



FEDERAL GOVERNMENT OF NIGERIA

NIGERIA ICT ROADMAP **2017-2020**

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FEDERAL MINISTRY OF COMMUNICATIONS **(FMoC)**

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Nigeria ICT Roadmap 2017-2020



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Preface

Nigeria's efforts towards sustainable socio-economic development reached a turning point with the peaceful transition from the fourth to the fifth consecutive democratically elected Government. The National Agenda, as underpinned by the recently released Economic Recovery and Growth Plan (ERGP) of the Federal Government, is hinged on ensuring that the Information Communications Technology (ICT) Sector effectively impacts the lives of Nigerians as the country takes its place as a knowledge-driven Nation with a 21st Century democratic socio-economic profile.

The Federal Ministry of Communications (FMoC), in its bid to fulfil its mandate as the strategic driver for the adoption, adaptation and utilisation of Information Communications Technology for Nigeria's socio-economic benefit, decided to develop this Roadmap.

The Roadmap provides an integrated framework for ICT development in Nigeria and articulates the strategic direction on four pillars namely: Governance; Policy, Legal and Regulatory framework; Industry and Infrastructure; Capacity Building which are braced by a beam of Cross-Cutting issues.

The document is an overarching guide for a multi-stakeholder approach to developing the ICT Sector for accelerated realisation of the aspirations of this Administration and the generality of Nigerians. This will be based on robust structures that ensure appropriate support, facilitating necessary improvements in services provision in both public and private Sectors, providing necessary infrastructure and enhancing competitiveness to foster rapid, inclusive and sustainable development.

Development of the ICT Sector should be holistic. The Roadmap is therefore a tool to help achieve an accelerated National development through the inclusion of Women, Youth and vulnerable groups as the country advances towards attaining the sustainable change that it seeks.

The document has been developed through a painstaking and extensive consultation process which includes a Sector Retreat, post retreat engagements and experts review.

The Ministry wishes to acknowledge the efforts of all those who contributed to the development of this document. In particular, the commitment and professionalism of the external resource persons is highly appreciated.

I am optimistic that the Roadmap will not only facilitate the implementation of the ERGP by serving the needs of our various stakeholders, partners and investors but enable Nigerians access the ever increasing opportunities that abound in the ICT Sector.

Arc. Sonny S. T. Echono, fnia

Permanent Secretary

Federal Ministry of Communications

May, 2017

Foreword

The Communications Sector's dramatic growth from 0.6% of Gross Domestic Product in 2001 to 9.8% in 2014 helped propel Nigeria ahead of South Africa as Africa's largest economy in 2014. It is now the 4th pillar of the economy and has also been dubbed the "infrastructure of infrastructures", with good reason. It is essential for the proper functioning of many other key Sectors of the economy and government including Agriculture, Commerce, Banking and Finance, Health and Transportation.

Inevitably, this dramatic success has not come without its own challenges, constraints and costs. It must be put on record however, that this spectacular growth has not translated into affordable Universal Access and significant poverty reduction in areas where Nigeria lags behind similar countries in Asia and South America. This is something this administration is committed to reverse through the adoption and implementation of the Economic Recovery and Growth Plan (ERGP).

The ERGP recognises the strategic role of the Information Communication sector in driving and expanding national production frontiers across all sectors of the economy. The Information Communications Technology (ICT) Sector is the arrowhead for weaning Nigeria off oil & gas and consequently, diversifying the economy. Making Government more transparent, responsive, efficient and effective in delivering services is a key focus for this government. In particular, the Sector will create opportunities in the economy for wealth and employment as well as revenue generation to deliver on its mandates. It is expected that with all these in place, Nigeria will become a regional hub for ICT innovation & development while safeguarding the Intellectual Capital and Property Rights as critical to national security and development.

Following my appointment as the Minister of Communications, I made a commitment to turn the ICT Sector into a "cash cow" so as to revive the economy. Working with my team, we promised to ensure prompt and quality service delivery. We undertook to mobilize Communications Technology for national growth and development.

To deliver on these promises, and for Nigerians to benefit from ICT, in addition to well-articulated Policies and Strategies, there must also be an integrated implementation framework.

It is my desire and aspiration to leverage business process outsourcing and other ICT Sector opportunities to create two million jobs, establish an ICT University, a technological Park and ICT Exhibition centre, create ICT innovation hubs across the nation and reposition NIPOST to enable it provide cost effective 21st Century services.

For this purpose, the ICT Sector Roadmap is being unveiled as part of the implementation framework of the ERGP focusing on five Pillars, namely: ICT Industry and Infrastructure Development; Governance; Policy, Legal and

Regulatory Environment, Capacity Building and Cross Cutting Issues such as Information security and Innovation.

The intention of the Roadmap is to create broad yet flexible pathways to ensuring that ICT reaches all the nooks and crannies of Nigeria, that every Nigerian has access to ICT, that Quality of Service Delivery by Government is improved and that our knowledge and information is not only secure, but enhances our national security.

At its core, the Roadmap promotes Public-Private-Partnerships to attract investments in high quality infrastructural facilities and services.

The present Administration, through this Roadmap, would expedite action and deepen the implementation of the existing Sector plans as well as engender closer collaboration between the Federal Ministry of Communications and other critical Sectors.

Our overall vision is to make the ICT Sector the main pillar of the Nigerian economy as we mainstream ICT into all aspects of national life. This would require effective synergy within the ICT Sector and constructive engagement among stakeholders. This way, we hope to have an integrated implementation of the Roadmap.

Hopefully, our efforts in this regard would create the required ecosystem for realising the aspirations of Government and stakeholders as well as delivering the change that Nigerians are yearning for.

The time has come for us to leverage the bountiful opportunities in the Communications Sector to generate additional wealth for stakeholders and attendant revenue for government. In this regard, our commitment is total.

It is therefore, my hope and prayers that the propositions laid out in the following chapters, code-named NIGERIA ICT ROADMAP 2017-2020 would be appreciated and acceptable not only to all stakeholders but the entire citizenry of our dear country, and indeed, deserving of all support and assistance for eventual implementation.

May I conclude this foreword by thanking most sincerely, all participants at the January, 2016 Retreat of the Ministry and most importantly, all those who contributed to the development of the Roadmap and its integration with the National Agenda.

Abdur-Raheem Adebayo Shittu (Barrister).

Honourable Minister of Communications.

May, 2017

Acknowledgement

A Sector roadmap provides necessary guidance on the Agenda for executing a desired strategic direction. It is a sine qua non for strategic sectors in a new Administration that is determined to create positive change that touches aspects of life.

The current Administration has on various occasions expressed confidence in the capacity of the ICT sector to catalyse the envisaged change. The Nigeria ICT Roadmap, 2017-2020, communicates the commitment of the sector to deliver on the government's promise of change using ICT. It is a tool for leveraging ICT to create jobs and wealth, improve productivity and promote inclusive development.

It is believed that the Roadmap will be of benefit to Government Agencies, investors, operators and consumers in the Sector, Partner organisations, professional groups and other stakeholders.

The Ministry acknowledges the efforts of all individuals, groups and Agencies who worked with the Planning, Research and Statistics Department of the Federal Ministry of Communications to produce this Roadmap. In particular, we appreciate the commitment and professionalism of our external resource persons on the Roadmap committee namely Abdul-Hakeem Ajijola, David Ibhawoh, Kazeem Kolawole Raji, Najim Animashaun, and Shuaib Afolabi Salisu. We also appreciate the inputs of representatives of Agencies under the Ministry and Babatunde Onadipe who was of immense assistance to the Committee.

Acronyms

2G	-	2 nd Generation network
3G	-	3 rd Generation Network
4G/LTE	-	4 th Generation Network/Long Term Evolution
BB	-	Broad Band
CERTs	-	Computer Emergency Response Teams
CNII	-	Critical National Information Infrastructure
CNI	-	Critical National Infrastructure
CNTIB	-	Critical National Telecommunications Infrastructure
DPRS	-	Director Planning, Research and Statistics
e-Govt	-	Electronic Government
FDI	-	Foreign Direct Investments
FMoC	-	Federal Ministry of Communications
GBB	-	Galaxy Backbone
GDP	-	Gross Domestic Product
ICT	-	Information Communication Technology
IP	-	Intellectual Property
IT	-	Information Technology
INFRACOs	-	Infrastructure Companies
ITU	-	International Telecommunication Union
KPIs	-	Key Performance Indicators
MDAs	-	Ministries, Departments and Agencies
M&E	-	Monitoring and Evaluation
NBBP	-	National Broad Band Plan
NDE	-	National Directorate for Employment
NITDA	-	National Information Technology Development Agency
NIPOST	-	Nigeria Postal Service
NCC	-	Nigerian Communications Commission
NIGCOMSAT	-	Nigerian Communications Satellite Ltd
OEM	-	Original Equipment Manufacturer
PRSD	-	Planning, Research and Statistics Department
PPP	-	Public Private Partnership
RDI	-	Research, Development and Innovation
RoW	-	Rights of Way
SMEDAN	-	Small and Medium Enterprise Development Agency
SME	-	Small and Medium Enterprise
TOR	-	Terms of Reference
VAT	-	Value Added Tax
ERGP	-	Economic Recovery and Growth Plan

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Executive Summary

In the last fifteen years an Information Communications Technology (ICT) revolution has occurred in Nigeria. Spurred by technology and enabled by a policy of deregulation, ICT's accounted for 9.8% of GDP in 2014 up from 0.6% in 2001.

Key performance indicators are evident in the US\$ 32 billion of Foreign Direct Investments (FDI) made by Telco's, service providers and others, from 2001 to date, in a Sector that now employs several millions of Nigerians and expatriates. A Sector that has 152 million active telephone lines, which are more subscribers than the United Kingdom, as well as 97 million connections to the internet, Nigeria now has 107 per cent tele density. Nigeria now boasts over 30,000 base stations, and 11 terabytes of data landing on Nigeria's shores through 5 submarine cables.

This explosive growth, though impressive, under performs when compared to certain Asian countries. Moreover, in Nigeria this has also produced unintended and uneven growth in Sector development. The postal services and fixed-line telephony sub-Sectors have been casualties of the digital revolution. Their decline is now, not only a source of concern but also, because their physical assets have not functioned effectively for some time, they are unable to contribute to the delivery of universal access throughout Nigeria, in a similar way that peer countries have utilised similar assets owned by comparable former state communications utilities.

Supporting Documents

The appendices attached provide extensive details of the issues raised sector stakeholders and addressed by the members working group on the Nigeria ICT Roadmap 2017-2020.

Appendix I: Timelines and Milestones

Appendix II: Implementation Mechanisms

Appendix III: Log frame

Appendix IV: Analysis of Post Retreat Committee Reports

Appendix V: Index of Initiatives

Appendix VI: Initiative Clusters

Appendix VII: Project Status Templates

Appendix VIII: Principles of Partnership

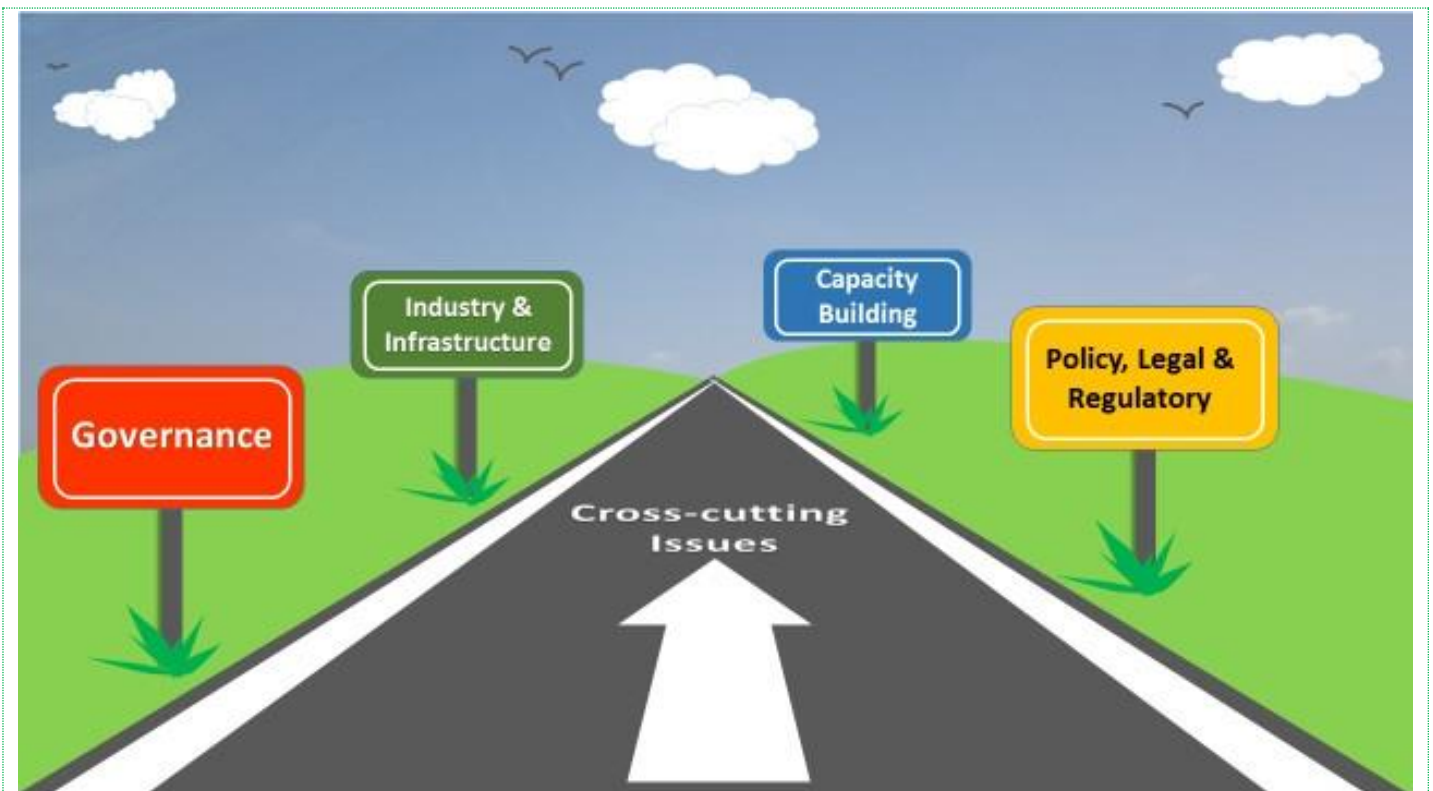
To determine the lessons to be learned from the Sector's performance since deregulation and capitalise on the trends in technology and applications in commerce, government and society, the First Annual Communications Sector Retreat was convened in January 2016. The Post-Retreat Committee Produced a Report identifying Seven Key areas representing Seven key lessons learned and recommendations for future implementation planning and programming. These seven areas are:

1. **Funding Mechanisms:** To identify, given the quantum of investments required and government funding constraints, the obstacles to successful implementation of projects and proposals, with particular reference to leveraging Public Private Partnerships,
2. **Policy and Programmes:** To determine the factors inhibiting the successful implementation of policies and propose appropriate next steps.
3. **Local Content:** What strategies and policies have stimulated the growth of local content in Nigeria or elsewhere, and how to capitalise on local innovation for Sector improvement.
4. **Industry and Infrastructure:** To ascertain where infrastructure development has progressed versus where it is deficient and come up with guidelines and strategies to support infrastructure development and expansion.
5. **Legislative Action:** Require a review of the Legal and Regulatory framework in the light of existing policies and plan a route to the updating and upgrading of the legislative instruments required to nurture and sustain a vibrant and innovative ICT Sector.

6. **Capacity Building:** Identified as a key element for Sector growth, economic diversification, wealth generation and national security. How far have we come since the Sector was liberalised and what do we need to do to get the skills required in Nigeria.
7. **Implementation:** How to coordinate all the above issues to achieve the desired outcomes envisaged by existing policies and development plans.

The National ICT Roadmap thus sets out the intent and commitment of the Government to continue the development of the ICT Sector and to implement the Sector policies and plans in an integrated, focused and innovative manner that aligns with the Change mantra of the current Administration.

The Roadmap focuses on four pillars namely; **Governance, Policy, Legal & Regulatory framework, Industry & Infrastructure and Capacity Building**. It also identifies strategies to address some **cross cutting issues**.



Governance

The overarching goal of the Governance pillar is to nurture a vibrant, citizen engaged ICT Sector permeating all Sectors of the economy in all parts of Nigeria. In order to address the challenges in the Sector, an ICT gap Analysis will be conducted, with an expedited implementation of the e-government Masterplan. A National ICT Council will also be established in the Presidency to determine options for institutional project coordination for better harmonisation.

Policy, Legal and Regulatory Framework

This pillar will engender policy consistency and a predictable forward-looking Legal and Regulatory regime promoting competition in the industry to advance the national and consumer interests. Interventions under this pillar include passage of the Critical National ICT Infrastructure Bill, mapping and elimination of all duplicative fiscal imposts (VAT, States, Local Government, Federal levies) through insertions in the next appropriation. Review of the IP Law will be accelerated.

Industry and Infrastructure

For infrastructure, the overarching goal is to provide cost effective ubiquitous access to ICT for overall national development. Proposed solutions are the passage of the Critical National ICT Sector Infrastructure Bill, release of the remaining Infrastructure Companies (INFRACO) licenses, hastening of the rollout of metro networks, use of NIGCOMSAT Satellites to bridge the rural penetration gap and hosting of critical National Data within the country. For this Pillar, key outcomes will include the creation of two (2) million jobs as well as wealth creation and revenue generation.

Capacity Building

The capacity building pillar is aimed at developing a smart globally competitive workforce and digitally literate population for which a Digital Literacy Council will be established. ICT Gap Analysis, review and update of the educational curricula for primary, secondary and tertiary schools and an effective Monitoring and Evaluation (M&E) mechanism are other proposed interventions. The establishment of an ICT University and Innovation Hubs across the country will be among the Key initiatives of this Pillar.

