NATIONAL DIGITAL ECONOMY POLICY AND STRATEGY

For A DIGITAL NIGERIA

FEDERAL MINISTRY OF COMMUNICATIONS AND DIGITAL ECONOMY

Leveraging Digital Technology for National Economic Development

FEDERAL MINISTRY OF COMMUNICATIONS AND DIGITAL ECONOMY

Leveraging Digital Technology for National Economic Development

National Digital Economy Policy and Strategy

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VISION AND MISSION

Vision
"To transform Nigeria into a leading global digital economy providing quality life and digital economies for all."

Mission
We build a nation where digital innovation and entrepreneurship are used to create value and prosperity for all.

FOREWORD

The National Digital Economy Policy and Strategy has been developed to reposition the Nigerian Economy in order to take advantage of the many opportunities that digital technologies provide. This is in line with the vision of President Muhammadu Buhari, GCFR, to diversify the economy of Nigeria away from dependence on the oil and gas sector. The growth of the digital technology sector over the past few years is a good indication that this sector can serve as a catalyst for the rapid development of the economy.

His Excellency, President Muhammadu Buhari, GCFR, approved the redesignation of the Federal Ministry of Communications as the Federal Ministry of Communications and Digital Economy (FMoCDE) on the 17th of October, 2019. This has clearly positioned Nigeria as early adopters of digital technology and it gives us a good opportunity to become major participants in the growing global digital economy.

This Policy and Strategy document in based on the FMoCDE's 8-pillars for the acceleration of the National Digital Economy for a Digital Nigeria. The 8 pillars are Developmental Regulation, Digital Literacy & Skills, Solid Infrastructure, Service Infrastructure, Digital Services Development & Promotion, Soft Infrastructure, Digital Society & Emerging Technology and Indigenous Content Promotion & Adoption.

These pillars align well with the Economic Recovery and Growth Plan of the Federal Government and also address the 3 key focus areas of Mr. President, namely economic development, anticorruption and security.

The task of developing the National Digital Economy is a huge one and we call on all stakeholders to make an input to the process and support in the implementation. As a National document, we also encourage the States and Local Government areas to cascade these policies and strategies so that we can be on the same page as we achieve the vision of this document which is "To transform Nigeria into a leading global digital economy providing quality life and digital economies for all."

Dr Isa Ali Ibrahim (Pantami), FNCS, FBCS, FIIM
Honorable Minister
Federal Ministry of Communications and Digital Economy
(November 2019)

PREFACE

On the 12th of June, 2019, His Excellency, Muhammadu Buhari, President of the Federal Republic of Nigeria, pledged to lift 100 million Nigerians out of poverty in the next 10 years.

In line with this goal, and that of diversifying the economy, various sectors will contribute towards achieving the overall poverty reduction goals. Mr President recognized the critical role that digital technologies can play in this process and recently approved the redesignation of the Federal Ministry of Communications as the Federal Ministry of Communications and Digital Economy. In the new appellation, communications refers to the channel, digital refers to the content and economy indicates the central focus of the entire process.

According to a 2016 Report by Oxford Economics, the global digital economy is valued at $11.5 trillion dollars or about 15.5% of the Global Economy. This value is expected to rise significantly within the next few years. This Digital Economy Policy and Strategy document aims to provide a plan for using digital technology as a platform for stimulating growth in all sectors of the economy through the development of a digital economy for the country.

Nigeria has the largest population in Africa, with an average age of 18 years, the biggest economy on the continent, the largest natural gas reserves and the one of the youngest populations on earth. In terms of the nation's geographic position, it is located just between the central and western parts of Africa and offers ready access to over half of the African continent, represented by those that reside in Western and Central Africa, as well as the approximately 200 million people living in Nigeria. All these indicators describe potentials that can be harnessed for the benefit of the economy. However, there are a number of things to be put in place before our latent potential can drive the economy.

The first issue that needs to be addressed is the Developmental Regulation pillar. It will provide support for the effective regulation of the digital technology sector in a way that enables development. Citizens are generally regarded to be the greatest assets in any economy and the same applies to the digital economy. To drive the digital economy it is important to develop a large pool of digitally literate and digitally skilled citizens. There is currently no detailed data on the state of digital literacy in Nigeria but data on technology adoption , financial inclusion and broadband penetration in rural areas suggest the level of digital literacy is relatively low. There is a need to support a programme for mass digital literacy and this will be addressed in the Digital Literacy & Skills pillar.

The Solid Infrastructure pillar, for example broadband penetration, is another key

issue to be addressed. A significant improvement in the current broadband penetration of 35.4% is critical for the development of a digital economy in Nigeria. According to a study by ITU, a 10% increase in mobile broadband penetration in low income countries yields an increase of at least 1.6% in the Gross Domestic Product (GDP). The deployment of fibre networks around the country will provide a veritable platform for expanding broadband access but lingering issues like inconsistent Right of Way (RoW) charges, reported cases of vandalisation of telecom equipment and inadequate power supply have inhibited the penetration of the broadband.

There is great potential for enhanced broadband penetration due to a number of initiatives such as the 40 Terabits per second (Tbps) broadband (submarine fiber cable) capacity that exists at the landing point in Lagos. However, many of these initiatives are grossly under-utilized due to limited distribution of fibre infrastructure to the underserved areas of the country. The deployment of fibre across the country will appreciably improve broadband penetration and will have the added advantage of crashing the cost of broadband access. The deployments of the 1st and 2nd phases of the National Information and Communication Technology Infrastructure Backbone (NICTIB) will aid this process. Another ray of hope for the solid infrastructure pillar is the Infrastructure Company (Infraco) project which aims to lay 120,000km of fibre across the country to extend broadband networks to every Local Government Area (LGA) of the Federation through an Open Access Model.

The growth of solid digital infrastructure is no doubt critical to the development

of the digital economy, however, it is not sufficient. A digital economy also needs other conditions to be met. The solid infrastructure that broadband access provides will lead to the growth of the Service Infrastructure pillar and a proliferation of digital platforms that enable Government to Citizen (G2C), Citizen to Citizen (C2C) and all other e-commerce models.

The National e-govenment Masterplan has been adopted and is currently being implemented. It will provide a one-stop-shop for interacting with government. It will also provide an Enterprise Architecture and e-Government Interoperability Framework to support platforms that can enhance interactions between government institutions on the one hand and government and citizens on the other. According to the United Nations Conference on Trade and Development (UNCTAD), Nigeria's e-commerce spending is projected to increase to $75 billion in 2025 and the platforms created through support for the service infrastructure pillar will play an important role in this projection.

The Digital Services Development and Promotion pillar aims to drive the growth in the number of digtal jobs and digital entrepreneurs in the country. With an average age of just over 18 years, Nigeria has a potential critical mass of 'digital natives' that can transform the country into a regional and global digital powerhouse. These creative Nigerians can play a key role in the creation of digital jobs across all sectors of the country; jobs that are either based on ICTs or are dependent on ICTs.

The Soft Infrastructure will focus on ensuring that people can feel safe

online and that cyberthreats are quickly identified and contained. The adoption and growing popularity of the national digital identity scheme will make citizens feel safe while interfacing with the digital economy. Data protection will also play an important role in the development of the soft infrastructure.

The Digital Society and Emerging Technology pillar will ensure that the gains of the digital economy are mapped to indices of well-being in the lives of ordinary citizens. The Indigenous Content Promotion and Adoption pillar will provide a policy framework that gives preference to digitally skilled Nigerians for government funded projects in line with the Executive Orders 003 and 005 of the administration of President Muhammadu Buhari, GCFR. This pillar will also provide an enabling environment for indigenous content and the enforcement of the local content policies.

All these pillars align with the 3 key areas of focus of the administration of President Muhammadu Buhari, GCFR, namely the economy, anticorruption and security.

INTRODUCTION

The Digital Economy

INTRODUCTION

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The digital economy has been defined in many ways by various individuals and institutions. The European Commission defines the digital economy as an economy that "encompasses businesses that sell goods and services via the internet, and digital platforms that connect spare capacity and demand".

The World Economic Forum and the Group of Twenty (G20) define the digital economy as "a broad range of economic activities comprising all jobs in the digital sector as well as digital occupations in non-digital sectors".

In this Policy document, we refer to digital economy as:
Any aspect of the economy that is based on or driven by digital technologies.

Motivation for the Development of a Digital Economy
The development of a digital economy will create new technological platforms and industries on one hand, while enhancing the efficiency and productivity of existing industries on the other.

