Baseline Study on the Level of Indigenous Content in the Nigerian Telecom Sector

Final Report

NIGERIAN COMMUNICATIONS COMMISSION

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Table of Contents

Tables

ACRONYMS

AI	Artificial Intelligence
ATCON	Association of Telecommunications Companies of Nigeria
ASP	Application Service Providers
BSS	Business Support Systems
CAGR	Compound Annual Growth Rate
CBN	Central Bank of Nigeria
CIA	Central Intelligence Agency
CRM	Customers Resources Management
CSR	Corporate Social Responsibility
ESP	Electronic Service Provider
EU	European Union
FCT	Federal Capital Territory
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GDPR	General Data Protection Regulation
GSMA	Global System for Mobile Communications
ICT	Information Communication Technology
IGR	Internally Generated Revenue
ISP	Internet Service Provider
ITU	International Telecommunications Union
IWS	Internet Watch Stats
KPI	Key Performance Indicators
LCP	Local Content Policy
LCR	Local Content Requirements
M&E	Monitoring and Evaluation
MDA	Ministry, Department, Agency of Government
MDG	Millennium Development Goals
MNO	Mobile Network Operators
MSME	Micro, Small and Medium Enterprises
NBS	Nigerian Bureau of Statistics
NCC	Nigerian Communications Commission
NCDMB	Nigerian Content Development and Monitoring Board
NCIF	Nigerian Content Intervention Fund
NDEPS	National Digital Economy Policy and Strategy
NDPR	Nigeria Data Protection Regulation
NIIEV	Nigeria ICT Innovation and Entrepreneurship Vision

NIMC	National Identity Management Commission
NITDA	National Information Technology Development Agency
NODITS	Nigeria Office for Developing the Indigenous Telecom Sector
NOTAP	National Office for Technology Acquisition and Promotion
NPPIC	National Policy for the Promotion of Indigenous Content
OEM	Original Equipment Manufacturer
OSS	Operations Support Systems
OTT	Over The Top
PC	Personal Computer
PII	Personal Identification Information
PIU	Project Implementation Unit
PMB	Performance Monitoring Billing
PSU	Primary Survey Unit
PTECSSAN	Private Telecommunication Senior Staff Association of Nigeria
R&D	Research and Development
SDG	Sustainable Development Goals
SDO	Standards Development Organisation
SIM	Subscriber Identity Module
SON	Standards Organisation of Nigeria
SM	Social Media
SMS	Short Message Service
SPV	Special Purpose Vehicle
SSU	Secondary Survey Unit
SWOT	Strength Weaknesses Opportunities and Threats
TNR	Total Number or Respondents
ToR	Terms of Reference
TSA	Treasury Single Account
TSU	Tertiary Survey Unit
USPF	Universal Service Provision Fund
UAS	Unified Access Services
VAS	Valued Added Service
UN	United Nations
WTO	World Trade Organisation

Executive Summary

Government intervention in strategic economic sectors is hardly a new trend both in frontier economies and emerging markets. Such action has been a common strategy mostly adopted with the target to achieve large benefits and support the sustainability of specific sectors in the economy. One such intervention which has been adopted and implemented in many economies is the Local Content Policy (LCP).

The potential of the LCP for maximising the benefits of the telecommunications industry and expanding the link of the sector to other sectors in the national economy prompted the Federal Government of Nigeria, under the auspices of the Nigerian Communications Commission, to introduce the National Policy for the Promotion of Indigenous Content in the Nigerian Telecommunications Sector (NPPIC) in May 2021. The central objective of the NPPIC is to retain in-country more of the benefits accruing from the Nigerian Telecommunications Industry.

Many countries across Africa have either instituted or are planning to introduce into their regulatory frameworks one form of Local Content Policy or the other. The LCPs have the objectives to, among other things, promote indigenous enterprise development and accelerate the inward transfer of skills and technologies in specific sectors to the host countries.

The need to increase local labour and indigenous goods and services in the delivery of products and services in any economy is an imperative recognised by the multilateral development banks, the World Trade Organisation (WTO) and all the major United Nations (UN) agencies.

Increasing Local Content in the delivery of services and products in key sectors of a country's economy can make a major contribution to the achievement of the UN's Sustainable Development Goals (SDGs). It can also improve the local economy, lower project costs, ensure infrastructure is well maintained and above all, create jobs.

Here in Nigeria, the Nigerian Oil and Gas Industry Content Development (Local Content Act) 2010 has proven to be a pivotal instrument that has enabled companies, especially those in the petroleum industry, to bring local value addition and the creation of numerous job opportunities to the Nigerian economy.

The desire to employ policies and practices to expand local content; drive economic development; create economic opportunities; replicate the success of the Local Content Act (2010) and domesticate it within the Nigerian Telecommunications Industry gave rise to the National Policy for the Promotion of Indigenous Content in the Nigerian Telecommunications Sector. This policy aligns with Pillar #8: Indigenous Content Development and Adoption of the National Digital Economy Policy and Strategy (NDEPS 2020-2025).

The NPPIC envisions developing and patronising indigenous content in the Nigerian Telecommunications Industry with a mission to develop a telecommunications sector where innovative indigenous solutions create value and prosperity for all.

This study which is under the supervision of NCC's Research & Development Department seeks to proffer an in-depth understanding of the level of Local Content in the context of the demand-side requirements, supply-side capabilities and the barriers that constrain local workers and indigenous companies from participating optimally in the Nigerian Telecommunications Industry.

CHAPTER ONE

1.0 Introduction

Given the growing importance of Local Content to the economy, the Nigerian Communications Commission (NCC) awarded this baseline study with the mandate to provide empirical data on the level of Local Content in the Telecoms Industry in software, hardware and manpower.

Local Content Policy is a mechanism designed to create more entrepreneurial opportunities for local firms in the supply chain of the economy with the target to capture and retain more value of the wealth in the host economy.[1] Generally, the exposition of this definition shows that the target of the policy is to encourage the participation of indigenous companies, create local employment for people and stimulate the utilisation of locally produced goods and services in the economy. It is in this regard that the LCP implementation is viewed as a way to generate further benefits from the sector into the domestic economy.

The experiences of economies, such as Kenya, Ghana, Sierra Leone, South Africa and Uganda, show that LCP can potentially upturn local economic value-added through increased participation of indigenous companies and usage of locally produced input materials (backward linkages) in the national economy.

The LCP concept is defined in the Nigerian Content Act (2010) as the "quantum of composite value added to or created in the Nigerian economy by a systematic development of capacity and capabilities through the deliberate utilisation of Nigerian human, materials resources and services"[2]

Local Content, also known as Nigerian Content, is the equivalent of local value added to the development, design, fabrication and assembling of ICT products in Nigeria measured in monetary terms as a proportion of production cost or the proportion of indigenous manpower involved in the various stages associated with the provision of an ICT service in Nigeria.[3]

[1] Levett and Chandler, 2012 - Maximizing Development of Local Content across Industry Sectors in Emerging Markets - https://www.csis.org/analysis/maximizing-development-local-content-across-industry-sectors-emerging-markets
[2] Article 106 (7) - The Nigerian Content Act (2010)
[3] The Local Content Act

In other words, Local Content refers to a set of actions such as manufacturing, training, recruitment and procurement of goods and services that are designed to develop the industrial infrastructure and skills of the people within the country that hosts the businesses or projects.[4]

The establishment in 2021 of the Nigeria Office for Developing the Indigenous Telecom Sector (NODITS) as a special purpose vehicle with the responsibility to stimulate the development of indigenous content in the Telecommunications Industry demonstrably underscores the Federal Government's commitment to make the propagation of Local Content in the Nigerian Telecommunications Industry a core policy thrust.

Telecommunications in Nigeria has witnessed unprecedented growth, particularly from 2001 to date. With the full liberalisation of the sector, several Mobile Network Operators, Fixed Wireless Access Operators, Internet Service Providers and National Carriers were granted licences to operate by the Nigerian Communications Commission. The sector has witnessed huge growth in terms of the subscribers' base, earnings to the Government, increase in GDP, growth in teledensity, and increase in foreign direct investments into the sector.

The sector continues to experience tremendous development returning a compound annual growth rate (CAGR) of 31.8% between 2000 and 2019 and attracting massive foreign direct investment.[5] It has proven to be the most resilient and fastest-growing sector in the Nigerian economy.

The telecoms sector came into its elements in the wake of the Covid19 pandemic and the resultant lockdowns when it duly and effectively powered the economy. Figures from NCC's year-end report posit that the sector made contributions of 14.2% to Nigeria's GDP in 2021.[6]

The global Telecommunications Industry accounted for 4.7% of global GDP in 2019 relative to 4.2% recorded in 2015. The industry GDP grew at a 5-year CAGR of 5.5% to $4.1tn in 2019 according to data from Global System for Mobile Communications Association.[7]

[4] NCDB - https://ncdmb.gov.ng/local-content
[5] NAIRAMETRICS – GDP Growth in Q1 - https://nairametrics.com/2022/05/24/telecommunications-sector-drives-3-11-gdp-growth-in-q1-2022/
[6] https://www.ncc.gov.ng/media-centre/news-headlines/1153-news-release-new-awards-to-ncc-danbatta-underscore-significance-of-telecom-contribution-to-gdp
[7] GSMA - The Nigerian Telecommunications Sector Report: A Transformative Past, Resilient Future - https://finance.infowarelimited.com/Portal/NewsDetails/90653

Mobile Network Operators (MNOs) globally have invested over $1.5tn to deploy mobile and fixed broadband networks. The advent of 5G, the rise of the Internet of Things (IoT), the evolution of the telecoms ecosystem and the disruptive force of Artificial Intelligence (AI) would necessitate further increment in investments in the sector, especially in emerging economies such as Nigeria.

It is projected that global network-related capital expenditures would increase by 60% from 2020-2025 while investments into 5G industrial chains are likely to reach about $3.5tn by 2035. Meanwhile, over $12.0tn in sales is expected to be generated by global industry applications driven by 5G.[8] This projected future growth in the Telecommunications Sector shall be driven by a proliferation of IoT in homes, enterprises and buildings with the number of IoT connections expected to reach 25 billion globally by 2025.[9]

According to GSMA, global revenue from AI is projected to reach $90.0tn by 2025 contributing about $16.0tn to global GDP by 2030 which is equivalent to an uplift of 14%. These figures would be achieved through a combination of productivity gains from businesses automating their day-to-day processes, augmenting their existing labour force with AI technologies and increasing consumer demand resulting from the availability of personalised AI-enhanced products and services.

Although Nigeria has benefited enormously from the Telecommunications Sector, indigenous participation in the technological dimension of the industry appears to be low. The Telecommunications Industry is largely technology-driven, with new technologies being introduced at an increasing pace. This portends potential vulnerability for Nigeria with comparative technological skills disadvantage.

There is the palpable risk of external dominance by companies from the developed world in the sector; and this may not abate in any foreseeable future without deliberate and urgent measures to build up a reservoir of indigenous technological capabilities in low, medium and high technologies in the Nigerian Telecommunications Industry.

Given this backdrop, the criticality of the NPPIC to curate the development of effective indigenous participation at all levels in the Nigerian Telecommunications ecosystem cannot be overemphasised. Indigenous Nigerian companies ought to

[8] World Economic Forum – The Impact of 5G Report
[9] IoT Connections Forecast: The Rise of Enterprise
https://www.gsma.com/iot/resources/iot-connections-forecast-the-rise-of-enterprise

be producing equipment, accessories, hardware and software, and even engaging in competition in the international markets.

The NPPIC is anchored on Presidential Executive Orders 003 and 005 with the purpose to optimise Local Content in the Nigerian Telecommunications Industry and maximise the benefits to Nigerians of a globalised telecommunications ecosystem.

This study seeks to measure the level of Local Content involved in various aspects of the Nigerian Telecommunications sector through the lens of Pillar: #8 of the National Digital Economy Policy and Strategy which focuses on Indigenous Content Development and Adoption.

1.1 Study Objectives

The study is driven by four main objectives which are:

1. To provide empirical data on the level of Local Content in the Telecoms Industry in Nigeria in software, hardware and also manpower;
2. To highlight the benefits of Local Content Integration in the Nigerian Telecoms Industry;
3. To evaluate the use of innovative techniques to integrate Local Content in the Nigerian Telecoms Industry; and,
4. To analyse the current barriers and possible solutions to the integration of Local Content in the Nigerian Telecoms Industry.

1.2 Scope of Study

The study seeks to provide answers to the following overarching questions.

1. What is the current status of Local Content Integration in the Nigerian Telecommunications Industry;
2. Benefits of Local Content integration in the Nigerian Telecommunications Industry;
3. Use of innovative techniques to integrate Local Content in the Nigerian Telecommunications industry;

4. Current barriers and possible solutions to the integration of Local Content in the Nigerian Telecommunications Industry;

5. The potential uses of Local Content integration in the Nigerian Telecommunications Industry; and,

6. Identify legal risks and develop legal frameworks for the adoption of Local Content Integration in the Nigerian Telecommunications Industry.

1.3 Study Deliverables

The study highlights innovations that can enhance Local Content in the Nigerian Telecommunications Industry and sustain the sector's contributions to the achievement of Nigeria's national development targets. Outputs from the study include indicative measures that can effectively be used to monitor and evaluate results from the implementation of Pillar #8 of the NDEPS Framework with a view to:

1. Enable the Nigerian Telecoms sector to contribute meaningfully towards the achievement of national development targets;

2. Stimulate and increase the production, distribution, sales and consumption of high-quality Telecommunications/ICT products and services developed by Nigerian companies that serve the unique needs of the local and global market;

3. Enable Nigerian Telecom/ICT companies and provide them with the opportunities that will improve their ability to provide relevant products and services that amply satisfy the Nigerian consumer;

4. Facilitate efforts to build capacity and equip Nigerians to serve as active workers and participants in the Nigerian Telecoms/ICT Industry;

5. Provide a framework for the regulation and legislation on the creation, distribution and use of Telecommunications and its associations in Nigeria; and,

6. Promote and encourage an environment within Nigeria that is welcoming to foreign investments in Telecommunications/ICT, as well as the export of "Made in Nigeria" Telecommunications/ ICT products and services.

1.4 Reporting Milestones

The study is accompanied by the following reports marking each milestone:

1. Inception Report;
2. Interim/Progress Report;
3. Draft Final Report; and,
4. Final Report.

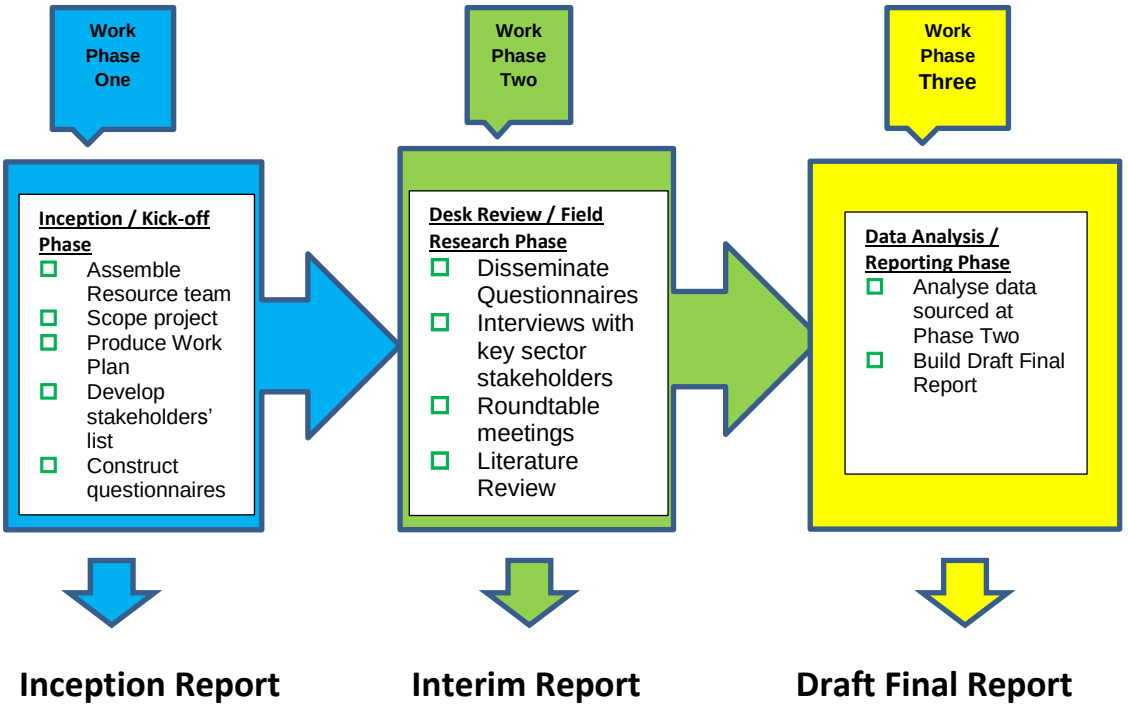
This Final Report marks the fourth of four reports that form the deliverables of this study. The Final Report details the methodology, work plan and approach used for the study. It also describes all the work activities completed for the study.

CHAPTER TWO

2.0 Methodology

The research design chosen for this study was an in-depth, hybrid quantitative-qualitative method. This approach enabled the study to understand the broad trends and underlying nuances of Local Content in the context of the benefits of its integration in the Nigerian Telecommunications Industry, the current status of that integration and the current barriers and possible innovative techniques to explore to fully assimilate Local Content in the Industry.

Work activities for the study were segmented into three phases:



1. Inception/Kick-off Phase;
2. Desk Review/Field Research Phase; and,
3. Data Analysis/Reporting Phase.

2.1 The Inception/Kick-off Phase

The Inception Phase involved structuring and designing the framework for the project; engaging resource persons as required; procuring necessary project consumables; and, prepping logistics for the study.

The activities of the inception phase culminated in a project coordination meeting held on the 7th of April, 2022 between the study research team and the project supervision team of NCC's R&D Department. This meeting effectively marked the kick-off of the study.

The successful conclusion of the Inception Phase was evidenced by the submission of the Inception Report to the R&D Department on the 4th of May, 2022.

The Inception Report contained the following information:

a) An understanding of the study;
b) A defined methodology and framework to be adopted to conduct the study;
c) A detailed scope of the study;
d) The Work Plan and Approach which are in consonance with the scope of the study as well as the methodology adopted;
e) The communication plan and the timelines of activities to be implemented to accomplish the study.

2.2 Desk Review/Field Research Phase

The research was done in two parts. Part one consisted of a desk review of available subject-centric literature using both online and offline channels.

The first part of the field survey and data collection phase involved conducting an in-depth review of topic-centric literature, especially extant government policy documents; online and offline materials; newspaper and magazine articles; other publications relevant to the study and several indigenous telecommunications policies of peer countries drawn from the geo-economic regions of the Middle East and Africa - particularly Kenya, South Africa, Egypt, Ghana, Israel, the United Arab Emirates and the Kingdom of Saudi Arabia.

The research team expanded the desk review to include ITU Local Content Guidelines and numerous policy documents from key European countries including the United Kingdom, Germany and France as well as the United States

of America. The desk review component provided the bulk of secondary data used in this study.

The research team conducted an extensive desk review of materials including particularly the panoply of literature captured in Table 1.

Table 1: Schedule of Reviewed Literature

	Literature	Source	Relevance to the study
1	National Digital Economy Policy and Strategy (NDEPS)	NCC	A policy document developed by contacting representatives and stakeholders in both the public and private sector and integrating findings from the World Bank Diagnostic Report on Nigeria. NDEPS is made up of 8 Pillars and envisages to create an enabling environment for the promotion of digital jobs across the country;
2	National Policy for the Promotion of Indigenous Content in the Nigerian Telecommunications Sector (NPPIC)	NCC	The Policy aligns with Presidential Order 005 on "Planning and Execution of Projects, Promotion of Nigerian Content in Contracts and Science, Engineering and Technology" and Presidential Executive Order 003 on "Support for Local Content Procurements by Ministries, Departments and Agencies of the Federal Government of Nigeria";
3	Nigerian Content Development in Information and Communication Technology Guidelines(NCDICT)	NITDA	Framework created to enhance the ability of indigenous companies to maximally explore and exploit local opportunities, as well as remain competitive globally;

4	Nigerian National Broadband Plan (NNBP)	NCC	A strategic roadmap to make affordable broadband accessible to all Nigerians with goals of drastically moving broadband internet penetration from its 30% goal in 2018 to 70% by 2025;
5	The Nigeria ICT Innovation and Entrepreneurship Vision (NIIEV)	NITDA	Comprises policy recommendations and incentives designed to strengthen Nigeria's technology entrepreneurship ecosystem;
6	Nigeria Data Protection Regulation (NDPR)	NITDA	The current national law on data protection in Nigeria. It applies to public and private sector processing of personal data within and outside Nigeria;
7	Executive Orders 003 and 005		The Executive Order 003 of 2017 and Executive Order 005 of 2018 were specifically enacted to give impetus to the Local Content Development and Promotion drive in the Telecoms Industry;
8	Local Content Act	NCDMB	A vital instrument that empowers Nigerian companies to contribute tremendously towards the development of the Nigerian economy by encouraging value addition, job opportunities etc.;
9	Newspapers, magazines, blogs, bulletins, and other study-related materials	Various Internet Online/ Offline	For general heads-up on trends, opinions and goings-on in Local Content globally and regionally in Africa; materials based on best practises in Indigenous Content Implementation.
10	Telecommunications Local Content Policy of several countries	Internet	To build case study references. The countries studied are peer countries in the Middle East and Africa geo-economic region particularly Kenya, South Africa, Egypt, Ghana, Israel, the United Arab Emirates and the Kingdom of Saudi Arabia.

The second segment of the field survey and data collection phase entailed designing two sets of questionnaires. The questionnaires were submitted to the R&D project supervision team for their perusal and subsequent approval.

In collaboration with the R&D project supervision team, the questionnaires were given a thorough going-over. After being panel-beaten to suit the purpose, the project supervision team gave the approval to disseminate the questionnaires.

The research team commenced the dissemination of the questionnaires in earnest to the three distinct groups of respondents listed below:

a) Workers in the Telecommunications Industry;
b) Randomly selected individuals acknowledged as being telecom services consumers; and,
c) Organisations and agencies active in the Telecoms Industry.

General telecommunications users comprise randomly selected individuals considered to be end users of telecommunications services at a population of 50 respondents per State and the FCT.

The list of the licensees sampled was obtained from the NCC Website.[10] A random sampling technique was used to choose sampling units from the population frame in each of the licensee categories. This method allowed each element to have an equal chance of being selected without bias and provides greater validity for the study.

Accordingly, 20 companies were selected from the Repairs and Maintenance category; 15 from Mobile Network Operators (MNO); 20 from Internet Service Providers (ISP); 20 from Collocation and Infrastructure Networks (INFRACO); 20 from VAS Aggregators (VAS); five from Unified Access Services (UAS); 20 from Equipment Sales & Installation; ten from OTT Service Providers (OTT); and 15 from Application Service Providers (ASP) all of which yielded a sample size of 145 companies viewed to be active in the Telecommunications Industry.

Part two of the study involved the guided administration of two approximately 10-minute long, self-completion questionnaires. The first set of questionnaires captured the specifics of individual experiences.[11]

[10] https://www.ncc.gov.ng/licensing-regulation/licensing/licensees-list
[11] See Appendix 2: Questionnaire for Individuals

The second set focused on the outlook of organisations active in the Telecoms Industry[12] using the sample size illustrated in Table 2.

