according to Vanguard Media Limited. It may, however, be possible to reduce this issue by creating a conducive environment with the right infrastructure such as strong broadband and power, that will allow Nigerians to work for foreign companies remotely. This opportunity is particularly appealing to doctors and medical practitioners as the reality of today is that medical diagnostics and procedures can now be carried out virtually meaning practitioners can earn in foreign currency, without having to live the country, leading to higher spending power and access to a higher quality of life, while staying close to home, family and friends.

GVC Stories: Vignettes of Talent Inserted Into Global Value Chains

We were interested in understanding more about the experience of Nigerians putting themselves into GVCs as individuals, we found that:

- The prospect of earning foreign currency is the strongest motivation for participating in GVCs
- Internet penetration plays an important role in creating access to markets that require GVC talent.
- Poor internet speeds and cultural differences negatively impact the performance of individuals in GVCs
- Power supply (i.e. electricity) is not a major hindrance for participating in GVCs. This buttresses the point that Nigerians can create enabling environments for themselves to be inserted into GVC.
- Some GVC talent plan to eventually move out of Nigeria to the countries where the companies they work for are located. However, this is not true for all talent suggesting that a conducive environment may encourage GVC participants to stay in Nigeria.

A Deeper Look at the First Movers

The trend of exporting Brain Capital has already started in Nigeria. Here are a few companies actively participating in the GVC

Outsource Global

Amal Hassan, a leading female technopreneur from Northern Nigeria with a strong passion for

developing women, is the founder of Outsource Global. The company is ISO compliant and based in Abuja. It is a Nigerian business and knowledge process outsourcing company that provides services to clients in the US, UK and Japan. The company's services include customer experience, back office processing, data management and accounting-as-a-service. To make Nigeria the leading outsourcing destination in the world, Outsource Global, has trained and employed over 1000 employees (50% female, 90% university graduates) across various professions and plans to increase this number to 6,000. Through this training and upskilling, the company plans to increase the earning power of Nigerian talent by offering them access to the global market.

Rovedana

Rovedana has grown to be one of Nigeria's largest staffing providers managing over 200,000 staff, with a current database of over 500,000 job seekers nationwide. Rovedana Limited is an indigenous company specialising in business process outsourcing, payroll management, recruitment and healthcare plans. It focuses on providing scalable outsourcing solutions to SMEs and Enterprise businesses.

Tek Experts

Tek Experts, a leading global provider of technical support services with 1,800 engineers globally, has entered Nigeria. Microsoft partnered with Tek Experts to create a Customer Support Centre in Lagos and a Microsoft Leap Program that recruits, develops and trains women for employability in the technology industry. Its engineers can provide services to both the local and international markets and 28 women have successfully completed the Leap Program.

Ison Xperiences

iSON Xperiences is a proactive business process outsourcing specialist, partnering with leading brands to optimise their customer experience, revenue generation, and business process management across the enterprise. ISON is focused on combining human efforts with technology to deliver unique customer experiences across all channels. It was established at the end of 2010, started its operation in Africa in February 2011 and is now a leading call centre and BPO service provider in 14 African countries, covering South Africa, Nigeria, Kenya, Egypt.



Brain Exports Seeds

Actions by the first movers can be considered pilot tests and although the results and impact of their actions are not publicly available, these first movers appear to be holding their own. Despite the ups and downs of the Nigerian economy, they remain in operation. Established companies, like Google and Microsoft, are now also making substantial investments into developing talent who will invariably become assets for Brain Exports operations from within Nigeria

Google

The California-based tech giant intends to invest USD1 Bn in Nigeria and a few African countries according to [Techcrunch](#). This investment would improve internet access and affordability, boost entrepreneurship and empower businesses which embark on digital transformation. According to the [Premium Times](#), Google's [Equiano](#) subsea fibre optic cable system is expected to boost broadband connectivity in Nigeria and neighbouring countries by increasing internet speeds by up to 5x. It is expected that internet prices will drop by between 16% and 21% and therefore improve the country's economic growth. Google is inadvertently setting the scene for the accelerated export of Nigerian Brain Capital across the world.