The Fourth Industrial Revolution (4IR) is characterized by a fusion of technologies and they have blurred the lines between the physical, digital, and biological spheres.

It is fundamentally changing all aspects of our lives and reshaping economic, social and cultural paradigms across the globe.

The significant developments in the digital technology sector have increased access and lowered the cost of digital devices. Access to the Internet has improved productivity and stimulated creativity and the emergence of emerging technologies have provided a platform for developing countries like Nigeria to use digital technology to drive the economy.

ICT has been the catch phrase for technology for the last few decades. However, in recent years there has been a convergence of the sub-sectors of ICT, including information technology, telecommunications and broadcasting. Furthermore, the term ICT conveys the concept of the use of technology.

Digital Technologies, on the other hand, built upon and extends the concept of ICT to include a focus on the creation, and not just the use of technology. These technologies also encompass emerging technologies and the potential for datafication that they provide.

The digital economy will be built on these digital technologies. This Policy aims to

provide an environment for the innovative use of such technologies to develop the economy of Nigeria.

Global Context of the Digital Economy

The Digital Economy is expanding across the globe, albeit at an uneven pace across different countries. In most countries, however, the digital economy is constantly being developed.

According to a 2016 Report by Oxford Economics, the global digital economy is valued at $11.5 trillion dollars or approximately 16% of the Global Economy. The global digital economy is also projected to account for a quarter of the global economy in the next 10years. Nigeria currently does not has a large slice of the global digital economy but effort is being made to position the nation to play a leading role in contributing to this economy.

Given the wide range of adoption of digital technology, it has become clear that every country stands to benefit from it. Countries that have adopted and accepted digitalization tend to have the best rewards. It is important to note, though, that countries need to adapt these digital technologies to their specific context in order to maximize the benefits. The successful and sustainable adaptation of technology requires that countries play to their strengths and mitigate the associated risks.

Globally, the United States, China and India are examples of populous countries who have thriving digital economies. These countries have the largest populations in their regions and Nigeria also has the largest population in Africa. This strength can be used to an advantage in the development of a sustainable digital economy in Nigeria.

With a Gross Domestic Product (GDP) valued at $397 Billion, Nigeria has the largest economy in Africa based on this 2017 World Bank estimate. Nigeria is 6th largest producer of oil and has the 10th largest oil reserves in the world and this sector has had a defining role on the economy of Nigeria. However, the volatility of the oil sector can have a negative impact on a mono-economy that is dependent on oil. To address this, deliberate efforts are being made by the administration of President Muhammadu Buhari, GCFR, to change this by diversifying the economy.

The Digital Economy in the Nigerian Context

ICT's Contribution to Nigeria's GDP – An Emerging Prospect

ICT's contribution has been one of the fastest growing components of Nigeria's GDP and is emerging as its most important long-term growth prospect. In the second quarter of 2019, ICT contributed 13.85% to the GDP calculations, as against Oil and Gas putting in 8.82% in comparison .

With the execution of a Digital Economy strategy, the digital technology sector can double its contribution to the economy over the next five years

Nigeria's Digital Edge Advantages
Age Advantage

Youth are the enablers of any digital revolution. Therefore, with a population having an average age of just over 18 years and with 60% of the country represented by youth, it indicates that Nigeria is ready to be the foundation of an African Digital Economy.

Furthermore, seizing the initiative with the youth would make Nigeria the driver

of a continent-wide digital economy under the new African Continental Free Trade Agreement (ACFTA).

Nigeria, also possesses an infrastructural advantage over its neighbours, and this should also propel the nation to a position of digital leadership on the continent.

Establishment of a Ministry of Communications and Digital Economy

There was an urgent need to have a Ministry assigned the role of coordinating the activities related to Nigeria's Digital Economy. This need led President Muhammadu Buhari, GCFR, to approve the redesignation of the Ministry of Communications as the Ministry of Communications and Digital Economy on the 17th of October, 2019. The change of name expanded the mandate of the Ministry to include a key aspect of the priority areas set for the Ministry by the Federal Government, which is the "Development and Implementation of a Digital Economy Policy and Strategy".

The name, Ministry of Communications and Digital Economy, gives a more holistic reflection of the mandate of the Ministry; communications addresses the channel, digital addresses the nature of the content and economy reflects the central focus of the activities of the Ministry, which is the development of the economy in line with the Economic Recovery and Growth Plan (ERGP) of President Buhari's administration.

The Ministry's mission statement is We Leverage Digital Technologies for National Economic Development. It encapsulates the rationale for its being the fulcrum for establishing and sustaining a national digital economy.

Pillars and Objectives of the National Digital Economy Policy and Strategy

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Pillars of the National Digital Economy Policy and Strategy

The National Digital Economy Policy and Strategy shall be anchored on the 8 pillars of he 'DIGITAL NIGERIA' Roadmap of the Federal Ministry of Communications and Digital Economy (FMoCDE). These pillars are listed below:
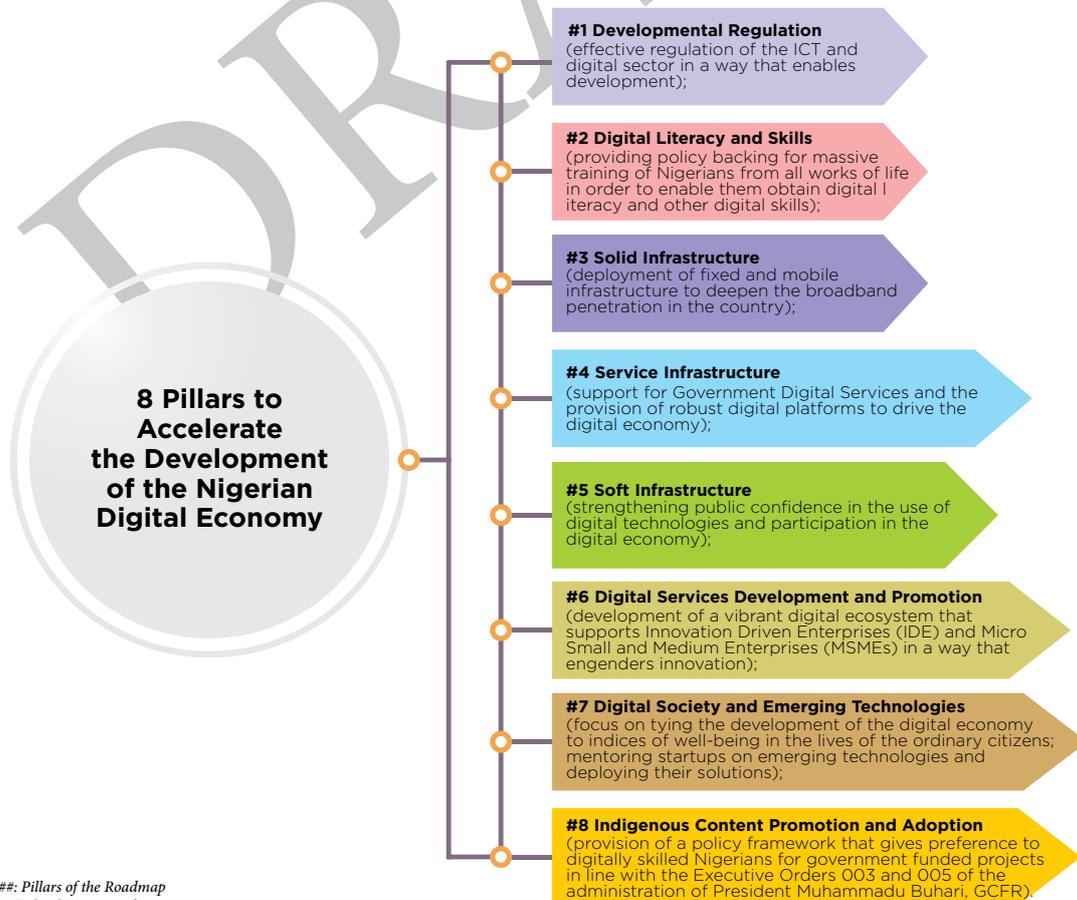
8 Pillars to Accelerate the Development of the Nigerian Digital Economy

#1 Developmental Regulation
(effective regulation of the ICT and digital sector in a way that enables development);

#2 Digital Literacy and Skills
(providing policy backing for massive training of Nigerians from all works of life in order to enable them obtain digital literacy and other digital skills);

#3 Solid Infrastructure
(deployment of fixed and mobile infrastructure to deepen the broadband penetration in the country);

#4 Service Infrastructure
(support for Government Digital Services and the provision of robust digital platforms to drive the digital economy);

#5 Soft Infrastructure
(strengthening public confidence in the use of digital technologies and participation in the digital economy);

#6 Digital Services Development and Promotion
(development of a vibrant digital ecosystem that supports Innovation Driven Enterprises (IDE) and Micro Small and Medium Enterprises (MSMEs) in a way that engenders innovation);

#7 Digital Society and Emerging Technologies
(focus on tying the development of the digital economy to indices of well-being in the lives of the ordinary citizens; mentoring startups on emerging technologies and deploying their solutions);

#8 Indigenous Content Promotion and Adoption
(provision of a policy framework that gives preference to digitally skilled Nigerians for government funded projects in line with the Executive Orders 003 and 005 of the administration of President Muhammadu Buhari, GCFR).