Table 2: Telecommunications Industry Stakeholders Sampled

Ecosystem Category	Units
Telecommunications Workers	350
General Telecommunications Users	1850
NCC Licensees	
Repairs and Maintenance	145
Mobile Network Operators (MNO)	
Internet Service Providers (ISP)	
Collocation/Infrastructure Networks (INFRACO)	
Value Added Services (VAS)	
Unified Access Services (UAS)	
Equipment Sales & Installation	
International Data Access	
Application Service Providers (ASP)	
Regulators and Government Agencies	
Nigeria Office for Developing the Indigenous Telecom Sector (NODITS)	1
NCC, NCDB, NITDA, SON, NOTAP	5
Subtotal	**2351**

The target respondents among the companies were the top management or senior representatives of each firm who were deemed to be more likely to be involved with policy and strategy activities in their respective organisations and also deemed likely to be aware of the Local Content concept. They were also considered to be more knowledgeable about the degree to which sectoral Government policies influence their organisational performance in relation to Local Content in the sector generally.

[12] See Appendix 3: Questionnaire for Organizations

Following up on the questionnaires, multiple emails were sent and several telephone calls were made to prompt the respondents to submit their completed forms. Many of the respondents requested additional time to complete the questionnaires, and some asked for form replacements having misplaced the copies earlier received.

In consideration of the timeframe contractually allocated for the study, the research team set 31 August 2022 as the final deadline to receive completed questionnaires. Altogether, a total number of 2351 questionnaires were administered in the following numbers: 350 for telecom workers, 1850 for individuals, 145 for companies active in the sector and six for sector regulators and government agencies.

Considering the oligopolistic nature of the Nigerian Telecommunications Sector - dominated by four major MNOs namely MTN, Airtel, Globacom and 9mobile, the research team administered 200 questionnaires to workers of these big four at a population of 50 respondents per conglomerate. The remaining 150 were administered to workers of other companies regarded as active in the Telecommunications Sector.

The questionnaires for individuals considered as end users of telecommunications services were served to a population of 50 persons per State plus the Federal Capital Territory (FCT).

The research team conducted interviews largely with respondents identified as members of the middle to top management of selected companies in the Telecommunications Sector. The interviews allowed for a deeper exploration of the research issues and to pool the views and opinions of executives who operate in the strategy realm of companies in the sector. They were invited to weigh in on suggestions to promote and nurture indigenous content in the sector. Some of their suggestions are carried through in the Suggestions and Recommendations section of this Report.

As previously outlined, the questionnaires were pre-tested by sending advance copies to the R&D project supervision team. Based on their feedback, some questions were reconstructed and one or two were expunged entirely from the forms before the eventual mass dissemination of the questionnaires across the sample population to conduct the survey.

The questionnaires were administered in the Thirty-Six (36) States of the Federation and the FCT in the locations, numbers and dates outlined on the schedule in Table 3.

Table 3: Schedule of Questionnaire Distribution

State	Location	Sample Size
FCT	AMAC	35
	Gwagwalada	15
Jigawa	Dutse	40
	Birnin Kudu	10
Kaduna	Kaduna	30
	Zaria	20
Kano	Kano	30
	Gwarzo	20
Katsina	Katsina	25
	Daura	25
Kebbi	Birnin Kebbi	35
	Bagudo	15
Niger	Minna	35
	Bida	15
Sokoto	Sokoto	30
	Kebbe	20
Zamfara	Gusau	40
	Shinkafi	10
Edo	Benin City	25
	Auchi	25
Ekiti	Ado Ekiti	30
	Ikole	20
Kogi	Lokoja	35
	Ankpa	15
Kwara	Ilorin	40
	Offa	10
Lagos	Ikeja	25
	Lagos Island	25
Ogun	Abeokuta	50
Ondo	Akure	40
	Okiti-Pupa	10
Osun	Osogbo	29
	Ife South	21

Oyo	Ibadan	35
	Irepo	25
Abia	Umuahia	15
	Aba	35
Akwa Ibom	Uyo	40
	Oron	10
Anambra	Awka	25
	Onitsha	25
Bayelsa	Yenagoa	30
	Brass	20
Cross River	Calabar	40
	Obudu	10
Delta	Asaba	30
	Warri	20
Ebonyi	Abakiliki	30
	Afikpo	20
Enugu	Enugu	25
	Nsukka	25
Imo	Owerri	30
	Orlu	20
Rivers	Port Harcourt	40
	Bonny	10
Adamawa	Yola	35
	Lamurde	15
Bauchi	Bauchi	40
	Ningi	10
Benue	Makurdi	30
	Otukpo	20
Borno	Maiduguri	50
Gombe	Gombe	35
	Balanga	15
Nasarawa	Lafia	25
	Karu	25
Plateau	Jos	25
	Pankshin	25
Taraba	Jalingo	40
	Ussa	10
Yobe	Damaturu	30
	Potiskum	20

Data enumerators were able to cover only one location each for Ogun State, Ondo State and Borno State. Based on local security advice, the research team opted to convene and conclude the administration of the questionnaires in only the capital cities of each of the three States.

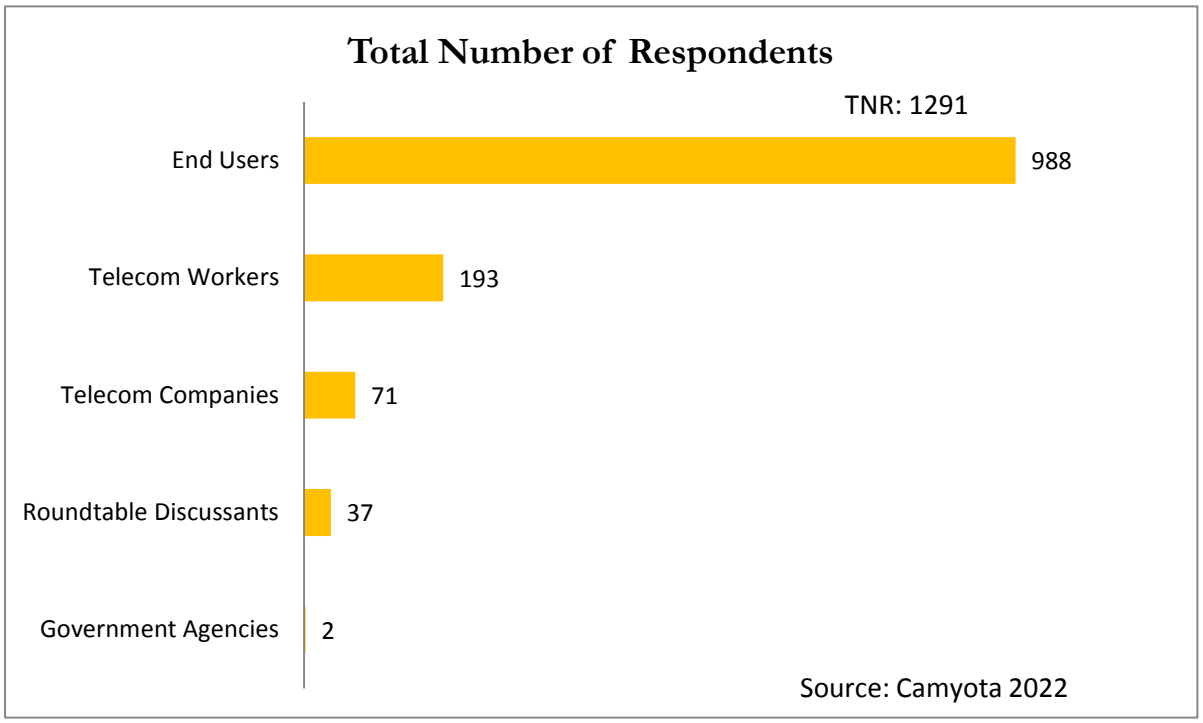
Both Part One and Part Two of the survey were complemented with moderated roundtable discussion sessions held first in Lagos on the 11th of July 2022, with 12 participants; in Abuja on the 18th of July 2022, with 11 participants; and, finally Lagos again on the 8th of August 2022, with 14 participants.

Participants of the roundtable sessions shared motivations, inclinations and expectations on Local Content in the Telecommunications Industry from the standpoint of their experiences. This segment of the survey involved consultations with carefully selected stakeholders in the Telecoms Industry geared at eliciting the input of specialists proficient in Local Content implementation.

The consultations focused generally on the nature of the hurdles hampering indigenous involvement in telecommunications projects and businesses and provided the opportunity to ground truth the findings from the desk review. The social intercourse that the discourses provided to the study benefited the project immensely through a balanced exchange of information and experience. The survey team leveraged it to probe how involved Nigerians are in the top echelons of the Telecoms Sector as opposed to those active in the artisanal tier.

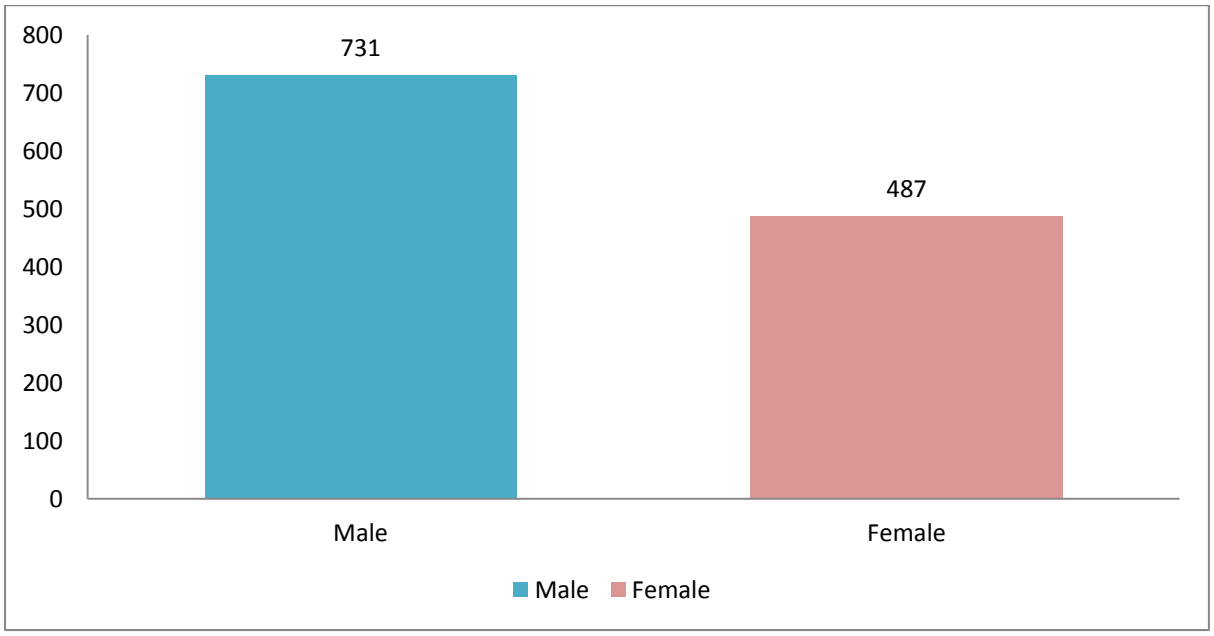
At the end of the exercise – 31 August 2022 - a total number of 71 properly filled forms were received out of the 145 that were administered for companies (49%); 193 correctly completed forms came from the 350 served on telecommunications workers (55%); 988 end-user forms were accurately completed out of 1850 disseminated (53%); two forms were received from the six served on regulators and Government agencies (33%). The total number of properly filled forms came to 1254. The number of participants in the roundtable sessions was 37 altogether. This gave the study a total number of respondents of 1291.

Table 4: Total Number of Respondents



The survey sought to achieve gender balance in the dissemination of the survey questionnaires. Survey participants who identified as females on the forms were 487 (40%).

Table 5: Gender of Respondents



The survey also sought to establish the number of respondents out of the survey population that work in the Telecommunications Industry and in what capacity.

Table 6: Delineation of Telecom Workers in the Survey Population

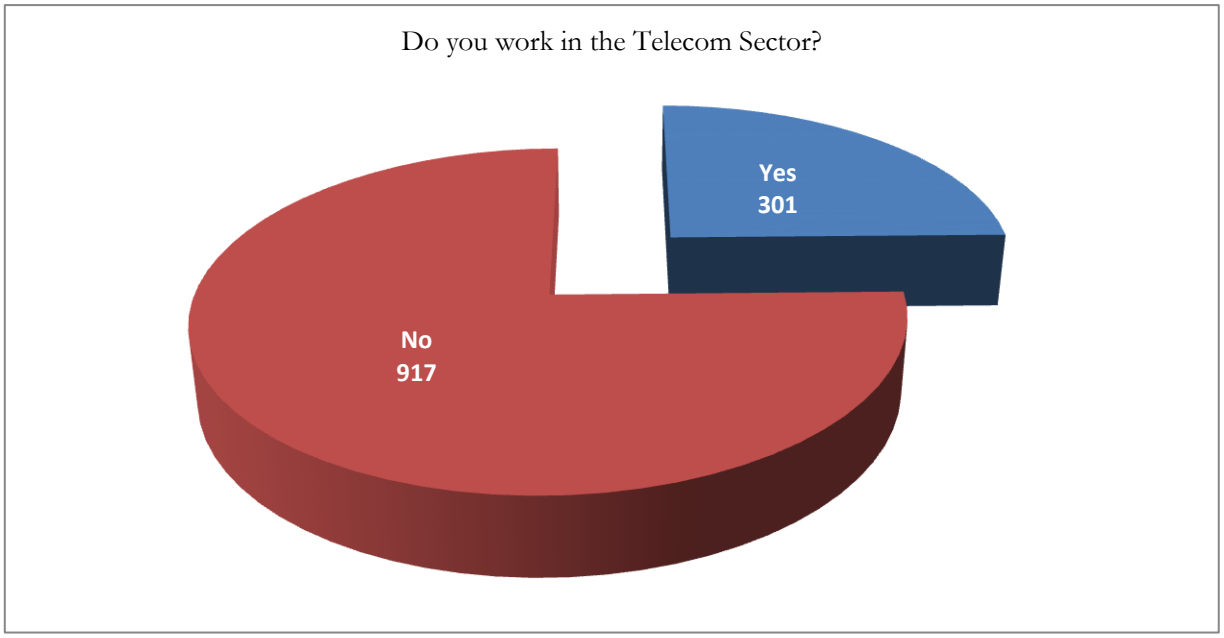
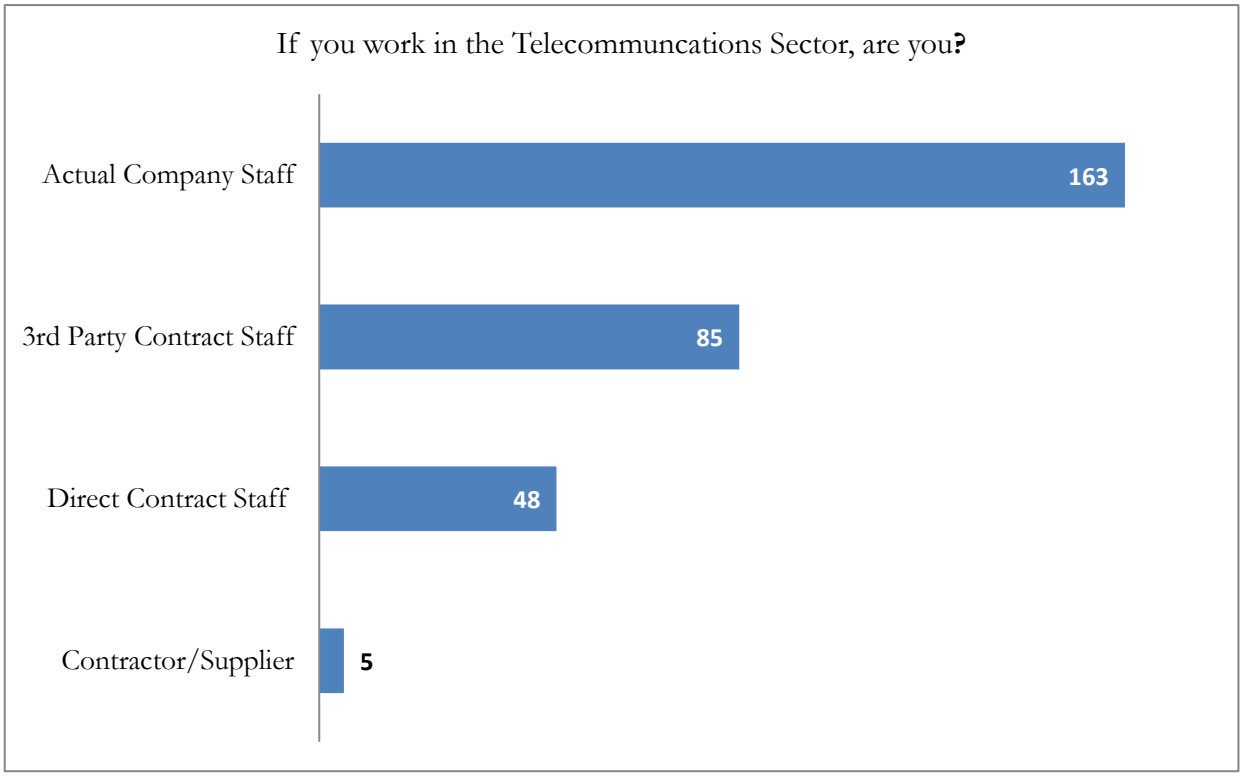


Table 7: Employment Status of Respondent Telecom Workers



2.3 Work Plan

	Description	Activity	KPI	Remarks
1	Study Structure	Structure and design the framework for the study; Hold project coordination meetings with the R&D's project supervision team; Procure required project consumables; Engage resource persons as required; and, Prep logistics for the study.	Objectives, timescales, milestones and deliverables of the study clearly outlined	Completed
2	Inception Report	Articulate the methodology detailing the work plan, sampling approach and the scope of the study in consonance with the project tor; and, draft the study Inception Report.	Submission of Inception Report	Completed
3	Desk Review	Conduct in-depth literature review of extant government policies; stakeholder strategy documents; topic-centric literature; journals; online and offline materials; newspaper and magazine articles; and, other publications relevant to the study.	Documentation of key findings	Completed
4	Field Survey	Dissemination of questionnaires to individuals and Telecommunications organisations across Nigeria; administration of interviews on carefully selected stakeholders.	Collection of data	Completed

4	Focus Group Meetings	Hold roundtable discussions with purposively sampled Industry stakeholders	Enrich the study with inputs from as many sector stakeholders as possible	Completed
5	Interim/ Progress Report	Produce Interim Report detailing project progress.	Submission of the study's Interim/Progress Report	Completed
6	Project Review/ Evaluation	Continuous monitoring and evaluation of the study.	To keep the study consistent with the ToR and for re-strategizing when and if necessary	Continuous
7	Data Analysis	Collate the data from focus group discussions, interviews and desk review activities and input into the data correlation engine.	Data Analysis	Completed
8	Draft Final Report	Draft the Draft Final Report providing a summary of the study findings addressing the objectives and scope of the study.	Submission of the Draft Final Report	Completed
9	Final Report	Produce the Final Report that addresses the objectives of the study; proffers suggestions and recommendations; conclusion.	Submission of the Final Report in three (3) hard-bound copies with a flash drive containing the soft copy in MS Word format	This Report

2.4 Data Analysis/Reporting Phase

The third phase of the study entailed the meticulous collation of all the data harvested in the course of the study. These include the outcomes from the literature review, field surveys, completed questionnaires, interviews and round table discussions.

Both the qualitative and quantitative data collected have been analysed, summarised and categorised to produce this Report. The analysis in this Report is based primarily on the results from the two sets of questionnaires and the roundtable discussions distilled into graphs and charts.

The graphs and charts used throughout this Report break down the questionnaire results into usable data. The data reflect the viewpoint of the entire set of 1291 participants of the survey. As the research is primarily qualitative, the findings echo the experiences of the respondents only and are not necessarily representative of the entire Nigerian Telecommunications Industry.

The completion of the inception and data analysis phases of the study and the submission of the Draft Final Report signposted the direction of travel to this Final Report. The research team has put together all the survey results yielding to the Final Report. This Report presents the full compilation of the study's findings and addresses the stated objectives and scope of the study.

2.5 Survey Limitations

The field survey component of the study was slowed down considerably by respondents who either requested extra time to complete and return their questionnaires or requested new forms altogether having misplaced their original forms.

Concerns around the physical safety of data enumerators necessitated that the survey team did not enter three out of the 74 locations initially slated for field dissemination of the questionnaires for the telecommunication end-users population.

Elsewhere, respondents returned the completed questionnaires to the Project Implementation Unit in dribs and drabs which caused a substantial delay in commencing and concluding the data analysis phase of the study.

2.6 Review of the NPPIC

As its title suggests, the National Policy for the Promotion of Indigenous Content in the Nigerian Telecommunications Sector was developed by the Ministry of Communications and Digital Economy primarily to promote the assimilation of Local Content in the telecommunications sector.

The policy has the vision to develop and patronise indigenous content in the telecommunications sector, create top-quality indigenous content and propel the sector, and the mission to develop a telecommunications sector where innovative indigenous solutions create value and prosperity for all.

The overall objectives of the Policy are to

i. Create a framework for supporting indigenous telecom businesses to become world-class service providers;
ii. Ensure compliance with existing regulatory guidelines for indigenous content;
iii. Highlight and promote indigenous capacities in the telecommunications sector;
iv. Foster collaboration between indigenous players engaged in the manufacturing of telecommunications equipment and global Original Equipment Manufacturers (OEMs);
v. Ensure strategic partnerships with relevant regulatory agencies to create joint efforts to promote indigenous content;
vi. Enable the indigenous telecom industry to contribute significantly towards the overall development of the telecom industry; and
vii. Encourage and incentivise the participation of indigenous telecom institutions in relevant Standards Development Organisations.

In the context of the implementation of the Policy, "indigenous" refers to any company that meets the following criteria:

(i) Incorporated or otherwise organized in Nigeria;
(ii) Has its principal place of business located in Nigeria; and
(iii) Has at least 51% of its equity held by nationals of Nigeria.