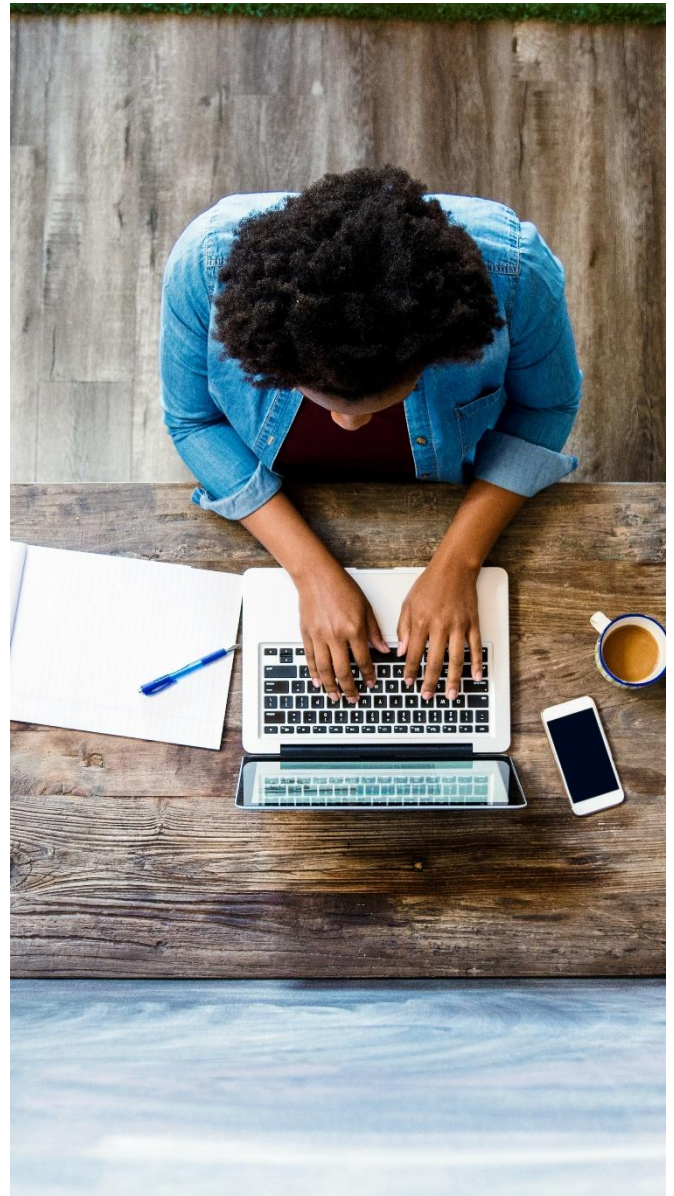
Microsoft and Nigeria

According to Techcabal, Microsoft's partnership with the Nigerian Government is expected to impact about 5 million people through upskilling in the three years starting 2021 with 1,700 trainers providing blended online and in-person training. It is expected to create over 27,000 employment opportunities and internet access to previously hard to reach communities across Nigeria's six geopolitical zones. Microsoft, through its 4Afrika initiative, has been an innovation-enabler investing in Africa and Nigeria via various programmes and initiatives, trying to improve the competency of the local talent. Its core focus is on three pillars (connectivity, skilling and digital transformation) and investing in startups, skills, and public-private partnerships.

BC is Nigeria's New Oil

Nigeria has about 83,000 software developers according to [Techcabal](#), which is 13% of California's total software developer population. There is a lot of room for growth but the right policies are necessary for scale.

Brain Capital is the fuel that powers economies. Technological advancements and global trends are changing how effectively this fuel can burn. Nigeria has quality BC to export to the global economy. Some of which the country already exports. Nigeria needs to re-strategise and implement policies that ensure it reaps the significant benefits locally.