Cross-cutting Issues

The four pillars of the Roadmap require a conducive environment that ensures the safe, reliable and efficient utilisation of ICT products and services. They also require the nurturing of a thriving ecosystem that supports innovation. In this respect, a National Programme for Information Security Systems Innovation geared at building trusted systems and processes will be implemented. This will include an Incident Readiness and Response Partner Ecosystem Framework and fostering the emergence of a sustainable Cybersecurity solutions industry driven primarily by men and women under the age of 35. Furthermore, due attention will be paid to incubation and harnessing of innovations in the national interest. **Government Priorities**

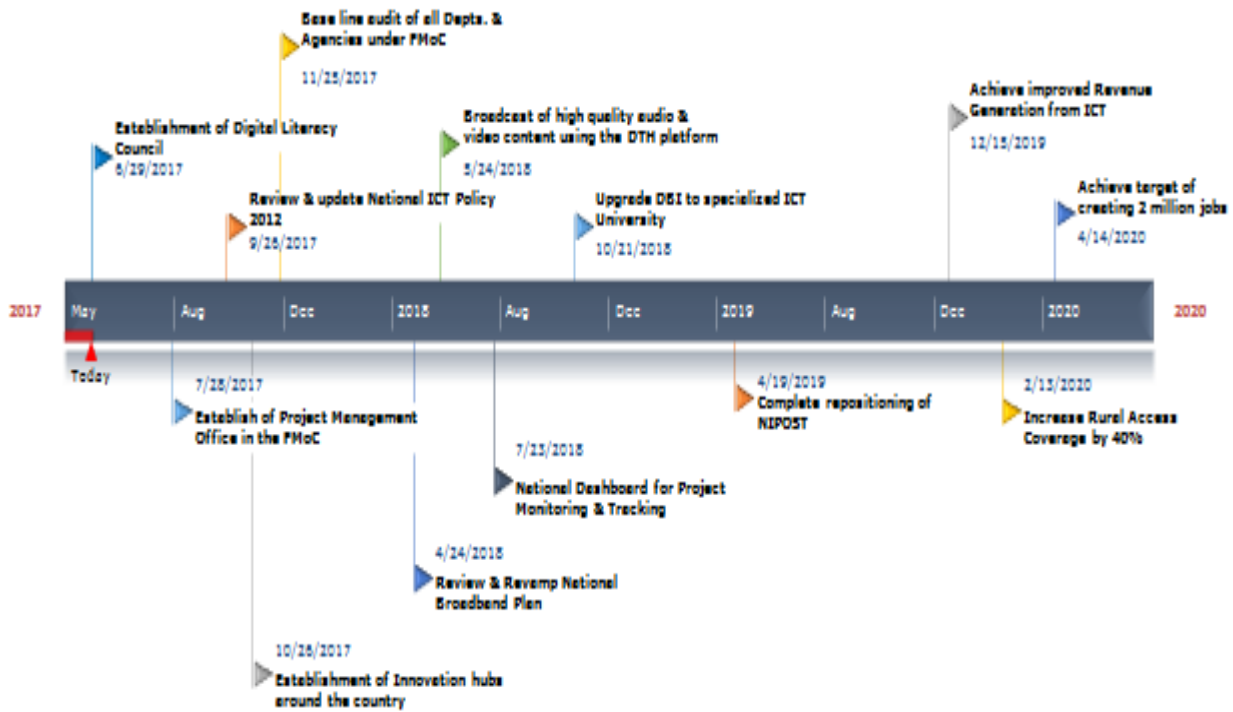
Roadmap is aligned with Federal Government Budget Strategic Implementation Plan (SIP):

1. Upgrading of Governance, Transparency and Security.
2. Diversification towards Industrialisation, Agriculture, Solid Minerals, Tourism, and Entertainment.
3. Enhancement of Critical Infrastructure such as Power, Rail, Roads and Housing.
4. Advance Oil & Gas processing and value addition.
5. Improvement in the Ease of doing business.
6. Promote Social Investment.



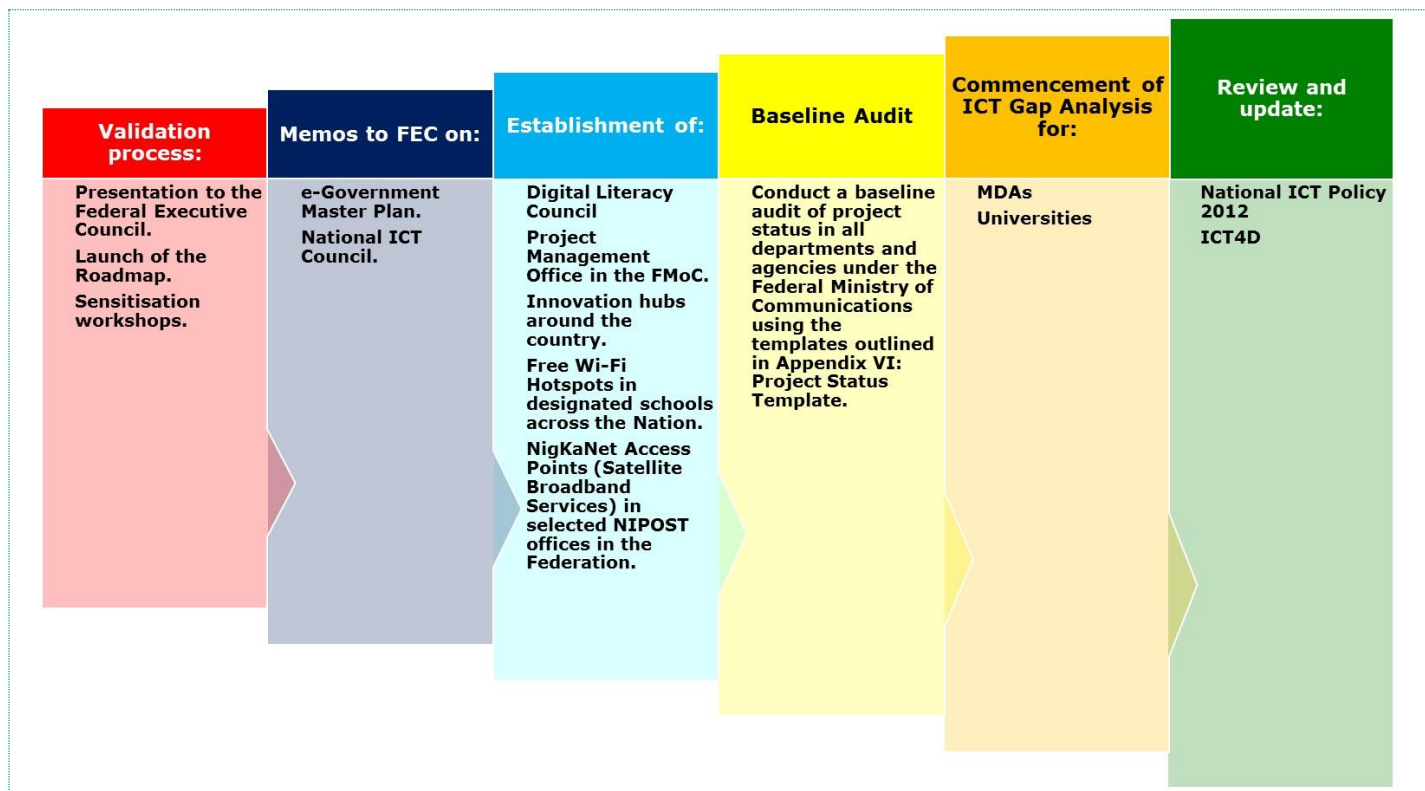
Timelines

TIMELINES



Next steps

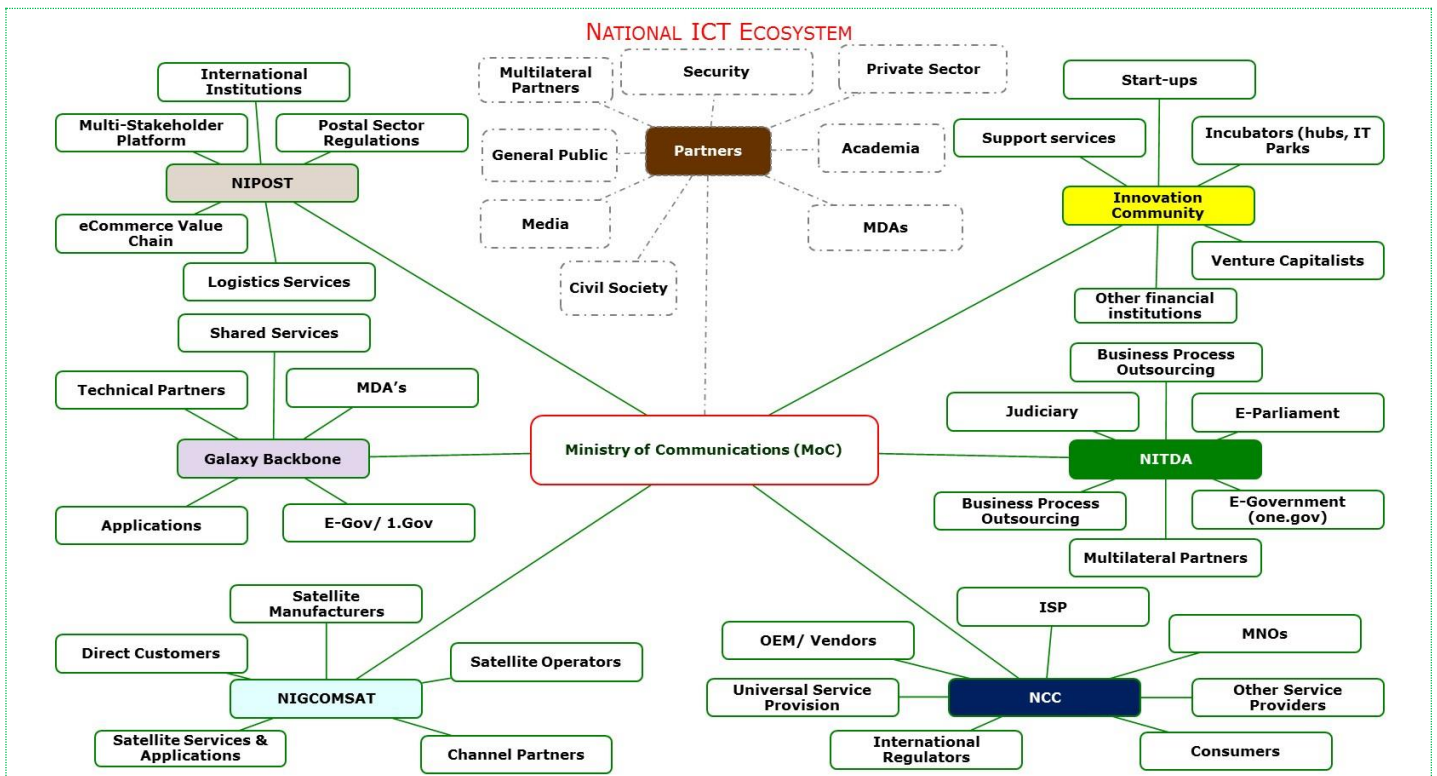
This Roadmap gives fresh impetus for implementing existing policies. Furthermore, it articulates 51 interlinked initiatives of which 20 are primarily geared towards Job/Wealth Creation, 18 Capacity Building and 13 have a primary focus on Government Revenue Generation. This Roadmap will also guide the Sector to attain its full potentials for the growth and sustainability of the nation’s economy. To this end the recommended next steps include:



NIGERIA ICT STRATEGIC ROADMAP

Introduction

1. Information Communications Technology’s (ICTs) have impacted all aspects of modern society and being the fourth Pillar of the economy account for 9. 8% of GDP. It is in the recognition of this that a Ministry was created to coordinate the Sector with the following Mandates:
 - a. Facilitate Universal, ubiquitous and cost effective access to communications infrastructure throughout the country.
 - b. Promote the utilization of ICT in all spheres of life to optimize the communications infrastructure – digital content creation, domestic software applications and the delivery of private and public services over the internet.
 - c. Promote and facilitate the development of the ICT industry and increase the contribution of the ICT industry to GDP.
 - d. Utilize ICT to drive transparency in governance and improve the quality and cost effectiveness of public service delivery in Nigeria.



2. In line with the “Change” mantra of this administration FMoC seeks to:
 - a. Grow the economy through a vibrant ICT Sector that contributes to increased revenue by:
 - i. Leveraging ICT to block system leakages, and
 - ii. Promoting Public Private Partnerships (PPP) for Sector growth.
 - b. Stimulate and optimise the investment and enterprise environment by:
 - i. Creating Tax incentives, Reducing/ removal of Input Taxes like Right of Way (ROW) charges, Eliminate Multiple Taxes, Enforcement of Anti-Trust Laws and creating other incentives and favourable Trade Policies,
 - ii. Providing an efficient, predictable, transparent Regulatory and operating environment in-line with best practices,

- c. Develop a knowledge-based economy that is rooted in sustained human capacity development, wealth generation and job creation through innovation in ICT,
- d. Improve operational efficiencies across government and economy-wide, and
- e. Leverage existing and proposed, infrastructure, Legal and Regulatory framework to accelerate universal access connectivity and broadband.

Situation Analysis

1. The Nigerian Communications Act 2003 and the National Information Technology Development Act 2007 represent the first wave of reforms that revolutionized the ICT Sector in Nigeria. The National ICT Policy 2012 and the National Broadband Plan 2013 represent the second wave of proposed reforms.
2. The strategic thrust of the first wave ushered in the mobile telephone revolution. Nigeria has therefore, made significant strides in recent times with respect to access and usage of communication services. Mobile nevertheless has grown to become a dominant ICT tool, the evidence is that, much more needs to be done for the country to achieve satisfactory benchmarks. Though market entry is generous, policy has simply not caught up with the pace of market developments, and Regulation has generally been ineffective. Thus, it appears that the market is developing by itself, in a rather staccato way, with many apparently unintended outcomes. One of the unintended outcomes is the decimation of fixed telephony services.
3. The success of mobile ICTs appears to have negatively impacted on fixed ICTs, which are now practically dead as a service Sector. The failure of fixed telephony has a particularly significant negative impact on access to, and usage of, high-speed broadband access. It is possible to infer that the similarly poor performance of traditional ISPs is probably tied to the absence of fixed networks, which typically form the foundational building block for internet infrastructure in developed economies.
4. The strategic thrust of the second wave as expressed in the National ICT Policy is for Nigeria to capitalize on the seismic change brought about by “technological convergence”, and become a “knowledge-based and globally competitive society”. Pivotal to making this vision a reality is to ensure that Nigeria implement the Nigerian National Broadband Plan 2013 – 2018:
5. In summary, with respect to broadband services, fixed telephony, computer penetration and household ICT access the ICT Sector in Nigeria can be much more successful and effective than it is at present. Measures are required to address these gaps, while programs are also required to promote greater affordability of all services, consumer protection and e-applications.
6. It seems clear that with appropriate policies and Regulatory interventions – potentially required by each deficient ICT sub-Sector – the Sector will further

This Roadmap is aligned with the priorities of the Federal Government Economic Recovery and Growth Plan (ERGP)

1. Global ICT standards
2. Sufficient, efficient , affordable ICT infrastructure
3. Rapid ICT penetration among all socio economic levels
4. Increase in active mobile broadband subscription coverage.
5. Local production of ICT hard and software to reduce import dependence and generate foreign exchange by exporting to the regional and continental markets .

develop. In order to be effective, the policy and Regulatory improvements will have to be intensive, multi-dimensional & multi-Sectoral, and accompanied by follow-through for maximum impact.

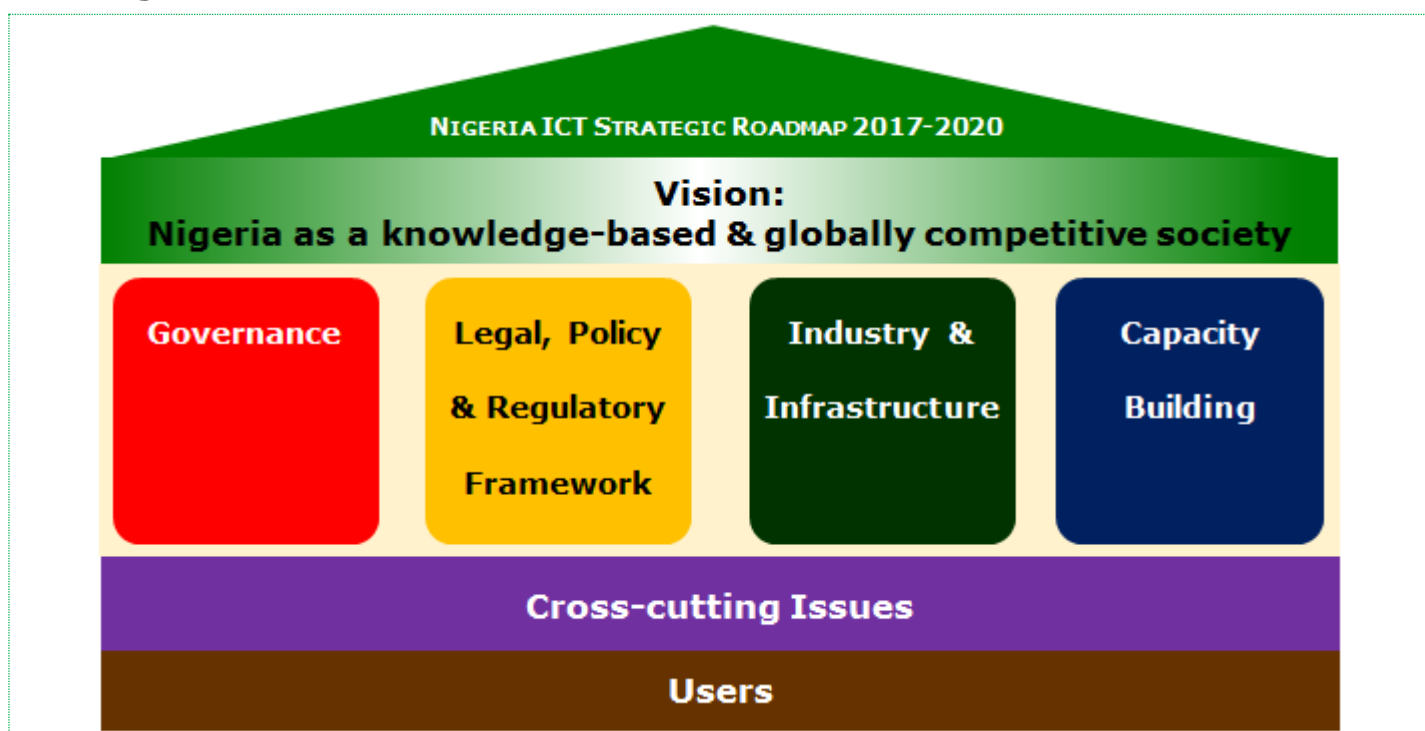
Pillars to Achieve Policy Objectives

1. This Roadmap is predicated on Four Pillars designed to bring the Policy objectives to life, namely:
 - a. Governance;
 - b. Policy, Legal and Regulatory Framework;
 - c. Industry and Infrastructure and
 - d. Capacity Building.

The above Pillars are braced by a beam of Cross-Cutting issues.