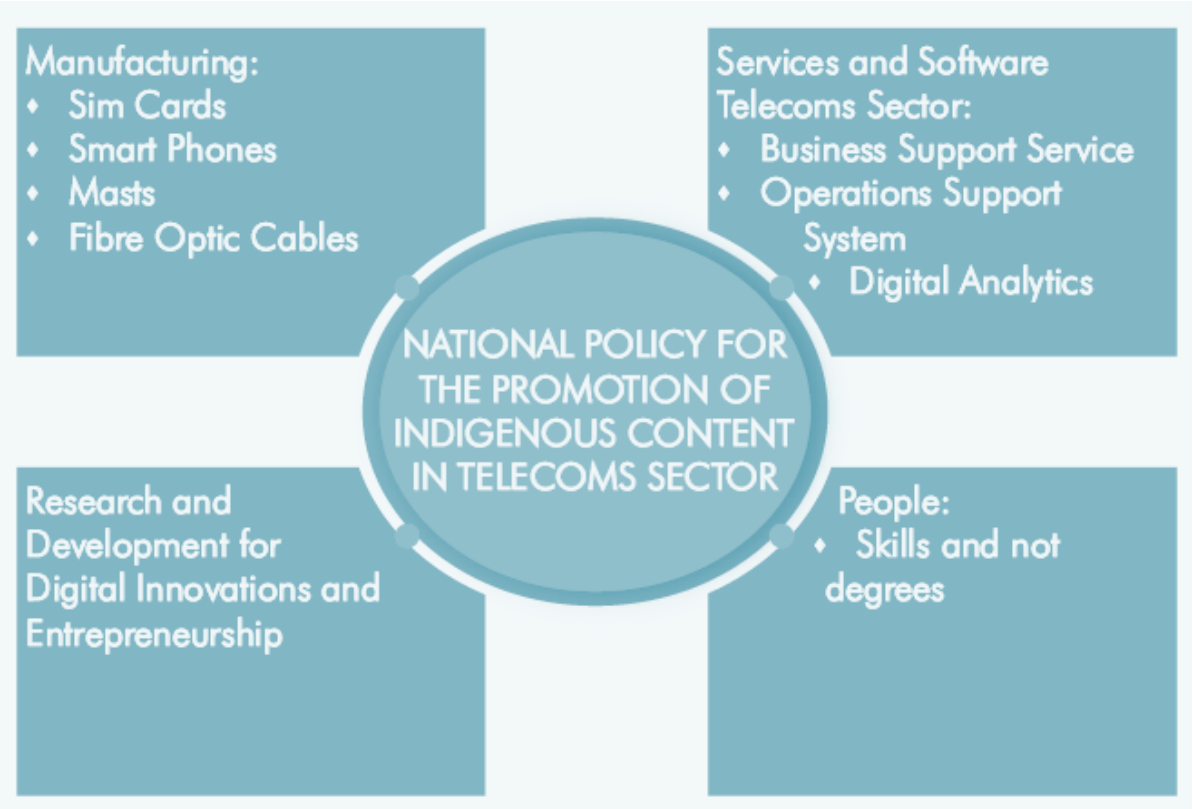
Four focus areas govern the Policy to wit:

(i) Manufacturing;
(ii) Services and Software for the Telecom Sector;

(iii) Research and Development for Digital Innovations and Entrepreneurship and,

(iv) People.

Table 8: NPPIC Focus Areas



2.6.1 Manufacturing

The National Policy for the Promotion of Indigenous Content in the Nigerian Telecommunications Sector recognises that a significant portion of expenditure in the telecom industry goes on telecommunications equipment. Incidentally, most of these equipment are manufactured outside the shores of Nigeria. The Policy highlights that indigenous providers are only able to meet a small percentage of the needs for telecom equipment in the Industry.

To remedy that anomaly, the objectives of the Manufacturing focus area are to:

i. Stimulate the design, development, production, sales and utilization of high-quality telecom equipment and services developed by indigenous companies;

ii. Develop indigenous telecommunication companies to become world - class manufacturers and service providers;
iii. Incentivise the production of cables, connectors, masts and telecom tools in a way that meets global minimum and certification standards;
iv. Support local manufacturing through relevant institutions, such as the Universal Service Provision Fund (USPF), Central Bank of Nigeria (CBN) etcetera;
v. Encourage the establishment of vocational training institutes focused on the design, fabrication and assembly of telecom equipment; and
vi. Encourage partnerships and collaborations between indigenous players engaged in the manufacturing of telecommunications equipment and global Original Equipment Manufacturers (OEMs).

2.6.2 Services and Software for the Telecom Sector

Telecommunications equipment require the right software services to operate optimally. Software deployments in the telecom sector cover a range of services for both Business Support Systems (BSS) and Operations Support Systems (OSS). Services such as performance monitoring, billing, customer resource management, analytics and network inventory management are powered by software.

With increased focus on digitalisation, data privacy, data protection, data analytics, data mining and data retention, the Policy recognises the importance to have a focus on data localisation as a strategic tool to tilt the economic power balance of global players within the country. Data localization requires that data created within certain borders stay within those borders hence focusing on the creation and storage of personal data within Nigeria's geographical borders.

This would incentivise the development and growth of the indigenous data centre industry and drive investment in infrastructure. It would also create jobs and mitigate reliance on global data players for access to citizens' and national data. Furthermore, it would ensure that Nigeria is self-reliant in guaranteeing access to data and online services for its citizens, businesses and governments.

Seeking to engender sufficient capacity for the indigenous development of software, the objectives of the Services and Software focus area are to:

i. Enable the indigenous telecom industry to contribute significantly towards the overall development of the telecom industry;

ii. Increase public sector patronage of indigenous telecom businesses and services;
iii. Create a conducive environment for companies and service providers to participate in the telecom industry;
iv. Institutionalize a mechanism to ensure that specific categories of telecom services are reserved for indigenous players; and
v. Monitor and analyse indigenous content compliance by operators and service providers.

2.6.3 Research and Development for Digital Innovation and Entrepreneurship

It is a global best practice for leading telecommunication companies worldwide to have dedicated and well-supported Research and Development departments or teams. This is because the telecommunications sector relies on constant innovation to thrive. Research and Development activities provide the bedrock for such innovation.

The National Policy for the Promotion of Indigenous Content in the Nigerian Telecommunications Sector recognises the necessity of telecom companies in Nigeria having a well-supported R&D team to drive innovation in their institutions and in the telecommunications sector. The Policy encourages indigenous telecommunications companies to actively participate in the activities of Standards Development Organisations (SDOs) fora where telecommunications standards are set. These SDOs also provide a platform for learning and innovation and have been critical in advancing and disseminating technological standards throughout the world.

The objectives of the Research and Development for Innovation and Entrepreneurship focus area include to

i. Support win-win partnerships and knowledge transfer between indigenous and foreign companies;
ii. Support research and development efforts aimed at advancing the impact of indigenous content in the telecom sector;
iii. Drive the inclusion of telecommunications-related training in the curricula of tertiary and skills-based institutions;
iv. Mandate telecom institutions to create a platform for research and

development within the country; and

v. Encourage and incentivise the participation of indigenous research institutions, operators, and telecom equipment manufacturing companies in deliberations at the appropriate Standards Development Organisation.

2.6.4 People

Unarguably, people are the most important assets of organisations. Their importance is encapsulated in the skills and knowledge they possess as employees. The National Policy for the Promotion of Indigenous Content in the Nigerian Telecommunications Sector notes that the number of employees in the telecom industry that can be classified as indigenous is still low compared to non-indigenous employees. Furthermore, a large proportion of indigenous employees handle roles that are non-technical in nature.

This focus area lays more emphasis on skills than degrees and gives support for emerging technologies. The objectives of the People focus area are to

i. Build the skills capacity of Nigerians and the indigenous telecom companies to access opportunities within the sector;
ii. Define minimum indigenous content levels for projects across the telecommunications value chain; and
iii. Support the development of the local telecom startup and entrepreneurial ecosystem by making the licensing framework less cumbersome for new entrants and telecom StartUps.

CHAPTER THREE

3.0 Study Findings

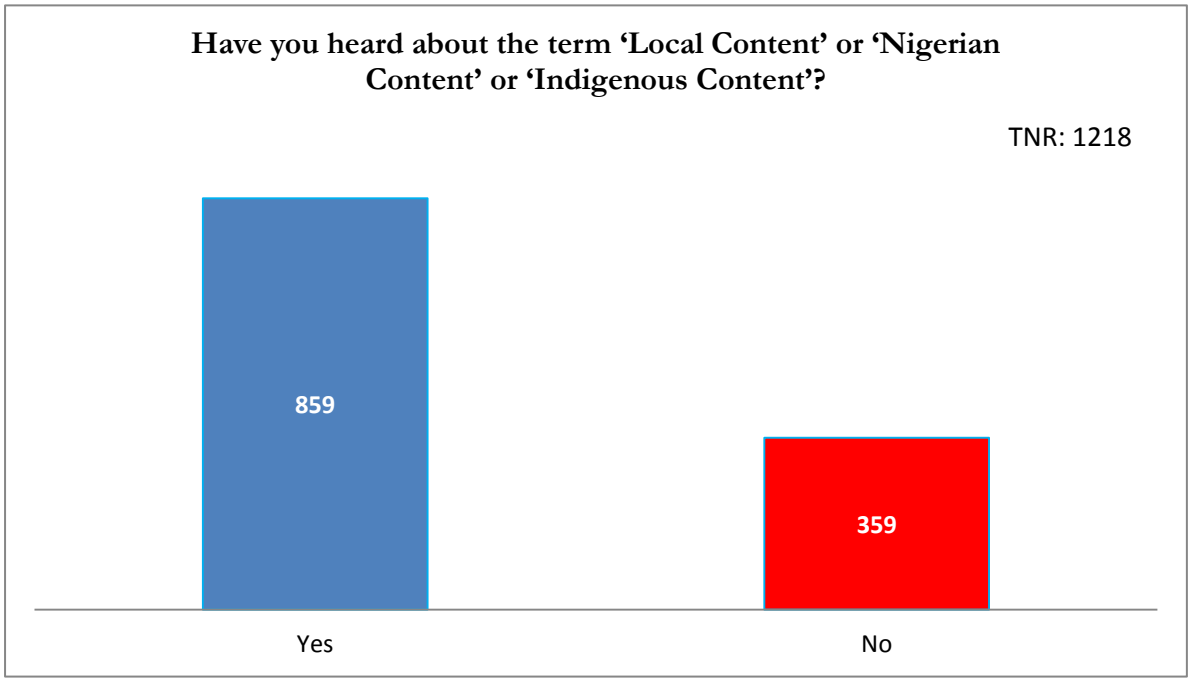
3.1 Objective One

To Provide Empirical Data on the Level of Local Content in the Telecoms Industry in Nigeria in Software, Hardware and Manpower

To gauge the general awareness and understanding of the concept of Local Content, the survey sought to know if respondents had previously heard about the term 'Local Content' or 'Nigerian Content' or 'Indigenous Content'.

A considerably high number of respondents 859 (71%) answered in the affirmative while 359 respondents (29%) responded in the negative. This presupposes a heightened sense of awareness of the concept of Local Content among the generality of Nigerians.

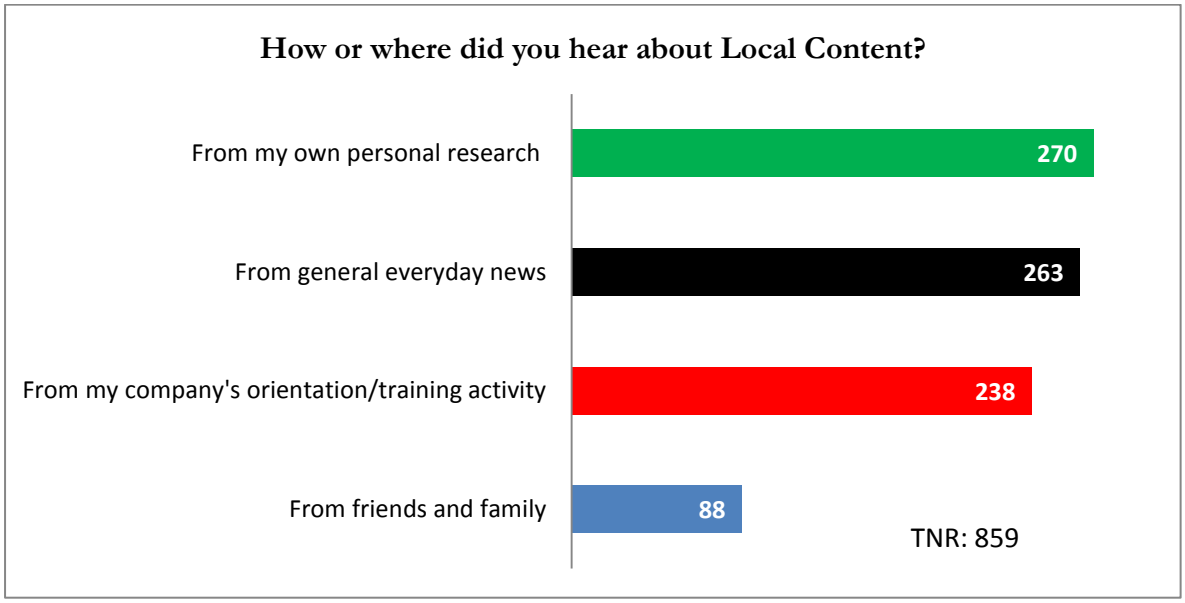
Table 9: Gauging Respondents' Awareness of Local Content Concept



Probing further, the survey sought to know how those who had come across the concept of Local Content got to know about it. Interestingly, more of the

respondents got to know about it from their own personal research than encountered it through a company's orientation/training activity. The rationale for this question was to gauge the awareness level and prevalence of Local Content in the workplace.

Table 10: Ascertaining Respondents' Source of Info about Local Content



As already established earlier in this Report, the indigenous content policy generally means any policy that encourages the development of indigenous skills, technology transfer, use of indigenous manpower and indigenous manufacturing. That is to say that Local Content dimensions include manufacturing, software development, compliance monitoring, licensing, funding, manpower and research and development for digital innovation and entrepreneurship.

With relentless advancements in technology, the Federal Government has come to recognize the need for Nigerians to participate actively in the exploitation and transformation of Nigerian telecommunication resources into goods and services aimed at economic growth with the participatory input from as my indigenous companies and workers as possible.

Since 1992 when the Telecommunications Industry in Nigeria received a dosage of the deregulation elixir which was dispensed firstly by the commercialisation or corporatization of Nigerian Telecommunications (NITEL) and secondly, with the establishment of the Nigerian Communications Commission (NCC) which was formally inaugurated on the 16th of July 1993, the industry has continued to make

progress in leaps and bounds. The motivating forces that necessitated the deregulation of the Nigerian Telecommunications Industry then are still the factors driving the improvement and development of the Industry today. The factors include in no particular order:

a) Private consumer and business demand for good quality telecommunications services at affordable and competitive prices;
b) Need for reduced time for telephone installation and service delivery;
c) Diversification and complexity of user needs;
d) Advances in technology;
e) Demand for improved business efficiency in the face of tight budgets.
f) Economic development and job creation;
g) The trend worldwide.

The Federal Government's decision to deregulate the Telecommunications Industry has had far-reaching, albeit positive, implications for the economy. The deregulation provided the needed leverage and acted as a catalyst for various forms of local businesses to sprout thereby heralding numerous socioeconomic and sociopolitical developments and benefits to the national economy.

The Nigerian Communications Commission is driven by several laudable objectives. But the focus of this study is on these four selected NCC's objectives which are to

a) Facilitate the entry into markets for telecommunications services and facilities of persons wishing to supply such services and facilities;
b) Promote the development of other sectors of the Nigerian economy through the commercial supply of modern telecommunications services;
c) Establish technical standards and promote the development of Nigeria's telecommunications capabilities, industries and skills; and,
d) Manage Nigeria's input into the setting of international technical standards for telecommunications.

These four aforementioned objectives give NCC the unequivocal mandate to sow, grow, nurture and sustain Local Content in the Nigerian Telecommunications Industry. The extent to which the Commission has excelled in executing this mandate is the mainstay of this study.

3.1.0 Status and Level of Local Content in the Nigerian Telecoms Industry

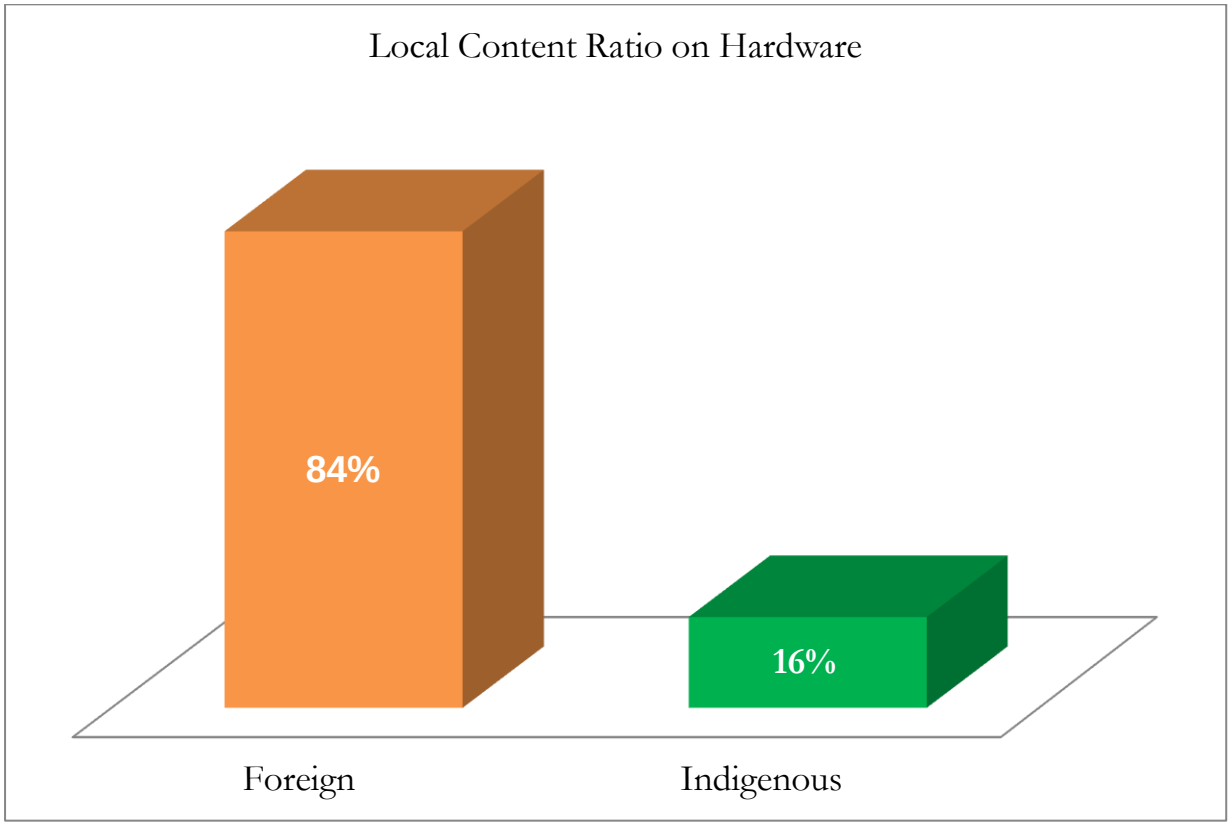
Hardware

At present, local content is low on the hardware components in use in the Nigerian Telecoms Industry as most of the equipment and devices are imported with hardly any significant indigenous technological contribution recorded.

Study findings show that up to 84% of the hardware is of foreign origin while only 16% is manufactured locally in Nigeria. Critical equipment such as Base Transceiver Stations are mainly procured from overseas manufacturers.

Aside from the national security implications of the over-reliance on foreign-manufactured equipment, it also negatively impacts the national economy in many ways, majorly around the obligations to expend scarce foreign exchange to fund the importation.

Table 11: Local Content Ration on Hardware

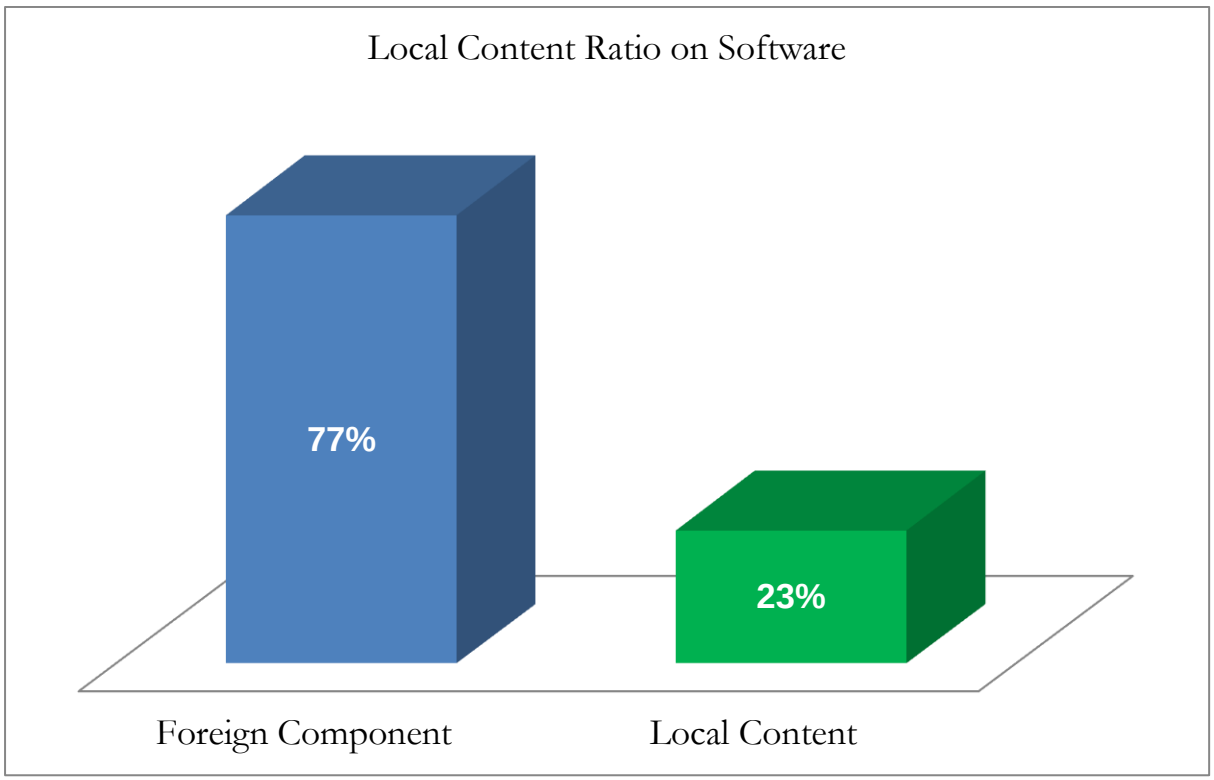


Software

While the growth in the Nigerian telecommunications sector has been phenomenal, from some 400,000 functional phone lines in 2001 to over 209 million active mobile subscriptions, achieving a teledensity of 110 per cent, as of August 2022, the growth in indigenous software in the sector has not been as phenomenal.

Study findings show that the current level of local content on software in the Nigerian Telecoms Industry has a ratio of 77% to 23% to the advantage of foreign software manufacturers.