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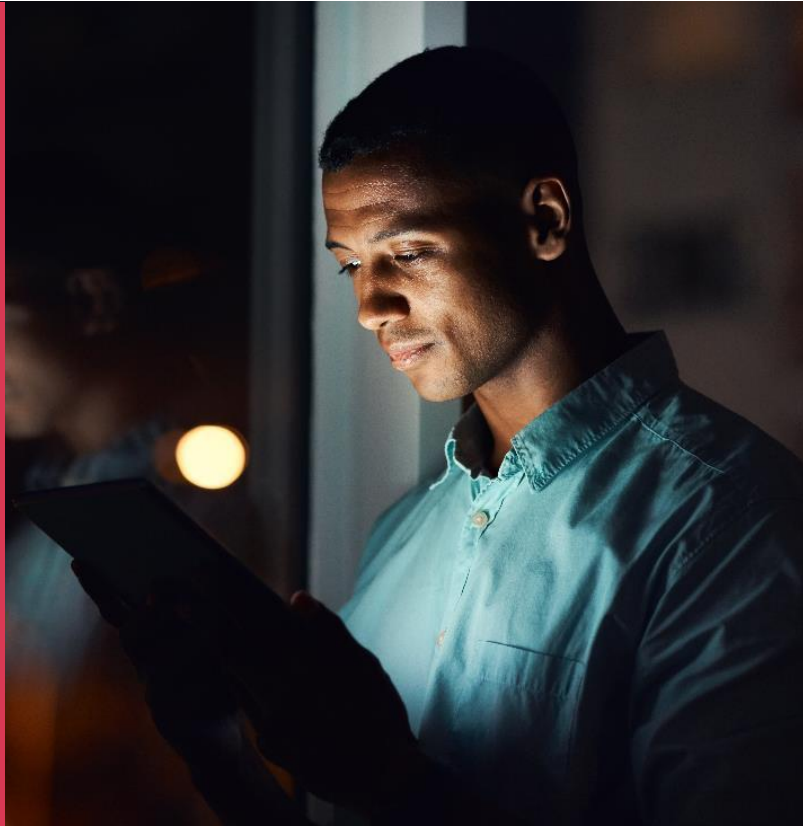
Brain Export Case Studies: India and Kenya





Nigeria will not be the first to take advantage of globally outsourced job functions. India shares some similarities with Nigeria such as a large population, a history of an underdeveloped manufacturing sector, and a federal system of government. India has gained significantly from this model. Kenya, which has been independent for a similar number of years as Nigeria (58 against NG's 61) and has a similar population growth rate (2.28% against NG's 2.57%), is beginning to see the benefit of increasing Brain Export activities.

Like India and Kenya (which has double Nigeria's percentage of developers per capita), Nigeria can take advantage of the opportunity the Brain Export market presents but Nigeria has the added benefit of learning from their lessons.



A Focus on India's Brain Export Story

India has a population of 1.4 billion; it has successfully integrated itself into the global value chain over the last 20 years. The nation's real GDP grew by 468% from USD468 Bn to USD2.7 Tn between 2000 and 2020, lifting 90 million of its population out of extreme poverty between 2011 and 2015. India is today the 3rd-largest unicorn base with over 83 unicorns collectively valued at USD278 Bn residing in the country.

The service sector, including Business Process Outsourcing (BPO), an earlier version of Brain Exports, accounts for much of India's progress in development according to the Asian Development Bank. Service sector exports grew from ~USD17 Bn in 2001, at an average annual rate of 14.95%, to ~USD203 Bn in 2020. India was one of the first countries explored when BPO was first implemented on an international level with multiple IT companies, and Call Centres, setting up in the country due to the size of its talent pool and the lack of jobs to cater to the massive supply of talent within the country. In 2020, the global BPO market was valued at USD162 Bn; it is expected to reach USD230 Bn in 2027, growing at a CAGR of ~5.2% according to GlobalNewsWire.

IT and ITES (information technology enabled services)

account for ~50% of the country's total service exports according to The Economic Times. As of 2011, India accounted for 51% of the global offshore BPO outsourcing market. The service sector is the largest FDI recipient in its economy, with inflows valued at USD89 Bn between April 2000 and June 2021. India's software exports for 2019/20 was valued at USD128 Bn, with global revenue for the industry growing to USD194 Bn (by 2.3%). According to Malik and Velan, 97% of India's IT exports go to the United States, Canada and Europe.

India has achieved this level of success by creating an ecosystem that includes tech hubs, IT companies and academic institutions supported by favourable government policies and infrastructure. This enables the country to produce a talent pipeline ready to be exported to the global market. India currently has trade agreements with over 50 countries according to the International Trade Administration, including Finland, the UK and Japan regarding preferential market access and economic coordination. The Indian government also joined the UK at the 11th Economic and Financial Dialogue (EFD) (Sept 2021) to discuss Free Trade Agreement (FTA) opportunities in services.



The most popular cities for IT/ ITES outsourcing in India are Mumbai and Pune in Maharashtra, Delhi in Chennai, Tamil Nadu and Hyderabad in Telangana. The literacy rates for these states (2017) are Maharashtra 84.8%, Delhi 88.7%, Tamil Nadu 80.3% and Telangana 72.8%, which are all above the South Asian regional average of 72% (2016). Statista places the Nigerian literacy rate at 62% despite our setbacks in the educational sector, and this suggests that we have the potential to emulate the same success as India.