2. Unless the context indicates otherwise, the priorities, initiatives, critical success factors, KPIs, risks and mitigation in this Road Map are framed at a general level. The appendices attached provide extensive details of the issues raised sector stakeholders and addressed by the members working group on the Nigeria ICT Roadmap 2017-2020. They include:
 - a. Appendix I: Timelines and Milestones
 - b. Appendix II: Implementation Mechanisms
 - c. Appendix III: Log frame
 - d. Appendix IV: Analysis of Post Retreat Committee Reports
 - e. Appendix V: Index of Initiatives
 - f. Appendix VI: Initiative Clusters
 - g. Appendix VII: Project Status Templates
 - h. Appendix VIII: Principles of Partnership

Strategic Pillars



1. Governance

a. The overarching goal of Governance is to **nurture a vibrant, citizen engaged ICT Sector permeating all Sectors of the economy in all parts of Nigeria.**

b. **The Strategic Issues:**

- i. For over a decade, the ICT Sector's Governance structure has enjoyed remarkable success overseeing a Telecoms revolution that has come at considerable expense of:
 - The imperative to reposition the Postal Sector including NIPOST,
 - Infrastructure constrained by Right of Way and other issues,
 - The virtual abandonment of fixed line telephony, and
 - An industry that is insufficient to deliver reliable 3G services in a 4G world.
- ii. In particular, part of the problem of Right of Way charges and taxes associated with the laying of fibre can be attributed to the success of wireless telephony at the expense of fixed line telephony and postal service assets (i. e. NIPOST). These two have physical assets that could have contributed to greater universal coverage and deeper broadband penetration nationwide, and thus the urgent need to ameliorate some of the obstacles experienced with Right of Way and multiple taxation issues.
- iii. Outside the Sector, national infrastructure deficits such as power, impede ICT infrastructure expansion and add to the costs of operations, making the cost of delivering services (to consumers) higher (in Nigeria) than in some other African countries. These naturally push up prices.
- iv. The result, despite the explosive growth, is uneven development in the Sector with rigid statutory governance structures at a time in the Sector's development when creativity and Regulatory enterprise are required to keep pace with changes in the Industry. Nigeria cannot afford to continue missing opportunities to improve the lives of its citizens through ICT, and for businesses to grow where government's role can make the difference. Ultimately, for Government itself, this results in lost job and revenue generating opportunities.

c. **Proposed Solutions:**

- i. What is required, are activities such as those identified below, which when implemented, will fully exploit the nation's existing wireless to propel expanded access, coverage and mobile broadband. These will spur the next generation's infrastructure investment, while providing the learning opportunities to inform the new institutional arrangements that would govern the Sector.
- d. The e-Government Department of the Federal Ministry of Communications is the designated lead, for the following:

Activity Areas	<ol style="list-style-type: none"> i. e-Government. ii. Institutional Arrangement and Structure.
-----------------------	--

	iii. Programme Management, Monitoring & Evaluation.
Goals	<ul style="list-style-type: none"> i. Delivery of High Quality e-Government services and citizens' participation in government. ii. Align Institutional Arrangements for Sector viability, growth and National coverage. iii. Coordinate the implementation of projects to achieve outcomes, minimise duplication and waste.
Priorities	<ul style="list-style-type: none"> i. Conduct ICT Gap Analysis and expedite e-government masterplan implementation. ii. National ICT Policy coordination committee in the Presidency to determine options for Institutional Project Coordination Unit to harmonise current and planned projects in MDAs under FMoC.

e. Objectives, expected outcomes and critical success factors consist of:

Objectives	<ul style="list-style-type: none"> i. Alignment of ICT Sector Strategy with government's strategy for efficient service delivery, transparency in Government and Revenue Generation ii. Strengthen Institutional Arrangement for the Management of ICT Sector iii. Develop an Integrated Programme Management Framework for effective and efficient management, monitoring and evaluation of ICT Projects and Initiatives
Expected outcomes	<ul style="list-style-type: none"> i. Improved Quality of ICT services. ii. Cost Reduction of Delivering Government Services. iii. Transparency and accountability in government. iv. Improved Investor Confidence in the ICT Sector. v. Harmonized ICT related Policies and Regulatory Framework. vi. Progressive availability of government services online. vii. Significant boost in ICT contribution to GDP, Government Revenue, and Social Inclusiveness.
Critical Success Factors	<ul style="list-style-type: none"> i. Regular ICT Sectoral Engagement and collaboration among stakeholders, Awareness and Promotion ii. ICT Skilled Public Service Workforce iii. Supportive Policy and Regulatory Environment

f. Requisite resources needed include Political Will, Budgetary Allocation, Multi-lateral funding, Leveraging on existing structure and PPP.

- g. The following Risks with appropriate mitigation strategies have been identified:

S/n	Risk	Mitigation
i.	Resistance to change	Change Management
ii.	Inadequate Funding	Aggregation of Government Services
iii.	Non-Prioritisation of e-Government Framework	National ICT Steering Council
iv.	Poor quality of Government Services	Standardisation and PPP
v.	Lack of Political Will	Presidential Buy-in
vi.	Resistance to Change	Advocacy
vii.	Non establishment of the PMO	Political Will
viii.	Funding	Budgeting and PPP

2. Policy, Legal and Regulatory

- a. To achieve the overarching goal of nurturing “a vibrant, citizen engaged ICT Sector permeating all Sectors of the economy” presumes policy consistency and a predictable forward-looking Legal and Regulatory regime.

b. Strategic Issues

- i. As the industry grows, the critical mass of Legal and Regulatory Instruments required to cover the field lags behind. Currently, the Laws are inadequate on several key areas to promote ICT and access, including Intellectual Property (IP); Privacy and Data Protection, and Security. The Regulatory tools to implement the ICT component of the Economic Recovery and Growth Plan, National ICT Policy 2012 and the National Broadband Plan 2013 require urgent upgrades. Particular areas impacting national broadband access include defining the open access framework and secure ROW Waivers with States, and “active sharing”.

QUICK FACTS: Universal Access, Cell Towers and National Coverage

Nigeria is 4 times bigger (land-wise) than the UK == Nigeria has twice the number of mobile subscribers than the UK.

Nigeria has less than ½ the number of cell towers than there in the UK.

According to the ITU – Nigeria needs about 100,000 cell towers for effective National Coverage,

Multiple incidences of taxation and permitting, based on different Laws and Regulations increase costs, affect quality of service and impede additional investments.

ii. Moreover, given its importance to building a Knowledge-based Society, the designation of Critical National Infrastructure and allocation of administrative and security services of the government all require Executive actions based on existing constitutional and Legal powers.

iii. The tendency for literalistic interpretation of Laws and Regulations produces rigidity in instances where a more purposeful approach allows for creative solutions applying existing Laws to new situations.

c. Proposed Solutions:

- i. Update Laws and Regulations required for Sector viability

- ii. Apply existing Laws and Regulations creatively to expand Access, Mobile Broadband and Coverage, including "requiring "active sharing" and national roaming" as quick wins for promoting local players, expand coverage and mobile broadband.
 - iii. The most pressing solution is for this administration to signal its policy priorities to MDAs and require them to apply existing Laws and Regulations in a manner consistent with the objectives of Government Policies and Plans; notably the National ICT Plan 2012 and National Broadband Policy 2013.
 - iv. The Legal and Regulatory posture of government agencies can provide the confidence for investors and consumers where Legal and Regulatory uncertainty exists. This is a cost effective and efficient way to influence behaviour without the time-consuming and politically capital intensive passage of Laws or new Regulations.
- d. The Planning Research & Statistics (PRS) Department of the Federal Ministry of Communications are the designated co-leads, for the following:

Activity Areas	<ul style="list-style-type: none"> i. Update and adopt the National ICT Policy. ii. Technology Convergence & Spectrum Management. iii. Consumer and Investor Protection. iv. Tariffs, Taxes & Property. v. Institutional Arrangements vi. e-Commerce. vii. Institutional Arrangement and Structure. viii. Programme Management, Monitoring & Evaluation.
Goals	<ul style="list-style-type: none"> i. Legal & Regulatory Framework that: reduces waste, leverages ICT to deliver change, measured in terms of improved Sector governance that stimulates inclusive economic growth (FDI, GDP, digital literacy). ii. Align Institutional Arrangements for Sector viability, growth and National coverage iii. Coordinate the implementation of projects to achieve outcomes, minimise duplication and waste.

Priorities	<ul style="list-style-type: none"> i. Update ICT Policy ii. Passage of the Critical National Telecommunications Infrastructure Bill iii. Map and eliminate all duplicative Fiscal imposts (VAT, State, Local Federal levies) insert into next Appropriations Bill iv. Expedite passage of the amended IP law. v. Map and report on implication of proposed legislation or existing Legislation for institutional arrangements for consumer protection and to promote competition vi. Drive and enact Legislation for Convergence, including Spectrum Management & institutional arrangements, vii. Enact legislation to implement National ICT Policies & National Broadband Plan. viii. Data domestication. ix. National ICT Policy coordination committee in the presidency to determine options for institutional Project Coordination unit to harmonise current and planned projects in MDAs under FMoC.
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e. Objectives, expected outcomes and critical success factors consist of:

Objectives	Robust Legal and Regulatory Instruments to enable private Sector driven development of home-grown ICT innovation
Expected outcomes	<p><i>Initial Outcomes (Quick Wins) - (within 12 months)</i></p> <ul style="list-style-type: none"> i. Approve National ICT Policy. ii. Remove all duplicative Taxes, Levies, Fees and Imposts. iii. Complete Comprehensive Legal, Regulatory & institutional Framework Mapping & Gap Analysis (baseline as at National ICT Policy & National Broadband Plan) iv. Standardised Government Communications Protocols - (e. g. rationalising government spending) <p><i>Intermediate Outcomes - 12 months - 3 years</i></p> <ul style="list-style-type: none"> i. New more efficient and adaptable institutional arrangements to regulate Sector and manage innovation. <p><i>Final Outcomes - between 5-7 years.</i></p> <ul style="list-style-type: none"> i. Emergence of Indigenised Sector with up-to-date Laws and Institutions.

Critical Success Factors	<ul style="list-style-type: none"> i. Key Stakeholder Mapping & Analysis, Political Will and Buy-In ii. Joined Up Implementation factoring key linkages and Dependencies iii. Well-Coordinated and focused Donor Support, including technical and financial support, Ministry & Agencies adequately resource Implementation. iv. Alignment of Policies and Processes to streamline and expedite Information Communications Technology and knowledge transfer
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- f. The requisite resources needed include PPP, Multi-lateral partners and adequate Budgetary Allocations.
- g. The following Risks with appropriate mitigation strategies have been identified:

S/n	Risk	Mitigation
i.	Inactive actionable process leads	Consistent engagement with actionable process lead.
ii.	Low Buy-in of High Level Stakeholders	Lobbying and informing High-Level Stakeholders.
iii.	Poor Legislative Management	Policy Entrepreneurial Unit
iv.	Poor implementation of Legal Frameworks, Policies and guidelines	Continuous Monitoring and Evaluation.
v.	Inadequate cooperation from Legislature and Judiciary	Consistent engagement of Legislature and Judiciary.
vi.	Public apathy	Constant innovation on public engagements and outreach.

3. Industry and Infrastructure

- a. For infrastructure, the overarching goal is to provide cost effective ubiquitous access to ICT for overall national development.

- b. **The Strategic Issues.**

There are a number of issues that militate against the growth and expansion of infrastructure and reduce investors' confidence including the following:

- Dearth of metro fibre infrastructure in the States, leading to costly last mile connectivity for homes and businesses,
- Lack of necessary Laws for the development and protection of the critical National ICT Sector infrastructure,
- Inadequate power supply which increases the cost of service provision,
- Poor ICT Access in the rural, unserved and underserved areas across the country,

- Lack of alternative international landing points besides Lagos, for redundancy and accessibility of international traffic.
- Weak data centre and cloud infrastructure base, resulting in hosting of local data in other jurisdictions and leading to loss of revenue, job opportunities and issues of security of user data.

c. Proposed Solutions:

The initiatives identified below, when properly addressed, will resolve some of the issues:

- Leverage business process outsourcing and other ICT Sector opportunities to create two million jobs,
- Passage of the Critical National ICT Sector Infrastructure Bill,
- Release of the remaining INFRACO licenses, and hastening of the roll out of metro networks, which will lead to ubiquitous metro fibre infrastructure in all States,
- Repositioning NIPOST to enable it provide cost effective 21st Century services,
- Use of NIGCOMSAT Satellites to bridge the rural penetration gap, and
- Hosting of critical National data within the country.

QUICK FACTS: Mobile Broadband as a Percentage of Total Mobile Users:
U. S. A. 90% of all subscribers
U. K. 90% of all subscribers
Europe (average) - 70% of all subscribers
Nigeria - Less than 40% of all subscribers

d. The Telecommunications and Postal Services department of the Federal Ministry of Communications is the designated lead for the following:

Activity Areas	<ul style="list-style-type: none"> i. National Backbone. ii. Accessibility & National Coverage. iii. Content Repository, Storage and IT Security Infrastructure & Cloud.
Goal	Ensure the availability of affordable, reliable and widely available ICT enabled services.
Priorities	<ul style="list-style-type: none"> i. Smart States Broadband Initiatives. ii. Review and Revamp National Broadband Plan as well as release more Spectrum for services. iii. Consolidation of Access projects and improve the service delivery model of Government. iv. Encourage the competitiveness and participation of domestic players in ICT Sector value chains. ii. Identify all existing e-Government initiatives and accelerating the harmonisation of the disparate National Database.

e. Objectives, expected outcomes and critical success factors consist of:

Objectives	<ul style="list-style-type: none"> i. Achieving Universal Access in ICT. ii. Preserving ICT infrastructure as Critical National Assets. iii. Enabling environment for investment in ICT. iv. Localisation of data and traffic. v. Mass utilisation of Cloud services.
Expected outcomes	<ul style="list-style-type: none"> i. Digital inclusion. ii. Greater transparency and accountability in Government and society. iii. Increase ICT driven small and medium businesses and Investment in Critical National Information Infrastructure (CNII). iv. Employment Generation and Wealth Creation. v. Increased utilisation of indigenous solutions.
Critical Success Factors	<ul style="list-style-type: none"> i. Adopting the shared access model for backbone usage as well as Zero/Reduce Right of Way Cost. ii. Increased competitiveness and penetration by domestic ICT firms by providing support and incentives across the domestic ICT value chain. iii. Reposition NIPOST so as to leverage its national reach. vi. Government policies to promote Domestic Cloud Service providers as National Priority.

f. The requisite resources needed include Political Will, Budgetary Allocation, multi-lateral funding; Public Private Partnerships; the Private Sector, relevant MDAs and existing Initiatives.

g. The following Risks with appropriate mitigation strategies have been identified:

S/n	Risk	Mitigation
i.	Security, ROW and Associated Tax Regimes.	The Political Will to enact and implement the Critical National Telecommunications Infrastructure Bill.
ii.	Existing Silos of Operation.	Improved Intra and Inter-governmental relations.
iii.	Funding and Sustainability.	Budgetary allocation, PPP and Private investors.
iv.	Insufficient Redundancy	Provide Redundancy.

4. Capacity Building

- a. The overarching goal of the capacity building pillar is to develop a smart globally competitive workforce and digitally literate population.
- b. **Strategic Issues:**
 - Low digital literacy level among the citizenry,
 - Current ICT skills gap in the public Sector,
 - Misalignment of the educational curricula with ICT capacity needs of the nation and,
 - Inadequate access to ICT working tools, equipment and infrastructure.
- c. **Proposed Solutions:**
 - Establishment of ICT University,
 - Creation of Innovation hubs across the nation,
 - Constitution of a Digital Literacy Council with NITDA as its secretariat,
 - ICT skills gap analysis to address identified needs,
 - Review and update of the Educational curricula for primary, secondary and tertiary schools to support teaching and learning, and
 - Monitoring and Evaluation (M&E) mechanism to track ICT human capacity initiatives
- d. The Information Communication Technology (ICT) Department of the Ministry Communications is the designated lead, for the following:

Activity Areas	ICT Human Capital Development.
Goals	Develop a globally competitive workforce.
Priorities	<ol style="list-style-type: none"> i. Monitoring and Implementation of Local Content Guidelines. ii. Development and enforcement of standards and guidelines in ICT capacity building as well as accelerate access to ICT education for people with special needs. iii. Strengthen and focus existing funding sources on ICT innovation. iv. Promote Open Research, Development and Innovation (RDI). v. Develop job centres in partnership with SMEDAN & NDE for people to get access to available jobs.

- e. Objectives, expected outcomes and critical success factors include:

Objectives	<ol style="list-style-type: none"> i. Promote knowledge transfer and develop an ICT literate nation. ii. Scale up ICT-enabled indigenous innovation. iii. Leverage ICT to facilitate employment generation and wealth creation.
Expected outcomes	<ol style="list-style-type: none"> i. Functional ICT Literacy Level among the general populace and the Nigerian Public Service in particular.

	<ul style="list-style-type: none"> ii. Optimize Nigerian content in the ICT hardware, software and ICT enabled services. iii. Synergy among Government, Academia and Industry. iv. Continual increase in ICT Sector contribution to national GDP. ii. Significant increase in Wealth and Job creation in the ICT Sector.
Critical Success Factors	<ul style="list-style-type: none"> i. Establishment of Digital Literacy Council. ii. Functional Educational curricula for primary, secondary and tertiary schools. iii. Monitoring and evaluation (M&E) mechanism to track and monitor progress of ICT human capacity initiatives. iv. ICT skills gap analysis as well as the acquisition of know-how and technology transfer.

- f. The requisite resources needed include Political Will, budgetary allocation, multi-lateral funding, Public Private Partnerships, Private Sector, relevant MDAs and existing Initiatives.
- g. The following Risks with appropriate mitigation strategies have been identified:

S/n	Risk	Mitigation
i.	Funding	Budgetary allocation, coordination of multi-lateral sources and PPP.
ii.	Adequate literacy level	Universal Basic Education, Review of curriculum.
iii.	Resistance to implementation of local content	Monitoring and Enforcement of extant Laws, Regulations and Policies.

Cross-cutting Issues

1. The four pillars of this Roadmap require a conducive environment that ensures the safe, reliable and efficient utilisation of ICT products and services, nurture a thriving ecosystem and support innovation.
2. **The Strategic Issues:** The ICT Sector permeates all aspects of society. Linkages and Dependencies that connect it to the larger economy require:
 - a. Coordination and removal of structural impediments within the Sector,
 - b. Alignment of Standards, Benchmarks and Policies with International Best Practices and,
 - c. Framework for sustainability including Public-Private-Partnerships, Innovation and Local Content Development.

QUICK FACTS: Mobile Phone Data Can Provide Critical Information That Helps Solve the Power Crisis and Help in National Planning and Other Areas of the Economy.

A 2015 Study by the Santa Fe Institute in Senegal found that;

"Mobile phone data can be an accurate means to estimate energy consumption, peak demand and electrification profile of different regions", facilitating "detailed technical and economic assessments of considered electrification options."

3. Proposed Solution:

- a. There is the urgent need to activate, exploit and harness ICT supported value chains to actualise the attainment of a knowledge society. In this regard, such cross-cutting issues as Security, Inter-governmental relations, Partnerships as well as the development of requisite ICT skills will be addressed.
 - b. The establishment of a unified ICT Sector Regulatory Authority.
4. The ICT and Planning Research & Statistics Department of the FMoC is designated as lead for the following activity areas:

Activity Areas	<ol style="list-style-type: none"> i. Information Security. ii. Sectoral Partnership & Interrelations. iii. Disruptive Innovation. iv. Media, Promotion and Awareness.
Goals	<ol style="list-style-type: none"> i. Trusted ICT Systems, Platforms and Processes. ii. Attain a culture of collaboration and cooperation. iii. Capacity to identify, interdict and leverage disruptive innovative technologies. iv. Mainstream ICT into all spheres of life.
Priorities	<ol style="list-style-type: none"> i. Promote a national programme for information security systems of innovation. ii. Implement an Incident Readiness and Response Partner Ecosystem framework. iii. Create innovation hubs across the country and incubate disruptive innovation. iv. Promote awareness of the content of the ICT Roadmap and ICT supported initiatives in all Sectors.