Fig ##: Pillars of the Roadmap of the Federal Ministry of Communications and Digital Economy

1. Developmental Regulation (effective regulation of the ICT and digital sector in a way that enables development);
2. Digital Literacy and Skills (providing policy backing for massive training of Nigerians from all works of life in order to enable them obtain digital literacy and other digital skills);
3. Solid Infrastructure (deployment of fixed and mobile infrastructure to deepen the broadband penetration in the country);
4. Service Infrastructure (support for Government Digital Services and the provision of robust digital platforms to drive the digital economy);
5. Soft Infrastructure (strengthening public confidence in the use of digital technologies and participation in the digital economy);
6. Digital Services Development and Promotion (development of a vibrant digital ecosystem that supports Innovation Driven Enterprises (IDE) and Micro Small and Medium Enterprises (MSMEs) in a way that engenders innovation);
7. Digital Society and Emerging Technologies (focus on tying the development of the digital economy to indices of well-being in the lives of the ordinary citizens; mentoring startups on emerging technologies and deploying their solutions);
8. Indigenous Content Promotion and Adoption (provision of a policy framework that gives preference to digitally skilled Nigerians for government funded projects in line with the Executive Orders 003 and 005 of the administration of President Muhammadu Buhari, GCFR).

The Pillars will accelerate the development of a digital economy in Nigeria.

NATIONAL DIGITAL ECONOMY POLICY AND STRATEGY
For a Digital Nigeria

1. Developmental Regulation
2. Digital Literacy and Skills
3. Solid Infrastructure
4. Service Infrastructure
5. Soft Infrastructure
6. Digital Services Development and Promotion
7. Digital Society and Emerging Technologies
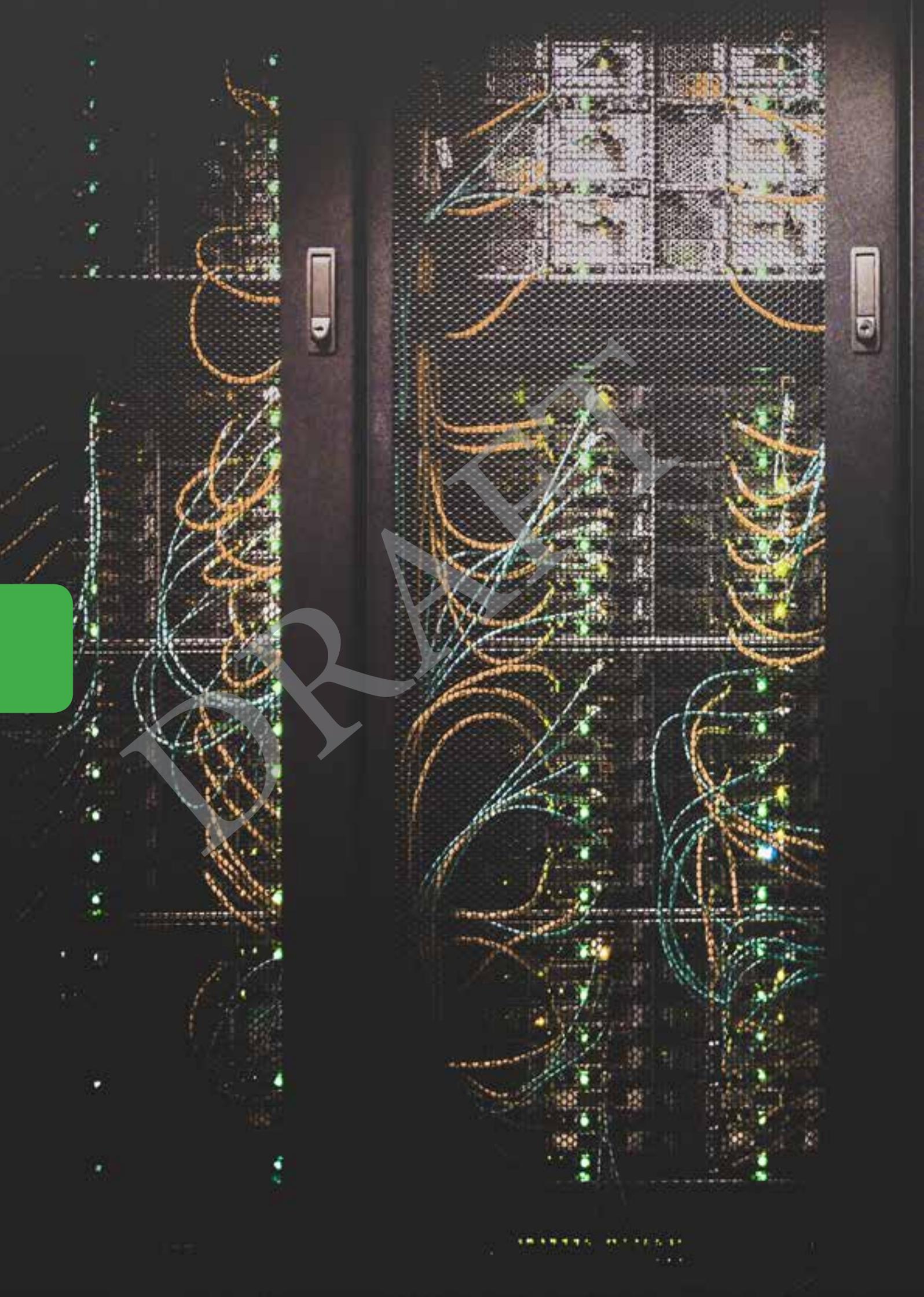8. Indigenous Content Promotion and Adoption

Roadmap Pillars

Objectives of the Digital Economy Policy and Strategy

Some of the objectives of this Digital Economy Policy and Strategy document are listed below:

i. Target 75% broaband penetration in 4 years;

ii. To accelerate the digitalization of government processes and improve service delivery, transparency and accountability;

iii. To improve trust, confidence and security around digital processes and activities;

iv. To attract and grow digital jobs across all sectors of the economy;

v. To develop the technology start-up ecosystem by actively promoting innovation and entrepreneurship;

vi. To support the digital literacy of Nigerian Citizens, Business and Government workers and enable them to acquire cutting edge digital skills;

vii. To develop digital education curriculum to meet the current and future needs of the Digital Economy;

viii. To ensure that indigenous technology companies are able to participate actively in the government funded technology programmes; and

ix. To ensure that the policy and regulatory instruments are fit-for-purpose and actually support the digital business environment.

Pillar #1: Developmental Regulation

Pillar #1: Developmental Regulation

Situation Analysis

Regulation is a key tool for achieving the social, economic and environmental policy objectives of government. In order to develop a vibrant digital economy, there is a need to ensure that the proper regulatory instruments are in place.

Regulation is usually perceived as a negative word, one that stifles development and innovation. The approach of the Federal Ministry of Communications and Digital Economy is one that promotes, rather than stifles development. A preference will be given to the Developmental Regulatory approach, where development will serve as the main motivation for regulation.

Many of the existing regulatory instruments in the digital economy space have been developed in silos. As part of the activities of the developmental regulatory pillar, a preference will be given for converged regulation, where relevant regulatory bodies can co-author regulatory instruments. This will make it easier for investors and stakeholders to support the development of the sector.

Policy Objectives

The objectives of the Developmental Regulation Pillar include the following:

i. To create a dynamic regulatory environment that fosters, rather than hinders, the delopment of a digital economy;

ii. To review existing legislation and facilitate, where necessary, the enactment of laws that would enhance the development of digital technology sector for national growth;

iii. To facilitate the enactment of appropriate legislation that ensures protection of digital technology infrastructure and enhances national security; and

iv. To support the issuance of converged regulations, as well as address the issue of multiple taxation in order to create a healthy business environment for the development of the Nigerian Digital Economy.