Table 12: Local Content Ratio on Software



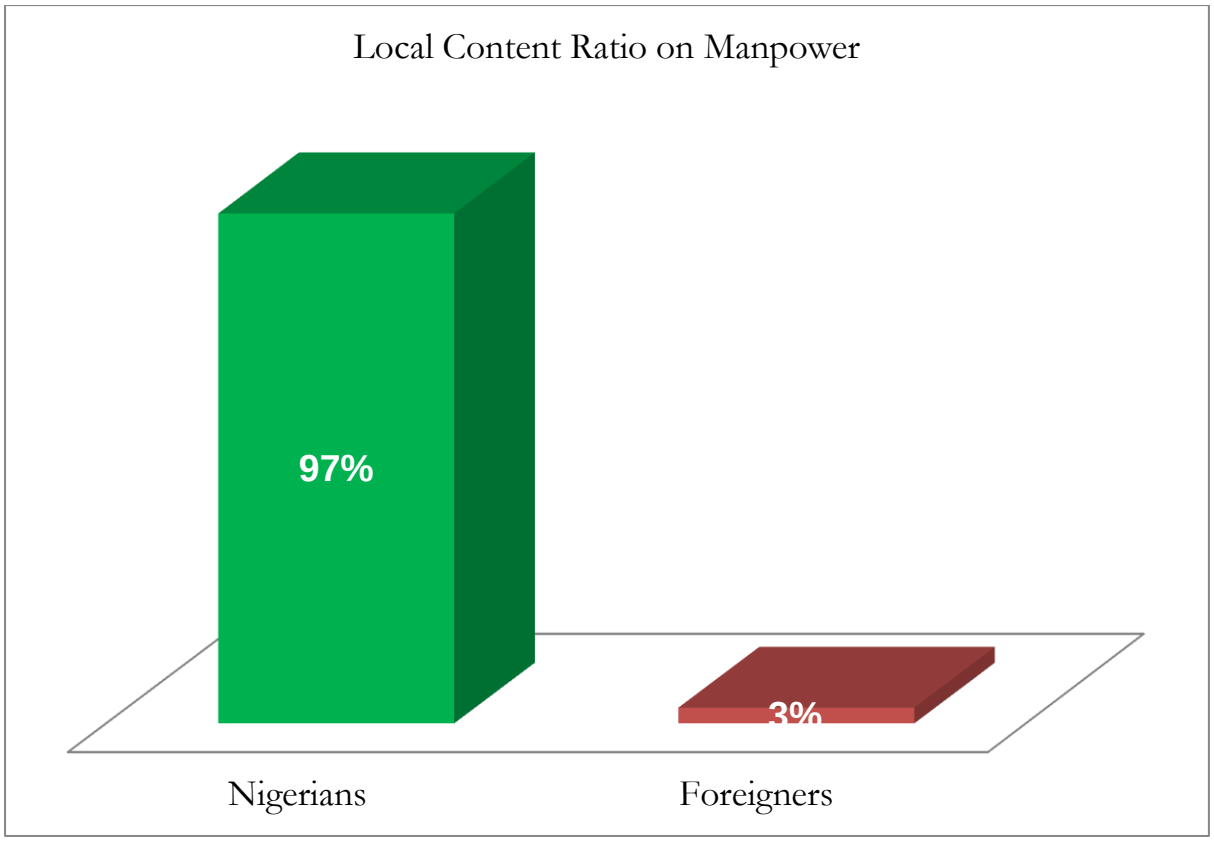
Worthy of note is that innovative software developed and manufactured locally such as Remita by SystemSpecs Limited for Treasury Single Account (TSA) management used by MDAs stands out as a success story that can be replicated in the Telecoms Industry with the right motivation.

Another successful indigenous software offering outside the Telecoms ecosystem is the e-Government Operation Solution (eGOS) by Connect Technologies Limited, and iX-Trac by Infosoft Nigeria Limited which are robust pieces of software able to stand their own against any foreign software of the same category.

Manpower

Between 2001 and 2022, the Nigerian Telecom Industry has created over 500,000 formal and informal jobs for Nigerians.

Table 13: Local Content Ratio on Manpower



The study findings reveal the dominance of Nigerians in the Nigerian Telecoms sector workforce to the ratio of 97% to 3%. Although the numbers of employed Nigerian staff are far higher than expatriates, the former are predominantly junior workers and mid-management employees in the various companies.

The Nigerian telecommunication operators employ around eight thousand people directly and around three million indirectly. Although direct employment is easier to quantify, indirect employment has a wider and more profound impact.

The top category of indirect employment encompasses equipment sales, infrastructure deployment, advertising, marketing and public relations as well as security workers who are involved in the protection of base stations.

At the base of the pyramid, there are mobile service resellers, technicians, recharge card distributors, retailers, phone booth operators as well as street vendors.

3.1.1 Enabling Entrepreneurial Environment for Local Content

An expansive body of literature exists on the concept of entrepreneurial environments appertaining to Local Content. Several scholars have prepared a list of environmental conditions that may play a role in developing indigenous entrepreneurship in a country or region. For example, Bruno, Et al. in the book: The Environment for Entrepreneurship;[13] and Manning, Et al. in Developing New Ventures Strategy - Entrepreneurship Theory and Practice respectively torchlight five items they commonly identify as motivational factors that drive local entrepreneurship. The five items are

a) Business opportunity;
b) Environment conduciveness;
c) Technical skills;
d) Financial funds accessibility; and,
e) Non-financial incentives.[14]

Other scholars focus on what governments can do, should do or have done to develop local entrepreneurship. For example, Goodman, Et al. in the Government as Entrepreneur Industrial Development and the Creation of New Ventures;[15] and, Westhead, Et al. in A Taxonomy of Business StartUp Reasons and their Impact on Firm Growth and Size posit that general environmental conditions include:

a) Legal and institutional frameworks for the efficient functioning of private enterprises;
b) Presence of experienced entrepreneurs;
c) Presence of skilled labour force;
d) Accessibility of suppliers;
e) Accessibility of customers or new markets;
f) High degree of competition among firms;
g) Favourable Government policies;
h) Provision of training and support services; and,
i) Availability of supportive infrastructure.[16]

[13] Bruno, Et al., - The Environment for Entrepreneurship - https://www.econbiz.de/Record/the-environment-for-entrepreneurship-bruno-albert/10001955990
[14] Manning, Et al., - Developing a New Ventures Strategy - Entrepreneurship Theory and Practice - https://journals.sagepub.com/doi/10.1177/104225878901400106
[15] Goodman, Et al., - The Government as Entrepreneur Industrial Development and the Creation of New Ventures - https://www.scirp.org/(S(351jmbntv-nsjt1aadkposzje))/reference/referencespapersaspx?
[16] Westhead, Et al., - A Taxonomy of Business StartUp Reasons and their Impact on Firm Growth and Size - https://www.sciencedirect.com/science/article/abs/pii/0883902694900248

To articulate how an entrepreneurial environment can induce or spur the involvement of indigenous entrepreneurship in the context of the Nigerian Telecommunications Industry, this study leans on Gnyawali, Et el.'s work titled: Environments for Entrepreneurship Development: Key Dimensions and Research Implications.

In that piece of work, Gnyawali, Et al. describes the entrepreneurial environment as combinations of factors that play a role in the development of indigenous entrepreneurship such as the:

a) Overall economic, sociocultural, and political factors;
b) Availability of assistance and support services; and,
c) People's willingness and ability to undertake entrepreneurial activities.[17]

Empirical studies of entrepreneurial environments of various countries show that countries that factor these considerations into their national strategies stand to derive immeasurable economic benefits. Also, countries that keep rules and regulations at a minimum; offer tax and other incentives, and provide training and counselling services to indigenous entrepreneurs increase the prospect of Local Content participation in their economies as illustrated in Table 4.

Table 14: Environment Conditions and Research Findings

Country	Environmental Condition and Impact	Reference
South Africa	Indigenous entrepreneurship is facilitated by keeping paperwork and procedural requirements at a minimum	Requirements in the Local Content Policy - Public Procurement System, South Africa
Rwanda	The country's Supplier Development – Backward Linkages Programme improved domestic linkages; and, the provision of low-interest loans and Government grants facilitate the development of indigenous entrepreneurship	The Made in Rwanda (MiR) Policy (2018) World Bank data

[17] Gnyawali, Et al., - The Environments for Entrepreneurship Development: Key Dimensions and Research Implications (1994) - https://www.researchgate.net/publication/263733348_

	And birthed Rwanda's improvement in the Cost of Doing Business Rwanda is ranked 38 among 190 economies in the ease of doing business, according to the latest World Bank annual ratings.[18]	
Ghana	A highly competitive ICT-led value-added and export-oriented services sector driven by a dynamic ICT services sub-sector and industry;	The Ghana ICT for Accelerated Development (ICT4AD) Policy
Ethiopia	The integration of local firms into the supply chains of retailers (including H&M and Unilever) and selected major food processors (including Nestle and PepsiCo); Provision of tax relief for new equity investments	Relationship Building Programme (RBP) - Ethiopian Investment Commission
Tanzania	Training arrangements for local SMEs to qualify as 'approved vendors'; Government's partnership with development partners to finance the training programmes; Provision of nationwide management training programs and the supply of information materials on business issues to encourage indigenous businesses;	Local Content Unit (LCU) Tanzania

[18] * World Bank - https://data.worldbank.org/indicator/IC.BUS.EASE.XQ?locations=RW

3.1.2 Situation Analysis of the Nigerian Telecoms Industry

The following points succinctly describe the state of play in the Nigerian Telecommunications Industry as of today:

i) Planning and implementation of most major telecommunications projects are premised on the importation of manufactured telecoms equipment and software from overseas;

ii) While tenders are to standard specifications, Nigeria now purchases equipment from the global market unlike the pre-1960 period when supplies were mainly from the UK;

iii) Replacement of equipment is partially influenced by lack of spares to maintain existing ones since relevant manufacturing is not done in the country;

iv) External plants construction is generally super-imposed on already developed towns/cities instead of being provided for earlier as a firm infrastructure at the preliminary stages of civil works or town planning development. This leads to inadequate space provisioning and hence high susceptibility to physical interference and sometimes frequent damage;

v) Inadequate supply of the public utility services that support telecommunications such as water, electricity and public infrastructure;

vi) Inability of the government security agencies to extend services to remotely located plants/sites;

vii) Inadequate local facilities to guarantee continuous equipment training and retraining for in-service officers locally; and,

viii) Problems associated with the introduction of new technology in the network.

These issues persist notwithstanding that Nigeria's economy recorded a boost in Foreign Direct Investment (FDI) from the Telecoms Sector to the tune of N23.982b in Qtr.1 of 2022.[19]

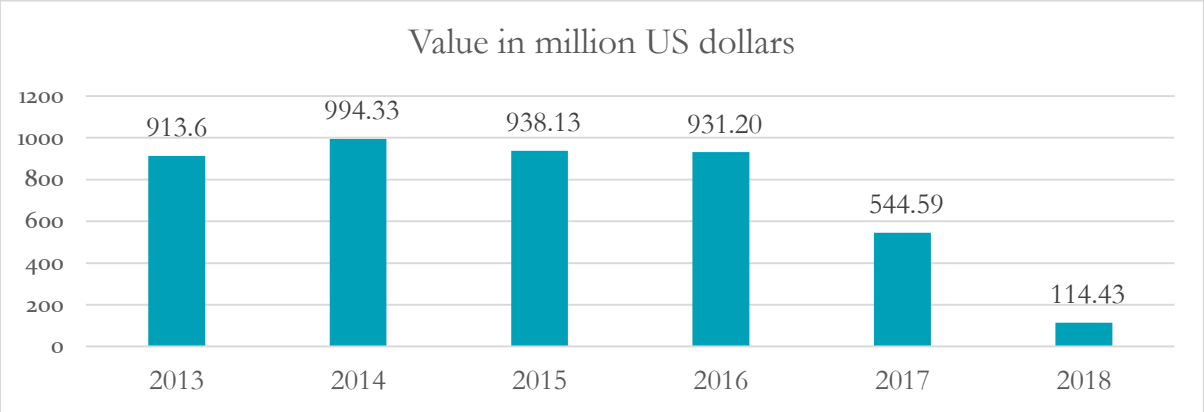
[19] Nigerian Investment Promotion Commission - https://www.nipc.gov.ng/2022/06/09/nigeria-records-n23-982-billion-fdi-from-telecom-sector-in-the-first-q1-of-2022/

Data from the National Bureau of Statistics (NBS) said that the figure represents a 2.6% increase year-on-year in comparison with the N23.356b ($56.28m) recorded in the same quarter of 2021.

The NBS disclosed that the funds attracted by the sector accounted for 3.6% of the total capital importation in the first quarter of 2022, which stood at N651.550b ($1.57b). In 2021, FDI in the sector stood at $107.5m, a decline of 287% in comparison with the $417m recorded the previous year. [20]

The Nigerian Telecommunications Sector drew in $944m in 2019 in comparison with $114.43m in 2018, recording an annual decline after its 2019 high. In the last five years, the sector had only seen an increase in capital imports in 2019. In a recent report, it was predicted that the deployment of 5G technology and the Government's target broadband penetration rate of 70% by 2025, would attract substantial additional FDIs to the Telecom Sector in the near to medium term.[21]

Table 15: Foreign Direct Investment 2013-2018



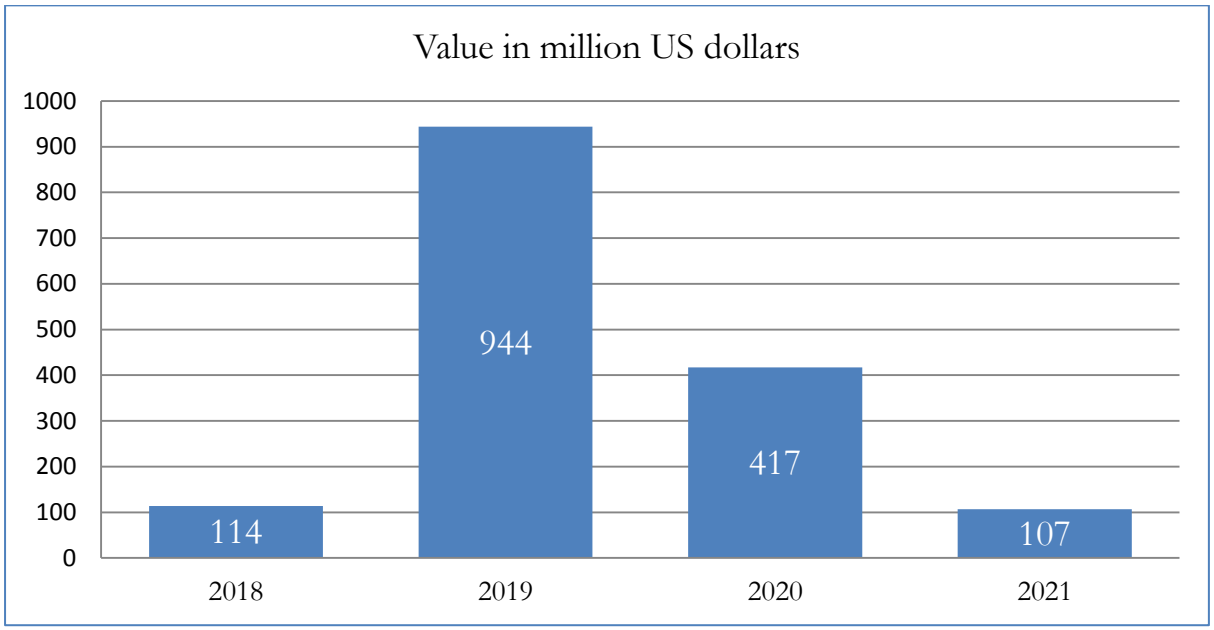
Source: NBS

Apart from revenues to the Government, the telecommunications sector has also contributed immensely to generating employment for Nigerians. More than one million jobs have been created in direct and indirect employment according to the Nigerian Communications Commission.[22] Ancillary telecommunications service providers such as handset hawkers, accessories dealers, phone troubleshooters and call centres are found on every street corner of the major cities and business

[20] National Bureau of Statistics - https://nigerianstat.gov.ng/elibrary/read/1241180
[21] NAIRAMETRICS - FDIs in Nigeria's telecoms sector hit $57.79 million in Q1 2022
[22] https://www.ncc.gov.ng/accessible/documents/764-the-role-of-telecoms-sector-to-diversification-of-the-nigerian-economy/file

districts contributing greatly to service accessibility and creating employment for thousands of Nigerians.

Table 16: Foreign Direct Investment 2018-2021



Source: Statista

On account of these increased activities in the sector, the percentage contribution of telecommunications to the growth of the Gross Domestic Product (GDP) has increased. Its positive impact on other sectors such as Banking, Oil and Gas, Manufacturing, Commercial, Transport, Health, Security, etcetera has not only added value but significantly raised the efficiency levels of their operations. In other words, every facet of Nigerian society has been positively impacted by the Telecommunications Sector.

Contrariwise, the Information and Communication Technology (ICT) sector spends a whopping $2.16b on average annually on tech-related foreign content according to the Association of Telecommunications Companies of Nigeria (ATCON).[23] The ATCON revealed that a breakdown of the spending in the telecommunication sector showed that:

a) $750 million is spent on capital expenditure (CAPEX) yearly;
b) $250 million on Network Software Licensing;
c) $800 million on Management Fees;
d) $157 million on Managed Services (Tier 2 & 3 Support); and

[23] https://tribuneonlineng.com/ict-nigeria-spends-2-16bn-annually-on-foreign-contents-don/,

e) $200 million on Miscellaneous (International circuits, roaming and terminations reconciliations among others.[24]

To find measures to stem the tide of expending huge sums of foreign exchange importing foreign content for the Telecommunications Industry is the raison d'être of the National Policy for the Promotion of Indigenous Contents in the Telecommunications Sector (NPPIC). The NPPIC underscores the need to intensify the promotion of software development; research and development; and adequate funding for digital innovation and entrepreneurship in Nigeria.

The policy stipulates that as part of the activities to promote the local manufacturing of telecommunication products, ancillary sub-sectors like the fabrication, telecommunications raw materials and components, circuit board design and manufacture, battery manufacture and other sub-sectors need to be actively developed.

Generally, telecommunications equipment manufacturers and suppliers are classified into broad categories such as Consumer Premises Equipment (CPE) and Network Equipment category. The CPE segment is characterised by high volumes, less complexity, lower shelf-life and low maintenance. Conversely, the Network Equipment category is characterised by low volumes (mainly Business2Business), higher complexity, higher shelf-life and higher maintenance. As such, this NPPIC prioritises the manufacturing of CPEs.

The objectives of the manufacturing focus area of the NPPIC include the following:

a) To stimulate the design, development, production, sales and utilisation of high-quality telecoms equipment and services developed by indigenous companies;
b) To develop indigenous telecommunication companies to become world-class manufacturers service providers;
c) To incentivise the production of cables, connectors, masts and telecom tools in a way that meets global minimum and certification standards;
d) To support local manufacturing through relevant institutions, such as the Universal Service Provision Fund (USPF), Central Bank of Nigeria (CBN), among others;

[24] https://guardian.ng/technology/fg-tasks-operators-on-local-equipment-production-to-check-2-16b-capital-

e) To encourage the establishment of vocational training institutes focused on the design, fabrication and assembly of telecom equipment; and;
f) To encourage partnerships and collaboration between global Original Equipment Manufacturers (OEMs) engaged in the manufacturing of telecommunications equipment and indigenous players.[25]

The NPPIC recognises that Local Content encompasses forward, lateral, and backward linkages. Backward linkages are those created by the commercial relations between the telecommunications operators and their supply chains, which include the transfer of technology and know-how; the employment of Nigerians; and, the sourcing of local goods and services. Lateral linkages leverage the demand of the sector to develop skills, services and infrastructure that can positively impact both the sector and the economy in general. While forward linkages involve the fabrication and construction of the infrastructures – both hardware and software – that are used to deliver telecommunication services.[26]

3.1.3 Software:

The Nigerian Telecom Sector predominantly uses imported software to power almost all the key services including Business Support Systems (BSS), Operations Support Systems (OSS), Performance Monitoring Billing (PMB), Customers Resources Management (CRM), and Network Inventory Management Systems etcetera.

Although ICT service exports (% of service exports) in Nigeria were 4.09 as of 2020, study findings show that 77% of software in use in the Nigerian Telecommunications Industry is foreign, while only 23% is obtained locally.[27]

When it comes to exporting software, the highest value Nigeria has exported over the past 15 years was 5.77 in 2017, while its lowest value was 1.02 in 2005. In dollar terms, the values are $163.3m as of December 2020; $290m in 2017, and $20.2m in 2005.[28]

Information and communication technology service exports include computer and communications services, telecommunications and postal and courier services, information services, computer data and news-related service transactions.

[25] NPPIC - Focus Areas and Policy Objectives - Page 11
[26] Harvard University - Business Linkages: Lessons, Opportunities, and Challenges
[27] NCC: https://www.ncc.gov.ng/documents/987-national-policy-on-the-promotion-of-indigenous-content/file
[28] World Bank Databank figures: https://www.indexmundi.com/facts/nigeria/ict-service-exports

With virtualisation and digitalisation of services becoming the trend in the economy coupled with the remote-access-working that has become the norm since the pandemic, it is a given that software will be a huge component of the Telecom Industry going forward. As sensor prices continue to drop, the economy is on the cusp of an era where everything - people, processes, devices, machines, furniture, and businesses etcetera - can be connected to each other. The melding of the physical and digital world brings every asset into a digital domain where the software will dominate.

Therefore, it is crucial to curb the high level of dependency on foreign software in the Nigerian Telecommunications Sector by redoubling efforts to grow indigenous capacity in the area of software design and manufacturing.

3.1.4 Hardware

Telecommunications development in Nigeria so far is almost wholly dependent on foreign technologies. In most cases, investment by multinationals has meant a mere relocation of facilities without the transfer of the ability to innovate since all the elements of technology required to make telecommunication succeed are most often transferred in a package. The main constraint to Local Content involvement with regards to the hardware used in the development of telecommunications in Nigeria has therefore been attributed to a lack of science and technology capacity for

a) Plant construction and installation;
b) Fabrication of plant and machinery; and,
c) Technical and maintenance activities.[29]

Another constraint to telecommunications development in Nigeria is the inadequate knowledge infrastructure around Science, Technology, Engineering and Mathematics (STEM) in Nigeria's education system. Limited dissemination and utilisation of research results in telecommunications practice in Nigeria is also a definite constraint to Local Content integration in Nigeria's telecommunication development. Results of research in engineering, electronics and solid-state physics in the Universities and Research Institutes are not being fully utilised to develop local capability in telecommunication services and in maintenance, adaptation and integration of new equipment with existing ones.[30]

[29] Dr. G.A. Alabi - Telecommunications in Nigeria - UNIVERSITY OF PENNSYLVANIA - AFRICAN STUDIES CENTER
[30] Ibid

In respect of hardware currently being used in the Nigerian Telecommunications Industry, Nigeria's indigenous Original Equipment Manufacturers (OEMs) toddled in at second best to their foreign counterparts with 86% of the equipment being of imported origin while a paltry 14% coming from local companies.[31]

The figures are none the better with data on Base Transceiver Stations (BTS) revealing that foreign products have 88% dominance over those manufactured locally in Nigeria which hold only 12% of the market share.[32]

With regard to Nigeria's performance in the export of technology hardware, the figures are grim. For instance, in 2019 the ICT goods exports (% of total goods exports) in Nigeria were reported at 0.0021%, in comparison with ICT goods imports reported at 3.7166% in the same year, according to the World Bank collection of development indicators.[33]

In monetary figures, the ICT goods imports came to a total of $1.76b for 2019. This records an increase from the previous number of $1.32b for Dec 2018. Nigeria's import of ICT goods went from a record low of $142.9m in 2000 to an all-time high of $2.92b in 2010, dipping to $1.022b in 2017 and settling at $1.76b in 2019. Conversely, Nigeria's export of ICT goods was reported at $1,124 for 2019 which was an increase from the previous figure of $40 for 2018. The best ICT export numbers were reported for the year 2011 at $21,155. The figures have reduced steadily from 2011 to the all-time low of $40 for 2018.[34]

Information and communication technology goods imports/exports include telecommunications, audio and video, computer and related equipment; electronic components; and other information and communication technology goods.

This is where the NPPIC comes in as a deliberate policy objective of the Federal Government focused on strengthening local manufacturing of such pieces of hardware as Subscriber Identity Module (SIM) cards, smartphones, recharge cards, parts, fibre optic cables, and masts, among others to shore up the deficits.