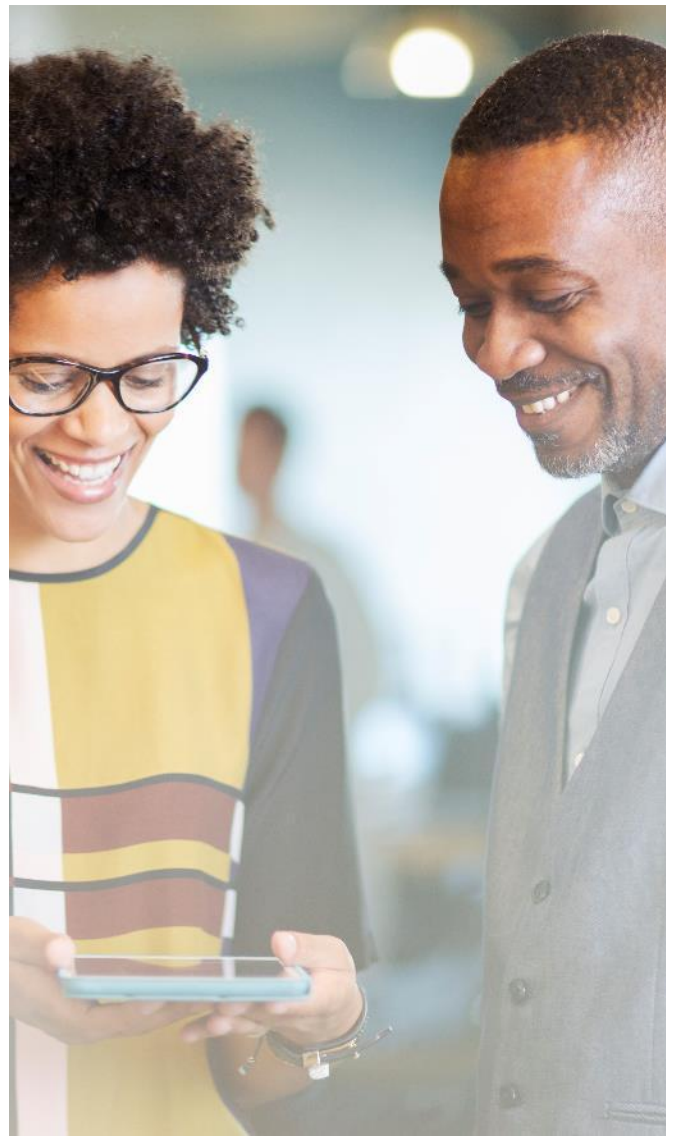
A Focus on Kenya’s Brain Export Story

Kenya is at the forefront of BPO on the African continent according to Empower Africa. It has numerous outsourcing companies that cover multiple sectors. These companies rely on the country’s educated workforce and growing infrastructure to deliver high-quality, competitive services. The Kenyan economy is predominantly service-driven, and in the ten years to 2020, the service sector continuously contributed over 50% to the nation’s GDP and accounted for ~54% in 2020. Information and Communication Technology (ICT) is one of the three main areas of the service sector, with tourism and financial services being the other two.

In 2008 the Kenyan government launched its Kenya Vision 2030 plan, which recognised ICT as a critical enabler of socioeconomic growth and development. In August 2009, the government launched its “Kenyan BPO Value Proposition,” marketing the Kenyan economy as a viable location for BPO operations. Between 2013 and 2017, the ICT sector was one of the most attractive sectors in the Kenyan economy, with an annual average growth rate of 10%. The sector received investments worth USD1.63 Bn, which resulted in a 52% growth in the sector’s contribution to GDP from USD2.37 Bn in 2012 to USD3.09 Bn in 2016. In 2020, the output of the Kenyan IT sector increased by 2.5% to USD5 Bn. The Kenyan government’s Vision 2030 initially aimed to have 7,500 people employed in BPO, but this value increased to 250,000, with the sector accounting for over 10% of GDP.

Kenya is considered a prime location for BPO operators for several reasons, but three stand out. First, English is one of Kenya’s official languages and many schools teach in English. Second, the industry is supported by government policies - the government’s Vision 2030 places importance on communication and internet services. Finally, Kenya possesses a youthful and skilled population. Approximately 80% of the Kenyan

population is under 35. Adult (15+ yrs) literacy rate is estimated at 81.5% (male, 85% and female, 78.2%) and in 2019, Nairobi, Kenya’s Capital, was ranked among the 21 most intelligent cities in the world by the Intelligent Communities Forum.