5. Objectives, expected outcomes and critical success factors are:

Objectives	<ol style="list-style-type: none"> i. Ensure the Confidentiality, Integrity and Availability of User's data. ii. Protect Intellectual Property Rights. iii. Ensure functional ICT Partner Ecosystem. iv. Capacity for early identification of disruptive innovations. v. Resources and know-how to interdict and leverage disruptive innovations. vi. Enhance citizens' participation in governance and increase ICT contribution to GDP.
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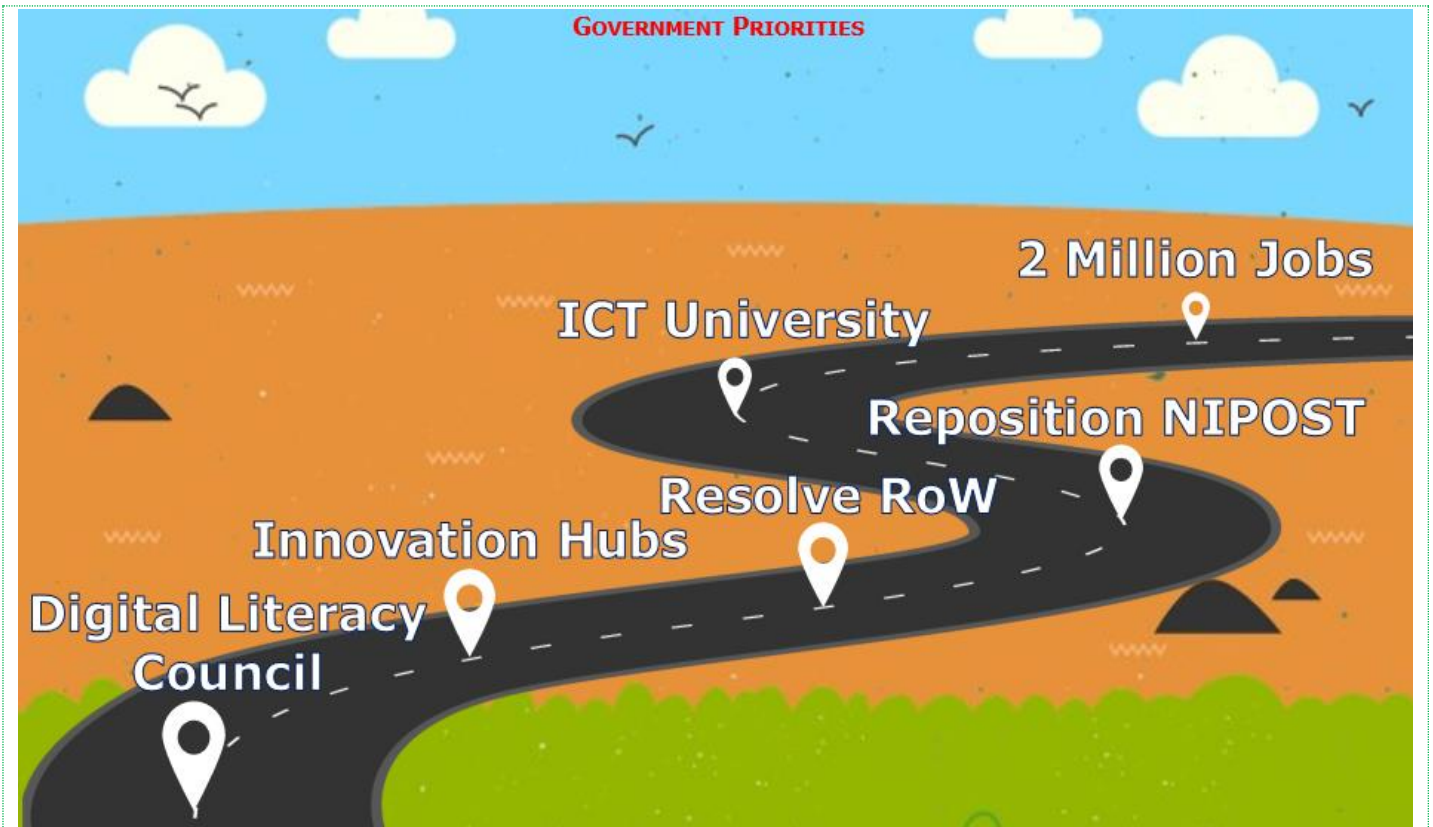
Expected outcomes	<ul style="list-style-type: none"> i. Sectorial Computer Emergency Response Teams (CERTs) and a PPP-based Cybersecurity Academy. ii. Buy-in of strategic stakeholders on ICT Policies and Programmes. iii. Improved economic productivity attributed to leveraging disruptive innovation. iv. Increased demand for government services resulting from enhanced transparency and efficiency in government.
Critical Success Factors	<ul style="list-style-type: none"> i. A robust and proactive National Cybercrime Council. ii. Developing the Information Security Value Chain. iii. Active participation in the ICT partner Ecosystem. iv. High Level commitment to partnership and inter-governmental relations. v. Availability of requisite skill set to identify, interdict and leverage disruptive innovation.

6. The requisite resources needed include Political Will, Budgetary Allocation, multi-lateral funding, Public Private Partnerships as well as the Private Sector, relevant MDAs and existing Initiatives.

7. The following Risks with appropriate mitigation strategies have been identified:

S/n	Risk	Mitigation
i.	Poor implementation of Legal Frameworks, policies and Guidelines	Monitoring and Evaluation
ii.	Inactive actionable process lead	Consistent engagement with actionable process lead
iii.	Operational Silos	Political Will and Advocacy
iv.	Leadership	Advocacy and Strengthening Institutional Mechanisms
v.	Lack of requisite skills and awareness to identify, interdict and leverage Disruptive Innovation	Specialised capacity building
vi.	Funding of Innovation Ecosystems	PPP, Private Sector
vii.	Infrastructure limitation	Alternative Energy and messaging frequency

Government Priorities



Conclusions

1. The National ICT Roadmap sets out the intent and commitment of the Government to refocus the ICT Sector as an enabler for sustainable development for the nation to optimise Wealth and Job Creation as well as Increase in Revenue.
2. The four Pillars are: **Governance; Policy, Legal & Regulatory Framework; Industry & Infrastructure Development; Capacity Building;** and identified **Cross cutting issues.**

Governance

3. The Governance Pillar focuses on institutional arrangements in the Sector, increased use of ICT to enhance government service delivery and programme management capacity. The overarching goal of Governance is to **nurture a vibrant, citizen engaged ICT Sector permeating all Sectors of the economy in all parts of Nigeria.** Identified challenges in this area are Building institutional synergies and collaboration, realising convergence and development of key infrastructure & content are central to the intervention strategies in this regard. The goal is to nurture a vibrant, citizen engaged ICT Sector permeating all Sectors of the economy in all parts of Nigeria.

Policy, Legal and Regulatory Framework

4. The policy, Legal, and Regulatory framework supports the growth and vibrancy of the Sector. Given the slow process of passing Laws or promulgating Regulations, authorities will consider more enterprising applications of existing Laws and Regulations to sustain an enabling environment, promote a level playing field for stakeholders and for seamless implementation of strategies. Additionally, Sector governance institutions will be required to collaborate with governance institutions in other Sectors to ascertain synergies and areas where ICT can

enhance the functioning of their Legal and Regulatory frameworks, as well as the interface between the ICT Legal and Regulatory framework and other Legal and Regulatory frameworks.

Industry & Infrastructure

5. Infrastructure is considered the foundation for increasing access, improvement of Quality of Service, extension of coverage to unserved, underserved & hard-to-reach rural areas and reduction of the cost of services. The goal is to provide cost effective ubiquitous access to ICT for overall national development. Major initiatives to address these include, Rural Telephony, e-Post development and Satellite deployment. In order to FastTrack affordability, advanced underlying technologies would be advocated.

With respect to ICT Industry development, the aim is to ensure that it generates increased wealth for the benefit of investors and increased revenue for government. Active participation of Nigerians will be promoted with the resultant increase in employment opportunities. The major interventions to realise these include providing an enabling environment for effective competition, strong Regulation and tax incentives.

Capacity Building

6. Capacity building encapsulates the development of skills and digital literacy as well as the provision of tools and equipment necessary to access and use ICT for self-improvement, wellbeing and contribution to wealth creation by developing and leveraging a smart globally competitive workforce and digitally literate population.

Cross Cutting Issues

7. The four pillars of this Roadmap require a conducive environment that ensures the safe, reliable and efficient utilisation of ICT products and services, as well as nurture a thriving ecosystem that support innovation. The entire spectrum of ICT supported value chains will therefore be activated, exploited and harnessed to actualise the attainment of a knowledge society.

8. It is believed that implementation of this Roadmap will not only accentuate the current tempo of ICT Sector contribution to National Economic Growth but open a new vista for greater impact on the wellbeing of Nigerians.

9.

Initiatives

Supporting Documents

Wide-ranging details that relate to all the aforementioned are enumerated in the appendices attached, including:

Appendix I: Timelines and Milestones

Appendix II: Implementation Mechanisms

Appendix III: Log frame

Appendix IV: Analysis of Post Retreat Committee Reports

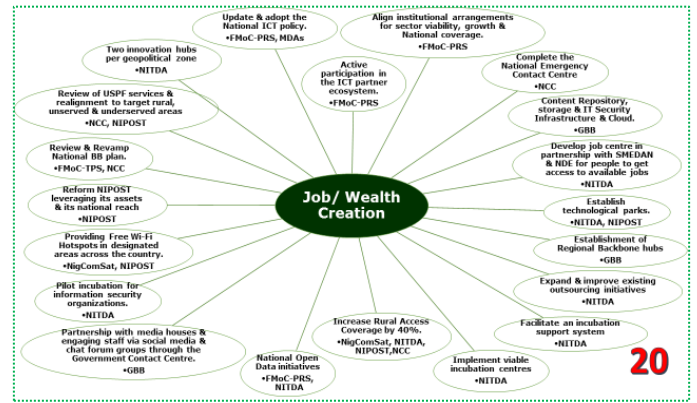
Appendix V: Index of Initiatives

Appendix VI: Initiative Clusters

Appendix VII: Project Status Templates

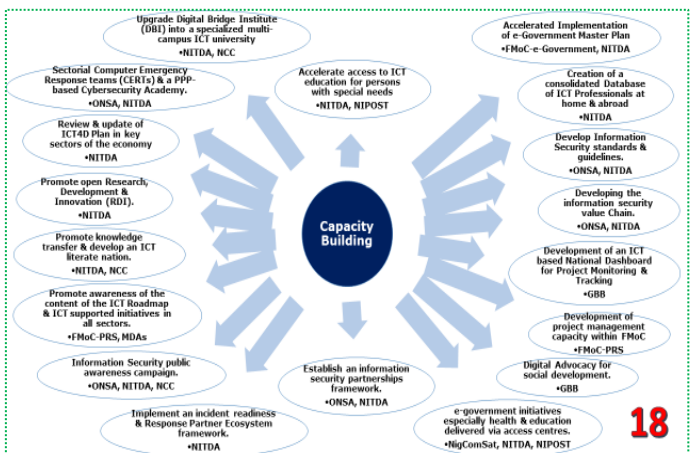
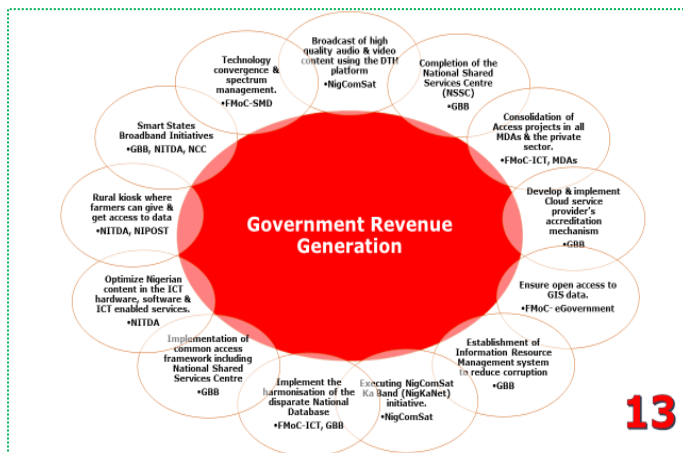
Appendix VIII: Principles of Partnership

10. The Nigeria ICT Roadmap 2017-2020 articulates 51 interlinked multi-stakeholder driven initiatives, of which 20 are primarily geared towards Job/ Wealth Creation, 18 Capacity Building and 13 have a primary focus on Government Revenue Generation. These initiatives are government and economy-wide in scope but anchored by departments and agencies under the Federal Ministry of Communications (FMoC).



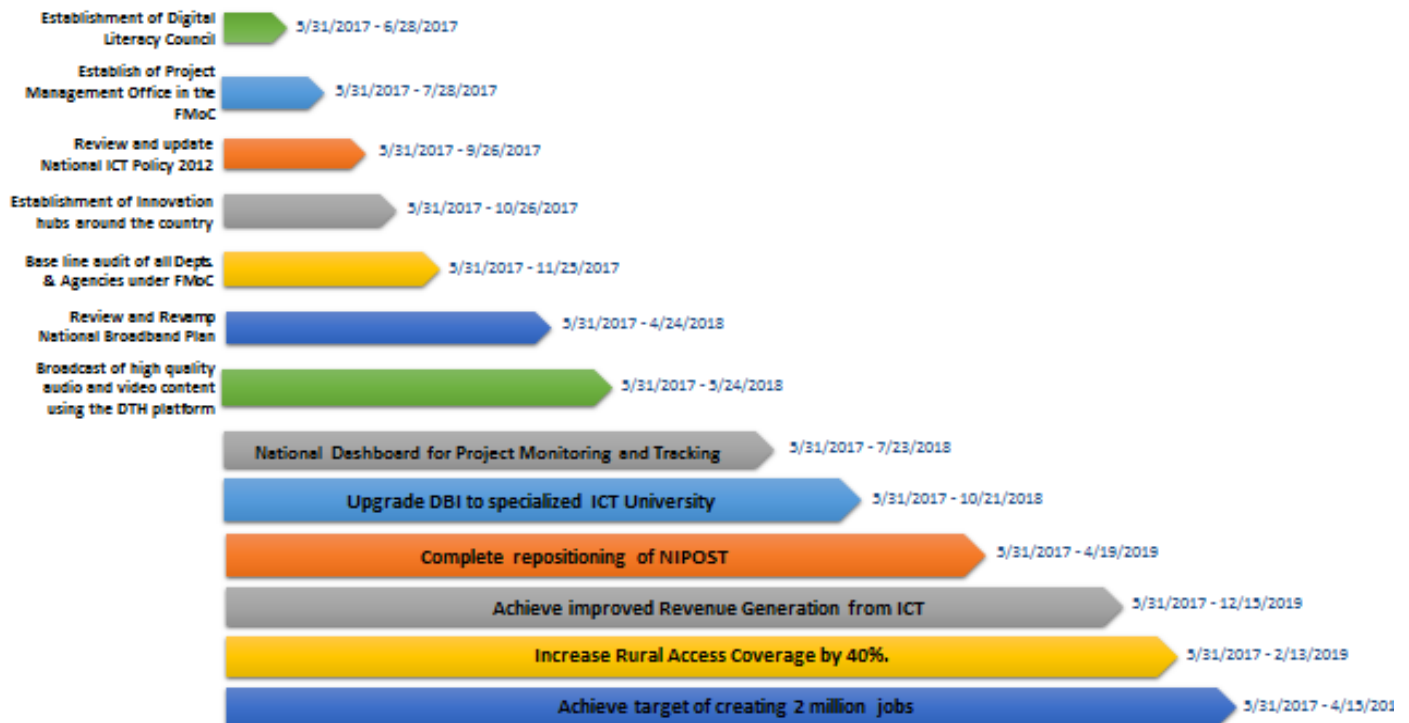
Timelines

11. The timelines listed below are tentative and subject to budget availability as well



as related considerations.

Nigeria ICT Roadmap 2017-2020



Next steps

12. Recommended next steps include:

- a. Validation process:
 - i. **Presentation to the Federal Executive Council.**
 - ii. **Launch of the Roadmap.**
 - iii. **Sensitisation workshops.**
- b. Memos to the Federal Executive Council (FEC) on:
 - i. **e-Government Master Plan.**
 - ii. **National ICT Council.**
- c. Establishment of:
 - i. **Digital Literacy Council**
 - ii. **Project Management Office in the FMoC.**
 - iii. **Innovation hubs around the country.**
 - iv. **Free Wi-Fi Hotspots in designated schools across the Nation.**
 - v. **NigKaNet Access Points (Satellite Broadband Services) in selected NIPOST offices in the Federation.**
- d. **Conduct a baseline audit of project status in all departments and agencies under the Federal Ministry of Communications** using the templates outlined in Appendix VI: Project Status Template.
- e. Commencement of **ICT Gap Analysis** for:
 - i. **MDAs**
 - ii. **Universities**
- f. Review and update:
 - i. **National ICT Policy 2012**
 - ii. **ICT4D**

Monitoring and Evaluation

Implementation of the projects in this Roadmap shall comply with agreed procedures between the Federal Ministry of Communications and its agencies for the monitoring, evaluation and reporting requirements. Quarterly progress reports will be submitted to the Ministry by the implementing agency providing a brief summary of the status of activities and output delivery, explaining variances from the Action Plan, and presenting work-plans for each successive quarter for review and endorsement. The quarterly progress reports will provide a basis for the Performance Scorecard of the Agencies. A Terminal Report will be prepared by the Implementing Agency upon project completion, summarizing and evaluating project achievements in more detail, for review at the Meeting of Forum of Minister and Heads of Agencies (FORMHA). The Ministerial Monitoring Committee (MMC) will meet quarterly to review progress achieved. The relevant Division in charge of Monitoring and Evaluation in the Planning, Research and Statistics Department of the Ministry will analyse and report to the Permanent Secretary on a monthly basis.