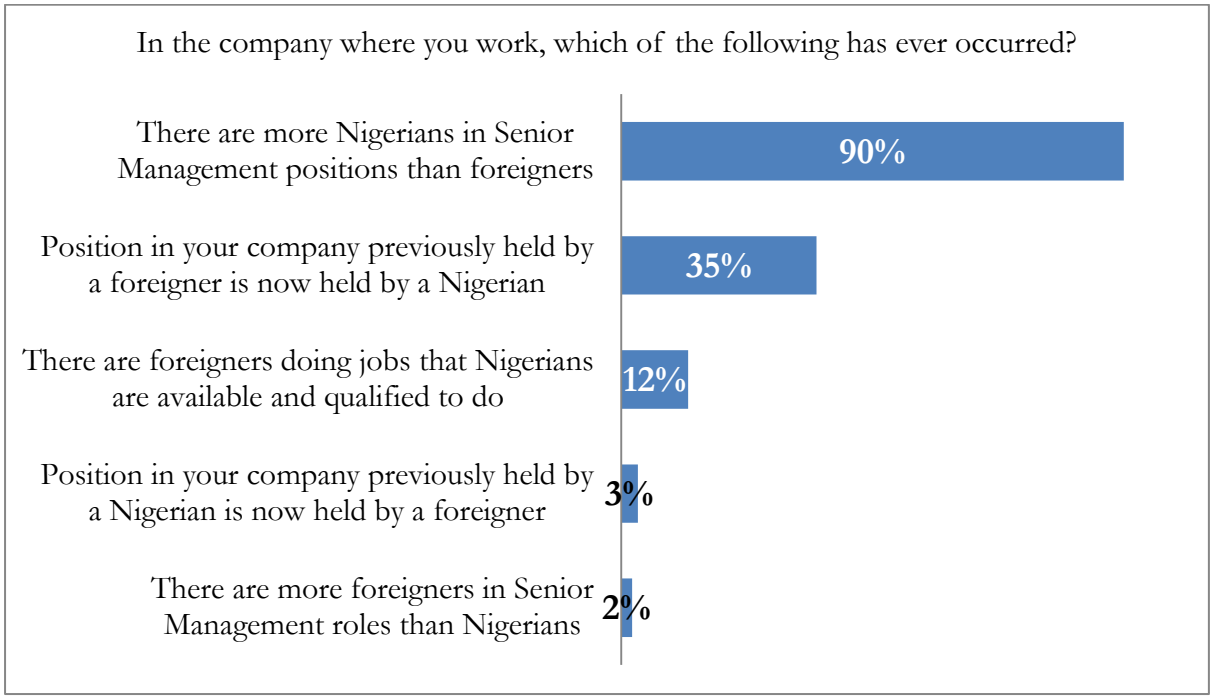
3.1.5 Manpower

The number of workers employed by the seven major MNOs - MTN, GLO, Airtel, EMTS, Smile and NTel as of December 2021 was a total of 7,226 composed of 7,042 Nigerians and 184 expatriates. Further breakdown of this

[31] Page 10 - National Policy for the Promotion of Indigenous Contents in the Telecommunications Sector
[32] Ibid
[33] UNCTADstat database at https://data.worldbank.org/indicator/TX.VAL.ICTG.ZS.UN?locations=NG
[34] Ibid

category reveals that 4,541 of the Nigerian staff are males while 2,501 are females. Similarly, 181 are male expatriates and 3 are female expatriates.[35]

Table 17: Measuring ratio of Indigenous Workers in Senior Management Roles



As of December 2021, the total staff strength of the "other operators" market segment stood at 1,426 staff. Nigerian workers here were 1,418 comprising 1,160 males and 258 females while the expatriate staff base reported 10 males and 1 female. These "other operators" provide ancillary telecom services such as Long Distance Service Operators, Automated Vehicle Tracking Services, Interconnect Exchange, Metropolitan Fibre License Operators, International Data Access, and Sales & Installation etc.[36]

The figures reveal a total number of 8652 workers in the telecoms sector with 8460 (97.8%) of them indigenous staff and 192 (2.2%) foreign workers.

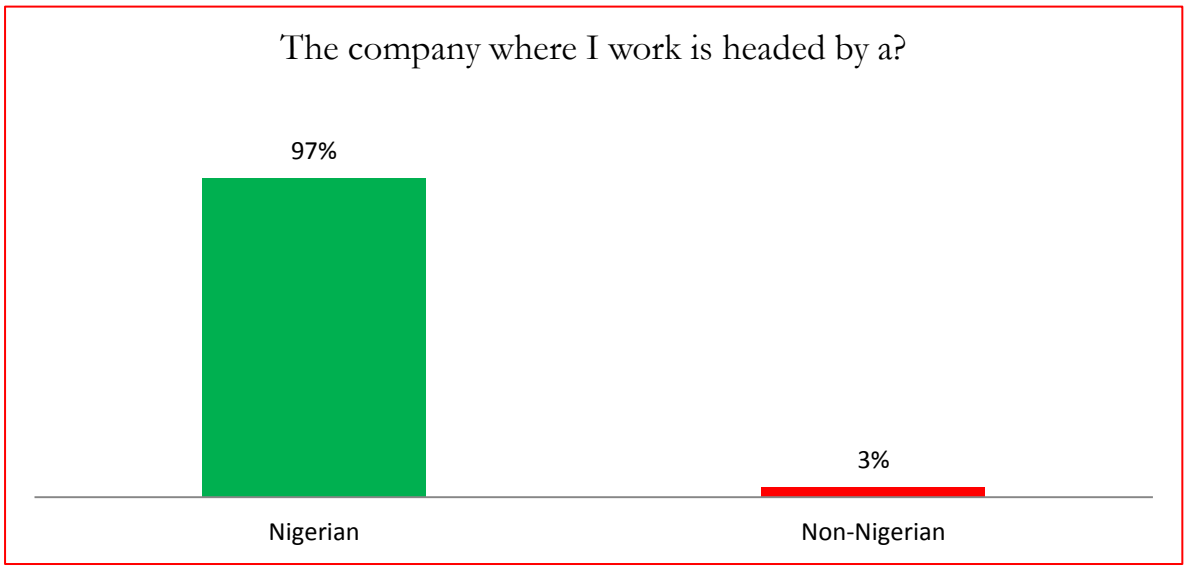
Although the numbers of employed Nigerian staff are far higher than expatriates, the former are mostly junior workers in various companies. An entry in the National Policy for the Promotion of Indigenous Content in the Nigerian Telecommunications Sector noted that a survey of industry players conducted by the Nigerian Communications Commission (NCC) in 2018, showed among other things, that there is a higher percentage of foreigners among top management staff

[35] NCC - Subscriber/Network Data Annual Report 2021
[36] Ibid

of the telecom companies when compared with other staff, with Nigerians making up 31% in relation to foreigners who make up 69%.[37]

However, Nigerians dominate when it comes to the headship of telecom companies in Nigeria.

Table 18: Headship of Companies by Nationality



The research shows that 97% of telecommunications companies in Nigeria are headed by indigenous Nigerians.

One of the common reasons adduced for this disparity is the often stated lack of sufficient technical skills capacity to take up more technical roles by the indigenous employees.

The Private Telecommunication and Communications Senior Staff Association of Nigeria (PTECSSAN) posits that Executive Order 003 which in part prohibits the Ministry of Interior from giving visas to foreign workers whose skills are readily available in Nigeria is largely observed in the breach.[38]

[37] National Policy for the Promotion of Indigenous Content in the Nigerian Telecommunications Sector - Page 10

[38] https://tribuneonlineng.com/telecom-workers-call- for-implementation-of-executive-order-on-local-contents/ -PTECSSAN

Table 19: Gauging Level of Indigenous Workers Participation

When asked whether, in the companies they work, Nigerians are constantly sent for training to prepare them to succeed foreign workers, 5% of respondents said it never happens in their organisation. To the question of whether more indigenous contractors are increasingly being engaged, 2% responded that such never happens in their company. As to whether Nigerian workers receive training to operate in highly technical areas, 18% said that that rarely happens in their company. Asked whether there is an increased level of employment of indigenous employees, 7% responded in the negative and 8% said that rarely have more jobs been created for Nigerians in the organisations where they work.

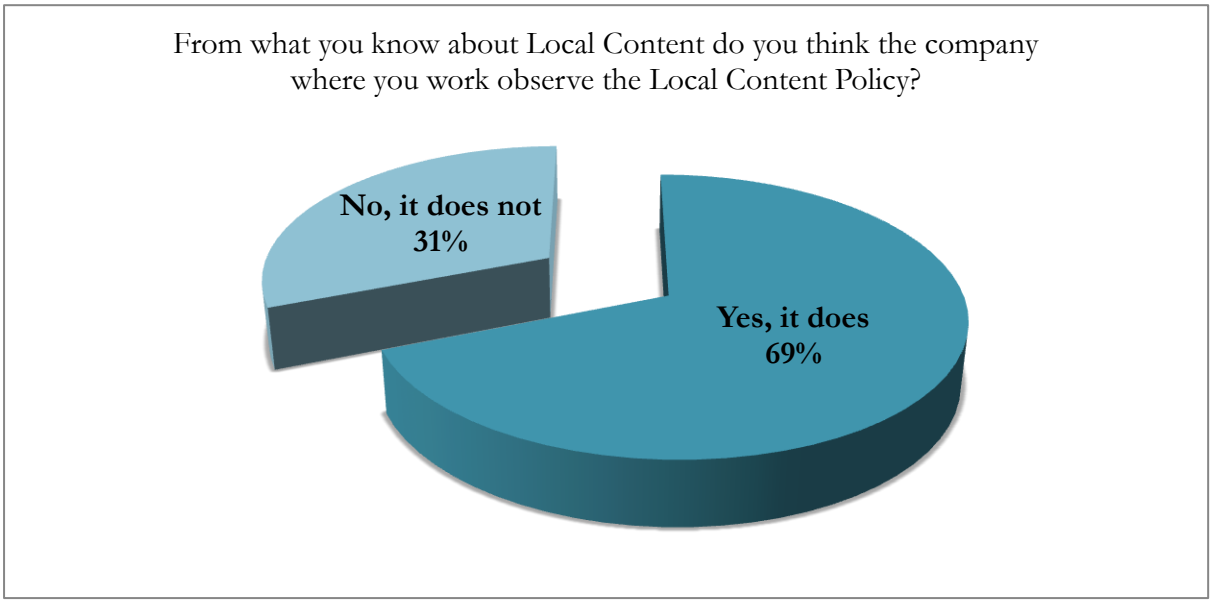
To address these irregularities, the NPPIC has objectives to build the skills capacity of Nigerians and the indigenous telecom companies in order to access opportunities within the sector; to define minimum indigenous content levels for projects across the telecoms value chain; and, to support the development of the local telecom startup and entrepreneurial ecosystem by making the licensing framework less cumbersome for new entrants and telecom StartUps.

In addition, the NPPIC states that telecom companies with foreign participation should have clear succession plans for senior management positions with conscious actions at building the capacity and providing the opportunity for indigenes to attain senior management positions within the larger operators.

The policy stipulates that the expatriate quota requirement which states that each expatriate employed by a company should be understudied by two Nigerians should be adhered to and that expatriate quota approval by the Ministry of Interior has validity dates which should be followed.

Further, the policy specifies that the expatriate quota in the telecoms sector should be referred to the regulator before approval to aid compliance monitoring. To what extent companies obey this policy directive remains to be seen.

Table 20: Measuring Level of Local Content Policy Adherence



The findings reveal that there is still a lot of work to be done in the area of sensitising companies about the need to inculcate the provisions of the Local Content Policy in the scheme of operations of their businesses. This is evidenced by the significant number of survey participants (31%) who posted that the companies where they work do not observe the tenets of Local Content.

Although a higher number of survey participants (69%) affirmed that the Local Content Policy is adhered to by the companies where they work, the numbers ought to be a lot higher if the policy efforts of the Government are to be considered a success.

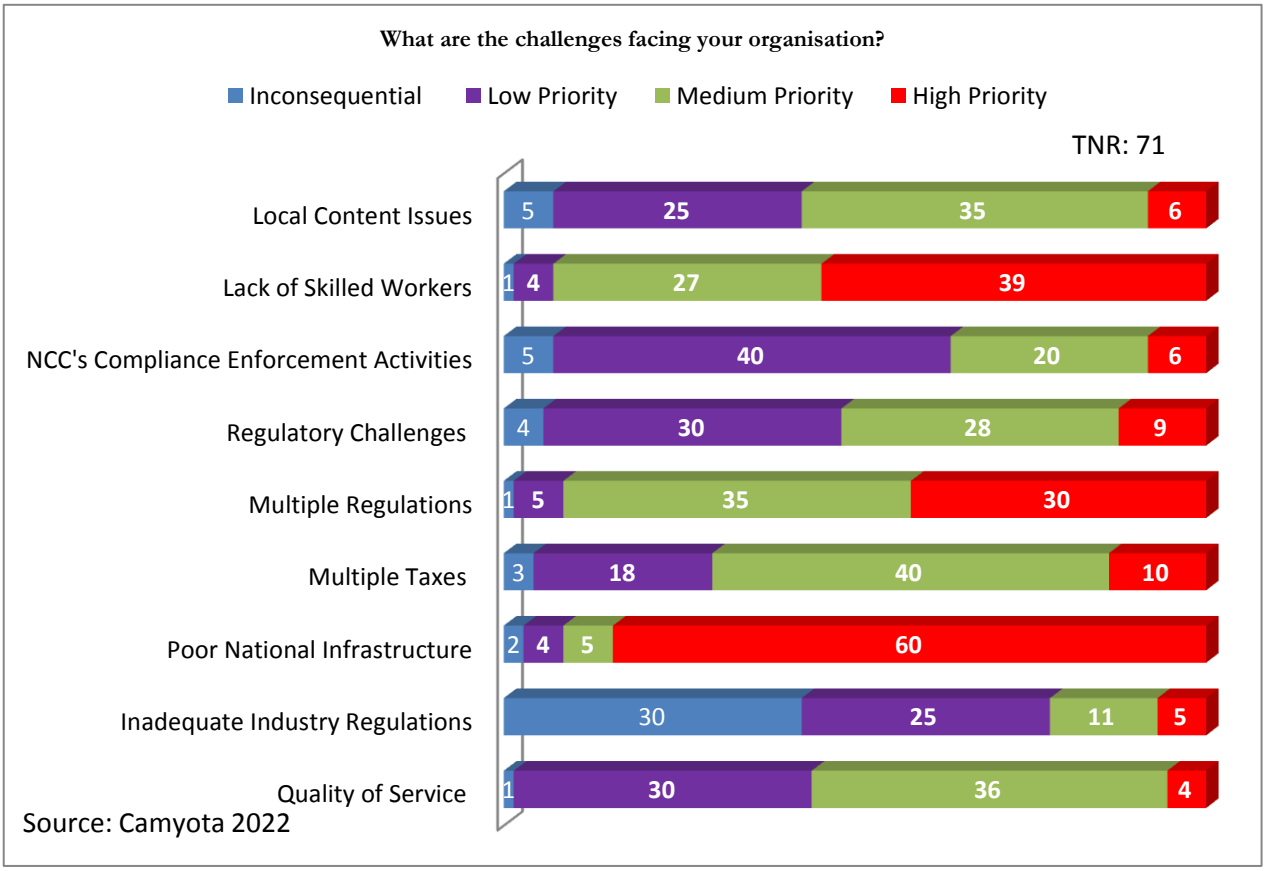
Beyond that, the higher the number of companies that abide by the provisions of the Local Content Policy the higher the number of indigenous workers and companies that are actively involved in the economy.

The study findings reveal that the most pressing challenges companies face in conducting their business are in order of priority: poor national infrastructure came

in as the challenge with the highest priority 60 (85%); followed by lack of skilled workers 39 (55%); and multiple regulations 30 (42%).

Not many companies 6 (8%) considered Local Content as posing any particular challenge to them. Interestingly, fewer companies viewed regulatory challenges 9 (13%) as a priority concern than multiple taxations 10 (14%).

Table 21: Challenges facing Organisations



3.2 Objective Two

3.2.1 To highlight the Benefits of Local Content Integration in the Nigerian Telecoms Industry

By fully activating Local Content integration in the Nigerian Telecoms Industry, the following dozen benefits will emerge:

1. Increased production capacity utilisation – triggering the manufacturing sector to rebound and generate more new job opportunities, especially for youths with technical, engineering and science talent;

2. Increased demand on existing and potential production capability – with the promise of turning Nigeria from being the dumping ground of foreign telecommunications equipment to a net producer and possible exporter of technology equipment and manufactured products;

3. The multiplier effect on employment, revenue generation, and wealth creation – drastically reducing unemployment numbers and increasing the earning potentials of Nigerian workers;

4. Increased dependence on local capital, machines, raw materials, and talent – conversely causing a concomitant decrease in the dependence on imported software and equipment;

5. Decreased dependence on imports – helping immeasurably to propel the Government's diversification plans away from reliance on petroleum income to include revenue from technology exports;

6. Increased Foreign Direct Investment (FDI), Internally Generated Revenue (IGR), investments, and contribution to GDP and foreign exchange revenue – a confident and skilled local workforce would inevitably become attractive to increased investments as foreign and indigenous investors alike invest to partake of the bubble;

7. Increased competition, development, and innovation in the private sector – bringing about the much-desired growth in Research & Development among private sector organisations as they compete to innovate thereby strengthening the domestic skills base and indigenous know-how;

8. Increased sustainable socio-economic development, diversification, and industrialization – jumpstarting the moribund mechanisation and

automation goals as captured in the defunct Vision 2020 – 2030 Plan that had ambitions to turn Nigeria into an industrialised country by the Year 2020;

9. Increase in the amount of foreign exchange retained in the country while increasing opportunities for foreign currency earnings for Nigerian companies. If Local Content would substitute for imported goods, it would also lower the import bill and thus improve the trade balance;

10. Provide the opportunity for local companies to develop competencies to grow to become regional and global players.

11. Provide immense benefits in the area of national security with defence hardware and infrastructure .manufactured locally by Nigerians instead of foreigners who may leverage their production of equipment to compromise Nigeria's national security

12. Cost savings especially around the use of local Internet Exchange (IPX) - Avoiding expensive IP transit to exchange traffic abroad saves ISPs money, which may be passed on to their customers in the form of lower prices or larger bundles of data. In addition, a much broader impact on the ecosystem appears when local hosting is expanded. As the IXP benefits emerge, so does increased demand for Data Centres to hold content and services that can be made available over the IXP. This helps to support local hosting providers, increase the digitalisation of services, and promote the development of skills and businesses to meet the growing demand for local hosting.

Most of the benefits of Local Content integration in the Nigerian Telecommunications Industry derive from private sector participation and investments in the sector. The benefits, both immediate and remote, have started to manifest in greater efficiency, greater flexibility, and less stress in the way people organize their businesses and economic and social activities.

The Nigerian economy is being stimulated and more wealth created resulting in the provision of incentives for the development of professionalism in telecommunications service delivery and for telecommunications professionals to participate more meaningfully and visibly in Nigerian economic activities

Cursory overview of the deregulated Nigerian Telecommunications Sector reveals

that great opportunities abound for investors to come up with new products and services. The sheer size of the Nigerian population and the great strides being made in the Telecoms Industry as well as the prospects of providing these services with the assured profitability characteristic of telecommunications investments are current factors that have instilled some confidence in indigenous entrepreneurs in the Nigerian telecommunications environment.

The theoretical analysis of the correlation between Local Content Policy and local value creation in the Telecoms Sector is often linked to the effectiveness of local regulatory policy with particular reference to increased local firms' participation, increased locally produced input materials procurement (backward linkages) and capacity building and utilisation of human resources (job creation). The associations among these variables rely on the opportunity theory proposed by Reynolds et al. The theory suggests that individuals will be motivated to partake in enterprises if opportunities are spotted in the market in an enabling environment.[39]

Other recent studies have shown that entrepreneurs are often driven by opportunity and more motivated, especially when they are given preference in the entrepreneurial activity.[40]

Thus, such entrepreneurial opportunities are what the NPPIC aimed to create for local firms, and link the Telecommunications Sector to service sectors to increase the benefits of the Industry to the majority of people, especially through the creation of numerous jobs in the sector. There is a link between Government intervening policy and increased participation of local businesses which in turn can increase local employment. Government support for local entrepreneurs can stimulate economic activities and attract further investment, such that the effects would be multiplied. The effectiveness of the Local Content Policy, therefore, lies in its ability to increase local firms' participation in the Telecoms Industry and create jobs.

Examining the trends in the Nigerian telecommunication market will confirm the huge potential available if the necessary policies from the supply side are put in place. Most achievements in the sector so far are from the demand side. The area of supply of telecommunications infrastructure, skills and technical know-how is yet to witness any significant local participation.

[39] AN Adedeji - Testing Validity of Observed Indicators of Local Content Policy - https://www.cbn.gov.ng › out
[40] Ovadia Et al., - Factors Influencing The Entrepreneurial Engagement Of Opportunity And Necessity Entrepreneurs

Key indicators showing the unprecedented growth in the telecommunications sector include the following:

a) High subscriber base;
b) Excellent penetration rate;
c) High teledensity;
d) Private investments;
e) Market shares;
f) Contribution to the growth rate of GDP;
g) Employment generation;
h) Increase in government revenue; and,
i) Other social benefits.

The revenue profile of the government has been highly boosted by the telecommunications sector during the past eight years. As against the era of subsidising the sector to the tune of billions of Naira (in the past under NITEL) the Government has made huge revenues. For instance, the licensing fee paid by Operators – MTN, CELTEL and MTEL in 2001 amounted to $285m each; GLO Mobile paid a fee of $200m, while, a 5th Mobile licence was awarded to an investment company owned by the United Arab Emirate for $400m.[41] Governments also generate revenue from taxes, levies, import duties, VAT and other permits and charges paid by telecommunication service providers.

Global market instability, supply chain uncertainties, fluid and ever-changing consumer demands, national security requirements, and other challenges are issues that can disrupt an economy. The need, therefore, to invest in indigenous value creation is more pressing than ever.

Ongoing conflicts around the world have made it evident that gaining a foothold in the regional or global market is no longer enough for a country to sustain or guarantee healthy economic growth.

The procurement of, investment in and development of locally produced goods, services, and labour can be considered as part of building the economic infrastructure of a country and shoring up its national security.

It is on account of this that Nigeria must embrace Local Content as an essential component to shore up national security, boost economic growth, foster innovation, create jobs, strengthen self-reliance and stay competitive.

[41] Tell Magazine, October, 2007.

By investing in Local Content initiatives that are built on a backbone of innovation to deliver sustained advantages, Nigeria will be better positioned to cushion the economy with diversity and resiliency.

If the NPPIC is properly implemented, various MSMEs will avail themselves of the opportunities available, especially in those parts of the Telecoms Industry such as fabrication, engineering, construction, and information communications technology (ICT) services in which local firms could successfully and actively participate and from which substantial employment opportunities could be generated with the following possible outcomes.

1. **Alleviation of Poverty and Improvement in Standard of Living** - With increased industrial outputs the standard of living of the people will increase or improve as a result of an increase in goods and services, basic amenities and income capital.

2. **Reduction of Unemployment Rate** - Increased industrial output will reduce the number of people unemployed in the country when more people are employed in the industries.