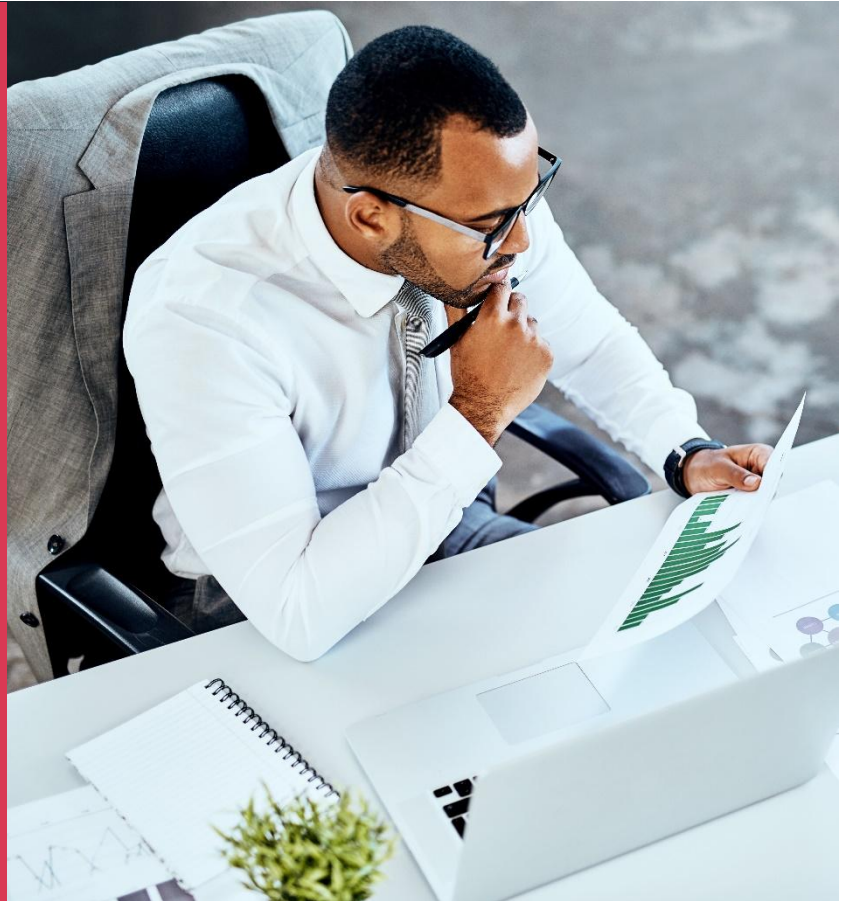
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Brain Exports As A Tool for Spreading Regional Prosperity





According to [Outsourcing Statistics](#), some of the most outsourced jobs globally based on a survey of businesses that outsource include IT, accounting, digital marketing, and HR with at least 37% of the businesses saying that they outsource at least accounting. The Institute of Chartered Accountants of Nigeria ([ICAN](#)) has 33,000 members from across the country and 120,000 students in its pipeline, a demographic that can be directed towards Brain Export. There are, more so, a good number of opportunities in the BPO market that require minimal skill and training like Call Centre jobs for instance. Nigeria is suffering from high poverty rates (as high as 80.9% in the North-West) but a strategically executed Brain Export framework can help the country address the endemic issues of poverty across its geo-political zones.



The Opportunities, Skills Required and Benefits

Focusing on four selected areas that require different skill levels and earn multiple wages, we have created a plausible scenario for the impact of Brain Exports in the outsourcing market. Opportunities requiring low skill levels require a good command of the English language and communication skills. Mid-skill level opportunities may require a bit of talent and some training. Such training would be for a short period and are unlikely to be aptitude focused. High-skill level opportunities, like programming and accounting, require structure and extensive training. Universities and professional institutes are examples of organisations that can provide this.

The global call centre [outsourcing market](#) was valued at USD80 Bn in 2020 and is expected to grow to USD146 Bn by the end of 2031. The monthly earnings of a call centre agent ranges from USD175 to USD546, which is 2.4x to 7.5x Nigeria's minimum wage of USD72 (NGN30,000). The impact of establishing several call centres across regions like the North-West where the poverty rate is very high, could be very high. Working at a call centre requires largely basic communication skills and little training.