Appendix

Appendix I: **Timelines and Milestones**

Strategic Pillar	Activity Area	Expected Outcomes	Priorities	Initiatives	Timelines & Milestones				
					6 Months	12 Months	18 Months	24 Months	30 Months
Governance	e-Government	<ol style="list-style-type: none"> Informed & aware public. Sectoral Computer Emergency Response Teams (CERTs). Cybersecurity Academy as a Public-Private-Partnership. 	<ol style="list-style-type: none"> Gap Analysis for the Public Sector to establish Baselines on ICT Adoption and Utilisation, Human Capacity, and Infrastructure. Identification and Implementation of Highly Visible and Impactful ICT projects in 2017 Budget from MDAs. Accelerated Implementation of e-Government Master Plan. 	<ol style="list-style-type: none"> Strengthening of the CEO Forum of FMoC MDAs with the Honourable Minister and the Forum of the Heads of ICT in the Public Sector. Leveraging ICT to deliver on key areas of government priorities. Review and update of ICT4D Plan in key sectors of the economy. Development of an ICT based National Dashboard for Project Monitoring and Tracking. 	Blue	Grey	Grey	Grey	Grey
	Institutional Arrangement and Structure	<ol style="list-style-type: none"> Improved Quality of ICT services Cost Reduction of Delivering Government Services. Transparency and accountability in government. Improved Investor Confidence in the ICT sector. Harmonized ICT related Policies and Regulatory Framework. Progressive availability of government services online. Significant boost in ICT contribution to GDP, Government Revenue, and Social Inclusiveness. Citizen access to government services. 	Establishment of a National ICT Steering Council in the Presidency.	1. Accelerated Implementation of e-Government Master Plan.	Green	Green	Grey	Grey	Grey
				2. Strengthening the Forum of Minister of Communications and Heads of Agencies in the Ministry (FORMHA).	Green	Green	Grey	Grey	Grey
3. Strengthening Forum of Heads of ICT in the Public Sector.				Green	Green	Grey	Grey	Grey	
4. Establishment of Information Resource Management system to reduce corruption.				Green	Green	Grey	Grey	Grey	
Management, Monitoring & Reporting	<ol style="list-style-type: none"> Supportive Policy and Regulatory Environment Governance Mechanisms: Setting up the necessary institutional framework with FEC – level collaboration and buy-in. 	Establishment of Project Management Office in FMoC.	<ol style="list-style-type: none"> Development of an ICT based National Dashboard for Project Monitoring and Tracking. Development of project management capacity within FMoC. 	Brown	Brown	Brown	Brown	Grey	

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Strategic Pillar	Activity Area	Expected Outcomes	Priorities	Initiatives	Timelines & Milestones					
					6 Months	12 Months	18 Months	24 Months	30 Months	36 Months
Policy, Legal and Regulatory Framework	Media, Promotion & Awareness	1. Enhanced transparency & efficiency in government 2. Reduced friction in private sector transaction 3. Boost productivity 4. Increased demand for government services 5. Increased digital literacy	1. Promote ICT supported initiatives in all sectors 2. Develop appropriate content for targeted audiences through identified media 3. Promote awareness of the content of the ICT Roadmap	1. Promoting 1-GOV.net 2. Partnership with media houses & engaging staff via social media & chat forum groups through the Government Contact Centre.						
				3. Digital Advocacy for social development						

Strategic Pillar	Activity Area	Expected Outcomes	Priorities	Initiatives	Timelines & Milestones					
					6 Months	12 Months	18 Months	24 Months	30 Months	36 Months
Industry and Infrastructure	National Backbone	1. Growth in broadband penetration. 2. 4G/LTE Wireless Broadband Coverage to 80% of the population. 3. Fixed broadband to 16% of population based on optic fibre by 2018. 4. Minimum download speeds of 1.5 Mbps. Delivering improved quality of service 5. Delivering jobs via technology opportunities delivered via broadband.	1. Adopting the shared access model for backbone usage. 2. Zero/Reduce Right of Way Cost 3. Create alternative international cable landing points 4. Completion of Infraco's consolidation process 5. Funding for NgREN 6. Extend the NICTIB project cover to 17 states 7. Increase competitiveness	1. Smart States Broadband Initiatives 2. More spectrum for services 3. Reinforce NgREN 4. Review and Revamp national BB plan. 5. Establishment of Regional Backbone hubs 6. Implementation of common access framework including National Shared Services Centre 7. Support the aggregation and participation of domestic ICT firms	█	█	█	█	█	█
	Accessibility & National Coverage	1. Improved national ICT coverage 2. Digital inclusion 3. Improved affordability and availability 4. Broader rollout and adoption of ICT services 5. Greater transparency and accountability 6. Increase ICT driven small and medium businesses. 7. Employment generation and wealth creation	1. Reaching rural areas 2. Delivering Access to the physically challenged 3. Consolidation and delivering a model for use of existing ICT centres 4. Drive access around service delivery model of govt. 5. Provide support and incentives to domestic ICT players.	1. Increase Rural Access Coverage by 40% 2. Consolidation of Access projects in all MDAs and the private sector. 3. e-government initiatives especially health and education delivered via access centres 4. Review of USPF services and realignment to target rural, unserved and underserved areas 5. Providing Free Wi-Fi Hotspots in designated areas across the country 6. Ensure open access to GIS data. 7. Reform NIPOST leveraging its access and its national reach 8. Building partnerships for the provision of the Direct to home (DTH) services. 9. Build technological parks to showcase ICT services 10. Rural kiosk where farmers can give and get access to data 11. Encourage the participation of domestic players in ICT sector value chains 12. Expand and improve existing outsourcing initiatives	█	█	█	█	█	█

Strategic Pillar	Activity Area	Expected Outcomes	Priorities	Initiatives	Timelines & Milestones					
					6 Months	12 Months	18 Months	24 Months	30 Months	36 Months
Industry and Infrastructure	Content Repository, Storage and IT Security Infrastructure & Cloud.	1. localization of critical data 2. Indigenous solutions for critical services 3. Increased Investment in Critical National Information Infrastructure (CNII) 4. Increased utilisation of indigenous solutions 5. Domestication of cloud services	1. Public Sensitisation and awareness on the Cybersecurity. 2. Infrastructure consolidation 3. Government making greater use of domestic cloud service 4. Incentives for businesses to patronise domestic cloud service 5. Government policies to promote domestic cloud service providers	1. Identify all existing e-Govt initiatives						
				2. National Open Data initiatives						
				3. Executing Nicoma Ka Band (NigKaNet) initiative						
				4. Creating the atmosphere to develop locally produced software						
				5. Accelerating the harmonisation of the disparate National Database						
				6. Completion of the National Shared Services Centre (NSSC)						
				7. Complete the National Emergency Contact Centre						
				8. Develop and implement cloud service providers accreditation mechanism						

Strategic Pillar	Activity Area	Expected Outcomes	Priorities	Initiatives	Timelines & Milestones					
					6 Months	12 Months	18 Months	24 Months	30 Months	36 Months
Capacity Building	ICT Human Capital Development	1. Achieve a 55% ICT Literacy Level among the literate population. 2. Achieve a 75% Functional ICT Literacy Level among the Nigerian Public Service. 3. Achieve a ratio of 1:2000 computer scientists, engineers and technologists to the population. 4. Achieve a minimum of 30% Nigerian content in the ICT hardware, software and service sectors. 5. 20 indigenous and globally competitive ICT-enabled innovations annually. 6. Synergy among government, Academia and Industry. 7. Attain a 20% ICT sector contribution to national GDP 8. Two (2) million jobs	1. Establishment of a Digital Literacy Council 2. Accelerated ICT Capacity Building Programme to Bridge the Gaps in the Nigerian Public Service in order to Improve Productivity 3. Institute a competitive process to Identify, incentivize and promote a minimum of 20 indigenous and globally competitive ICT-enabled innovations annually 4. Creation of a Database of ICT Professionals in the Diaspora with a view to harnessing their skills in the Nigerian ICT sector 5. Monitor implementation of local content guidelines	1. Accelerate access to ICT education for people with special needs						
				2. Development and enforcement of standards and guidelines in ICT capacity building						
				3. Language localisation of Technology						
				4. Strengthen and focus existing funding sources on ICT innovation.						
				5. Creation of a consolidated Database of ICT Professionals at home and abroad.						
				6. Promote open Research, Development and Innovation (RDI).						
				7. Develop job centre in partnership with SMEDAN & NDE for people to get access to available jobs						
				8. Include information security in the school curricula.						

Strategic Pillar	Activity Area	Expected Outcomes	Priorities	Initiatives	Timelines & Milestones						
					6 Months	12 Months	18 Months	24 Months	30 Months	36 Months	
Crosscutting Issues	Information Security	1. Informed & aware public. 2. Sectorial Computer Emergency Response teams (CERTs). 3. Cybersecurity Academy as a Public-Private Partnership.	1. Advocacy 2. Implement Information Security standards & guidelines. 3. Promote a national programme for information security systems of innovation. 4. Implement an Incident Readiness & Response Partner Ecosystem framework.	1. Develop Information Security standards & guidelines. 2. Pilot incubation for information security organisations. 3. Information Security public awareness campaign. 4. Develop an Incident Readiness & Response Partner Ecosystem framework. 5. Establish an information security partnerships framework. 6. Commission an implementation guide vis-à-vis Cybercrime Act, 2015. 7. Promote the use of the country code Top Level Domain(ccTLD) "ng".							
	Sectorial Partnership & Interrelations	1. Buy-in of strategic stakeholders on ICT policies & programmes 2. Long term multi-sectorial & international collaboration for effective ICT development.	Develop a Sectorial collaboration & Relations Strategy	1. Conduct a sector stakeholder analysis 2. Leverage the national council on communications to strengthen inter-ministerial relations. 3. CSR Coordination framework to reduce duplication of Initiatives							
	Disruptive Innovation	1. Improved economic productivity attributed to the leveraging disruptive innovation 2. Wealth generation, job creation & increased government revenue from an enterprising knowledge-based economy	1. Create innovation hubs across the country 2. Establish a specialized multi-campus ICT university. 3. Incubate disruptive innovations 4. Link domestic innovation hubs into the global innovation ecosystem 5. Facilitate an angel investor system	1. Two innovation hubs per geopolitical zone 2. Upgrade Digital Bridge Institute (DBI) into a specialized multi-campus ICT university 3. Collect & categorise incidents of disruptive innovations 4. Implement viable incubation centres 5. Facilitate an incubation support system 6. Strengthen existing youth innovator programmes							

Strategic Pillar	Activity Area	Expected Outcomes	Priorities	Initiatives	Timelines & Milestones					
					6 Months	12 Months	18 Months	24 Months	30 Months	36 Months
Crosscutting Issues	Media, Promotion & Awareness	1. Enhanced transparency & efficiency in government 2. Reduced friction in private sector transaction 3. Boost productivity 4. Increased demand for government services 5. Increased digital literacy	1. Promote ICT supported initiatives in all sectors 2. Develop appropriate content for targeted audiences through identified media 3. Promote awareness of the content of the ICT Roadmap	1. Promoting 1-GOV.net						
				2. Partnership with media houses & engaging staff via social media & chat forum groups through the Government Contact Centre.						
				3. Digital Advocacy for social development						

Appendix II: Implementation Mechanisms

The implementation of the ICT Roadmap will require the participation of many Sectors and will require a diverse range of skills, as well as the involvement of several institutions. The skills required include project management, asset management, communication, project financing and other related skills. Institutions involved in the implementation have been drawn from the Presidency, Ministries, Departments and Agencies. The implementation will also require a number of stakeholders and development partners.

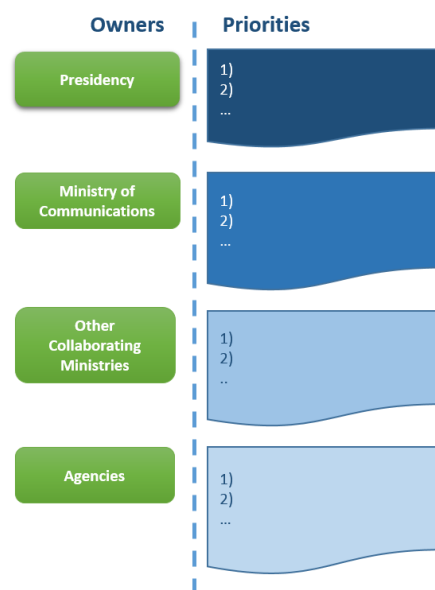
This appendix categorizes all the priorities in their respective owner groups and describes some of the key mechanisms that are necessary for the successful implementation of the Roadmap.

A top-bottom approach has been adopted with a layered ownership list as shown in the adjacent Implementation Ownership Matrix.

Implementation Ownership Matrix

The table below outlines the key institutions responsible for implementing the priorities of the Roadmap.

S/n	Owner	Priorities
1.	Presidency	<ul style="list-style-type: none"> Establishment of a National ICT Steering Council in the Presidency
		<ul style="list-style-type: none"> Passage of the critical National Telecommunications Infrastructure Bill
		<ul style="list-style-type: none"> Map and eliminate all duplicative fiscal imposts (VAT, State, local Fed levies) insert into next Appropriations Bill
		<ul style="list-style-type: none"> Expedite passage of the amended IP Law.
		<ul style="list-style-type: none"> Drive and enact legislation for Convergence, including Spectrum Management & institutional arrangements,
		<ul style="list-style-type: none"> Enact legislation to implement national ICT policies & National Broadband Plan.
		<ul style="list-style-type: none"> Advocacy Implement Information Security standards and guidelines. Promote a national programme for information



		<p>security systems of innovation.</p> <ul style="list-style-type: none"> • Public Sensitisation and awareness on the Cybersecurity. • Implement an Incident Readiness and Response Partner Ecosystem framework. (ONSA)
2	Federal Ministry of Communications	<ul style="list-style-type: none"> • Upgrade Digital Bridge Institute (DBI) into a specialized multi-campus ICT university
		<ul style="list-style-type: none"> • Strengthening of the CEO Forum of FMOC MDAs with the Honourable Minister and the Forum of the Heads of ICT in the Public Sector
		<ul style="list-style-type: none"> • Development of an ICT based National Dashboard for Project Monitoring and Tracking.
		<ul style="list-style-type: none"> • Establishment of Project Management Office in FMoC
		<ul style="list-style-type: none"> • Development of project management capacity within FMoC
		<ul style="list-style-type: none"> • Repositioning Postal Service Sector (NIPOST)
		<ul style="list-style-type: none"> • Update ICT Policy
		<ul style="list-style-type: none"> • Map and report on implication of proposed legislation or existing legislation for institutional arrangements for consumer protection and to promote competition
		<ul style="list-style-type: none"> • Develop a Sectorial collaboration and Relations Strategy
		<ul style="list-style-type: none"> • Accelerated Implementation of e-Government Master Plan
		<ul style="list-style-type: none"> • Promote ICT supported initiatives in all Sectors Develop appropriate content for targeted audiences through identified media Promote awareness of the

		content of the ICT Roadmap
3	Other collaborating Ministries	<ul style="list-style-type: none"> Funding for Nigerian Research Education Network (NgREN): Federal Ministry of Education (FMOE)
4	Agencies	<ul style="list-style-type: none"> Gap Analysis for the Public Sector to establish Baselines on ICT Adoption and Utilisation, Human Capacity, and Infrastructure (NITDA) Review and update of ICT4D Plan in key Sectors of the economy (NITDA) Create innovation hubs across the country Incubate disruptive innovations Link domestic innovation hubs into the global innovation ecosystem Facilitate an angel investor system (NITDA) Data domestication (GBB) Infrastructure consolidation (GBB) Adopting the shared access model for backbone usage. (NCC) Zero/Reduce Right of Way Cost (NCC) Create alternative international cable landing points (NCC) Completion of Infraco's consolidation process (NCC) Building partnerships for the provision of the Direct to home (DTH) services (NIGCOMSAT) Provision of Backup Satellites (NIGCOMSAT) Extend the NICTIB project to cover 17 states (GBB) Reaching rural, unserved and underserved areas

	(NITDA, NIPOST, NCC)
	<ul style="list-style-type: none"> • Delivering Access to the physically challenged (NITDA)
	<ul style="list-style-type: none"> • Consolidation and delivering a model for use of existing ICT centres (NITDA)
	<ul style="list-style-type: none"> • Drive access around service delivery model of govt. (GBB)
	<ul style="list-style-type: none"> • Provide support and incentives to domestic ICT players (NITDA, NCC)
	<ul style="list-style-type: none"> • Infrastructure consolidation (GBB, NCC)
	<ul style="list-style-type: none"> • Establishment of a Digital Literacy Council (NITDA)
	<ul style="list-style-type: none"> • Accelerated ICT Capacity Building Programme to Bridge the Gaps in the Nigerian Public Service in order to Improve Productivity (NITDA)
	<ul style="list-style-type: none"> • Monitor implementation of local content guidelines (NITDA)

The implementation mechanisms of this Roadmap fall under 3 general categories, namely:

1. Setup
2. Strengthening
3. Executive

The Setup mechanisms refer to the priorities that involve the establishment of an institution or the creation of a body. Many actions that require this mechanism are implemented by the Presidency.

The Strengthening mechanisms refer to the processes that are used to reinforce institutions or bodies that already exist. The Federal Ministry of Communications is responsible for many actions that are tied to these mechanisms.

The Executive mechanisms address the processes that involve the implementation of initiatives that are outlined in the plan. A major part of these are handled by the Agencies within the Ministry.

Appendix III: **Log frame**

	Strategic Pillar	Activity Area	Activity Lead	Goals	Objectives	Expected Outcomes
1	Governance	e-Government	MOC, eGovernment Department	High Quality e-Government services	1. Alignment of ICT Sector strategy with government’s strategy for efficient service delivery, transparency in Government and Revenue Generation 2. Strengthen Institutional Arrangement for the Management of ICT Sector 3. Develop an Integrated Programme Management Framework for effective and efficient management, monitoring and evaluation of ICT projects and initiatives	1. Improved Quality of ICT services 2. Cost Reduction of Delivering Government Services 3. Transparency and accountability in government 4. Improved Investor Confidence in the ICT Sector 5. Harmonized ICT related Policies and Regulatory Framework 6. Progressive availability of government services online 7. Significant boost in ICT contribution to GDP, Government Revenue, and Social Inclusiveness 8. Citizen access to government services
		Institutional Arrangement and Structure	MOC eGovernment Department (Secretariat Council)	Strengthen Institutional Arrangement for the Management of ICT Sector	1. Improved Quality of ICT services 2. Improved Investor Confidence in the ICT Sector 3. Harmonized ICT related Policies and Regulatory Framework 4. Significant boost in ICT contribution to GDP, Government Revenue, and Social Inclusiveness	1. Supportive Policy and Regulatory Environment 2. Governance Mechanisms: Setting up the necessary institutional framework with FEC – level collaboration and buy in.
		Programme Management, Monitoring & Evaluation	MOC, Planning Research & Statistics (PRS)	Develop an Integrated Programme Management Framework for effective and efficient management, monitoring and evaluation of ICT projects and initiatives	1. Efficient and effective delivery of ICT Projects and Programmes 2. Tracking of ICT Roadmap KPIs 3. A multi-stakeholder driven project management ecosystem	1. Clear e-Government performance measures for all MDAs. 2. Improved delivery of ICT Roadmap programmes and projects

Strategic Pillar	Critical Success Factors	Priorities	Initiatives	Timelines & Milestones
Governance	<ol style="list-style-type: none"> Regular ICT Sectoral Engagement and collaboration among stakeholders, Awareness and Promotion Supportive Policy and Regulatory Environment Establishment of National ICT Steering Council. Improved requisite ICT Skills of Public Service Workforce Supportive Policy and Regulatory Environment Business and Citizen-Centric Approach: Designing and implementing e-Government applications focused on citizen and Business G2C, G2B requirements Broad-based Digital Literacy 	<ol style="list-style-type: none"> Gap Analysis for the Public Sector to establish Baselines on ICT Adoption and Utilisation, Human Capacity, and Infrastructure Identification and Implementation of Highly Visible and Impactful ICT projects in 2016 Budget from MDAs Accelerated Implementation of e-Government Master Plan 	<ol style="list-style-type: none"> Strengthening of the CEO Forum of MOC MDAs with the Honourable Minister and the Forum of the Heads of ICT in the Public Sector Leveraging ICT to deliver on key areas of government priorities Review and update of ICT4D Plan in key Sectors of the economy Development of an ICT based National Dashboard for Project Monitoring and Tracking. 	<ol style="list-style-type: none"> 3 months 12 months 18 months 12 months
	Governance	<ol style="list-style-type: none"> Ensure that the vision of Knowledge based Nation is championed by the President and establish that the strategic objectives relate directly to National development and strategic goals as well as global goals - MDGs. In alignment with the NV 20:2020's (1st National Implementation Plan). Ensure that the National ICT framework is entrenched with a national focus NOT just a Government only focus. 	Establishment of a National ICT Steering Council in the Presidency	<ol style="list-style-type: none"> Accelerated Implementation of e-Government Master Plan Strengthening the Forum of Minister of Communications and Heads of Agencies in the Ministry (FORMHA) Strengthening Forum of Heads of ICT in the Public Sector Establishment of Information Resource Management system to reduce corruption
Governance	<ol style="list-style-type: none"> Availability of relevant baseline data Implementation of the National ICT Roadmap Project management capacity Inter-governmental collaboration 	Establishment of Project Management Office in MoC	<ol style="list-style-type: none"> Development of an ICT based National Dashboard for Project Monitoring and Tracking. Development of project management capacity within MoC 	<ol style="list-style-type: none"> 12 months 12 months