3. **Increment of Export/Import Substitution** - With increased industrial output more goods will be exported than are imported leading to a favourable balance of payment and also reducing the heavy dependency on imported goods.

4. **Reduction of Dualistic Economy** - With increased industrial output Nigeria will catch up with the developed economies thereby bridging the gap between developed countries and Nigeria.

5. **Achievement of Sustainable Development Goals (SDG)** - The SDGs are a universal call to action to end poverty and ensure that all people attain prosperity. Industrialisation will place Nigeria in a vantage position to achieve them.

3.2.2 The Potential uses of Local Content Integration in the Nigerian Telecoms Industry

Mobile operators contribute to the economy by creating workplaces and jobs that rely on the distribution of mobile technology and services. This contribution also takes the shape of employment beyond the telecom operator ranks, by enhancing entrepreneurship, productivity and other commercial skills.

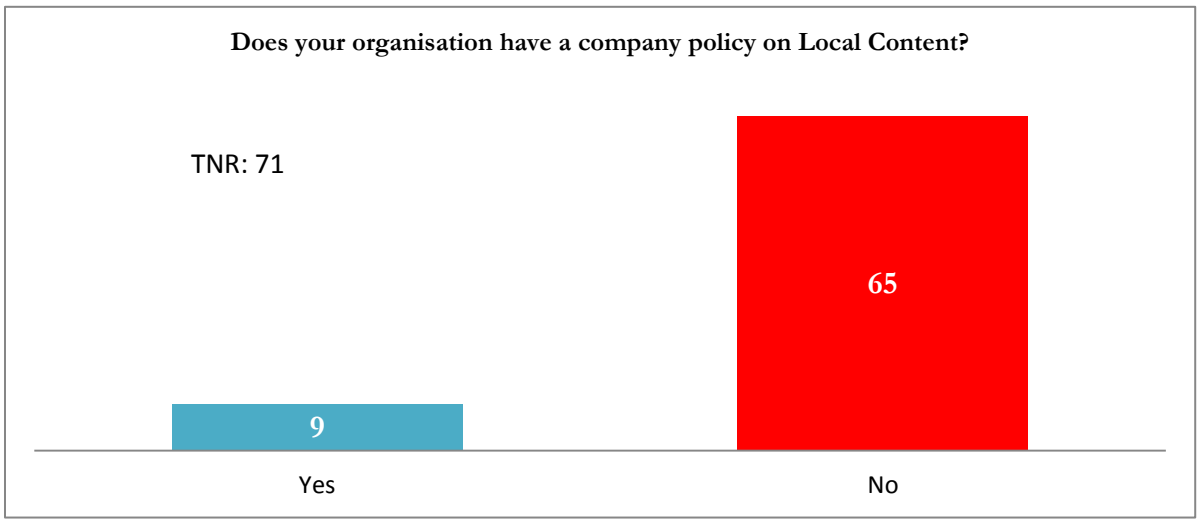
In total, telecommunication operators employ around eight thousand (8,000) people directly and around three million indirectly. Although direct employment is easier to quantify, indirect employment has a wider and more profound impact.

The top category of indirect employment encompasses equipment sales, infrastructure deployment, advertising, marketing and public relations as well as security workers who are involved in the protection of base stations.

At the base of the pyramid, there are mobile service resellers, recharge card distributors, retailers, phone booth operators as well as street vendors. The mini call centres consist of simply one or a few mobile phones and airtime bought in bulk from the operator. Call centre operators allow other people to use the phone for a fee and quite often will take a message, also for a fee.

Perhaps more work has to be done by policymakers to communicate the importance of companies having an internal Local Content Policy to guide their staff recruitment as only 9 (13%) of respondent companies have the policy.

Table 22: Existence of internal Local Content Policy



Integration of Local Content in the Nigerian Telecom Sector

	Benefits	Barriers	Solutions
1	It would help to raise incomes and reduce the number of people living in poverty.	Investments in the Telecommunication Industry are usually capital intensive - from licence fees, infrastructure and equipment to labour costs.	Ease access to funds through commercial funding bodies; tax rebates and similar government-backed incentives.
2	Aid the development of local skills - the use of local manpower and local manufacturing would contribute to economic development in terms of a higher growth rate of the economy's productivity.	Significant proportions of the goods and services demanded by the Telecom Industry are high technology and specialised in nature, and are typically supplied by competitive international markets.	Local content can manufacture billing software, cyber cables, masts, connectors, switches as well as equipment racks that can be fabricated locally not requiring high technology.

3	Ameliorate the problem of unemployment and save the country's foreign exchange that is used in the importation of goods and services that have local alternatives.	Trained manpower is not readily available and there is a lack of capacity to develop high-tech manufacturing locally; with limited skills and a poor industrial base, it is often difficult for local workers and businesses to participate in the industry, a situation exacerbated by the quality of local educational systems, arcane regulatory environments, poor access to finance, and deficient local infrastructure.	Any policy that requires the use of local human resources should ensure provision for the training of human capacity; Telecoms firms in the country to institute clear succession plans for senior management positions with conscious actions at building the capacity and providing an opportunity for indigenes to excel within the larger operators.
4	Accelerate the pace of indigenous digital capacity development and thereby enhance national competitiveness and prosperity.	There is an industry aversion to the use of locally produced equipment.	The industry requires an effective policy framework as well as enforcement to encourage local content in telecommunications development to use locally made equipment where necessary in the sector.
5	Create more jobs, increase FDIs, improve technology adoption, enhance security; improve revenue and Forex earnings.	Lax implementation and enforcement of expatriate quota regulations.	Full implementation of the National Policy for Promotion of Indigenous Content in the Nigerian Telecommunications Sector (NPPIC) through the Nigeria Office for Developing the Indigenous Telecom Sector (NODITS).

3.3 Objective Three

3.3.1 To Evaluate the Use of Innovative Techniques to Integrate Local Content in the Nigerian Telecoms Industry

Before delving into the use of innovative techniques to integrate Local Content in the Nigerian Telecoms Industry, it is pertinent to run through a brief narration of innovation in the Nigerian Telecoms Industry.

Telegraph service was first opened in Lagos on 2 September 1886 – that is 136 years ago almost to the day. From then up until the 1950s, Government and large business corporations were the primary users of telephone services as they were probably the only users who could afford the services as the per capita gross national product was then rather low.

At independence in 1960, with a population of roughly 40 million people, the country only had about 18,724 phone lines in use.[42] This translated to a teledensity of about 0.5 telephone lines per 1,000 people. The telephone network consisted of 121 exchanges of which 116 were of the manual type and only five were automatic.[43]

With the advent of the oil boom in the 1970s, however, the economic situation changed and this was followed by a dramatic increase in demand for telephone services. As the installed telecommunication infrastructure could not cope with the rising demand, the quality of service began to deteriorate.

Between 1960 and 1975, telecommunications did not receive the required Government attention in terms of infrastructural development. However, the third national development plan of 1975-1980 targeted significant improvements in capacity and infrastructure in telecoms.[44]

In 1984/85, the telecommunications service was commercialised and thus, the Department of Post and Telecommunication became separated. Nigeria Telecommunication (NITEL) was created as a Government-owned monopoly operator to provide a range of services such as Fixed Telephone, Telegraph, and

[42] Ajala Et al., - Impact of Telecommunication Liberalization in Nigeria
[43] Nigeriafirst, 2003 and Ajiboye et al., 2007
[44] Ibid

Payphone. The installed capacity improved to 400,000 lines, while the connected lines stood at between 205,000 and 250,000 lines in 1987.[45] It could be argued that the low number of connected lines was a result of the poor services provided by NITEL.

Between 1987 and 1991, no remarkable improvement was recorded in performance by NITEL and consumer demands were largely unmet. This prompted the Federal Government of Nigeria under the military administration of General Ibrahim Badamasi Babangida to embark on market-oriented reforms by partially liberalising the Telecommunications Sector.

In 1992, the Nigerian Communications Commission Decree (NCCD) was promulgated and became the main legislation governing the Telecommunication Sector.[46] The decree liberalised various aspects of telecommunications activities including the:

a) Installation of terminals or other equipment;
b) Provision and operation of private network links employing cable, radio communication or satellite exclusively within Nigeria;
c) Provision and operation of public mobile communication (GSM standard);
d) Provision of community telephones; provision and operation of value-added network services;
e) Repair and maintenance of telecommunications facility and cabling;
f) Provision and operation of private network links employing cable, radio communication or satellite exclusively within Nigeria;
g) Provision and operation of public mobile communication (GSM standard);
h) Provision of community telephones; and,
i) Provision and operation of value-added network services.

Thus, the establishment of a strong and independent regulator became a prerequisite to enforcing rules and regulations in the Telecommunications Industry. That paved the way for the setting up of the Nigeria Communications Commission (NCC) in 1992 which became operationalised in 1993.

Since 1993, rapid changes have taken place in the Telecommunications Industry. These changes have had profound effects on telecommunications, particularly in the areas of computerisation, digitalization and regulatory policy.

[45] Ndukwe (2003) - The Revolutionary Years: Nigeria's Telecommunication
[46] Oyejide & Bankole, (2001).

Advances in technology are also responsible for the rapid decline in the price of electronic computers consequently they are now in such widespread use that computer terminals constitute a significant proportion of the connections to the telecommunication network. The combination of electronic computers and telecommunications has ushered in the information age - an age where information has become an essential commodity for the running of businesses and day-to-day lives.

In several African countries, there is an urgency to modernise telecommunications to cope with the demands of the information age. The need for modernisation is not only to satisfy anticipated demand, it also includes the desire to use the innovations brought about by new technologies to provide employment opportunities and to create prosperity.

Although Telephone services are becoming more and more reliable, especially with the digitalisation drive of Nigerian Telecommunications, the downtimes are still very high while charges have gone up astronomically.

In terms of computers and computer applications, the evolution of information technology is very rapid. Hardware costs are falling and its power is increasing. User-friendly interfaces and new software are also bringing technology closer to end-users, significantly modifying the technical specialists' role. For telecommunications, the application of wireless technology has also brought into focus faster and cheaper extension of services to the end users.

Compared to the telecom ecosystems of developed countries, Nigeria's Telecommunications Industry can be said to still be in the nascent state of development. But given the capital-intensive nature of the industry and the enormity of the shortfall in Nigeria, there is no doubt that the development of telecommunications services in Nigeria is too heavy a burden to be borne by the Government alone. Indeed the Government has had to change its methods of operating, in response to declining resources and increasing demands for public services.

Therefore, some of the innovative techniques to integrate Local Content into the Nigerian Telecommunications Industry will involve multi-stakeholder participation in the following aspects:

(a) Supporting the Government's programme of rural infrastructure

development by extending telephone service to the rural areas in an economic and judicious manner;

(b) Campaigning for the recognition, by the Government, of telecommunications as a support component for other development sectors such as agriculture, tourism, health and education so as to ensure that the funding necessary for the telecommunication facilities required is included in the development plans for these sectors;

(c) Adopting an operation and maintenance strategy that will ensure maximum utilisation of the existing facilities and provision of good quality service in order to generate adequate funds for further development of the network;

(d) Standardising for local manufacture, being embarked upon, covering equipment and materials operations and architecture as applicable;

(e) Manufacturing of materials local including components and systems in partnership with good intentioned industrial entrepreneurs, to enhance maintenance of existing systems, to establish a technological base necessary for achievement of self-reliance in telecommunications technology;

(f) Tapping available resources for the financing of the implementation of well-designed and economically viable projects for equipment rehabilitation, maintenance and new installations;

(g) Establishing a suitable management structure for the implementation of the Local Content policy and programmes;

(h) Operating a tariff structure which will ensure enhanced revenue generation from urban facilities without discouraging the use of rural facilities;

(i) Establishing Research and Development facilities where special investigations, pilot projects will be carried out;

(j) Training and re-training of executive technical manpower intensively and locally;

(k) Adopting suitable planning and forecasting approach to determine the

exact requirements for a project to ensure that it will be correctly implemented and successfully put into service using Local Content as much as feasible; and,

(m) Increasing the available phone lines in the country for higher teledensity.

For any development process, it is vital to have horizontal information channels that activate all sectors of the population and facilitate access to decision-making for otherwise excluded sectors.

In advancing thoughts on the use of innovative techniques to integrate Local Content in Nigeria's Telecommunications Industry, the following points should be borne in mind:

1. Local Content does not mean excluding foreign participation in Nigeria's economy. Rather, it means concerted and collaborative efforts by all players to build a strong indigenous economy. For instance, the win-win formula plays out in a situation where the locally assembled computers must run on Microsoft operating systems and Intel processors. Therefore, for every locally assembled computer bought by Ministries, Departments and Agencies, Microsoft and Intel would be the key beneficiaries along with local original equipment manufacturers. Everyone benefits.

2. Propelled mainly by current technological advances, the telecommunications arena in Nigeria has started to undergo profound structural changes, giving rise to cheaper and more reliable telecommunications equipment and services on the one hand and a whole new range of services on the other.

3. In order to respond to global competition, joint ventures and other forms of alliances are increasingly being established between the major MNOs and equipment manufacturers. New operators are also being established focusing in particular on telecommunications growth areas such as integrated telecommunications services for multinational companies, international telephony and mobile telephony.

4. Thus, Government intervention in promoting and increasing local firms' participation underlines the importance of the Government's role in the operations of the sector. Local capacity building for increased firms' participation is seen as a strategy towards economic value creation which is

considered to benefit the local economy beyond the contribution of the telecommunications sector to the gross domestic product (GDP).

5. By eliminating distance, telecommunications bring all kinds of partners together, saving time and resources, which are valuable factors in economic development and economic and social integration. Capitals and large cities around the world are linked by telecommunications and information networks covering almost all aspects of business, commerce, education, news, entertainment, etc.

6. Through telecommunications which are regarded as the medium which replaces the physical movement of people across distances, the world has become smaller than at any time in the past and it is even getting smaller and smaller. Indeed, communications, financial transactions and trade, as well as a large share of the manufacturing sector, could come to a virtual standstill without telecommunications.

7. Telecommunications is at the forefront of current economic and social affairs. The digitalisation of networks globally has further destroyed the boundaries which separated them from the fields of electronics and computing. The resultant multiplication of telecommunication services and their increasing sophistication have exploded the technical and commercial limitations which previously existed. The evolution has been decisive and here in Nigeria, has followed from technical facts and not political will.

8. Today, the challenge of meeting the large and rising demand is being met by moving toward a sector structure that is plural and competitive, with a mix of service providers - private and public, using various technologies and offering services tailored to different user needs.

9. The lack of cognitive skills has turned Nigeria into a dumping ground for new technologies and equally turned Nigeria's best brains into repairers rather than creators of new-age technologies.

10. While there are record numbers of foreign companies providing the basic telecommunication needs of Nigerians, the level of local participation, technological transfer and support to indigenous innovation still remains low.

11. Technology acquisition should be well programmed and aggressively pursued if economic and socio-political advantages are to be gained. This is because technological development is a product of a nation's sound economic management, policy reengineering, good governance and a social value system that rewards hard work and creativity.

12. Although a significant number of Nigerians are now in managerial and professional positions in telecom companies, however, the evidence of technology transfer is yet to be seen. Nigeria, therefore, needs to carve her own unique home-grown strategy for attaining technological progress pursued with all seriousness if Nigerians are to make any meaningful impact in the Telecommunications Industry.

13. A dynamic approach to sustainable Local Content development needs to be adopted by the government policymakers to guarantee larger local participation in Nigeria's Telecoms Industry.

14. The developmental framework adopted by Nigeria to develop the telecoms sector, centres around foreign companies, foreign skills and foreign investments. But, the nature of production and wealth creation in the telecommunications sector and post-industrial society no longer favours the 'technological-transfer thesis.[47]

15. Angling for technology transfer in the telecommunications sector, therefore, is farfetched. So the dependable way to forge ahead will be to create local technology through concerted efforts and investments in technical education.

16. To fully harness the potential in the Telecoms Industry, Governments at all levels must ensure huge investments in technical education, to bridge the knowledge gap in critical areas. The focus of Nigeria's technical education should be redirected away from repairing ready-made equipment to producers of technology.

17. To bridge the knowledge gap, the Government ought to embrace technology-based developmental approaches. Bridging the knowledge

[47] **Oluwagbohunmi Joseph Aduralere** - Technical Education and Local Content Development

divide should not just be reduced to the issue of access; policy should also focus on how to empower Nigerians to be creators of modern technologies and not just users and repairers.

18. Again, the central focus of national policy on ICT should be redirected from merely enjoying the benefits of ICT to wealth and job creation. Government should also create ICT platforms and favourable conditions for the engagement of local technicality and capability; provide financial support to initiators of local technology, local app developers and content developers.

19. Concerted efforts should be directed by the Government towards ICT training in all levels of education in Nigeria with free ICT Skills Acquisition Centres in every Local Government Area and increased access to the internet through huge investments in Broadband and ICT facilities.

20. Government should provide legislation that favours the consumption and usage of locally-made ICT products.

21. Telecom companies with foreign participation should have clear succession plans for senior management positions with conscious actions at building the capacity and providing the opportunity for indigenes to attain senior management positions within the organisation.

22. This paradigm shift will ensure a sustainable movement from being a major importer of telecom products and services to a net exporter of the same.

The Government's fidelity to the 6 key strategies contained in the Geneva Action Plan, which Nigeria agreed to and signed up for at the World Summit on the Information Society (WSIS) would help proliferate ICT across the country and in turn spike indigenous interest and involvement.

The strategies are:

1. Connect villages with ICTs and community access points;
2. Connect universities, colleges, secondary schools, and primary schools with ICTs;
3. Connect scientific and research centres with ICTs;
4. Connect public libraries, cultural centres, museums, post offices and archives with ICTs;

5. Connect health centres and hospitals with ICTs; and,
6. Connect all Local Government Area (LGA) departments and establish websites and email addresses.

Some technology policies and strategies can be enunciated by the Government geared to ensure the continuous and sustained uplifting of the general quality of life of the people and the national security, through self-reliance, in the shortest possible time. The policies are:

1. In all aspects of the day-to-day activities of the nation, advantage must be taken of technological development;
2. Major government projects involving imported technology shall be procured in an unpackaged form;
3. Strategic capital goods industry shall as far as possible be controlled by Nigerians;
4. Organisations that maintain locally based research and development activities shall receive special incentives; and,
5. Important national development projects shall not be based on unproven foreign technologies.

Some of the strategies for implementing the stated policy objectives include:

a) Fostering, promoting and sustaining technology development programmes to rehabilitate, refurbish and replace existing industries, plants and components by local and other efforts;
b) Intensifying programmes in technology development in both public and private industrial, educational and service establishments;
c) Controlling the mode of foreign investments in industries with a view to ensuring technology acquisition within a specific time frame;
d) Ensuring that technology-based private and public enterprises maintain functional research and development units in the country; and
e) Run the electronic industries for the fabrication and manufacture of equipment and spare parts.

3.3.2 Suggested Innovative Techniques

Although telecommunications is a capital-intensive business, proper personnel planning and procedures are indispensable if it is to be efficiently run. The following points should prove useful if considered by the private sector companies active in Nigeria's Telecoms Sector:

1. An efficient telecommunications system depends on the calibre and skill of its managerial staff. It is vitally important to ensure a sufficient supply of managers, with personalities and intellect equal to the complex demands of telecommunications. All potentially good managers within the organisation must be identified, and properly developed. If good managers or functional specialists cannot be found within the organisation, they must be brought in from outside;

2. The calibre of first and second-line supervision is just as important as that of more senior-line management. It is a characteristic of telecommunications that it depends on the actions of large numbers of staff scattered in small and often mobile groups, who by the quality and productivity of their work largely determine the success of the enterprise. In these circumstances, first-line supervision has a particularly important and difficult job to do. Supervisors must be selected not just because they are proficient in the skills needed to do the work they have to supervise, but also for their potential as leaders and organisers of work;

3. It is vital that there should be adequate facilities for training every level of staff in the work they have to do. Managers need a thorough understanding of modern business technology, its potential and the very wide range of problems to which it gives rise. Supervisors must be taught the skills of management and organisation. Technical staff must be trained in the skills appropriate to the kind of work they will have to do - maintaining high technology equipment, installing and maintaining cables and so on; and,

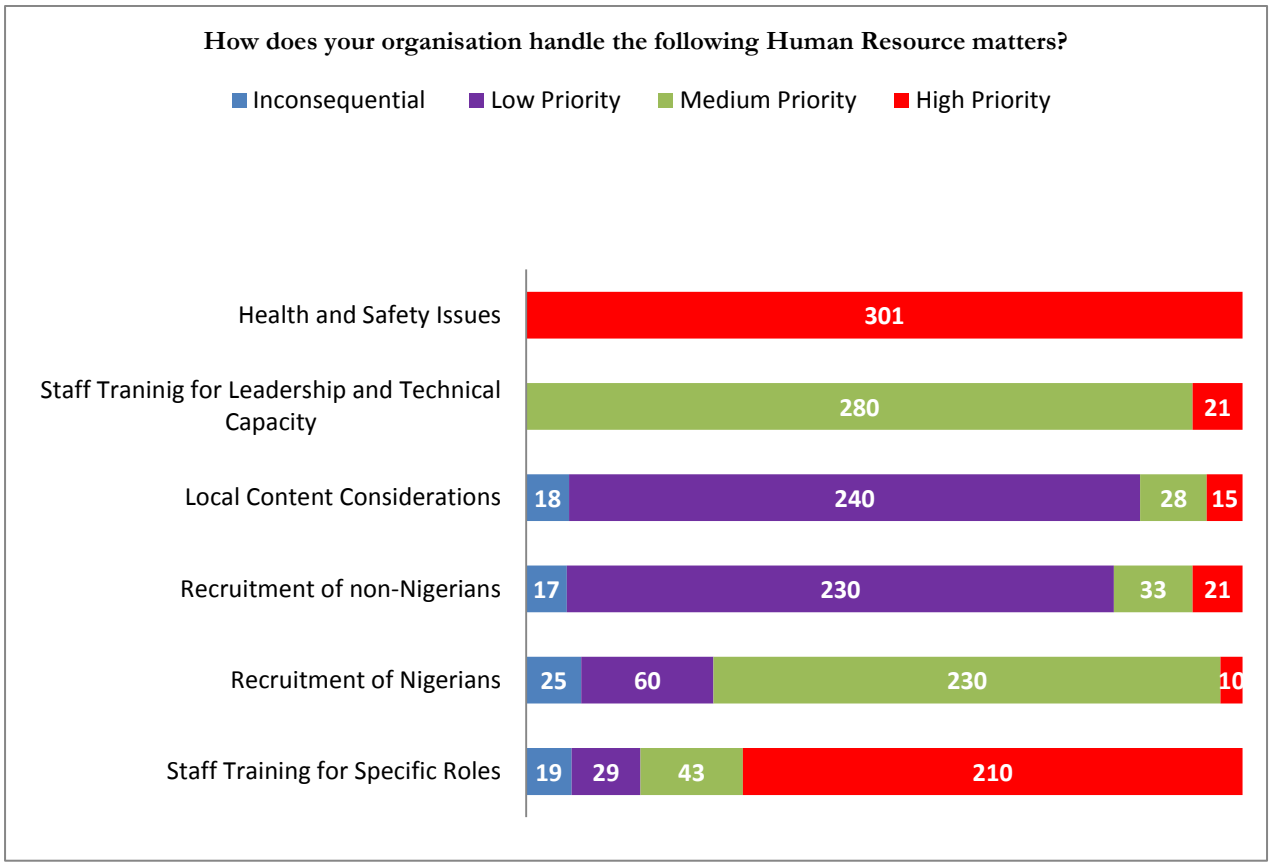
4. Information flow must be maintained and all R & D units carefully locked into training groups to ensure a continuous renewal of talent so as to avoid stagnation.