Another market we have mentioned earlier is the animation market, currently valued at ~USD354 Bn and expected to almost double to USD642 Bn by 2030. Nigeria does not lack graphic talent, and some indigenous comic companies like the Comic Republic and TAG comics and artists like Awele Emili and St. Wosh are gaining recognition. It is fair to say that there are artists across the country, and many self-taught artists are ready to be plugged into the global value chain. Although getting into the animation industry may require some training, Nigeria does not lack the talent and local artists could earn as much as USD1,300 monthly, 18x the minimum wage.

Over the next five years, Nigeria can work towards inserting people with a broad range of skills into GVCs. The table below is a simple example to paint a clear picture. The [Philippines](#) and [India](#) each have a call centre workforce of ~1.3 million and we believe Nigeria can achieve at least 200,000 (15% of global leaders) in five years. We estimate that 25,000 Brain Exports each in five years (25% of the call centre workforce) is achievable for medium-skill opportunities like animation and gaming. However, high-value opportunities like



programming and software development need special attention and Nigeria can produce as many as 1.5 million of these in the next five years. The programmer target is in line with capturing 17% of the software development jobs expected to hit the market in the next ten years.

	Skill Level Required	Proposed No of Entrants	Average monthly Earnings (USD)	Monthly Earnings (Million USD)	Yearly Earnings (Billion USD)
Call Center Outsourcing	Low	200,000	1,458	292	3.50
Animation/ Gaming	Medium	50,000	2,417	121	1.45
BPO (Legal, Insurance, Accounting services)	High	250,000	1,208	302	3.62
Programming	High	1,500,000	2,833	4,250	50.99
Total		2,000,000	2,481 (weighted average)	4,964	59.57

Source: ZipRecruiter Analysis by PwC



Based on the market size and the growth potential, Nigeria should have a target of two million remote workers inserted into GVCs within ten years. This number would drive growth in other sectors of the economy through the increased purchasing power of the people inserted into the GVC and also improve our balance of payment problem. It is essential that the talent inserted into GVCs are not just in a few selected locations but adequately distributed throughout the country to ensure prosperity for the nation.

7

Conclusion





The guiding thought behind this paper is to take Nigeria from a developing to a developed nation in record time (10-20 years). The traditional development path worked for Korea, Taiwan and China but is not Nigeria's optimal path because of the high value of investment required and the prolonged timeline to achieve success, so we strongly do not recommend this path. Brain Exports (exporting Nigeria's Brain Capital) is an effective solution already being implemented and needs to be scaled as there is much room for growth. The key, however, needs support from the right government policies and initiatives. The Brain Export Strategy requires a relatively lower investment than is required to follow the traditional (agriculture to manufacturing) development path and is also less risky as the investment is decentralised, the sectors are diverse and markets (and customers) are many. In the mid to long term, Brain Export has the added advantage of boosting confidence required for large ticket single investments in Nigeria, the size of which is needed for further exponential growth.

Cash flows from international remittances, a practical example of Nigerian Brain Exports, have shown that Brain Exports can significantly outperform Nigeria's current oil revenues with the benefit of being more resilient in the face of global economic changes. Nigeria will not be the first country to travel the path of Brain Export, and the size of the opportunity along the path is increasing (the BPO market is growing at 5.2%)

meaning that the window will remain open for the foreseeable future.

The Nigerian population is young and vibrant, which presents a strong comparative advantage. Brain Exports is a solution that can unlock the potential of this dynamic asset class and spread prosperity across Nigeria's regions. There are only a select number of possible things that the Nigerian government needs to focus on, including readily accessible and affordable bandwidth and power, policy and some level of support for upskilling Nigerians. One takeaway is that Nigeria needs to start treating education as an infrastructure for development, not a social service, especially digital education, as screen-based interactions have become as fundamental as reading and writing.

At the moment, Brain Export workers may be complex for the government to tax directly. Still, the advantages should outweigh that concern. With Brain Export, burdens such as extreme poverty and high unemployment would lessen, and the government would also gain indirect tax benefits, like Value Added Tax.

In the sequel to this paper, we will explore the infrastructure requirement and the policy mix necessary for Brain Exports to succeed.

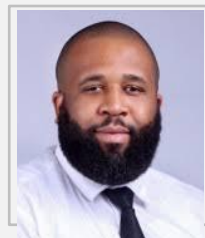
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