Strategic Pillar	Resources	Collaborating Entities	KPI with M&E mechanisms	Barriers, Risk Analysis: Mitigation	Other recommendations
Governance	<ol style="list-style-type: none"> 1. Political will 2. Budgetary allocation 3. Multi-lateral funding 4. Leveraging on existing structure 5. PPP 	<ol style="list-style-type: none"> 1. Presidency 2. MDAs 3. Development partners 	<ol style="list-style-type: none"> 1. Number of meetings held 2. Cumulative no. of MDAs and sites connected to shared services (1-Gov.net) platform 3. Percentage increase in broadband penetration of MDAs 4. Number of citizens accessing e-Government services 5. Percentage of Government processes automated 6. Percentage of Government services online 7. Percentage of Existing Systems Aligned to Government Open Access 	<ol style="list-style-type: none"> 1. Resistance to Change: Change Management 2. Inadequate Funding: Aggregation of Government Services 3. Non-Prioritisation of e-Government framework: National ICT Steering Council 4. Poor quality of Government Services: Standardisation and PPP 	
Governance	<ol style="list-style-type: none"> 1. Political will 2. Budgetary allocation 3. Multi-lateral funding 4. Leveraging on existing structure 	<ol style="list-style-type: none"> 1. Presidency 2. Legislature 3. MDAs 4. Other stakeholders 	Timely establishment of the Steering cCouncil	<ol style="list-style-type: none"> 1. Lack of Political Will: Presidential Buy-in 2. Resistance to change: Advocacy 	
Governance	<ol style="list-style-type: none"> 1. Political will 2. Budgetary allocation 3. Multi-lateral funding 4. Leveraging on existing structures 5. PPP 	<ol style="list-style-type: none"> 1. MDAs 2. Industry players 3. Civil Society Organisations 	Accurate and timely project report	<ol style="list-style-type: none"> 1. Non establishment of the PMO: Political Will 2. Funding: Budgeting and PPP 	

	Strategic Pillar	Activity Area	Activity Lead	Goals	Objectives	Expected Outcomes
2	Legal Policy and Regulatory Framework	<p>Update and adopt the National ICT Policy;</p> <p>Technology Convergence & Spectrum Management:</p> <p>Consumer and Investor Protection:</p> <p>Tariffs, Taxes & Property:</p> <p>Institutional Arrangements, overlaps (competition commission?), e-Commerce</p>	MOC, Planning Research & Statistics (PRS)	Legal & Regulatory Framework that: reduces waste, leverages ICT to deliver change, measured in terms of improved Sector governance that stimulates inclusive economic growth (FDI, GDP, digital literacy)	Robust Legal and Regulatory Instruments to enable private Sector driven development of home-grown ICT innovation	<p>Initial Outcomes (Quick Wins) - (within 12 months)</p> <ol style="list-style-type: none"> 1. Approve National ICT Policy. 2. Remove all duplicative Taxes, Levies, Fees and Imposts. 3. Complete Comprehensive Legal, Regulatory & Institutional Framework Mapping & Gap Analysis (baseline as at National ICT Policy & National Broadband Plan) 4. Standardised Government Communications Protocols - (e.g. rationalising government spending) <p>Intermediate Outcomes - 12 months - 3 years</p> <p>New more efficient and adaptable institutional arrangements to regulate Sector and manage innovation.</p> <p>Final Outcomes - between 5-7 years. Emergence of Indigenised Sector with up-to-date laws and</p>

Strategic Pillar	Critical Success Factors	Priorities	Initiatives	Timelines & Milestones
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Legal Policy and Regulatory Framework</p>	<p>1. Key Stakeholder Mapping & Analysis, Political Will and Buy-In</p> <p>2. Joined Up Implementation factoring key linkages and Dependencies</p> <p>3. Coordinated and Targeted Donor Support, including technical and financial support, Ministry & Agencies adequately resource Implementation.</p> <p>4. Alignment of Policies and Processes to streamline and expedite Information Communications Technology and knowledge transfer</p>	<p>1. Update ICT Policy</p> <p>2. Passage of the Critical National Telecommunications Infrastructure Bill</p> <p>3. Map and eliminate all Duplicative Fiscal Imposts (VAT, State, Local Federal levies) insert into next Appropriations Bill</p> <p>4. Expedite passage of the amended IP law.</p> <p>5. Map and report on implication of proposed legislation or existing legislation for institutional arrangements for consumer protection and to promote competition</p> <p>6. Drive and enact legislation for Convergence, including Spectrum Management & institutional arrangements,</p> <p>7. Enact legislation to implement national ICT policies & National Broadband Plan.</p> <p>8. Data domestication</p>	<p>1. Mapping and Gap Analysis of laws, regulations and institutional arrangements in light of policy instruments.</p> <p>2. Establish Commination's Policy Entrepreneurial or (Legally Disruptive) Unit - Cut through red tape expedite reforms</p>	<p>3 months</p> <p>3 months</p>

Strategic Pillar	Resources	Collaborating Entities	KPI with M&E mechanisms	Barriers, Risk Analysis: Mitigation	Other recommendations
Legal Policy and Regulatory Framework	<ol style="list-style-type: none"> 1. PPP 2. Multi-lateral partners 3. Budgetary allocations 	<ol style="list-style-type: none"> 1. Donors, Min Finance 2. Ministry of Justice 3. Ministry of Industry, Trade and Investment 4. Sector stakeholders 5. National Security establishments 6. Legislature 	<ol style="list-style-type: none"> 1. Approved National ICT Policy(within 6 months) 2. Number of relevant Bills presented to the National Assembly 3. Number of Laws passed by the Legislature 4. Approved design of institutional arrangements for converged Sector governance 5. Legal Audit Institutional readiness to implement Roadmap. 	<ol style="list-style-type: none"> 1. Inactive actionable process lead: Consistent engagement with actionable process lead. 2. Low Buy-in of High level Stakeholders: Lobbying and informing High-Level Stakeholders. 3. Poor Legislative Management: Policy Entrepreneurial Unit 4. Poor implementation of Legal Frameworks, Policies and Guidelines: Continuous Monitoring and Evaluation. 5. Inadequate cooperation from Legislature and Judiciary: Consistent engagement of Legislature and Judiciary. 6. Public Apathy: Constant innovation on public engagements. 	

3	Strategic Pillar	Activity Area	Activity Lead	Goals	Objectives	Expected Outcomes
	Industry and Infrastructure	National Backbone	MoC, Spectrum Management.	<ol style="list-style-type: none"> 1. National coverage & improved ICT utilization 2. Aggregation of backbone networks from Infraco's, Telco's and other service providers 3. Consolidation of national coverage to ensure national reach. 4. Broadband penetration to rural areas. 5. Deliver Robust Communication network to support e-Govt, SME's and overall Broadband Needs 6. Delivery of ubiquitous presence for ICT in every territory to discourage rural to urban migration 	<ol style="list-style-type: none"> 1. Connected Nigeria offering a network of private, metro, state and federal fibre backbones reaching the entire country 2. Implementing Broadband plan. 3. Achieving Universal Access ICT even in rural areas 4. Bridging the urban-rural access gap 5. Preserving ICT infrastructure as Critical National Assets 6. Broaden ICT national inclusion 7. Leveraging Satellite infrastructure 	<ol style="list-style-type: none"> 1. Growth in broadband penetration. 2. 3G/LTE Wireless Broadband Coverage to 80% of the population. 3. Fixed broadband to 16% of population based on optic fibre by 2018. 4. Minimum download speeds of 1.5 Mbps. Delivering improved quality of service 5. Delivering jobs via technology opportunities delivered via broadband

Strategic Pillar	Resources	Collaborating Entities	KPI with M&E mechanisms	Barriers, Risk Analysis: Mitigation	Other recommendations
Industry and Infrastructure	1. Political will 2. Budgetary allocation 3. Multi-lateral funding 4. Leveraging on existing initiative 5. PPP 6. Private Sector	1. MoC 2. NCC 3. GBB 4. NIGCOMSAT	1. % increase in Km of fibre backbone 2. % decrease in No of unserved and underserved areas	1. Inter-agency cross purpose backbone projects: National ICT Steering Council 2. Lack of BB availability and cost: Enabling Government Policy 3. Security, ROW and Associated Tax Regimes: Passage of Critical National Telecommunications Infrastructure Bill and Political Will	

Strategic Pillar	Critical Success Factors	Priorities	Initiatives	Timelines & Milestones
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Industry and Infrastructure</p>	<ol style="list-style-type: none"> 1. Policy framework 2. 24 months contingent upon; <ol style="list-style-type: none"> (i) digital dividend (ii) 6 months from availability of other spectrum. 3. Passage of the Critical National Telecommunications Infrastructure Bill 4. Incentive for investment and ROI 5. Political will & commitment from all tiers of government & Private Sector. 6. Implementation of National Broadband Plan. 7. Addressing the problem of multiple input taxes 	<ol style="list-style-type: none"> 1. Adopting the shared access model for backbone usage. 2. Zero/Reduce Right of Way Cost 3. Create alternative international cable landing points 4. Completion of Infraco's consolidation process 5. Funding for NgREN 6. Extend the NICTIB project cover to 17 states 7. Increase competitiveness and penetration by domestic ICT firms 	<ol style="list-style-type: none"> 1. Smart States Broadband Initiatives 2. More spectrum for services 3. Reinforce NgREN 4. Review and Revamp national BB plan. 5. Establishment of Regional Backbone hubs 6. Implementation of common access framework including National Shared Services Centre 7. Support the aggregation and participation of domestic ICT firms 	<ol style="list-style-type: none"> 1. 36 months 2. 24 months 3. 12 months 4. 3 months 5. 24 months 6. 24 months 7. 12 months

Strategic Pillar	Activity Area	Activity Lead	Goals	Objectives	Expected Outcomes
<p style="text-align: center;">Industry and Infrastructure</p>	<p>Accessibility & National Coverage</p>	<p>MoC, Telecomm Department</p>	<p>Affordability, Availability and Reliability (QoS) of Ubiquitous ICT enabled services.</p>	<ol style="list-style-type: none"> 1. Broadband penetration to rural, unserved and underserved areas 2. Security and Sustainability of ICT infrastructure 3. Achieve universal access 4. Establish ICT in schools and informal education 5. Affordable Internet services 6. Enabling environment for investment in ICT 	<ol style="list-style-type: none"> 1. Improved national ICT coverage 2. Digital inclusion 3. Improved affordability and availability 4. Broader rollout and adoption of ICT services 5. Greater transparency and accountability 6. Increase ICT driven small and medium businesses. 7. Employment generation and wealth creation

Strategic Pillar	Critical Success Factors	Priorities	Initiatives	Timelines & Milestones
<p style="writing-mode: vertical-rl; transform: rotate(180deg); text-align: center;">Industry and Infrastructure</p>	<ol style="list-style-type: none"> 1. Sufficient funding 2. Aggregating Govt access investments 3. Availability of Public Access Venues (PAV) 4. State and Local Govt involvement 5. Sustainability model for access centres 6. Infraco's leading infrastructure consolidation 7. Targeted projects are the underserved and with sustainable models 8. Spectrum availability for rural last mile delivery 	<ol style="list-style-type: none"> 1. Reaching rural areas 2. Delivering Access to the physically challenged 3. Consolidation and delivering a model for use of existing ICT centres 4. Drive access around service delivery model of govt. 5. Provide support and incentives to domestic ICT players 	<ol style="list-style-type: none"> 1. Increase Rural Access Coverage by 40% 2. Consolidation of Access projects in all MDAs and the private Sector. 3. e-government initiatives especially health and education delivered via access centres 4. Review of USPF services and realignment to target rural, unserved and underserved areas 5. Providing Free Wi-Fi Hotspots in designated areas across the country 6. Ensure open access to GIS data. 7. Reform NIPOST leveraging its access and its national reach 8. Building partnerships for the provision of the Direct to home (DTH) services. 9. Build technological parks to showcase ICT services 10. Rural kiosk where farmers can give and get access to data 11. Encourage the participation of domestic players in ICT Sector value chains 12. Expand and improve existing outsourcing initiatives 	<ol style="list-style-type: none"> 1. 12 months 2. 12 months 3. 24 months 4. 12 months 5. 36 months 6. 18 months 7. 36 months 8. 12 months 9. 24 months 10. 24 months 11. 24 months 12. 12 months

Strategic Pillar	Resources	Collaborating Entities	KPI with M&E mechanisms	Barriers, Risk Analysis: Mitigation	<u>Other</u> recommendations
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Industry and Infrastructure</p>	<p>1. NCC/USPF Access initiatives 2. NIGCOMSAT satellite 3. Telco's and Infraco 4. NITDA/NITDEF access projects 5. NUC/NgREN 6. GBB 7. Other relevant MDAs</p>	<p>1. MoC 2. NCC 3. GBB 4. NIGCOMSAT 5. NITDA 6. NIPOST 7. Private Sector 8. Academia</p>	<p>1. % rural and metro coverage 2. % of basic, secondary and tertiary education with access 3. % of MDAs service delivery processes Automated 4. % improvement of QoS in ICT services 5. % increase in No rural areas with internet access</p>	<p>1. Existing Silos of operation: Improved intra and inter governmental relations 2. Sustainability: PPP 3. Security: Critical National Infrastructure Protection 4. Adequacy of incentives for investments for improved access: USPF</p>	

Strategic Pillar	Activity Area	Activity Lead	Goals	Objectives	Expected Outcomes
Industry and Infrastructure	Content Repository, Storage and IT Security Infrastructure & Cloud.	MoC, Information Communication Technology (ICT) Department	Local data domiciliation and archival	<ol style="list-style-type: none"> 1. Localisation of data 2. Localise data traffic 3. Indigenous cloud service offerings 4. Enhance Big data analytics 5. Enhance Information security 6. Mass Utilisation of cloud services 	<ol style="list-style-type: none"> 1. localization of critical data 2. Indigenous solutions for critical services 3. Increased Investment in Critical National Information Infrastructure (CNII) 4. Increased utilisation of indigenous solutions 5. Domestication of cloud services

Strategic Pillar	Critical Success Factors	Priorities	Initiatives	Timelines & Milestones
Industry and Infrastructure	<ol style="list-style-type: none"> 1. Implementation of; <ol style="list-style-type: none"> (i) Cybercrime Act, 2015 (ii) National Cybersecurity Policy (iii) National Cybersecurity Strategy 2. Political Will 3. Incentive for investment and ROI 5. Implementation of National Broadband Plan. 6. Enabling environment for domestic cloud service providers to thrive 	<ol style="list-style-type: none"> 1. Public Sensitisation and awareness on the Cybersecurity. 2. Infrastructure consolidation 3. Government making greater use of domestic cloud service 4. Incentives for businesses to patronise domestic cloud service 5. Government policies to promote domestic cloud service providers 	<ol style="list-style-type: none"> 1. Identify all existing e-Govt initiatives 2. National Open Data initiatives 3. Executing Nicoma Ka Band (NigKaNet) initiative 4. Creating the atmosphere to develop locally produced software 5. Accelerating the harmonisation of the disparate National Database 6. Completion of the National Shared Services Centre (NSSC) 7. Complete the National Emergency Contact Centre 8. Develop and implement cloud service providers accreditation mechanism 	<ol style="list-style-type: none"> 1. 6 months 2. 24 months 3. 12 months 4. 12 months 5. 12 months 6. 12 months 7. 18 months 8. 18 months

Strategic Pillar	Resources	Collaborating Entities	KPI with M&E mechanisms	Barriers, Risk Analysis: Mitigation	Other recommendations
Industry and Infrastructure	1. Existing e-Govt initiatives 2. NIMC and related biodata project 3. Private and other Cloud service providers	1. NITDA 2. NIGCOMSAT 3. GBB 4. NCC 5. Other Private cloud services provider	1. % increase in data centres 2. % increase in indigenous ICT solutions 3. Timely completion of the Nicoma NigKaNet, National Emergency Contact Centre and the NSSC	1. Funding: Budgetary allocation, PPP and Private investors 2. Insufficient redundancy: Build Redundancy 3. Data Silos: Political Will	

	Strategic Pillar	Activity Area	Activity Lead	Goals	Objectives	Expected Outcomes
4	Capacity Building	ICT Human Capital Development	MoC, Information Communication Technology (ICT) Department	To develop a smart globally competitive workforce for the nation	1. Promote capacity building and knowledge transfer 2. Develop a fully ICT literate nation 3. Scale up ICT-enabled indigenous innovation 4. Use ICT to facilitate employment generation and wealth creation	1. Achieve a 55% ICT Literacy Level among the literate population. 2. Achieve a 75% Functional ICT Literacy Level among the Nigerian Public Service. 3. Achieve a ratio of 1:2000 computer scientists, engineers and technologists to the population. 4. Achieve a minimum of 30% Nigerian content in the ICT hardware, software and service Sectors. 5. 20 indigenous and globally competitive ICT-enabled innovations annually. 6. Synergy among government, Academia and Industry. 7. Attain a 20% ICT Sector contribution to national GDP 8. 2 million jobs

Strategic Pillar	Critical Success Factors	Priorities	Initiatives	Timelines & Milestones
Capacity Building	<ol style="list-style-type: none"> 1. Establishment of Digital Literacy Council 2. Functional Educational curricula for primary, secondary and tertiary schools 3. Monitoring and evaluation (M&E) mechanism to track and monitor progress of ICT human capacity initiatives 4. ICT skills gap analysis 5. Acquisition of know-how and technology transfer 	<ol style="list-style-type: none"> 1. Establishment of a Digital Literacy Council 2. Accelerated ICT Capacity Building Programme to Bridge the Gaps in the Nigerian Public Service in order to Improve Productivity 3. Institute a competitive process to Identify, incentivize and promote a minimum of 20 indigenous and globally competitive ICT-enabled innovations annually 4. Creation of a Database of ICT Professionals in the Diaspora with a view to harnessing their skills in the Nigerian ICT Sector 5. Monitor implementation of local content guidelines 	<ol style="list-style-type: none"> 1. Accelerate access to ICT education for people with special needs 2. Development and enforcement of standards and guidelines in ICT capacity building 3. Language localisation of Technology 4. Strengthen and focus existing funding sources on ICT innovation. 5. Creation of a consolidated Database of ICT Professionals at home and abroad 6. Promote open Research, Development and Innovation (RDI). 7. Develop job centre in partnership with SMEDAN & NDE for people to get access to available jobs 8. Include information security in the school curricula. 	<ol style="list-style-type: none"> 1. 12 months 2. 12 months 3. 36 months 4. 12 months 5. 12 months 6. 12 months 7. 6 months 8. 12 months

Strategic Pillar	Resources	Collaborating Entities	KPI with M&E mechanisms	Barriers, Risk Analysis: Mitigation	Other recommendations
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Capacity Building</p>	<p>1. Budgetary provision, 2. leveraging existing initiatives, multi-lateral Funding, ICT Professionals 3. PPP</p>	<p>1. MDAs, 2. NITDA 3. NUC 4. NERDC 5. State Governments Academia, 6. Private Sector 7. Civil Society Organisations</p>	<p>1. % ICT literacy level 2. % functional ICT literacy level in the public Sector 3. Ratio of ICT certified practitioners to population 4. % of Nigerian content in the ICT Sector. 5. Number of applications for IP registration for ICT innovations 6. Number of jobs created through ICT disaggregated by direct or indirect employment</p>	<p>1. Funding: Budgetary allocation, coordination of multi-lateral sources and PPP 2. Adequate literacy level: Universal Basic Education, Review of curriculum 3. Resistance to implementation of local content: Monitoring and Enforcement of extant Laws, Regulations and Policies</p>	

	Strategic Pillar	Activity Area	Activity Lead	Goals	Objectives	Expected Outcomes
5	Crosscutting Issues	Information Security	Office of the National Security Adviser (ONSA)	Trusted ICT Systems, Platforms and Processes.	<ol style="list-style-type: none"> 1. Ensure the Confidentiality, Integrity and Availability of User's data. 2. Protect Intellectual Properties Rights. 3. Guarantee safety in the use ICT products and services. 4. Build a robust cybersecurity industry principally driven by youths. 5. Increase public awareness about Information Security. 6. Capacity for Disaster recovery and Business Continuity 	<ol style="list-style-type: none"> 1. Informed and aware public. 2. Sectoral Computer Emergency Response Teams (CERTs). 3. Cybersecurity Academy as a Public-Private-Partnership
		Sectoral Partnership & Interrelations	MOC, Planning Research & Statistics (PRS)	Attain a culture of collaboration and cooperation.	<ol style="list-style-type: none"> 1. Ensure functional ICT Partner Ecosystem. 2. Establish inter-ministerial platform on ICT-related matters 3. Be the gateway for international cooperation on ICT initiatives 	<ol style="list-style-type: none"> 1. Buy-in of strategic stakeholders on ICT Policies and Programmes 2. Long term multi-Sectoral and international collaboration for effective ICT development.