Implementation Strategies

Some of the implementation strategies for Developmental Regulation Pillar are listed below.
The Government will:

i. Review and harmonize all existing laws to accelerate digital economy objectives;

ii. Enact new laws, where necessary, to fill gaps and further support development of the sector;

iii. Create a Digital Economy Development Fund for the development of a National Digital Economy for a Digital Nigeria;

iv. Address the issue of multiple taxation in the sector;

v. Support the joint regulation of specific aspects of the digital economy by relevant regulatory bodies;
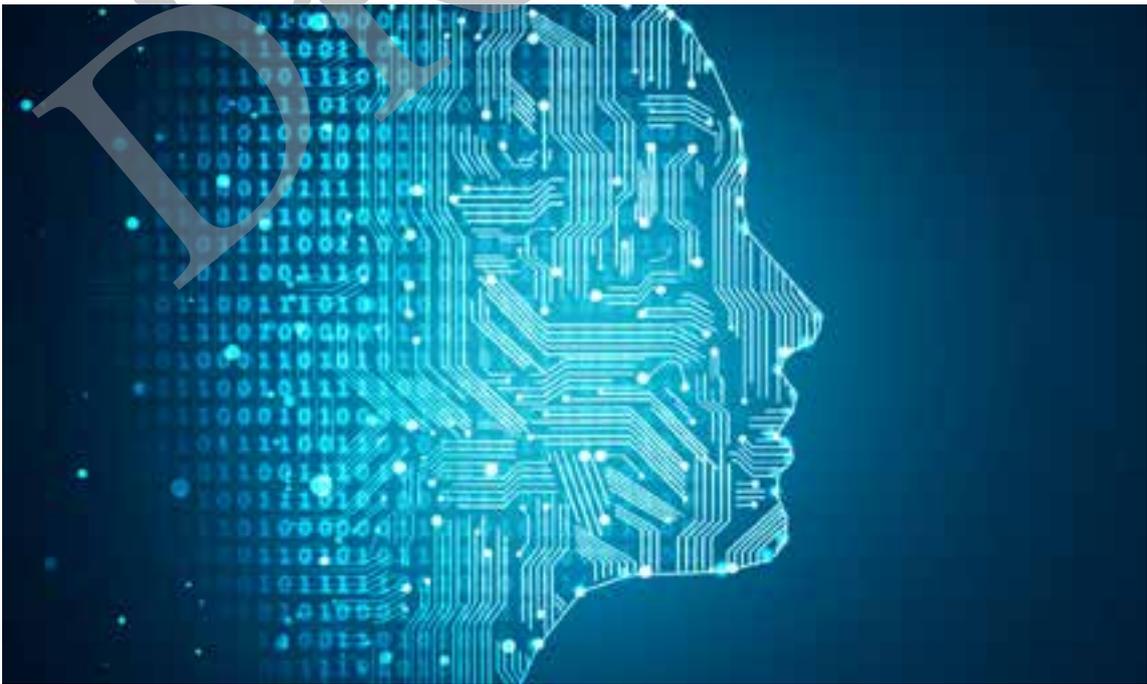
Pillar #2:
Digital Literacy
and Skills

Pillar #2: Digital Literacy and Skills

Situation Analysis

A digital economy can only be as vibrant as the level of digital literacy of its citizens. Today, literacy no longer means just an ability to read and write. A literate person in the fourth indust must be someone that is digitally literate. According to Common Sense Media, Digital Literacy includes the ability to use technology competently, interpret and understand digital content and assess its credibility, create, research and communicate with appropriate tools. As the importance of digital technology to society grows, so does the importance of digital literacy as a tool for lifelong learning.

According to Doug Belshaw's famous 8-element Digital Literacy Model (shown below), a digitally literate person should have following skill-sets:

1. [Cg]: Cognitive --> "How to Do";
2. [Cu]: Cultural --> "How to Behave";
3. [Cn]: Constructive --> "How to Use"; and
4. [Co]: Communicative --> "How to Communicate".

They should also have the following mindsets:

1. [Cf]: Confident --> "How to Belong";
2. [Cr]: Creative --> "How to Make";
3. [Ct]: Critical --> " How to Evaluate"; and
4. [Ci]: Civic --> "How to Participate".
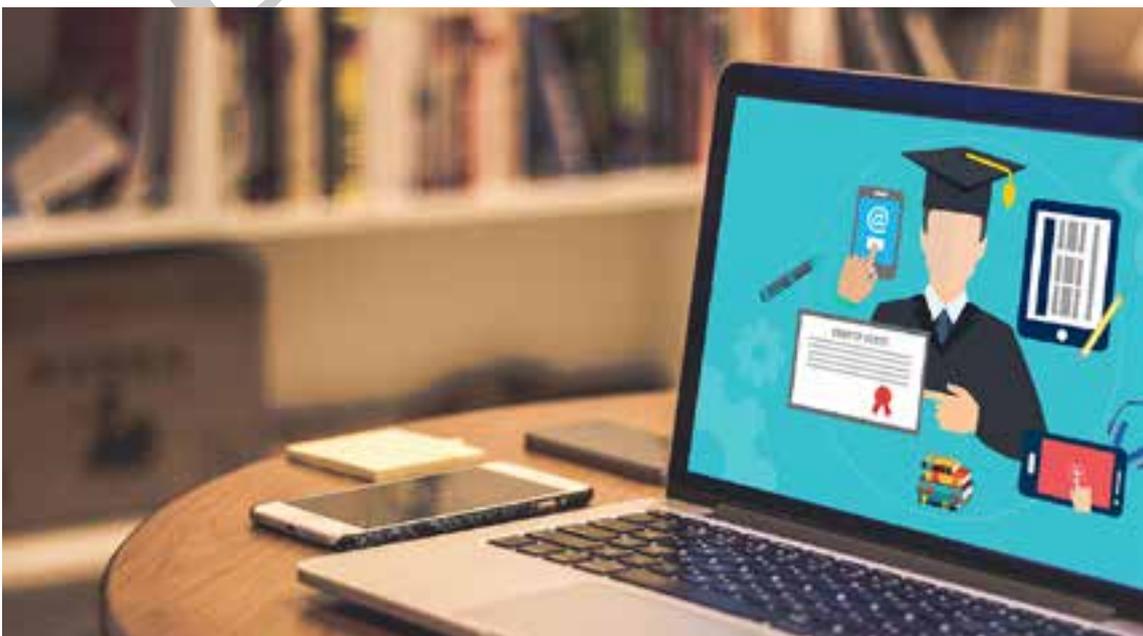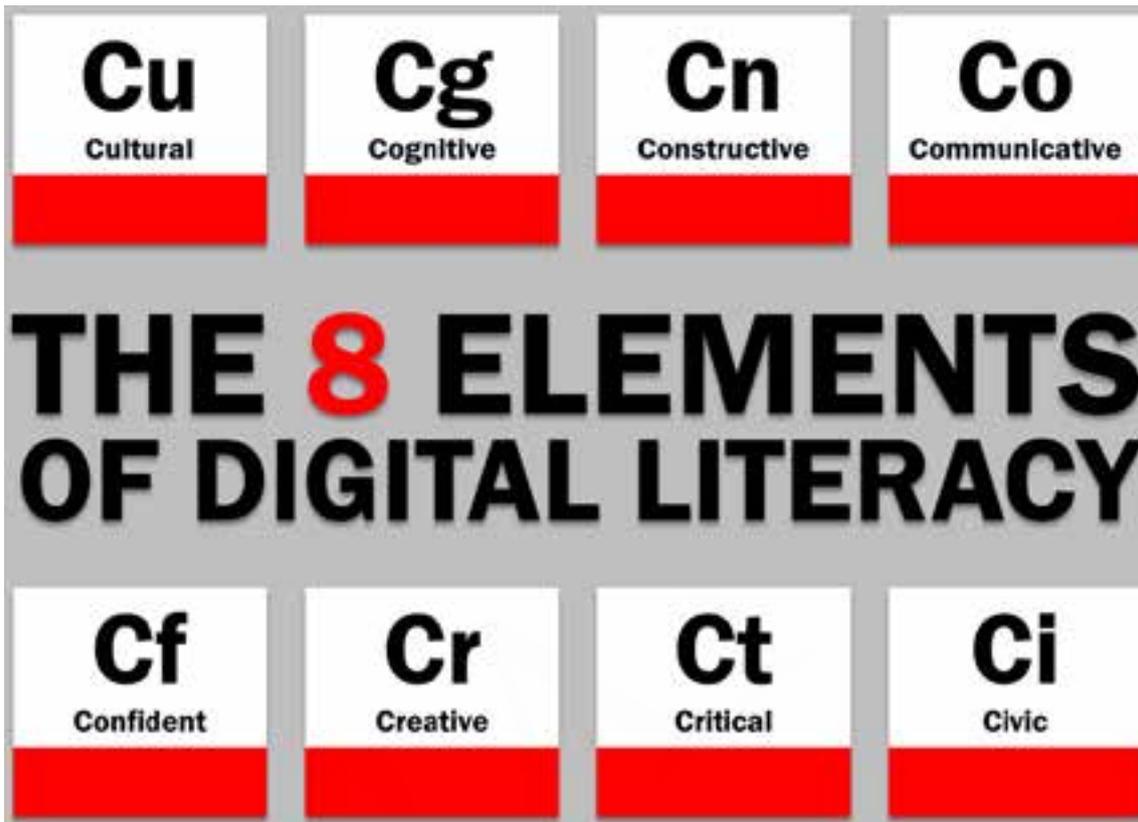
Digital Literacy Elements