The survey wanted to get an insight into how organisations handled specific matters relating to their Human Resources. The rationale for this question was to

ascertain to what extent organisations took capacity-building and Local Content seriously.

Findings show that only a few organisations (15) were identified by the telecom workers as considering Local Content as a high-priority HR matter. On the issue of Health and Safety, all the workers voted for their organisations as taking it seriously. Training for a specific role is considered a higher priority (210) than training for leadership and technical capacity which is considered as a medium priority (280).

Table 23: Organisations'' Handling of Human Resources Issues



3.3.3 Executive Order No. 003 (2017)

As a technique to bolster Local Content, the Federal Government issued Executive Order No. 003 which mandated all Ministries, Departments and Agencies (MDAs) of the Federal Government of Nigeria to grant preference to local manufacturers of goods and service providers in their procurement of goods and services.

The Executive Order No.003 further prescribes that any document issued by any

MDA for the solicitation of offers, bids, proposals or quotations for the supply or provision of goods and services shall expressly indicate the preference to be granted to domestic manufacturers, contractors and service providers and the information required to establish the eligibility of a bid for such preference.

That all solicitation documents shall require bidders or potential manufacturers, suppliers, contractors and consultants to provide a verifiable statement on the Local Content of the goods or services to be provided.

That Made-in-Nigeria products shall be given preference in the procurement of listed items which include information communication technologies and that at least 40% of the procurement expenditure on these items in all MDAs shall be locally manufactured goods or supplied by local service providers.

Executive Order No. 003 requires the Heads of all MDAs of the Federal Government to

i. Assess the monitoring, enforcement, implementation, and compliance with this Executive Order and local content stipulations in the Public Procurement Act or any other relevant Act within their agencies;
ii. Propose policies to ensure that the Federal Government's procurement of goods and services maximises the use of goods manufactured in Nigeria and services provided by Nigerian citizens doing business as sole proprietors, firms, or companies held wholly by them or in the majority; and
iii. Submit such findings to the Honourable Minister of Industry, Trade & Investment.

Executive Order No. 003 further enjoined the Minister of Industry, Trade & Investment in consultation with the Director-General of the Bureau for Public Procurement to produce a report on the Made-in-Nigeria initiative that includes specific recommendations to strengthen the implementation of Local Content Laws, Local Content procurement preference policies and Local Content integration programs.

3.3.4 The NODITS

Under the aegis of the Nigerian Communications Commission, the Federal Ministry of Communications and Digital Economy set up the Nigeria Office for Developing the Indigenous Telecom as a special purpose vehicle (SPV) to stimulate the development of indigenous content in the Nigerian Telecommunications Sector.

The Nigeria Office for Developing Indigenous Telecom is assigned the responsibility to implement the National Policy for the Promotion of Indigenous Content in the Nigerian Telecommunications Sector. The SPV is also mandated to formulate strategies, standards, guidelines and frameworks aimed at developing indigenous content in the Nigerian Telecommunications Sector.

The main functions of NODITS are to:

i. Support the creation and implementation of guidelines for the development of indigenous content for the Telecommunications Sector;
ii. Stimulate the growth of the sector through a focused, sustainable and incentives-based approach that encourages the active participation of the indigenous telecom operators;
iii. Liaise with the Office for Indigenous Content Development at NITDA; (Quarterly Meeting)- for synergy and convergence of digital technologies;
iv. Facilitate the sourcing of indigenous products, manpower and services across the entire value chain of the Telecom Sector;
v. Evaluate and endorse Indigenous Content plans for operators in the Telecom Sector;
vi. Create a platform for research and capacity-building programs that prepare Nigerians to play a leading role in the Telecom Sector;
vii. Promote innovation and entrepreneurship in the Telecom Sector;
viii. Promote production of indigenous phones and other telecommunications equipment;
ix. Create and update a roadmap for the implementation of this Policy and ensure active monitoring and enforcement mechanisms for promoting indigenous content in the Telecommunications Sector; and
x. Monitor indigenous content compliance by operators and service providers.

3.3.5 The NDEPS (2020 – 2030)

Pillar #8: Indigenous Content Promotion and Adoption of the National Digital Economy Policy and Strategy (NDEPS) 2020-2030 is unequivocal about the Government giving preference to digitally skilled Nigerians for Government-funded projects in line with the Executive Orders 003 and 005.

The pillar proposes to:

i. Identify jobs that are currently being outsourced and support the repatriation of these jobs to digitally skilled Nigerians;
ii. Help to conserve foreign exchange for the country and boost exports by ensuring that "Made in Nigeria" digital economy products are of globally accepted quality;
iii. Seek to make Nigeria a global outsourcing destination for digital jobs where digital jobs are deliberately outsourced to economically disadvantaged areas in order to improve their economic conditions.

The objectives of the Indigenous Content Promotion and Adoption Pillar include the following:

i. To develop indigenous businesses to become world-class service providers;
ii. To increase public sector patronage of indigenous digital technology businesses; and
iii. To create conditions for iterative problem solving by innovative indigenous digital technology service providers

To achieve these objectives, NDEPS posits that the Government will:

i. Increase the patronage of digital StartUps, enabling them to access a minimum percentage of government-funded jobs;
ii. Support the creation of a sustainable impact-sourcing business process outsourcing (BPO) model, where a number of digital jobs are deliberately outsourced to economically disadvantaged areas in order to improve their economic conditions;
iii. Conduct a study on the types of digital jobs that are currently being outsourced in the telecom, banking, oil and other sectors with a view to developing a strategy and a policy environment that supports their repatriation;
iv. Ensure compliance with Regulatory Guidelines for Nigerian Content;

v. Highlight and promote indigenous capacities in digital technologies;
vi. Support the development of funding mechanisms and engagement of funding stakeholders to drive investments for the expansion of indigenous digital technology businesses;
vii. Provide technical support for Original Equipment Manufacturers (OEMs);
viii. Properly scrutinize and monitor every government-funded ICT project with a view to ensuring compliance with Local Content guidelines;
ix. Facilitate partnerships with multinationals operating in Nigeria to create platforms for Indigenous Vendors to serve global markets; and
x. Ensure strategic partnerships with relevant regulatory agencies to create joint efforts to promote indigenous content.

3.3.6 The National Digital Innovation and Entrepreneurship Policy

As part of the plans to implement the NDEPS the National Digital Innovation and Entrepreneurship Policy (NDIEP) was developed with the objectives to

i. Create a robust framework that supports the development and growth of a sustainable digital innovation ecosystem;
ii. Promote innovation and entrepreneurship by harnessing the creative capacity of Nigerians for economic and social development;
iii. Leverage digital innovation and entrepreneurship for job creation and youth empowerment in Nigeria;
iv. Promote research, indigenous content development and adoption while protecting the intellectual property of indigenous innovators; and
v. Increase investment opportunities in innovation and make technology entrepreneurship an enabler for all sectors of the economy in Nigeria.

The NDIEP is made up of five priority areas.

(a) Advancing Human Capital - increasing talent in ICT and emerging technologies and promoting the digital and entrepreneurship education of Nigerians for the attainment of relevant soft skills for a digital economy;

(b) Unlocking Access to Capital - the effective implementation of a National Innovation Fund for technology incubation and incentivising the provision of indigenous capital;

(c) Enabling Infrastructure - to digitalize government data and processes at the Federal, State and Local Government levels, using local solutions and enterprises;

(d) Boosting Demand - promoting and prioritising the use of indigenous and innovative solutions in public institutions and all sectors of the economy; and

(e) Promoting Innovative Entrepreneurship - growing technology-enabled businesses and protecting indigenous technology-enabled solutions and businesses through regulatory frameworks.

3.3.7 Executive Order No. 005 (2018)

The thrust of Executive Order No. 005 is that Nigerian businesses shall have a preference in the award of contracts in respect of Science, Engineering and Technology projects in line with the Procurement Act 2007. The Order lays the foundation for the promotion of local expertise in the manufacturing value chain.

The Order prescribes that consideration shall only be given to foreign companies where the requisite local expertise is lacking, provided that such foreign companies have demonstrable and verifiable plans for indigenous capacity development prior to the award of such contracts.

Executive Order No. 005 aims to promote the Made in Nigeria Campaign and drive national competitiveness, productivity and economic activities across sectors. The Order is far-reaching in its scope and calls on Ministries, Departments and Agencies of Government to become proactive in driving the Order's objectives.

Table 24: Key Highlights of Executive Order 005

Organisation	Required by the Order
The Ministry of Interior	To refrain from granting visas to foreigners bearing skills that are readily available in Nigeria; To take into consideration the NOTAP database when considering applications for the grant of Expatriate Quota.

MDAs	To ensure that all professionals seeking to provide services to the MDAs are duly registered with the appropriate regulatory bodies in Nigeria, and shall ensure, in collaboration with the Head of the Civil Service of the Federation, that all foreign professional certificates are domesticated with the relevant professional bodies before being considered for any contract award or employment in Nigeria; To ensure that no Nigerian company or firm is disqualified from an award of contract by any MDA based only on its year of incorporation except such company or firm is disqualified on the basis of qualification, competence and experience of the management in the execution of similar contracts; To take steps to encourage indigenous professionals in the Diaspora to return home to use their expertise to develop Nigeria; To ensure that foreign companies who are granted consultancy contracts provide engineering drawings with necessary calculations, designs and so on to be disclosed to their corresponding Nigerian partners towards local production of needed materials; To engage indigenous professionals in the planning, design and execution of national security projects; and To give preference to Nigerian companies and firms by procuring authorities in the award of contracts.

National Office for Technology Acquisition and Promotion (NOTAP)	To register all Agreements involving any Joint Venture and Public Private Partnership (PPP) between a foreign firm and a Nigerian firm, for technology acquisition or otherwise, in accordance with the provisions of the NOTAP Act, before such contracts are signed by the MDAs; To develop, maintain and regularly update a database of Nigerians with expertise in science, engineering, technology and other fields of expertise while the Ministry of Interior shall take into consideration the NOTAP database when considering applications for the grant of Expatriate Quota.
The Federal Inland Revenue Service (FIRS) and the Ministry of Finance	To ensure that tax incentives are granted to existing machine tools companies (including foundries, machine shops, forge shops, and indigenous artisans) to boost local production of these products; To provide tax incentives to Small & Medium Enterprises and foreign firms who use local raw materials that are authenticated by the Raw Materials Research and Development Council (RMRDC).
The Federal Government	To provide specific Margins of Preference to be given to indigenous contractors and suppliers of goods in Federal Government bids for works and goods.

3.3.8 The StartUp Bill 2021

The Nigeria StartUp Bill aspires to contribute to the creation of an enabling environment for the growth, attraction and protection of investment in tech StartUps by ensuring that Nigeria's Laws and Regulations are clear, planned and work for the tech ecosystem.

The StartUp Bill parades many laudable objectives which include to:

i. Provide the legal and institutional framework for the development of StartUps in Nigeria;
ii. Provide an enabling environment for the establishment, development and operation of StartUps in Nigeria;
iii. Foster the development and growth of technology-related talent;
iv. Position Nigeria's StartUp ecosystem as the leading digital technology hub in Africa having excellent innovators with cutting-edge skills and exportable capacity;
v. Support digital technological development through grants to persons, research institutions and universities pursuing postgraduate programs in the areas of science, technology and innovation;
vi. Create opportunities for StartUps to participate in beneficial challenges and programs including incubation and accelerator programs, showcases, pitch competitions, fellowships and other related programs; and
vii. Collaborate with the Nigerian Export Processing Zones Authority (NEPZA) to establish a Technology Development Zone in Nigeria to spur the growth and development of StartUps, Accelerators and Incubators through keying into incentives such as the Pioneer Status Incentives (PSI) Scheme of the Nigerian Investment Promotion Commission (NIPC).

3.3.9 The NOTAP

The National Office for Technology Acquisition and Promotion is another Federal parastatal active in the national effort to position Nigerian Content at the centre of economic activities in Nigeria.

NOTAP's vision is to move Nigeria from the periphery to the dominant centre of global industrial power structure within the shortest possible time and make Nigeria a major global powerhouse of the 21st Century through an efficient Technology Acquisition Strategy, vibrant innovation and R&D commercialization programme.

NOTAP's vehicle to attain the vision is its avowed mission to ensure the acceleration of Nigeria's drive towards a rapid technological revolution by the efficient acquisition and absorption of foreign technology and a concerted development of indigenous technological capability through the proactive promotion of innovation and commercialisation of technology.

The many services and activities the agency brings to the Nigerian Content development table include and are by no means limited to:

i. Commercialization of viable R&D results emanating from both private and public research institutions;
ii. Promotion of intellectual property rights and encouragement of innovation among Nigerian scientists, researchers and inventors;
iii. Establishment of a network of linkages among researchers, inventors, industry and research institutions;
iv. Establishment of relationships with national agencies, research and development institutions etc. for focused activities on priority areas of domestic technological needs;
v. Promotion of SMEs through the exploitation of locally motivated technologies;
vi. Promotion of innovation, patenting, intellectual property rights (IPR) and related matters through workshops, seminars, and awareness-building programmes;
vii. Provision of state-of-the-art information on specific technology fields and searches through the Patent Information and Documentation Center (PIDC);
viii. Dissemination of technical information in Patent documents to researchers and inventors in the public and private sector organizations and promotion of intellectual property rights; and
ix. Sensitization and Awareness Building Programme on the importance of intellectual property rights and the promotion of patent culture in Nigeria.

3.4 Objective Four

3.4.1 To Analyse the Current Barriers and Possible Solutions to the Integration of Local Content in the Nigerian Telecoms Industry

Perhaps because they possess the high technical skills and humongous capital required to play big in the Telecommunications Industry, multinational telephony operators dominate operations in Nigeria's Telecommunications Industry. Consider that three of the four major MNOs have foreign ownership – MTN, 9Mobile and Airtel. Only Glo can pass as an indigenous Nigerian company out of the four majors. The divergence of information and communications technology knowledge between developed countries and developing economies has resulted in this 'digital diametrical world' - one producing technology and the other consuming what it cannot produce.[48]

The dominance of foreign investors in Nigeria's Telecommunications Industry gives the sector the characteristics of an enclave industry on the ground that the sector has not particularly created the expected developmental outcome in terms of gingering equipment manufacturing locally in Nigeria.[49] The bulk of the hardware and software the foreign investors use in the Nigerian telecommunications space, they ship in from their home countries.

An enclave economy typically develops when foreign investors – all operating in a similar industry – invest heavily in a specific industry or region with the intent of making profits for export. Enclave economies typically show high employment, superior wages and high-end technology that seldom get transferred to the host country[50].

Governments that encourage enclave economies, particularly those driven by foreign investment, often hope for a boost to the rest of the economy and domestic development courtesy of foreign investment and expertise. In practice, the economic boost and development of domestic infrastructure often fail to materialise. Foreign companies frequently kill domestic companies either by driving up prices of domestic raw materials or importing raw materials, both of which make it impossible for domestic companies to compete. Foreign

[48] **CU-ICADI 2015** - International Conference on African Development Issues
[49] Jeffrey D Sachs & Andrew M Warner (2001) - The Curse of Natural Resources - European Economic Review, Elsevier, vol. 45(4-6), pages 827-838
[50] Ibid

companies also soak up the skilled labour pool. The profits from those economic enclaves also return to the foreign investors' home countries, which minimises any economic gains for the host country.

There exists in Nigeria a peculiarity called the "Knowing-Doing Gap" – which describes the disconnect between policy formulation and policy implementation. Public policy initiatives and actions in Nigeria have persistently been incapacitated by this gap.[51]

Inadequate think-through, weak institutional capacity, lack of political will to carry policies through, inconsistency between government policies and actions, lack of support from relevant stakeholders and corruption are some of the causes and enablers of this gap.[52] For example, adding the new complexities required to filter bidders in the procurement system to align with Executive Order 003 can increase administrative time and costs, and raise the risk of corruption.

Although integrating Local Content can attract investment, contribute towards industrial development, create employment and stimulate economic growth, yet, these gains often come with costs and barriers.

Evidence suggests that a poorly designed Local Content policy can contribute to economic isolation, undermine industrial diversification, and stifle economic growth. For instance, foreign direct investment, which is an integral part of economic growth and transformation, can be particularly sensitive to changes in Local Content rules and regulations.

The gains from Local Content depend on three key planks viz:

1. The extent to which local inputs are consistently and competitively available;
2. The scale and frequency of demand; and,
3. The design and coherence of the policy framework.

Study findings throw up the following barriers as constituting the most pressing impediments to the seamless and full integration of Local Content in the Nigerian Telecommunications Sector:

[51] **Jean Balouga** - Nigerian Local Content: Challenges and Prospects
[52] **Oluwagbohunmi Joseph Aduralere** -Technical Education and Local Content Development: A Panacea for Bridging Global Digital Divide

3.4.2 Paucity of Skills

- Indigenous companies are often not able to provide the required technical expertise for specialised technical jobs;

- Local companies often lack the requisite know-how for technically complex pieces of work and the management expertise to grow tech-heavy local companies;

- Lack of skills denotes lack of experience which may result in poor quality products and service delivery, hence low patronage for the indigenous companies;

3.4.3 Constricted Access to Capital

- Limited access to capital and the required investments to scale businesses is another albatross that can weigh local companies down. The high cost of funds is a factor that jeopardises their ability to compete effectively with their counterparts overseas, who are well endowed with capital.

  This untoward development has reduced Nigerian banks, not yet cut out for long-term projects, and with a penchant for quick business and immediate returns, to mere 'cash centres'.[53]

- Lack of executive capacity and critical mass with technical and financial wherewithal. Generally, most local companies are small, fragmented and incapable of packaging or attracting loans.

  Few of them can deliver turnkey projects without resorting to some form of partnership agreement for equipment, expertise or technical support;

3.4.4 Sharp Practices

- Local companies collude with foreign companies to serve as local representatives of the foreign companies thereby circumventing the technology knowledge transfer requirements;

- Non-adherence to global best practices by many of the local companies;

[53] **Jean Balouga** - Nigerian Local Content: Challenges and Prospects

- Lack of investment in Research and Development by companies in Nigeria, and to a large extent, by both the government and tertiary institutions too;

3.4.5 Reputational Deficits

- Lack of a robust reputation by local companies leading to an inability to secure global funding for the execution of major contract;

- Lack of competitive advantage as many of the local companies are not able to compete with the foreign companies for critical and technically complex jobs;

3.4.6 Deficiency of Infrastructure

- Lack of adequate power, water and other infrastructure that can support a robust and expanded manufacturing base;

- Lack of small and medium-sized enterprises and an under-developed capital market;

3.4.7 Policy Somersaults

- Variation in Government policies makes it difficult for local companies to plan and thrive in some key investment areas

3.4.8 Possible Solutions

The nature of production has changed from "mode of production" to "code of production". Those who own and control these codes (Internet, ICT) control the global manufacturing of information and communications technology. Expecting them to transfer these codes on account of some national or regional policy is evidently proving to be implausible.

This calls for emerging economies to fathom their own ways to enter into the technology manufacturing sphere.

Here are a few examples that can be considered in the Nigerian context:

- The Government should encourage and provide robust training opportunities for indigenous entrepreneurs to provide them with the required technical skills for business sustainability;

- Local companies should be encouraged to operate with international best practices in terms of technical and managerial competence and the Government should make adherence to global best practices one of the criteria for access to grants and loans;

- Government should enforce the policies that give preference to local companies in the award of specific contracts in critical areas;

- Government should create painless pathways to low-interest loans by expanding access to the Nigerian Content Intervention (NCI) Fund domiciled in the Bank of Industry to local companies in the Telecom Sector to provide them with funding and technical support;

- Proof of compliance with Local Content stipulations in terms of personnel training, local sourcing of raw materials should be required for grants and loans;

- Multinationals should be incentivized to set up their Research and Development Centres in Nigeria to boost local capacity and enhance the pool of technical skills for their companies. Doing this would negate the need for expatriates or importation of raw materials;

- Government should be diligent in the implementation of Executive Order 003 with regard to patronising locally assembled ICT products, especially for Government projects and facilities;

- Regulators should be conscientious in carrying out their statutory responsibilities to ensure adequate and total compliance monitoring and enforcement of the extant stipulations of the Local Content Act;

- CBN may have to consider restricting the use of officially-sourced foreign exchange to procure software that can be manufactured locally.

- Government should incentivize the local production of cables, connectors, masts and telecom tools in a way that meets global minimum standards as stipulated in NPPIC;

- Government should support local manufacturing through relevant institutions such as the Universal Service Provision Fund (USPF), CBN etc.;

- Government and Universities to drive the establishment of Vocational Training Institutes focused on the design, fabrication and assembly of telecom equipment in Nigeria;

- Government should further encourage partnership and collaboration between global OEMS engaged in the manufacturing of foreign sourced software, equipment and devices.

3.4.9 Key Considerations

As Local Content policies involve making choices about which parties obtain access to employment and business opportunities, it is crucial that there is transparency in the way these decisions are made.

Free-flowing and transparent streams of information will be crucial for developing Local Content in the Nigerian Telecommunications Sector. On the supply side, workers and businesses need to be aware of the opportunities that are available and how to access them. On the demand side, technical end users and personnel from procurement and human resources departments in companies need to understand the capabilities available locally. They must also become aware of how best to make links with local suppliers.

Everyone involved benefits from shared insights gained by providing timely information about future requirements and employment opportunities which gives local businesses and workers time to invest in the required capital equipment and obtain the necessary skills and expertise.

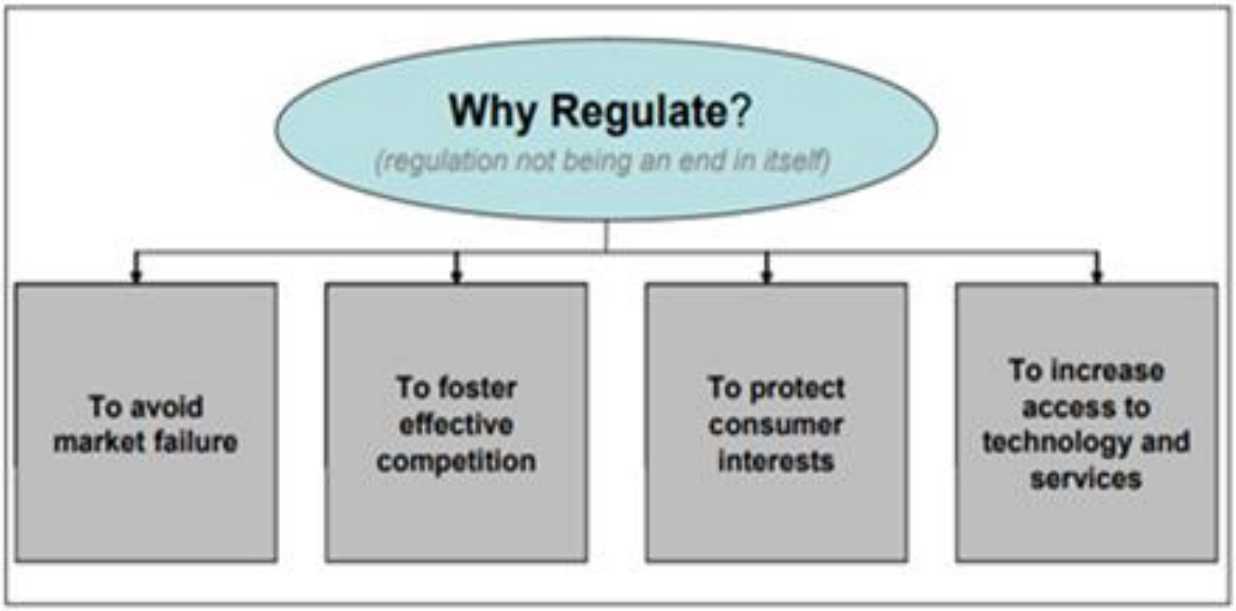
3.5 Objective Five

3.5.1 Identify Legal Risks and Develop Legal Frameworks for Adoption of Local Content Integration in the Nigerian Telecoms Industry

As has been elucidated, Local Content integration in the Nigerian Telecoms Industry can have an important impact on everyday lives and on general economic activity, but the opportunities only materialize fully to the extent that the regulatory framework, as implemented, supports and fosters both investment in and widespread diffusion of telecommunications.