Strategic Pillar	Critical Success Factors	Priorities	Initiatives	Timelines & Milestones
Crosscutting Issues	<ol style="list-style-type: none"> 1. Buy-in by strategic stakeholders. 2. A robust and proactive National Cybercrime council 3. Adhering to global standards and best practices. 4. Developing the Information Security Value Chain. 5. Adequate sensitization of major stakeholders. 6. Establish an active Incident readiness and Response Partner Ecosystem. 	<ol style="list-style-type: none"> 1. Advocacy 2. Implement Information Security standards and guidelines. 3. Promote a national programme for information security systems of innovation. 4. Implement an Incident Readiness and Response Partner Ecosystem framework. 	<ol style="list-style-type: none"> 1. Develop Information Security standards and guidelines. 2. Pilot incubation for information security organisations. 3. Information Security public awareness campaign. 4. Develop an Incident Readiness and Response Partner Ecosystem framework. 5. Establish an information security partnerships framework. 6. Commission an implementation guide vis-à-vis Cybercrime Act, 2015. 7. Promote the use of the country code Top Level Domain(ccTLD) "ng". 	<ol style="list-style-type: none"> 1. 12 months 2. 18 months 3. 9 months 4. 24 months 5. 12 months 6. 6 months 7. 3 months
Crosscutting Issues	<ol style="list-style-type: none"> 1. Active participation in the ICT partner Ecosystem 2. High Level commitment to partnership and inter-governmental relations 3. Continuous local capacity building 	<p>Develop a sectoral collaboration and Relations Strategy</p>	<ol style="list-style-type: none"> 1. Conduct a Sector stakeholder analysis 2. Leverage the national council on communications to strengthen inter-ministerial relations. 3. CSR Coordination framework to reduce duplication of Initiatives 	<ol style="list-style-type: none"> 1. 6 months 2. 6 months 3. 6 months

Strategic Pillar	Resources	Collaborating Entities	KPI with M&E mechanisms	Barriers, Risk Analysis: Mitigation	Other recommendations
Crosscutting Issues	<ol style="list-style-type: none"> 1. Access to strategic stakeholders through the Honourable Minister. 2. Skilled expertise. 3. Budgetary provision, private Sector and PPP 4. Mass and new media. 5. Multi-lateral and development partners. 	<ol style="list-style-type: none"> 1. Innovation Hubs 2. Owners of Critical National Information Infrastructures. 3. Legislature 4. Judiciary 5. States and Local government. 6. MDAs 7. Law Enforcement and National Security Entities. 	<ol style="list-style-type: none"> 1. Number of Legal frameworks, Policies and Regulations; <ol style="list-style-type: none"> (i) Initiated (ii) Completed (iii) Implemented 2. Number of information Security Professionals 3. Number of information security incidents; <ol style="list-style-type: none"> (i) Reported to Regulators, Law Enforcement and Technical Support Organisations. (ii) Resolved 4. Number of established and active CERTs. 	<ol style="list-style-type: none"> 1. Inactive actionable process lead: Consistent engagement with actionable process lead. 2. Low Buy-in of High level stakeholders: Advocacy towards High-Level stakeholders. 3. Poor implementation of Legal Frameworks, Policies and Guidelines: Monitoring and evaluation. 4. Inadequate cooperation from legislature and judiciary: Consistent engagement of Legislatures and Judiciary. 5. Public apathy: Constant innovation and public engagements. 	
Crosscutting Issues	<ol style="list-style-type: none"> 1. Budgetary provision 2. Leveraging existing initiatives, multi-lateral Funding, 3. ICT Professionals 4. PPP 	Relevant MDAs and tiers of government	<ol style="list-style-type: none"> 1. Number of MDAs participating in collaborative activities 2. Number of policy decisions emanating from collaborative activities 	<ol style="list-style-type: none"> 1. Operational Silos: Political Will and Advocacy 2. Trust: Cultural reorientation and process interoperability 3. Funding: Budgetary allocation, coordination of multi-lateral sources and PPP 4. Leadership: Advocacy and Strengthening institutional mechanisms 5. Resistance to CSR coordination: Advocacy and transparency 	

	Strategic Pillar	Activity Area	Activity Lead	Goals	Objectives	Expected Outcomes
	Crosscutting Issues	Disruptive Innovation	NITDA, OIIE	Capacity to identify, interdict and where appropriate leverage disruptive innovative technologies	<ol style="list-style-type: none"> 1. Capacity for early identification disruptive innovations 2. Resources to interdict disruptive innovation 3. Know-how to leverage disruptive innovations 	<ol style="list-style-type: none"> 1. Improved economic productivity attributed to the leveraging disruptive innovation 2. Wealth generation, job creation and increased government revenue from an enterprising knowledge-based economy
	Crosscutting Issues	Media, Promotion and Awareness	MoC, Press Unit	Mainstream ICT into all spheres of life	<ol style="list-style-type: none"> 1. Enhance citizens' participation in governance 2. Increase ICT contribution to the GDP improve citizens' well-being through ICT awareness 3. Support the Bridging of the Digital divide through ICT awareness 4. Community development 	<ol style="list-style-type: none"> 1. Enhanced transparency and efficiency in government 2. Reduced friction in private Sector transaction 3. Boost productivity 4. Increased demand for government services 5. Increased digital literacy

Strategic Pillar	Critical Success Factors	Priorities	Initiatives	Timelines & Milestones
Crosscutting Issues	<ol style="list-style-type: none"> 1. Political will 2. Enabling policies 3. Public-Private-Academia Collaboration 4. Availability of requisite skill set to identify, interdict and leverage disruptive innovation 	<ol style="list-style-type: none"> 1. Create innovation hubs across the country 2. Establish a specialized multi-campus ICT university. 3. Incubate disruptive innovations 4. Link domestic innovation hubs into the global innovation ecosystem 5. Facilitate an angel investor system 	<ol style="list-style-type: none"> 1. Two innovation hubs per geopolitical zone 2. Upgrade Digital Bridge Institute (DBI) into a specialized multi-campus ICT university 3. Collect and categorise incidents of disruptive innovations 4. Implement viable incubation centres 5. Facilitate an incubation support system 6. Strengthen existing youth innovator programmes 	<ol style="list-style-type: none"> 1. 12 months 2. 18 months 3. 36 months 4. 24 months 5. 24 months 6. 12 months
Crosscutting Issues	<ol style="list-style-type: none"> 1. Buy-in by relevant stakeholders 2. Appropriate messaging 3. Availability of Basic infrastructure 	<ol style="list-style-type: none"> 1. Promote ICT supported initiatives in all Sectors 2. Develop appropriate content for targeted audiences through identified media 3. Promote awareness of the content of the ICT Roadmap 	<ol style="list-style-type: none"> 1. Promoting 1-GOV.net 2. Partnership with media houses and engaging staff via social media and chat forum groups through the Government Contact Centre. 3. Digital Advocacy for social development 	<ol style="list-style-type: none"> 1. on-going 2. Immediate <p style="text-align: right;">12 months</p>

Strategic Pillar	Resources	Collaborating Entities	KPI with M&E mechanisms	Barriers, Risk Analysis: Mitigation	Other recommendations
Crosscutting Issues	<ol style="list-style-type: none"> 1. Budgetary provision 2. Leveraging existing initiatives, multi-lateral Funding, ICT Professionals 3. PPP 	<ol style="list-style-type: none"> 1. MDAs 2. Private Sector 3. Civil Society Organisations 4. Development partners 	<ol style="list-style-type: none"> 1. Number of entrepreneurs 2. Number of contribution to GDP 3. Number of applications for IP registration for ICT innovations 4. Number of start-ups and jobs created through ICT innovation centres 	<ol style="list-style-type: none"> 1. Lack of requisite skills and awareness to identify, interdict and leverage Disruptive Innovation: Specialised capacity building 2. Lack of Trust: Cultural re-orientation and enforcement of intellectual property regime 3. Funding of Innovation Ecosystems: PPP, Private Sector 4. Efficiency of the patent registration process: Automation of the patent process 5. Resistance to Change: Change Management 	
Crosscutting Issues	<ol style="list-style-type: none"> 1. Budgetary allocation 2. PPP 3. Private Sector 	<ol style="list-style-type: none"> 1. MDAs 2. Private Sector 3. Civil Society Organisations 4. Development partners Media 	<ol style="list-style-type: none"> 1. Increased digital literacy 2. Increased awareness 	<ol style="list-style-type: none"> 1. Resistance to Change: Appropriate Messaging and Engagement 2. Infrastructure limitation: Alternative Energy and messaging frequency 	

Appendix IV: Analysis of Post Retreat Committee Reports

Observations Recommendations & Proposed Actions relating to the Terms of Reference.

Committee Name: Funding		
Task:	To Come Up with Projects, Proposals/ Options for Funding & Identify Obstacles to Successful Implementation.	
<u>TOR</u>	<u>Observations</u>	<u>Recommendations</u>
Identify Projects for Sector Development amenable to PPP	See Recommendations	Govt should consider the Development & Management of ICT industrial parks and modern efficient, effective & well maintained Data Centre infrastructure. Additional benefits include employment and revenue generation
Propose models for funding of PPP projects	See Recommendations	Less stringent conditions should be attached to models for capital contributions to funding/financing PPPs mechanisms including equity, debt, guarantees, LCs, inter creditor agreements, bonds and capital markets.
Identify policies that hinder smooth implementation of PPP Projects and make recommendations	See Recommendations	<ol style="list-style-type: none"> 1. Government Spending & Fiscal Policies discourage investors - increased spending, tax increases, interest rate raises. 2. Political Risk from instability, such as change in government. 3. Poor and inefficient regulations - need to reduce time to obtain licenses and permits for PPP projects.
Propose Strategies to Enhance & Sustain PPP	See Recommendations	<ol style="list-style-type: none"> 1. Proper & Adequate preparations. 2. Create shared vision among partners 3. Understanding your partners & key players 4. Be clear on risks & rewards for all parties, 5. establish a clear & rational decision-making process. 6. ensure that all parties do their homework, 7. secure consistent & coordinated leadership 8. communicate often and early, 9. negotiate a fair deal structure. 10. build trust as a core value. <p>"Government should adopt strategies to make PPP partners understand risks and rewards in the context of investing in Nigeria.</p>

Identify other sources of Funding	See Recommendations	<ol style="list-style-type: none"> 1. Encourage Peer-to-Peer Lending networks. 2. Seller Financing
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Committee Name:	Policies & Programmes Committee	
Task:	Examine Factors Inhibiting Successful Implementation of Policies and Propose Appropriate Steps to Ensure Achievement of Decisions Reached at 2016 Maiden FMoC Retreat	
<u>TOR</u>	<u>Observations</u>	<u>Recommendations</u>
Identify factors inhibiting the implement of the ICT policy & proffer solutions.	<ol style="list-style-type: none"> 1. Policies & programmes lack clarity and are poorly communicated. 2. Inadequate Funding by Government 3. Poor Implementation Strategy. 4. Lack of Clear ICT policy & Master Plan 5. Lack of Defined & dedicated Leadership 6. Lack of capacity 7. Lack of infrastructure & Access to ICT Resources 8. poorly designed and obsolete legal and regulatory framework 9. Negative attitudes, beliefs and behaviour toward ICT solutions 	Constant Stakeholder Engagement to articulate Government's Plans in ICT at all times

<p>Identify Major Policy issues and Programmes to be Formulated in order to achieve decisions reached at 2016 retreat</p>	<ol style="list-style-type: none"> 1. Pass all ICT related Bills pending in NA, including E-Government Master Plan. 2. Engage Professions to optimise revenue and analyse revenue generating agencies for higher productivity and profitability. 3. 10 Year ICT Strategic Plan with Annual retreats to monitor and review policies, projects & Programmes. 4. Ensure inter-institutional coordination in implementing policies and that they are professionally staffed 5. Tax breaks to incentivise IT businesses. 6. Local Content to drive domestication. 7. Make Project Management Core skill for ICT competence at Private and public sector. 8. Big Data Policy and infrastructure 9. STEM subjects promoted inK-12 education, and STEM R&D. 10. Protect Nigerian IP with WIPO for apps etc. 	<p>..</p>
<p>Propose strategies for measuring implementation of policies and programmes address</p>	<ol style="list-style-type: none"> 1. Use Balanced Score Card to measure impact. 2. implement Project Management Approach to implementing all Policies & Programmes. 3. Create online citizen’s feedback mechanism/ mobile apps 4. set Targets & agenda for completion, reporting and timeline mechanisms. 5. Develop Implementation Action Plan and adhere diligently to it. 	<ol style="list-style-type: none"> 1. Departments & Agencies of Ministry be given specific targets, clear methodology & goals and timelines. 2. Ministry to institute Constant & coordinated M&E on implementation of policies and programmes (see also "Balanced Scorecard")

<p>Propose strategies for addressing any gaps that arise from measuring implementation of policies</p>	<ol style="list-style-type: none"> 1. Capacity Building - Upgrade Project Management Skills of officials. 2. Develop and maintain Citizen Feedback and Reportage Mobile Applications 	<ol style="list-style-type: none"> 1. PPPs for Projects 2. Collaboration with local and International Development Agencies for FDI & technical support.
<p>Advice on any other relevant matter Committee may deem necessary to be included</p>	<ol style="list-style-type: none"> 1. Power - use renewable energy solutions for ICT hardware. 2. Road infrastructure Construction design to include -requirement for communication ducts and manholes for Broadband deployment. 3. Rural Access Information Link (RAIL) - broadband & telephony access using Local government, NIPOST & NigComSat. 4. Farms Internet Hotspot Services (FISH) - NigComSat solution to bring Broadband into Farm settlements. 5. Security - Develop National Ethical Hackers to counter global cyber-attacks. 6. IP based surveillance to monitor road environment. 7. Reposition NIPOST as strategic logistics and Real Estate Management organization, leveraging wide network and officers. 	<ol style="list-style-type: none"> 1. Capacity building for officials to keep pace with technology. 2. National Broadband Policy implementation & National Integrated Infrastructure Master Plan should be priorities. 3. Priority be given to Renewable Energy Solutions.
<ol style="list-style-type: none"> 1. Encourage Peer-to-Peer Lending networks. 2. Seller Financing 	<p>..</p>	<p>..</p>

Committee Name:	Local Content Committee	
Task:	Propose Framework & Strategies to Stimulate Local Content Growth.	
<u>TOR</u>	<u>Observations</u>	<u>Recommendations</u>
What Legislative & Regulative Framework is required to create & distribute IT in Nigeria.	Over regulation as present in current Guidelines on Local Content may unintentionally stifle rather than nurture. Compulsory registration, even if free is symptomatic of a larger problem of government interference "in a Sector that evolved outside the context of Government. "	Government should streamline and limit its role of providing an enabling institutional and infrastructural environment for local development of technologies. Guidelines should be amended to reflect this. NITDA should streamline the process of documenting local industry players.
How to implement ICT Local Content Guidelines in a manner consistent with WTO Agreement	Nigeria derived technology solutions need not be globally competitive right away. Primary objective is for local content to address local needs and challenges. Satisfying the idiosyncrasies of a market for 150 million people is a challenge in itself.	Implement ICT Local Content Guidelines in line with WTO to avoid conflict of interest and potential disputes with other Nations. Nigerians should be the primary end consumers for Local content.
How to develop Nigerian Human Capital that is globally competitive	"Without adequate capacity building, even well designed policies and the most sophisticated technologies would not be able to achieve the desired results"	<ol style="list-style-type: none"> 1. Continuous re-training and skills acquisition. 2. ICT to be integral to the education curriculum from K-through-12
What strategies will stimulate local innovation and patronage of locally produced ICT products	R&D and effective utilisation of research institutions backed by appropriate legislation, investment and adequate budgeting are key critical success factors.	<ol style="list-style-type: none"> 1. legislation and proper enabling market environment. 2. proper incubation of products/services before going to market to ensure competitiveness with foreign products/services. 3. Emphasis on public and private Sector R&D. R&D promotion through tax and other incentives and government sponsorship.

<p>How technology transfer with active participation of local manufacturers can promote Sector growth</p>	<p>Local Content in technology must be situated in its cultural and ideological context. Technology transfer is not a sustainable path to technological development, unless it incorporates the "intangible element of ideology" it may not be acceptable to Nigerian people.</p>	<p>Examine what elements of Nigerian culture can be incorporated into the development or domestication of technology to address local needs and challenges (government in partnership with others could study the cultural aspects of technology and adaption in Nigeria).</p>
<p>What incentives do Manufacturers require to patronise local content</p>	<p>NCC licensing regime favours investors with access to large (usually international) capital putting local and regional Nigerian providers at a disadvantage: (a) relatively high cost of licences + (b) high cost of borrowing leaves no money for roll-out. (c) indigenous regional operators are not allowed to roam into other regions as is allowed in other countries. The irony being that while Nigerian GSM operators can roam in other countries, regional operators cannot roam within Nigeria. (d) "Rat race" to acquire Unified Licence at high cost leaves no money left for operations. CDMA is still viable - and widely used by 2 of the largest networks in U. S. A.</p>	<ol style="list-style-type: none"> 1. Create environment for local manufacturers & service providers to thrive. 2. Government should set up and support incubation hubs 3. Strengthen Office of ICT Innovations & Entrepreneurship (Disruptive Innovation). 4. Pricing for local goods/services be made affordable and competitive. 5. Local products must be qualitatively competitive with foreign. 6. Nigerians must change negative perception of Made in Nigeria. 7. Indigenous regional operators should be allowed to roam into other regions in Nigeria. (Specifically: Promote development oriented licensing regime to create avenues for regional operators to roam and keep revenues. Put in place targeted protections for indigenous investors operating at lower levels of ICT businesses such as ISPs, International Clearing Houses, International Gateway for call termination etc. Greater enforcement of anti-competitive and predatory pricing and other practices by international operators, including non-sharing of resources, delay in making payments to small operators, deliberate de-marketing.