This pillar will provide policy backing for massive training of Nigerians from all works of life in order to enable them obtain digital literacy skills. The training programmes will be expected to culminate in globally recognized certifications. In addition to the foundational digital literacy skills, the pillar will support the massive training on Nigerians in emerging technologies. The target is to provide an enable environment for the public sector, private sector, civil society and development partners to support the training of 5 million Nigerians. A Digital Skills Database will also be created to identify the digitally literate Nigerians and their levels of competence. This would make it easy to match skills to jobs.

Policy Objectives

The objectives of the Digital Literacy & Skills Pillar include the following:

i.   To integrate digital literacy and skills into the national education curriculum at all levels;

ii. To support training and capacity building among public sector employees in the development and use of digital tools and applications to improve the delivery of government services;

iii. To create a pool of Nigerians with digital skills validated by globally recognized certifications;

iv. To bridge the gap between the academia and industry; and

v.   To lower the access barrier to digital tools for the citizens;

Implementation Strategies

Some of the implementation strategies for Digital Literacy & Skills Pillar are listed below.

The Government will:

i.   Partner with relevant institutions to promote the establishment of globally

competitive training institutions that focus on digital technologies;

ii. Integrate digital literacy and skills into the curriculum of schools at all tiers of education;

iii. Provide support for digital literacy and skills for Nigerians across the country and in various sectors of the economy;

iv. Provide a digital literacy and skills training framework that will lead to trainees acquiring globally recognized certifications;

v. Ensure that digital literacy becomes a basic requirement for public sector employees;

vi. Leverage the existing network of schools, computer based testing (CBT) centres, community resource centres and faith-based institutions, amongst others, to facilitate a digital skills training programme across the country;

vii. Facilitate the training and retooling of teachers and facilitators at all levels, to enable them serve as trainers in the digital literacy and skills programme;

viii. Ensure that the digital skills training programme incorporates children, women and the physically challenged;

ix. Promote the development and distribution of instructional materials in electronic format;

x. Partner with the private sector to make it easier for Nigerians from all walks of life to acquire digital tools;

xi. Increase the synergy between all institutions that have a mandate related to education in the digital literacy and skills programme; and

xii. Create a Digital Skills Database with which to match digital jobs to existing digital skills.

Pillar #3:
Solid Infrastructure

Pillar #3: Solid Infrastructure

Situation Analysis

This pillar will address the deployment of fixed and mobile infrastructure to deepen the broadband penetration in the country. The solid infrastructure pillar is pivotal because without broadband access across the country it will be difficult to have an inclusive and vibrant digital economy.

Terrestrial and satellite networks will be harnessed to significantly increase the level of broadband penetration above its current level of about 35%. Nigerians currently have access to 2G, 3G and 4G networks, while trial deployments for the 5G networks are in progress. 2G networks have been deployed across the country but the current reach of the 3G and 4G networks is still at a low level with a spread of 26.03% and 9.07% respectively. This pillar will aim to boost these levels.

There have been some initiatives over the years that have been aimed at developing the infrastructure for a digital economy. One of such initiatives is the focus on deploying broadband across the country, especially with the deployment of a national fiber optic-based network. The aim is to distribute approximately 10 terabytes of capacity already delivered to landing points in Nigeria. As such, there is an urgent need to accelerate the pace of ongoing efforts, and also to introduce new initiatives to address these and other challenges. Nigeria has achieved 61.4% Internet penetration, mainly through mobile devices

It is estimated that to achieve full broadband penetration, 120,000km of fibre need to be installed, given Nigeria's land mass. The Infrastructure Company (InfraCo) Project is a public private partnership (PPP) model, based on providing counterpart funding to ensure that atleast 10 Gbps Point of Access (PoA) fiber optic capacity is accessible in all the 774 local government areas (LGAs) in Nigeria. The project has the potential of delivering about a quarter of the fibre required for full broadband penetration.

The 'Right-of-Way' (RoW) is a major issue that has impeded the deployment of fibre across the country. Many States have not adhered to the agreement by the National Economic Council that the RoW charges be pegged at N145/linear meter. The State Governors are currently being engaged to reverse this trend.

Therefore, to complement broadband use via the mobile networks, and fibre services, especially in rural locations, satellite services via the Nigerian Communications

Satellite (NigComSat) shall utilised. Novel connectivity options such as connectivity via White Space, will be explored.

The 2013 and 2017 access gap report showed that 36.8million and 33.2million people lack access, respectively. The 2019 access gap report is being prepared and there is a plan to provide access to an additional 984,000 people in the next one year.

Policy Objectives
The objectives of the Solid Infrastructure Pillar include the following:
i. To accelerate the penetration of affordable and quality broadband Internet in the country;
ii. To foster broadband usage for national development; and
iii. To ensure the rapid development of a broadband policy support and implementation framework.

Implementation Strategies
Some of the implementation strategies for Solid Infrastructure Pillar are listed below.
The Government will:
i. Deepen Broadband Penetration from 35% to 75% in 4 years;
ii. Support the deployment of optic fiber cable using the Infrastructure Company (InfraCo) Project under the Open Access Model;