Absent these conditions, the full promise of Local Content integration may remain unrealized. Integration of Local Content offers the prospects of job creation and rapid advancement in indigenous technology, but if appropriate conditions are not in place, the outcome can be a rapid slide down the slopes.

There is a need, therefore, for a legal framework that contains certain critical elements such as the functional aspects of the regulatory authority; decision-making processes; accountability; consumer protection, dispute resolution and enforcement powers. Consideration and proper implementation of these features are key elements for creating an enabling environment for the development and propagation of Indigenous Content in Nigeria's Telecom Sector and for increased consumer welfare.



3.5.2 Legal Framework for Adoption of Local Content Integration in the Nigerian Telecoms Industry

The main purpose of the formulation of a legal framework for the adoption of Local Content Integration in the Nigerian Telecoms Industry is to encourage local participation, ownership and control of the Nigerian Telecoms Sector by indigenous manpower.

This is vital to uphold Nigeria's socioeconomic independence and enhance the ability of indigenous businesses to exploit the abundant opportunities in the Nigerian Telecoms Sector while staying globally competitive.

Although there is a myriad of Policies, Guidelines and Executive Orders around the subject of Nigerian Local Content, thus far, the only significant Local Content legislation in Nigeria is the Nigerian Oil and Gas Industry Content Development Act 2010 (NOGICDA). This Act established the Nigerian Content Development and Monitoring Board (NCDMB). The Act's limitation is that its scope of influence is limited to the oil and gas sector.

Efforts to extend Local Content Policy compliance across to the public procurement practices of other Federal Ministries, Departments and Agencies (MDAs) manifested vide Executive Orders 003 and 005 issued by the Vice President and the President respectively. These Executive Orders seek to situate indigenous participation at the core of every procurement process executed by the MDAs.

Also notable in the effort to propagate Nigerian Content is the Nigerian Digital Economy Policy and Strategy (NDEPS) 2020-2030 wherein Pillar #8: Indigenous Content Development and Adoption provides a policy framework that gives preference to digitally skilled Nigerians for Government-funded projects in line with the Executive Orders 003 and 005.

In the pipeline is the Nigerian Local Content Development and Enforcement Bill 2020 which aims to coalesce all the aforementioned multifarious Local Content Guidelines, Policies and Strategies into Law.

The Nigerian Local Content Development and Enforcement Bill 2020 Bill is propelled by several objectives including to:

- Impose Nigerian Content obligations on MDAs of the Federal Government, Federal Government Owned Companies, Federal Institutions,

Public Corporations, business enterprises and individuals carrying out any regulated business activity in any sector (except in the oil and gas sector) of the Nigerian economy;

- Grant preference to Nigerian citizens and Nigerian companies in the procurement of goods and services in all sectors to which the provisions of the Bill apply;
- Demand transfer of skills and technology to Nigerians during execution of activities where public funds belonging to the Federal Government of Nigeria or any of its MDAs are used;
- Develop the Nigerian Content Plan by persons carrying out public works and persons in possession of a permit, license, lease, and approval in the Nigerian economy;
- Increase the capability and international competitiveness of Nigerian domestic businesses;
- Create jobs through increased participation of Nigerians in the economic productivity activities in the Nigerian economy;
- Provide for the submission of the Nigerian Content Plan by contractors, subcontractors, licensees and any other allied entity involved in all sectors to which the provisions of the Bill apply in the Nigerian economy; and
- Supervise and coordinate the implementation and monitoring of Nigerian Content development in the Nigerian economy.

Promulgating the Bill into law is expected to deliver many socio-economic benefits including:

1. Promote local manufacturing and economic diversification by:

    a. Providing incentives to encourage local manufacturing of equipment, machinery, spares, ICT hardware, and development of software;

    b. Providing for standardisation of locally made goods and making them competitive in the international market.

2. Institute preference for Nigerian-made goods and services in all public procurements through:

    a. Situating Nigerian Content philosophy as a key prerequisite in all public sector procurements;

    b. Creating Local Content Departments or Units in all Federal MDAs;

c. Requiring a Nigerian Content Plan (NCP) on all major projects (above N100 Million) outlining minimum Nigerian Content thresholds for materials, labour and services required on the project;

d. Requiring Nigerian Content compliance certificate as a pre-condition for contract awards; and

e. Creating Nigerian Content Committee to develop economy-wide Local Content Policy.

3. Create a robust Research & Development ecosystem to drive indigenous technology development by:

a. Promoting collaboration between Research institutions, product developers and end users of Research;

b. Incentivising funding of research by public and private sector entities.

4. Create jobs to address unemployment by requiring:

a. That first consideration is made for Nigerians with requisite skills in all publicly funded projects;

b. That a national database of available skills be created; and

c. That approval and utilisation of expatriates be limited to only roles where there is an immediate indigenous skills shortage.

5. Capacity-building to develop a resilient local supply chain through the:

a. Provision for targeted sector-specific capacity-building programmes

b. Requirement to close capacity gaps in education, infrastructure, facilities and vendor development on the back of projects.

6. Sustainable Funding for local content making:

a. Provision to create a Nigerian Content Trust fund dedicated to implementing projects and programmes connected to developing Local Content;

b. Application of the Trust Fund to develop Micro, Small, and Medium Scale Enterprises (MSMEs) through low-interest project-based financing schemes.

There is a correlation between the state of a country's telecommunications infrastructure and its state of development, just as a relationship can be established between a country's GDP and its relative position in an increasingly globalised economy. For that reason, the Federal Government attaches great importance to Nigeria's Telecommunications Industry.

The Telecom Industry has the potential to promote the commercial, industrial, socio-economic as well as political development and unity of Nigeria. In addition, the Government fully supports the need to meet the consumer and business demands for good quality telecommunications services.

The competitive environment of telecommunications which allows many field operators must of necessity attract standards and rules of operation for orderliness, effectiveness and efficiency. The flexibility of choice open to customers also call for a wide interconnecting boundary between operators and a specific level of quality of service to be attained by all.

It can be argued that the growth of information communications technology could both facilitate and complicate the job of governance. It facilitates by making available to decision-makers vastly expanded resources of timely information. Conversely, it can be complicated by vastly expanding the number of people who would be informed about important issues and who will inevitably want to play a role in the decision process. However, any seeming disadvantage should be weighed against the numerous advantages derivable from its application.

There is therefore a need for an effective monitoring and enforcement mechanism in the structural framework of managing telecommunications in a liberalised environment. Furthermore, penalties applicable to violations of rules must be commensurate and promptly applied to deter violators.

It is obvious from all stated earlier, that information technology management in a deregulated telecommunications environment would primarily revolve around a strong regulatory and legal framework. In a liberalised setting for competition between operators, service providers, content assemblers and disseminators as well as devices retailers and manufacturers, an independent and neutral legal framework to set the rules of the game as well as apply and monitor them is a prerequisite in such a pluralistic scenario.

There is a need therefore for the following:

1. A legal framework defining the Regulator's powers, rights and obligations and equally the rights and obligations of licensees and the established MNOs that are on the field;
2. Establishment of the relative position of the regulator to other arms of Government, its linkages and working methods; and,
3. Putting in place significant resources in terms of men, materials and money to enhance the legal and regulatory functions.

Three major considerations must enter into the development of the framework:

1. **Relying on Legislation Alone**

While legalese in the telecommunications environment is important this alone may not be sufficient to stimulate supply chains. Linkages will not be made by themselves, even if the information is available. For that reason, establishing a legal framework with the purpose of stimulating active relationship-building can be important for improving the integration of Local Content in Industry

2. **Forcing Multinationals to Cooperate**

There are significant benefits through greater supply chain linkages, but these ought not to be forced through Local Content regulation. Instead, it is better for the Government to understand and engage with the multinationals' current constraints on Local Content use and provide solutions that align with their business interests.

3. **Missing the Big Opportunities**

While linkages produce short-term benefits to suppliers (e.g., increasing output and employment), the main benefits accrue over the medium term through the required quality improvements that suppliers need to meet in order to supply multinationals. Such productivity improvements ultimately drive economic growth and export promotion. For this reason, rather than trying to focus only on brokering short-term supply contracts, the legal framework should seek to stimulate long-term relationships that result in wider supply chain upgrading and exports.

CHAPTER FOUR

4.0 Recommendations

The need for closer linkage between centres of higher education and research on one hand and Industry on the other cannot be overemphasised. The private sector should be encouraged to utilise the research findings from universities and research institutes for commercial production.

To foster closer collaboration and liaison between academia and the private sector, the Nigerian Communications Commission should set up a consultative committee made up of representatives from the universities, research institutes, organised private sector, the National Association of Chambers of Commerce, the Manufacturers Association of Nigeria (MAN), Standards Organisation of Nigeria (SON), relevant Government Ministries, Departments and Agencies (MDA) etcetera to work out realistic strategies for the commercial utilisation of research findings emanating from the various research institutions in the country.

Local Content integration strategies must be kept specific, measurable, achievable, realistic, and timely to avoid being too unwieldy to even take off – a fate that befell so many such efforts in the past for example the Strategic Management of Industrial Development (SMID) developed by the Federal Government, through the then Ministry of Industry back in 1989 with the assistance of UNESCO.[54] The principal objective of the programme was the integration of all facets of local industrial systems in conformity with global best competitive practices.

The simple circuits that are currently being used in the Telecommunications Industry should be adapted or developed by local institutions as has been done and is being done in most countries. All that is required is to identify systems and set realistic target dates by which Nigerian-made units will be used in these systems. The research institutions and the universities are then invited to meet these targets. This should serve as a challenge that these institutions of higher learning and research institutes can brace up to so they can carve themselves into relevance in the technological advancement of Nigeria.

If this line of approach is followed and sustained, then in a few years' time, many systems will be either developed locally or in most cases improved versions will be produced. This has been done by other countries such as India, Japan, Brazil, Taiwan, South Korea, etc., in recent years and Nigeria should start to embrace this

[54] https://guardian.ng/opinion/whatever-happened-to-smid-programme/

culture. There has never been a better opportunity than now that foreign exchange for the purchase of systems abroad is scarce.

It is correct to surmise that many of the institutions of higher learning in Nigeria have facilities for research and development in the areas of electronics and communications engineering and indeed in many other areas of engineering. In addition, there are, in these institutions, competent and resourceful personnel that can undertake research in these areas and their abilities are world-class. The missing link thus far is for the Government to become deliberate and intentional with the initiatives to unlock the potential hidden in these institutions and utilise their innate abilities to develop systems that can be used in the country so as to reduce expenditure on foreign technology products and services. This will help to conserve Nigeria's foreign exchange in these days of dwindling external earnings.

Since effective maintenance of any telecommunication outfit is dependent on the availability of spare parts, it is recommended that all future telecommunications projects should be aligned to provide for spare parts production within Nigeria. In this respect, efforts should be made to build into contract agreements on imported technologies, the possibility of Nigerians being involved in the assembly of such technologies. Such involvement will allow Nigerians to gain detailed insight into the internal arrangements and working of the equipment. The maintenance schedule of any future project should be clearly assigned to Nigerians.

There is an urgent need for equipment standardisation in the country. This will ease the manufacture of spare parts and reduce maintenance costs. Maintenance personnel should also be provided with adequate tools and they should be located sufficiently close to the facilities they are to maintain.

Another important consideration in the Local Content development and integration process is the availability of core industries for the fabrication and manufacture of equipment and spare parts. Conscious efforts from Government and the private sector should be invested to increase the number of indigenous participants in these core industries.

In Nigeria today there is the Federal Ministry of Science and Technology charged with the responsibility of promoting scientific and technological activities in the country. For the country to develop technologically all must agree to use this Government organ effectively. Also the universities, research institutes, industries, entrepreneurs and private organisations - all have a role to play. The prerequisites

for meaningful technology development are available in the country.

Training in the form of appreciation courses, refresher courses, skills development, introductory courses etcetera should be intensified and programmed to suit the operations and maintenance needs of the Industry on a continuous basis.

Companies with foreign participation should have clear succession plans for senior management positions with deliberate actions at building the capacity and providing the opportunity for indigenes to attain senior management positions within their organisations. The extant minimum expatriate quota requirement stipulates that each expatriate employed by a company should be understudied by two Nigerians and that expatriate quota approvals have validity dates that should be adhered to. Further, the expatriate quota for the Telecommunications Sector should be referred to NCC before approval. This will aid compliance monitoring.

To support this approach, modalities should be put in place to ensure that foreign companies are not allowed to trade directly in certain segments of the telecommunications market such as the manufacturing of Subscriber Identity Module (SIM) cards, smartphones, recharge cards, telecom equipment spare parts, fibre optic cables, masts, etcetera unless there is a certain percentage of indigenous content or ownership.

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APPENDICES

Appendix 1: List of NCC Licensees Surveyed

S/N	Company Name
1	Airtel Networks Ltd
2	Analytiq Telcom Solutions Ltd
3	ATC Nigeria Wireless Infrastructure Ltd
4	Briccs International Ideal Ltd
5	Cartrack Engineering Technologies Ltd
6	Dotmac Technologies Ltd
7	Globacom Ltd
8	Hoop Telecoms Ltd
9	Hotspot Network Ltd
10	Huawei Technologies Company (Nig) Ltd
11	IHS Nigeria Ltd
12	Inq. Digital Nigeria Ltd
13	Interconnect Clearing House Nigeria Ltd
14	Iykejordan Ltd
15	MTN Nigeria Communications PLC
16	Niconnx Communications Ltd
17	Nina-Jojer Ltd
18	Odua Infraco Resource Ltd
19	Perpetual Communications Ltd
20	Phase 3 Telecom Ltd
21	Radial Circle Technical Services Ltd
22	Routelink Integrated Systems Ltd
23	SPEC3 Technologies Ltd
24	Suburban Telecoms Ltd
25	VDT Communications Ltd
26	YellowDot Africa Nigeria Ltd
27	9Mobile (EMTS)
28	21st Century Technologies Ltd
29	3Way Communication Ltd
30	Accord Engineering Ltd
31	Afrione Ltd

32	Ampsolve Ltd
33	Arctic Spatials Ltd
34	Backbone Connectivity Network Nig Ltd
35	Basnik Telecoms Ltd
36	Beta Bridges Ltd
37	Big Picture Nigeria Ltd
38	Billyronks Global Ltd
39	Breeze Micro Ltd
40	Broadbased Communications Ltd
41	Clickatell Nigeria Ltd
42	Cloud Interactive Associates Ltd
43	Cobranet Ltd
44	Cognys Systems Ltd
45	Coloplus Worldwide Services
46	Cyberspace Ltd
47	Emerging Markets Telecommunications Services Ltd
48	Exchange Telecommunications Ltd
49	Fibre Tech West Africa Ltd
50	Fibre World Telecommunications Network Ltd
51	Fun Mobile Ltd
52	I-Cell Multimedia Ltd
53	Infraco Nigeria Ltd
54	Innovis Telecom Services Nigeria Ltd
55	Intercellular Nig PLC
56	Internet Solutions Nigeria Ltd
57	IPNX Nigeria Ltd
58	IS Internet Solutions formerly Accelon Ltd
59	Just Automobile & Merchanting Ltd
60	Kaid Global Resources Nig Ltd
61	Layer 3 Ltd
62	LM Ericsson (Nigeria) Ltd
63	Mafab Communications Ltd
64	Main One Cable Co Nig Ltd
65	Medallion Communication Ltd
66	MNO VAS Nigeria Ltd
67	M-P Infrastructure Ltd

68	MTech Communications PLC
69	MVP Innovations & Technologies Ltd
70	MYD Technologies Ltd
71	Neptune Global Services Ltd
72	Nitroswitch Ltd
73	Nova Track Ltd
74	Odee Telecoms Ltd
75	Oryo Ltd
76	Pan African Towers Ltd
77	Pilgrims Nigeria Security Ltd
78	Raeanna Nigeria Ltd
79	Red Uhuru Consulting Ltd
80	Rignet AP Facilities & Services Ltd
81	Seal Towers Ltd
82	Sleekchip Technologies Ltd
83	Smile Communications Nigeria Ltd
84	Solid Interconnectivity Services Ltd
85	Swift Networks Ltd
86	Tizeti Network Ltd
87	Total Spin Nigeria Ltd
88	Towers Support Nig Ltd
89	Tracknet Ltd
90	Trucall Solutions Ltd
91	Upper Crest Ltd
92	Value Added Network Solution Nigeria Ltd
93	Vezeti Services Ltd
94	Zinox Technologies Ltd
95	ZTE Nigeria Ltd

Appendix 2: Questionnaire for Individuals

Level of Indigenous Content in the Nigerian Telecommunications Sector

Questionnaire for Individuals

1. What is your gender?

   Mark only one oval.

   - ◯ Male
   - ◯ Female

2. Do you work in the Telecommunications Sector?

   Mark only one oval.

   - ◯ Yes
   - ◯ No

3. If you work in the Telecommunications Sector, are you?

   Mark only one oval.

   - ◯ Direct Contract Staff
   - ◯ Actual Company Staff
   - ◯ 3rd Party Contract Staff
   - ◯ Contractor/Supplier
   - ◯ Other

4. Have you heard about the term 'Local Content' or 'Nigerian Content' or 'Indigenous Content'?

Mark only one oval.

- ◯ Yes
- ◯ No

5. How or where did you hear about Local Content?

Tick all that apply.

- ☐ From general everyday news
- ☐ From my company's orientation/training activity
- ☐ From friends and family
- ☐ From my own personal research

6. How does your organization handle the following Human Resource matters?

Mark only one oval per row.

	Inconsequential	Low Priority	Medium Priority	High Priority
Staff training for specific role	◯	◯	◯	◯
Recruitment of Nigerians	◯	◯	◯	◯
Recruitment of non-Nigerians	◯	◯	◯	◯
Local Content considerations	◯	◯	◯	◯
Staff training for leadership and technical capacity	◯	◯	◯	◯
Health and Safety Issues	◯	◯	◯	◯

7. Which of the following applies to the organisation where you work?

Mark only one oval per row.

	Rarely	Frequently	Never
More jobs have been created for Nigerians	◯	◯	◯
There is an increased level of employment of indigenous employees	◯	◯	◯
Nigerian workers receive training to operate in highly technical areas	◯	◯	◯
More indigenous contractors increasingly being engaged	◯	◯	◯
Nigerians are constantly sent for training to prepare them succeed foreign workers	◯	◯	◯

8. From what you know about Local Content do you think the company where you work observes the Local Content Policy?

Mark only one oval.

- ◯ Yes, it does
- ◯ No, it does not
- ◯ Option 3

9. In the company where you work, which of the following has ever occured?

Tick all that apply.

- [ ] Position in your company previously held by a foreigner is now held by a Nigerian
- [ ] Position in your company previously held by a Nigerian is now held by a foreigner
- [ ] There are foreigners doing jobs that Nigerians are available and qualified to do
- [ ] There are more Nigerians in Senior Management positions than foreigners
- [ ] There are more foreigners in Senior Management roles than Nigerians

10. The company where I work is headed by a?

Mark only one oval.

- ◯ Nigerian
- ◯ Non-Nigerian

11. Do you have any suggestion on what can be done by Government to improve Local Content in the Telecommunications Industry:

Thank you for taking part in this survey

Appendix 3: Questionnaire for Organisations

Level of Indigenous Content in the Nigerian Telecommunications Sector

Questionnaire for Organisations

1. Your Organisation's NCC License Category

Tick all that apply.

- [ ] VAS Aggregator
- [ ] Automated Vehicular Tracking Service
- [ ] Interconnet Exchange
- [ ] International Data Access
- [ ] Internet Service Provider
- [ ] PNL-Regional
- [ ] Sales & Installation
- [ ] Value Added Services
- [ ] Collocation/Infrastructure
- [ ] Metropolitan Fibre Cable
- [ ] National Long Distance
- [ ] Unified Access Services
- [ ] Open Access Fibre Infrastructure Network
- [ ] National Carrier
- [ ] Other

3. How many non-Nigerian workers does your organisation employ?

Mark only one oval.

- ◯ 1-10
- ◯ 10-25
- ◯ 25 and over
- ◯ None

4. Why does your organisation employ non-Nigerian workers?

Tick all that apply.

- ☐ No Indigenous skills availabe for the roles
- ☐ Indigenous workers are not interested in the roles
- ☐ The positions must be occupied by expatriates by corporate polcy
- ☐ Other

5. For the roles non-Nigerians occupy in your organisation, can Nigerians perform them?

Tick all that apply.

- ☐ Yes, with adequate training
- ☐ No, the roles are too complex for local workers
- ☐ Yes, but it will take too long to recruit the right indigenous person
- ☐ No, because the roles are top management

6. Does your organisation have a company policy on Local Content?

Mark only one oval.

- ◯ Yes
- ◯ No

7. Do your workers receive capacity building training especially in line with Local Content requirements?

Mark only one oval.

- ◯ Yes, but not regular, once a year or less
- ◯ Yes, more than once a year
- ◯ No, but planning to start soon

8. What are the challenges facing your organization?

Mark only one oval per row.

	Inconsequential	Low Priority	Medium Priority	High Priority
Quality of Service	◯	◯	◯	◯
Inadequate Industry Regulations	◯	◯	◯	◯
Poor National Infrastructure	◯	◯	◯	◯
Multiple Taxation	◯	◯	◯	◯
Multiple Regulations	◯	◯	◯	◯
Regulatory Challenges	◯	◯	◯	◯
NCC's Compliance Enforcement Activities	◯	◯	◯	◯
Lack of skilled workers	◯	◯	◯	◯
Local Content Issues	◯	◯	◯	◯

9. Does your organisation have a succession plan whereby Nigerians replace foreign workers after a set period?

Mark only one oval.

- ◯ Yes
- ◯ No

10. In which areas do your staff receive capacity building training?

Tick all that apply.

- ☐ Software
- ☐ Hardware
- ☐ Manpower - Human Resources
- ☐ Local Content Awareness
- ☐ Community relations
- ☐ Other: _____

11. Please indicate constraints and suggestions for improving the involvement of Local Content in the Telecommunication Sector.

_____

_____

_____

_____

_____

Thank you for taking part in this survey