iii. Promote both supply, and demand side policies that create incentives for broadband backbone and access network deployment;
iv. Facilitate broadband development and deployment, leveraging on existing universal service frameworks;
v. Deepen broadband penetration through the launch and use of satellite systems;
vi. Develop a robust and scalable data centre infrastructure;
vii. Promote efforts to close access gaps, through the use of satellite systems, Whitespace and other novel and innovative systems;
viii. Provide special incentives to encourage the increase of investment in broadband rollout;
ix. Enhance the capabilities of the Nigerian population to make use of, and contribute to broadband, and in so doing increase its relevance to the socio economic development of the country and its populace;
x. Establish a methodology for assessing progress of broadband development in in a structured way; and
xi. Ensure that all parties adhere to the prevailing Right of Way (RoW) agreement; and
xii. Create legislation to classify core digital infrastructure as Critical National Infrastructure.
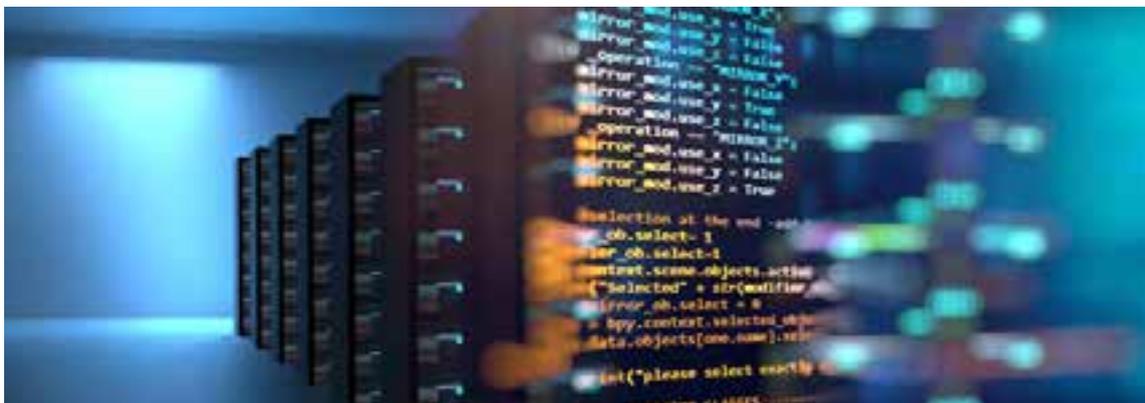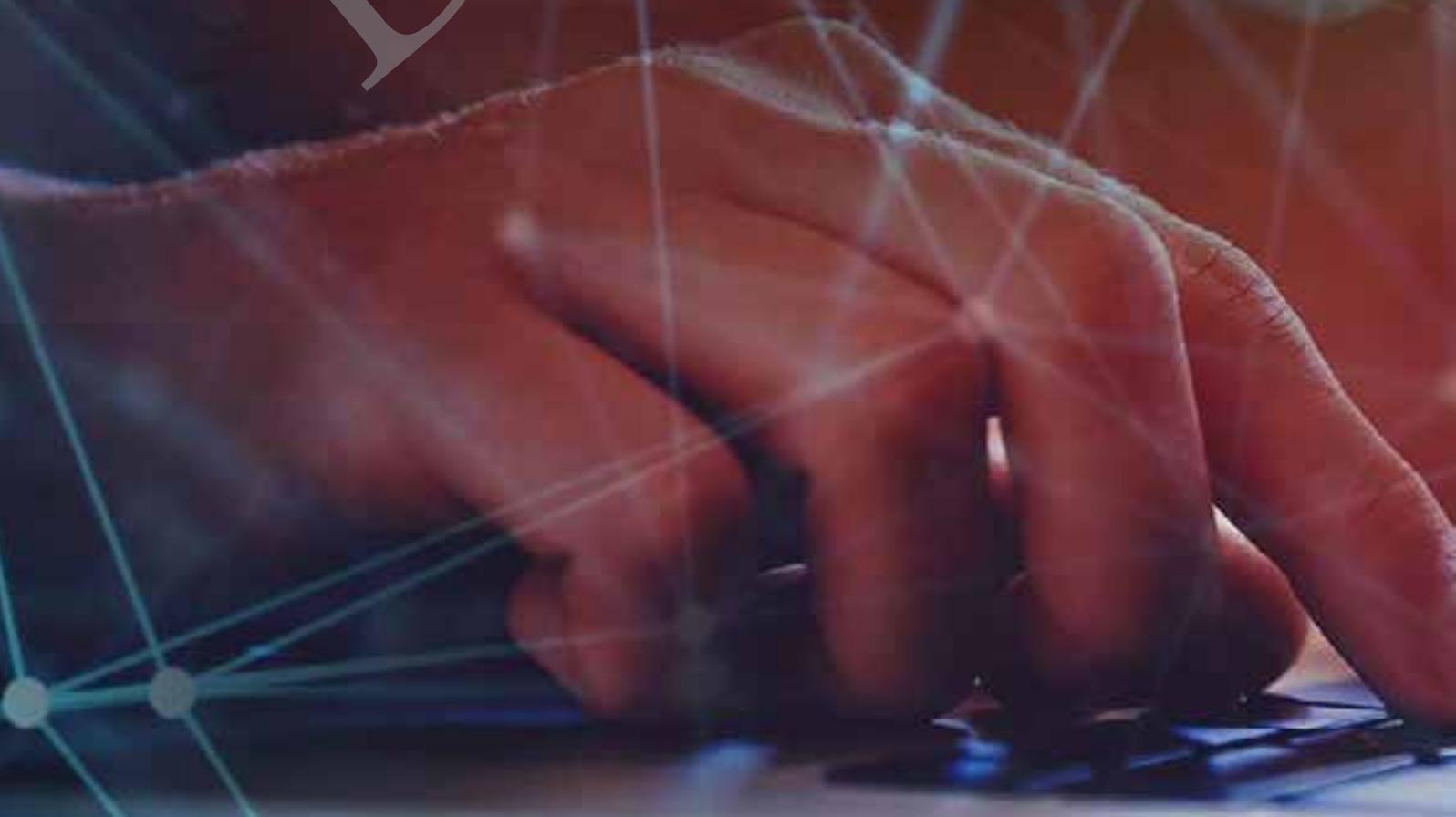
**Pillar #4:
Service Infrastructure**

Pillar #4: Service Infrastructure

Situation Analysis

The service infrastructure pillar will address the provision of robust digital platforms to drive the digital economy. These platforms enable transactions and interactions online. They also have the added advantage of enabling a supply of data from which both government and the private sector can gain useful insights with which to develop the digital economy.

This pillar supports the provision of a one-stop online platform for government to interact with citizens and investors. It supports the deployment of government digital services and a paperless system. The rollout of the solid infrastructure is pivotal but without digital platforms to access services, the goal of developing a digital economy will remain elusive.

Digital platforms can be defined as "multisided marketplaces with business models that enable producers and users to create value together by interacting with each other" <! Carlo Rossotto et. al. (2018), "Digital platforms: A literature review and policy implications for development", CRNI, pages 1-17.> These platforms allow users to carry out day to day business transactions with the help of digital technologies. There are a number of platforms that are currently being used by the Nigerian government.

They include the Integrated Payroll and Personnel Information (IPPIS), Government Integrated Financial Management Information System (GIFMIS) and REMITA platforms. The first two are focused on government activities while the REMITA platform is used by the government and the public.

It is necessary to create some Digital Only Government to Citizens (G2C) and Citizen to Government (C2G) use cases to popularize the use of digital platforms in the interactions between government and citizens. The www.services.gov.ng portal provides a one-stop portal for accessing government services. As part of efforts to develop the service infrastructure, this portal should be enhanced and promoted.

Policy Objectives

The objectives of the Service Infrastructure Pillar include the following:

i.   Implementation of the approved e-government Masterplan, including the e-Government Interoperability Framework (NeGIF) and Enterprise Architecture;

ii. Promotion of digital platforms for government, including a one-stop-shop for government services; and

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iii. Use of digital platforms for the extraction and warehousing of anonymized big data for public good.

Implementation Strategies

Some of the implementation strategies for Service Infrastructure Pillar are listed below.

The Government will:

i. Support the process for the establishment of a Presidential Committee on e-Government;

ii. Ensure the promotion and adoption of a Nigeria e-Government Interoperability Framework (Ne-GIF);

iii. Promotion and adoption of the Nigeria Government Enterprise Architecture (NGEA) across Ministries, Departments and Agencies (MDAs);

iv. Create Digital Transformation Technical Working Groups (DT-TWG) across all Federal Public Institutions (FPIs);

v. Enhance the Nigerian Open Data programme;

vi. Support the training of both government officials and private citizens to use data to make better decisions;

vii. Provide funding to network all FPIs and digitize some of their key services;

viii. Enhance and promote the www.services.gov.ng one-stop online platform for accessing government services; and

ix. Create some Digital Only Government-to-Citizens (G2C) and Citizen-to-Government (C2G) use cases for popularizing the use of digital platforms in the interactions between government and citizens.

Pillar #5: Digital Services Development and Promotion

Pillar #5:
Digital Services Development and Promotion

Situation Analysis

This pillar will focus on the development of a vibrant digital ecosystem that supports Innovative Driven Enterprises (IDEs) and Micro Small and Medium Enterprises (MSMEs) in a way that engenders innovation.

According to a March 2019 Report by the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN), Micro Small and Medium Enterprises (MSMEs) constitute 96% of all the business activities in the country. The Report also noted that 90% of all the businesses in the country fall under the micro category. As such, it is necessary to interface with MSMEs in order to develop the economy and use digital technology to drive economic activity in the country.

The concept of Innovation Driven Enterprises (IDEs) has been promoted by leading institutions such as the Massachusetts Institute of Technology (MIT) and these enterprises, no doubt, have great advantages. In contrasting IDEs and MSMEs we find that IDEs tend to have a global outlook while SMEs tend to start small and choose to remain local. IDEs also generally require more capital than SMEs and tend to integrate innovation more into their activities more than SMEs.

However, like most technology driven deployments, it is important to take cognizance of the local peculiarities when pursuing global ideals. With such a large population of SMEs, it is worthwhile to adopt an approach that takes into account the vast numbers of SMEs in Nigeria and the strong desire to encourage them to embrace innovation. This approach will combine SMEs and IDEs to give a local variant for the Nigerian sector called: SMILE= SME + IDE. 'SMILE' is a coined acronym for 'Small Medium Innovation Leaning Enterprises'.

This pillar will lead to SMILEs by taking the extensive MSME structure into account and integrating innovation in order to create a number of digital-driven SMEs as a bridge to creating a pool of IDEs as the nation develops her digital economy. Top-notch entrepreneurs will also be chosen and funded to scale their impact.

Opportunities for job creation are a key outcome for the implementation of the strategies of this pillar. We want to have enabling environment for the creation of jobs, not only in the public sector but mainly in the private sector.

The Nigerians in diaspora can be a key asset in driving the Digital Economy, especially

as it relates to this pillar. Nigerians in the diaspora should be engaged with a view to creating a support network for the IDEs and digitally-enabled MSMEs in the country.

Policy Objectives

The objectives of the Digital Services Development and Promotion Pillar include the following:

i.   Support for the creation of innovation driven enterprises and digitally-enabled MSMEs;

ii.   Facilitation of mentorship and funding programmes to support innovation driven enterprises and digitally-enabled MSMEs; and

iii. Enabling innovation driven enterprises and digitally-enabled MSMEs to participate in the government procurement process.

Implementation Strategies

Some of the implementation strategies for Digital Services Development and Promotion Pillar are listed below.
The Government will:

i.   Identify, promote and celebrate Innovation Driven Enterprises (IDEs);

ii.   Support for MSMEs to integrate digital technologies into their operations;

iii. Create an incentivized mentorship programme that connects to MSMEs to indigenous and foreign technology driven mentors;

iv.   Incorporate IDEs and digitally-enabled MSMEs into government funded projects and projects of large corporations;

v.   Facilitate funding for the Innovation and Start-Up Ecosystem;

vi.   Conduct a technology adoption survey of MSMEs with a view to lowering the barrier to adopting technology;

vii. Based on the technology adoption survey in the first year, double the number of digitally-enabled businesses annually;

viii. Create an enabling environment for Nigerians in the diaspora to support the IDEs and digitally-enabled MSMEs;

ix.   Forster collaboration between the stakeholders of the innovation and entrepreneurial ecosystem; and

x.   Create an enabling environment for building the capacity of IDEs and MSMEs, mainly through e-learning channels.
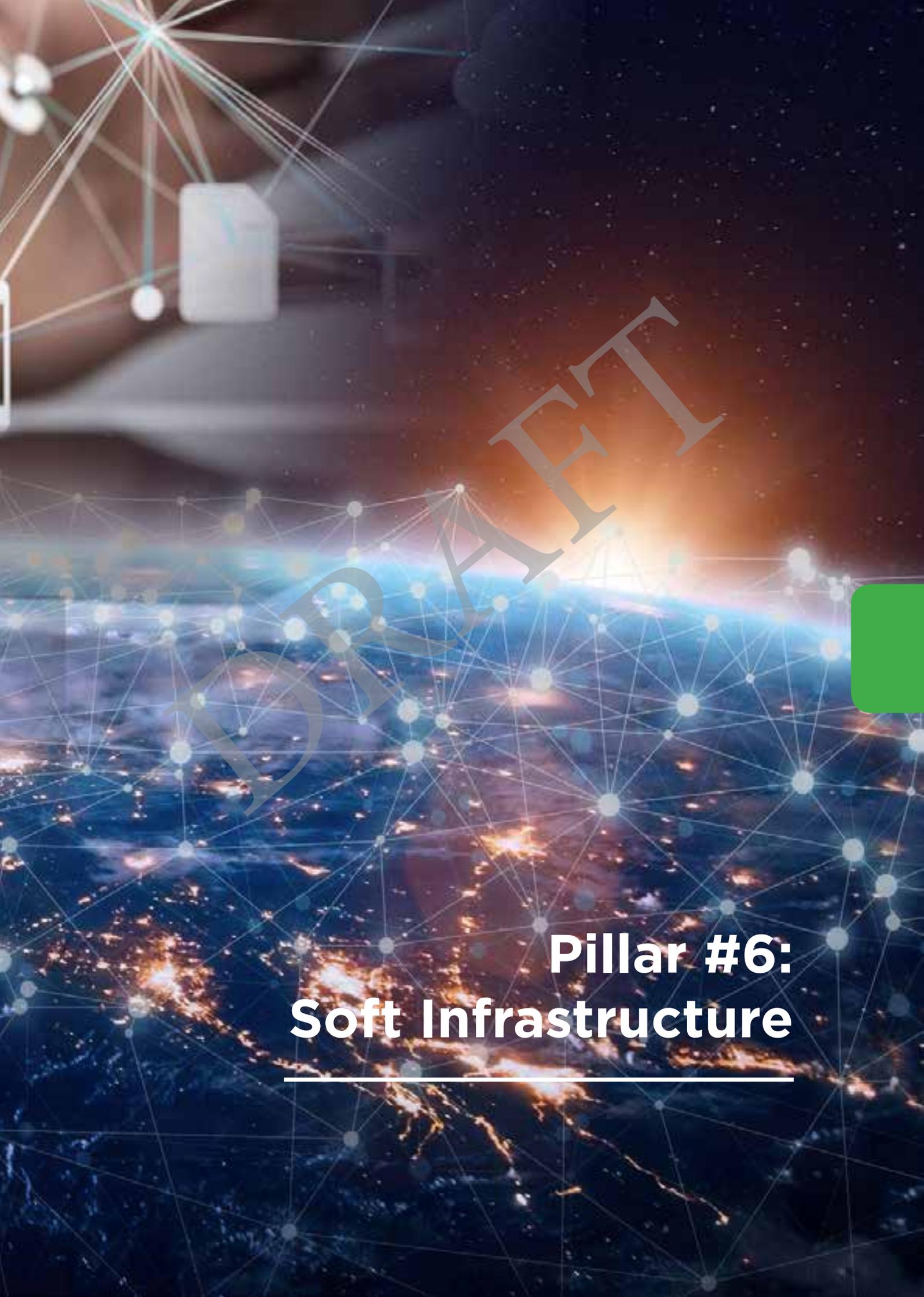
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Pillar #6:
Soft Infrastructure

Pillar #6:
Soft Infrastructure

Situation Analysis

The soft infrastructure pillar focusses on strengthening public confidence in the use of digital technologies and participation in the digital economy. The pillar will address the importance of cybersecurity and other standards, frameworks and guidelines that encourage citizens to go digital. Data privacy and the deployment of technologies like the public key infrastructure are addressed in this pillar.

Many Nigerians do not have confidence in online services, especially when they relate to financial transactions because of the perception that they are unsafe online. They also tend to believe that their privacy is compromised online. The National Information Technology Development Agency (NITDA) and other relevant government institutions are changing this narrative. The Nigeria Data Protection Regulation (NDPR) is one of the instruments that addresses this issue.

This is a good starting point but there is a need to further strengthen the regulatory instruments that govern data protection and privacy.

The need for digital identity lies at the root of citizenship and service delivery in a digital economy. With identity being digitized and tied to biometrics, initiatives like the National Identity Number (NIN), Biometric Verification Number (BVN), Voter IDs and SIM-card registration details can provide channels for identifying citizens in order to facilitate credible transactions.

There are currently ongoing conversations around the harmonization of biometrics and IDs. About 30 government institutions that have access to citizen data are members of the Harmonization Committee. The general idea involves the mapping of the disparate databases to the NIN database. For example, from about 15million financial sector records, around 6million new candidates were identified for NINs. The Committee is embracing an ecosystem approach to the integration that involves partnership with the private sector. The NIN database currently has 38.3 million entries.

A proper cybersecurity approach needs to take the different aspects of cyberspace into account. It is not a local issue and it requires collaboration with relevant institutions around the globe. One of such collaborative approaches involves the signing of treaties and one key treaty is the Budapest Convention.

The Budapest Convention, also known as the Convention on Cybercrime of the Council of Europe, is an international instrument that serves as a guideline for countries that wish to develop a comprehensive national legislation against Cybercrime. It also provides a framework for international cooperation between countries that are party to the treaty. Nigeria is yet to sign this treaty but efforts are underway to get the country to sign the treaty, considering its great benefits.

Policy Objectives

The objectives of the Soft Infrastructure Pillar include the following:

i. Review and strengthen cybersecurity instruments to ensure that Nigerians are secure online;

ii. Strengthening of the regulatory instruments and institutional framework that governs data protection and privacy; and

iii. Support for the accelerated implementation of a Digital Identity Programme.

Implementation Strategies

Some of the implementation strategies for Soft Infrastructure Pillar are listed below. The Government will:

i. Review of existing legislations and regulations on cybersecurity;

ii. Accreditation of government digital services delivery channels to ensure adherence to security standards.

iii. Support of and accreditation for forensic service providers.

iv. Support for the retooling of security institutions to build capacity for incidence management and digital forensics

v. Establishment of sectoral Computer Emergency Readiness and Response Team (CERRT) in government regulatory agencies.

vi. Ensure effective regulation of the sector through development of standards and guidelines to enhance Nigeria's cybersecurity resilience;

vii. Ratification of the Convention on Cybercrime of the Council of Europe (Budapest Convention); and

viii. Deployment of the National Public Key Infrastructure.
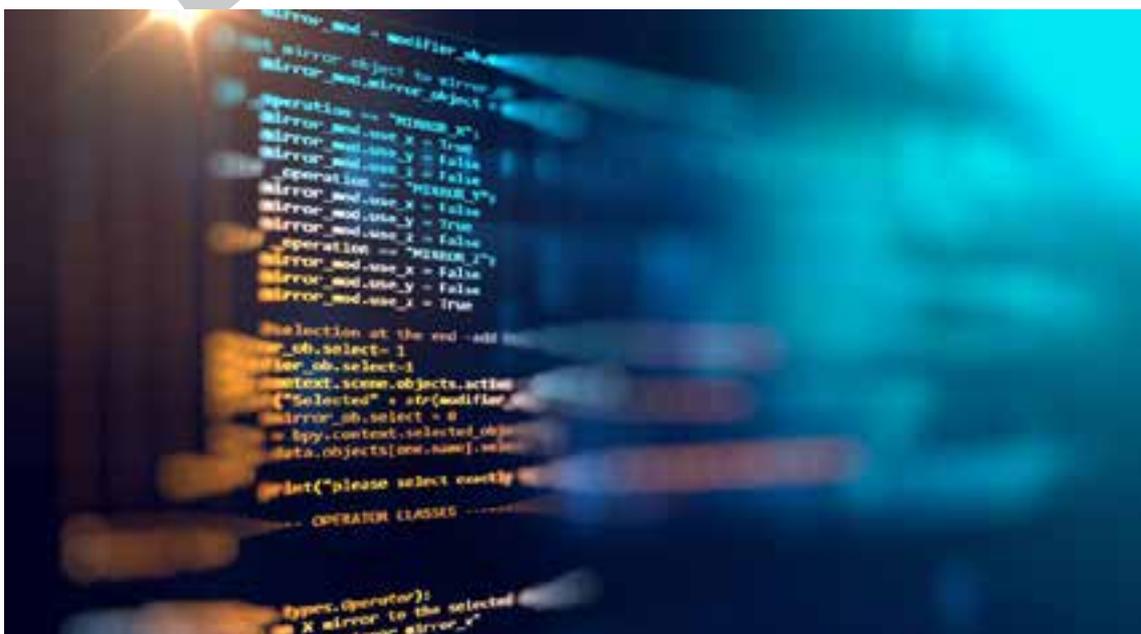
**Pillar #7:
Digital Society and
Emerging Technology**

Pillar #7:
Digital Society and Emerging Technology

Situation Analysis

This pillar will focus on tying the development of the digital economy to indices of well-being in the lives of the ordinary citizens. Digital and financial inclusion are some of the issues that this pillar seeks to address.

The Digital Society and Emerging Technology pillar will map the development of the digital economy to the attainment of 7 of the Sustainable Development Goals (SDGs) that are most relevant to the digital economy, namely:

1.   Poverty Eradication;
2.   Good Health and Well-being;
3.   Quality Education;
4.   Decent Work and Economic Growth;
5.   Industry, Innovation, and Infrastructure;
6.   Reducing Inequality; and
7.   Sustainable Cities and Communities.

Emerging technologies can enable the nation to attain these goals. As such, an emerging technology programme will be introduced in the country. Options will also be explored on the use of emerging technologies for addressing national challenges.

The Emerging Technology programme will address the following areas, amongst others:

i.   Coding with relevant tools;
ii.   Internet of Things (IoTs);
iii.   Big data analytics;
iv.   Artificial intelligence (AI);
v.   Machine Learning;
vi.   Mobile app development;
vii.   3D Printing;
viii.   Virtual Reality and Augmented Reality (AR/VR);
ix.   Cloud Computing; and
x.   Blockchain.

Policy Objectives

The objectives of the Digital Society and Emerging Technology Pillar include the following:

i.   Enable a progressively increase the contribution of digital technologies to the economy;
ii.   Promote research in emerging technologies with a view to getting digital technology to improve the livelihood of Nigerians; and
iii.   Accelerate digital inclusion in the country by taking advantage of the spread of existing infrastructure across the country.

Implementation Strategies
Some of the implementation strategies for

Digital Society and Emerging Technology Pillar are listed below.

The Government will:

i.   Support the emergence of new services and industries that are enabled by emerging technologies;

ii.   Facilite workforce transformation in the public service using emerging technologies, starting with some pilot Ministries, Departments and Agencies;

iii.   Forster digital inclusion for People Living With Disabilities (PLWDs) and other digitally excluded people;

iv.   Supports the emergence of e-services in leading sectors of the economy;

v.   Prioritize financial inclusion with a view to reducing the current percentage of unbanked adults by 50% within the next 4 years;

vi.   Use existing institutions and centres with a national spread as touch points for accelerating financial inclusion;

vii.   Collaborate with the private sector, academia and development partners to create Centres of Excellence in Emerging Technologies

viii.   Include topics in emerging technologies across the broad spectrum of formal and vocational education in the country.

ix.   Establish aviable institution to promote the deployment of digital services across the key sectors of the country.

Pillar #8: Indigenous Content Promotion and Adoption

Pillar #8: Indigenous Content Promotion and Adoption

Situation Analysis

This pillar will provide a policy framework that gives preference to digitally skilled Nigerians for government funded projects in line with the Executive Orders 003 and 005 of the administration of President Muhammadu Buhari, GCFR. It will identify jobs that are currently being outsourced and support the repatriation of these jobs to digitally skilled Nigerians.

Promoting and adopting indigenous content will enable Nigeria to benefit from the increasingly global digital technology market. It will also help to conserve foreign exchange for the country and boost exports. The activities in this pillar will ensure that "Made in Nigeria" digital economy products are of globally accepted quality.

The pillar will also seek to make Nigeria a global outsourcing destination for digital jobs. The implementation of strategies within this pillar will also actively pursue the Impact sourcing business process outsourcing (BPO) model, where digital jobs are deliberately outsourced to economically disadvantaged areas in order to improve their economic conditions.

Policy Objectives

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

i   To develop indegenous 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 indegenous digital technology and Innovation service providers.

Implementation Strategies

Some of the implementation strategies for Indigenous Content Promotion and Adoption are listed below.
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 an impact sourcing business process outsourcing (BPO) model, where 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 repatration;

iv. Ensure compliance with Regulatory Guidelines for Nigerian Content;

v. Highlight and promote indinous capacities in digital technologies;

vi. Support the development of funding mechanisms and engagement of funding stakeholders to drive investments for the expansion of indegenous digital technology businesses;

vii. Provide technical support for Original Equipment Manufacturers (OEMs);

viii. Facilitate partnerships with multinationals operating in Nigeria to create platforms for Indigenous Vendors to serve global markets ; and

i. Ensure strategic partnerships with relevant regulatory agencies, such as the Bureau of Public Procurement (BPP), National Office for Technology Acquisition and Promotion (NOTAP), to create joint efforts to promote indegenous content.

Key MDAs Needed for the Success of the Digital Economy

1. Federal Ministry of Finance, Budget and Planning
2. Federal Ministry of Education
3. Central Bank of Nigeria
4. Ministry of Petroleum
5. Federal Ministry of Science and Technology
6. Federal Ministry of Agriculture and Rural Development
7. Federal Ministries of Defence, Interior and Police Affairs
8. Federal Ministry of Humanitarian Affairs, Disaster Management and Social Development
9. Federal Ministry of Youth
10. Federal Ministry of Labour and Productivity
11. Federal Ministry of Women Affairs
12. The National Assembly (Leadership and Applicable Committees)
13. Nigerian Governors Forum
14. Diaspora Commission
15. NOTAP
16. BPP

**FEDERAL MINISTRY OF
COMMUNICATIONS AND
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Leveraging Digital Technology for
National Economic Development