Other recommendations that can promote local content	Greater attention needs to be paid to National Security and National Interest issues in formulating policy and promoting patronage. Examples of failure include the Rural Telephony project implemented by the Ministry. Project was poorly designed with no provision for interconnection and adequate interface of all operators with interconnect clearing house. selection of buyers based on other than technical and commercial criteria. Police Network	Government to promote policy of USE Nigerian Resources 1st - Starting with satellite - Legislation and Enforcement tools should be applied to encourage service operators to use local satellite and all government agencies to use NigComSat for satellite communications.
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Committee Name: Infrastructure Committee		
Task: To Come Up with Guidelines and Strategies for infrastructure development to support Sector growth		
<u>TOR</u>	<u>Observations</u>	<u>Recommendations</u>
Propose Guidelines and Standard with Respect to all Issues Concerning ICT Infrastructure	See Recommendations	<ol style="list-style-type: none"> 1. Government to issue policy supporting deployment of infrastructure that meets international standards. 2. Government requires all MDA's to procure Bandwidth requirement for government to government Services from NigComSat for E-government Master Plan Implementation. 3 A Law for the protection and proper laying of cables & Optic fibre against vandalism and damage, and 4. Legal & regulatory with requirement for planned physical infrastructure such as electricity, roads and rail to incorporate cables and fibre upgrades into their projects. 5. Survey of installations of base stations and antenna masts to discourage proliferation in cities.

Propose Strategies that will Enhance Implementation of ICT infrastructure Development	See Recommendations	<ol style="list-style-type: none"> 1. Fast Track National Broadband Plan 2013 by issuing licenses to build fibre optic in and between cities. 2. Complete digital dividend Spectrum Migration for wireless Broadband Infrastructure Upgrade. 3. Adopt utilization of Satellite Infrastructure for Universal Access goal in LGA's 4. Passage of Critical infrastructure Bill 5. Expand access to CBN infrastructure Fund to ICT Infrastructure Projects 6. With NERC promote Regulations Requiring Future Transmission lines to be include overhead Fibre optic cable. 7. Fast track Nigeria Satellite Augmentation System through ground infrastructure - exploiting NIGCOMSAT-IR navigation for National Information Infrastructure monitoring.
Propose Measures for Government towards Creating an Enabling Environment that will Sustain Development of ICT infrastructures in Nigeria	See Recommendations	<ol style="list-style-type: none"> 1. Provide incubation Platforms for innovations that enhance IT infrastructure. 2. Harmonise ROW fees across Fed, State & Local Govt - instalment payment options. 3. Guidelines for engaging in international agreements. 4. Future rail and road corridors to build with ducts/corridors for Optic deployment with GIS. 5. Elimination of multiple taxation.
Propose Strategies for buy-in and implementation of Smart State initiatives by all States of the Federation	See Recommendations	<ol style="list-style-type: none"> 1. Create institution to address multiple taxation & ROW fees. 2. create incentives to accommodate investments in IT infrastructure 3. Implement Continued Intervention services in unserved and underserved areas using USPF and other funds such as TETFUND 4. National Council on Communication Technology to sensitize all State Governments on Federal agenda for SMART State Policy.

Propose Strategies that will Encourage the Use of Renewable energy for powering Base Transceiver Stations and other ICT Infrastructure.	See Recommendations	<ol style="list-style-type: none"> 1. Adoption of small hydro 2. encourage energy efficient ICT infrastructure, 3. encourage SMART technologies in production and logistics 4. Policies and incentives that move servers and desktop storage to Cloud.
Identify Opportunities of Partnership with ICT Infrastructure Developing Partners	See Recommendations	<ol style="list-style-type: none"> 1. Exploit Membership of Africa Technology Regulatory Assembly to promote FDI. 2. Government to come up with policies encouraging PPP in provision of ICTI Infrastructure 3. Data and Data Warehousing management opportunity.
Identify Barriers to ICT Infrastructure Development and Militating and Proffer Practical Solutions.	See Recommendations	Enforce FMW ROW Guidelines, introduce instalment payment of ROW, Promote PPS.
Make further recommendations on any matter pertaining to ICT Infrastructure Development.	See Recommendations	Strengthen & Empower infrastructure Deployment Office. Set up monitoring team for Infracos. Facilitate advantage of West Africa Technology Regulation Assembly to maximise input equipment, manufacturers and vendors. More robust synergy between Ministry of Communications and Agencies it superintendents - to achieve mandate of "universal, ubiquitous and cost effective access to communications infrastructure.

Committee Name: Legislative Action Committee.		
Task:		
<u>TOR</u>	<u>Observations</u>	<u>Recommendations</u>
Identify existing policies and Laws bordering on ICT and gaps that militate against effective compliance.	See Recommendations	Put in place National ICT framework Bill coordinating all other significant functionality of ICT Ecosystem. Enact digital Privacy and Protection of citizens and mandatory access to IT education and access.

Identify and recommend policies that promote an enabling environment for investment, fair competition and inclusive innovation in the ICT Sector	See Recommendations	Recognise e-commerce/transaction legal and regulatory regime for electronic records, framework for Cyber regulations, obsolete laws to be reviewed Principle of NEITI to guide foreign investment promotion including making Nigeria a hub for software industry and investment flows
Advise on measures to be adopted in ensuring alignment & synergy between all implementing agencies of ICT laws and Policies	See Recommendations	Upgrade IP laws to protect Nigerian Knowledge Content & ICT-based IP rights
Advise on strategies for appropriate legislative frameworks to ensure reliable service delivery and infrastructure	See Recommendations	Separation of policy-making from regulatory functions and be vested in separate bodies.
Propose legations to encourage capacity building and ICT local content	See Recommendations	Legislation recognising e-commerce and e-communication, storage and filing, including Government agencies. Software industry growth positively affects improved public service delivery Propose IT equivalent of NNPC's Nigerian Content Division requiring patronage of Nigerian services such as banking
Propose effective regulatory and policy frameworks to promote synergy and mutual cooperation among service providers.	See Recommendations	Law to establish a Local Content Support Fund devoted to tertiary institutions in specific areas of IT and research into IT as tool for socio-economic inclusion and growth.

	See Recommendations	<ol style="list-style-type: none"> 1. Establishment of a Digital Literacy Council 2. Accelerated ICT Capacity Building Programme to Bridge the Gaps in the Nigerian Public Service in order to Improve Productivity 3. Institute a competitive process to Identify, incentivize and promote a minimum of 20 indigenous and globally competitive ICT-enabled innovations annually 4. Creation of a Database of ICT Professionals in the Diaspora with a view to harnessing their skills in the Nigerian ICT Sector 5. Monitor implementation of local content guidelines
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Committee Name: Capacity Building Committee		
Task:		
<u>TOR</u>	<u>Observations</u>	<u>Recommendations</u>
To identify key/priority areas requiring capacity building	See Recommendations	Areas of relative importance and urgency are: Computer Skills, digital literacy & Web design
Propose strategies to be adopted in the areas of capacity building and propose modalities to encourage technical assistance from experts	See Recommendations	Entrench ICT in national curriculum for lifelong learning for children & adults nationwide - National digital literacy programme. Reduce cost of PC/device ownership. Protect ICT infrastructure
Promote exchange of views, experiences and best practices at national and international level	See Recommendations	Engage stakeholders to review and develop curricula, & partner with "multi-nationals" to increase supply of local highly skilled talent
Promote research and development in capacity building	See Recommendations	Establish IT academy & ICT innovation hub clusters around the country.

<p>Create awareness to enhance communication and partnership with donors and other stakeholders toward enhancing building capacity building in identified areas</p>	<p>See Recommendations</p>	<p>Competition in schools, Create ICT Scholarship Scheme, Establish ICC innovation fund</p>
<p>Advise on any other matter</p>	<p>See Recommendations</p>	<p>Government Policies to be aligned with drive to become a Knowledge-based economy. Improve Government Funding for capacity building schemes. E-government Plan execution</p>

Appendix V: **Index of Initiatives**

S/n	Description of Initiative	Owner	Outcomes (Priority 1 High, 2 - Medium, 3 - Low)		
			Job/ Wealth Creation	Government Revenue Generation	Capacity Building
1	Accelerate access to ICT education for persons with special needs	NITDA, NIPOST	2	3	1
2	Accelerated Implementation of e-Government Master Plan	FMoC-e-Government, NITDA	3	2	1
3	Active participation in the ICT partner ecosystem.	FMoC-PRS	1	3	2
4	Align institutional arrangements for Sector viability, growth and National coverage.	FMoC-PRS	1	3	2
5	Establish technological parks.	NITDA, NIPOST	1	3	2
6	Commencement of Sustainable broadcast of high quality audio and video content using the DTH platform	NigComSat	2	1	3
7	Complete the National Emergency Contact Centre	NCC	1	3	2
8	Completion of the National Shared Services Centre (NSSC)	GBB	2	1	3
9	Consolidation of Access projects in all MDAs and the private Sector.	FMoC-ICT, MDAs	2	1	3
10	Content Repository, storage and IT Security Infrastructure & Cloud.	GBB	1	2	3
11	Creation of a consolidated Database of ICT Professionals at home and abroad	NITDA	2	3	1
12	Develop and implement Cloud service provider's accreditation mechanism	GBB	3	1	2
13	Develop Information Security standards and guidelines.	ONSA, NITDA	2	3	1
14	Develop job centre in partnership with SMEDAN & NDE for people to get access to available jobs	NITDA	1	3	2
15	Developing the information security value Chain.	ONSA, NITDA	2	3	1
16	Development of an ICT based National Dashboard for Project Monitoring and Tracking	GBB	2	3	1
17	Development of project management capacity within FMoC	FMoC-PRS	3	2	1
18	Digital Advocacy for social development.	GBB	3	2	1

19	e-government initiatives especially health and education delivered via access centres.	NigComSat, NITDA, NIPOST	3	2	1
20	Ensure open access to GIS data.	FMoC-eGovernment	2	1	3
21	Establish an information security partnerships framework.	ONSA, NITDA	2	3	1
22	Establishment of Information Resource Management system to reduce corruption	GBB	2	1	3
23	Establishment of Regional Backbone hubs	GBB	1	2	3
24	Executing NigComSat Ka Band (NigKaNet) initiative.	NigComSat	2	1	3
25	Expand and improve existing outsourcing initiatives	NITDA	1	3	2
26	Facilitate an incubation support system	NITDA	1	3	2
27	Implement an incident readiness and Response Partner Ecosystem framework.	NITDA	2	3	1
28	Implement the harmonisation of the disparate National Database	FMoC-ICT, GBB	2	1	3
29	Implement viable incubation centres	NITDA	1	3	2
30	Implementation of common access framework including National Shared Services Centre	GBB	2	1	3
31	Increase Rural Access Coverage by 40%.	NigComSat, NITDA, NIPOST, NCC	1	3	2
32	Information Security public awareness campaign.	ONSA, NITDA, NCC	2	3	1
33	National Open Data initiatives	FMoC-PRS, NITDA	1	3	2
34	Optimize Nigerian content in the ICT hardware, software and ICT enabled services.	NITDA	2	1	3
35	Partnership with media houses and engaging staff via social media and chat forum groups through the Government Contact Centre.	GBB	1	3	2
36	Pilot incubation for information security organizations.	NITDA	1	3	2
37	Promote awareness of the content of the ICT Roadmap and ICT supported initiatives in all Sectors.	FMoC-PRS, MDAs	2	3	1
38	Promote knowledge transfer and develop an ICT literate nation.	NITDA, NCC	2	3	1

39	Promote open Research, Development and Innovation (RDI).	NITDA	2	3	1
40	Providing Free Wi-Fi Hotspots in designated areas across the country.	NigComSat, NIPOST	1	3	2
41	Reform NIPOST leveraging its assets and its national reach	NIPOST	1	3	2
42	Review and Revamp National BB plan.	FMoC-TPS, NCC	1	2	3
43	Review and update of ICT4D Plan in key Sectors of the economy	NITDA	2	3	1
44	Review of USPF services and realignment to target rural, unserved and underserved areas	NCC, NIPOST	1	3	2
45	Rural kiosk where farmers can give and get access to data	NITDA, NIPOST	2	1	3
46	Sectorial Computer Emergency Response teams (CERTs) and a PPP-based Cybersecurity Academy.	ONSA, NITDA	2	3	1
47	Smart States Broadband Initiatives	GBB, NITDA, NCC	3	1	2
48	Technology convergence & spectrum management.	FMoC-SMD	2	1	3
49	Two innovation hubs per geopolitical zone	NITDA	1	3	2
50	Update and adopt the National ICT policy.	FMoC-PRS, MDAs	1	2	3
51	Upgrade Digital Bridge Institute (DBI) into a specialized multi-campus ICT university	NITDA, NCC	2	3	1

Appendix VI: Initiative Clusters

The Nigeria ICT Roadmap 2017-2020 articulates 51 interlinked multi-stakeholder driven initiatives, of which 20 are primarily geared towards Job/ Wealth Creation, 18 Capacity Building and 13 have a primary focus on Government Revenue Generation. These initiatives are government and economy-wide in scope but anchored by departments and agencies under the Federal Ministry of Communications (FMoC).

Initiatives whose primary focus is Job/ Wealth Creation		
S/n	Description of Initiative	Owner
1	Active participation in the ICT partner ecosystem.	FMoC-PRS
2	Align institutional arrangements for Sector viability, growth and National coverage.	FMoC-PRS
3	Complete the National Emergency Contact Centre	NCC
4	Content Repository, storage and IT Security Infrastructure & Cloud.	GBB
5	Develop job centre in partnership with SMEDAN & NDE for people to get access to available jobs	NITDA
6	Establish technological parks.	NITDA, NIPOST
7	Establishment of Regional Backbone hubs	GBB
8	Expand and improve existing outsourcing initiatives	NITDA
9	Facilitate an incubation support system	NITDA
10	Implement viable incubation centres	NITDA
11	Increase Rural Access Coverage by 40%.	NigComSat, NITDA, NIPOST, NCC
12	National Open Data initiatives	FMoC-PRS, NITDA
13	Partnership with media houses and engaging staff via social media and chat forum groups through the Government Contact Centre.	GBB
14	Pilot incubation for information security organizations.	NITDA
15	Providing Free Wi-Fi Hotspots in designated areas across the country.	NigComSat, NIPOST
16	Reform NIPOST leveraging its assets and its national reach	NIPOST
17	Review and Revamp National BB plan.	FMoC-TPS, NCC
18	Review of USPF services and realignment to target rural, unserved and underserved areas	NCC, NIPOST
19	Two innovation hubs per geopolitical zone	NITDA
20	Update and adopt the National ICT policy.	FMoC-PRS, MDAs

Initiatives whose primary focus is Government Revenue Generation		
S/n	Description of Initiative	Owner
1	Commencement of Sustainable broadcast of high quality audio and video content using the DTH platform	NigComSat
2	Completion of the National Shared Services Centre (NSSC)	GBB
3	Consolidation of Access projects in all MDAs and the private sector.	FMoC-ICT, MDAs
4	Develop and implement Cloud service provider's accreditation mechanism	GBB
5	Ensure open access to GIS data.	FMoC-eGovernment
6	Establishment of Information Resource Management system to reduce corruption	GBB
7	Executing NigComSat Ka Band (NigKaNet) initiative.	NigComSat
8	Implement the harmonisation of the disparate National Database	FMoC-ICT, GBB
9	Implementation of common access framework including National Shared Services Centre	GBB
10	Optimize Nigerian content in the ICT hardware, software and ICT enabled services.	NITDA
11	Rural kiosk where farmers can give and get access to data	NITDA, NIPOST
12	Smart States Broadband Initiatives	GBB, NITDA, NCC
13	Technology convergence & spectrum management.	FMoC-SMD
Initiatives whose primary focus is Capacity Building		
S/n	Description of Initiative	Owner
1	Accelerate access to ICT education for persons with special needs	NITDA, NIPOST
2	Accelerated Implementation of e-Government Master Plan	FMoC-e-Government, NITDA
3	Creation of a consolidated Database of ICT Professionals at home and abroad	NITDA
4	Develop Information Security standards and guidelines.	ONSA, NITDA
5	Developing the information security value Chain.	ONSA, NITDA
6	Development of an ICT based National Dashboard for Project Monitoring and Tracking	GBB
7	Development of project management capacity within FMoC	FMoC-PRS
8	Digital Advocacy for social development.	GBB
9	e-government initiatives especially health and education delivered via access centres.	NigComSat, NITDA, NIPOST
10	Establish an information security partnerships framework.	ONSA, NITDA
11	Implement an incident readiness and Response Partner Ecosystem framework.	NITDA
12	Information Security public awareness campaign.	ONSA, NITDA, NCC
13	Promote awareness of the content of the ICT Roadmap and ICT supported initiatives in all sectors.	FMoC-PRS, MDAs
14	Promote knowledge transfer and develop an ICT literate nation.	NITDA, NCC
15	Promote open Research, Development and Innovation (RDI).	NITDA
16	Review and update of ICT4D Plan in key sectors of the economy	NITDA
17	Sectorial Computer Emergency Response teams (CERTs) and a PPP-based Cybersecurity Academy.	ONSA, NITDA
18	Upgrade Digital Bridge Institute (DBI) into a specialized multi-campus ICT university	NITDA, NCC

Appendix VII: **Project Status Templates**

Baseline and Project Activity Deliverable Targets																		
MONITORING MDA:																		
Strategic Pillars	Description	Project/ Activity	Project Description	Responsibility	Key Deliverables (KD %) (Activity Implementation Period)										Support Needed to Meet Goal	Current Baseline	Actual Target	KPIs
					Quarter 1	rate (%)	Pillar	Quarter 2	rate (%)	Quarter 3	rate (%)	Quarter 4	rate (%)					
Governance	Projects that address the overarching goal of nurturing a vibrant, citizen engaged ICT sector permeating all sectors of the economy in all parts of Nigeria. For instance e-government services which include: Government (G2G) services, Government-to-Business(G2B) and Government -to-Citizens (G2C).	Project Title 1			Milestone 1 for Project Title 1	35	Pillar 1	Milestone 2 for Project Title 1	20	Milestone 3 for Project Title 1	40	Milestone 4 for Project Title 1	5					
		Project Title 2			Milestone 1 for Project Title 2	25		Milestone 2 for Project Title 2	25	Milestone 3 for Project Title 2	10	Milestone 5 for Project Title 2	15					
Legal Policy and Regulatory Framework	For projects that presume policy consistency and a predictable forward-looking legal and regulatory regime promoting competition in the industry to advance the national and consumer interests.	Project Title i			Milestone 1 for Project Title i	10		Milestone 4 for Project Title i	20	Milestone 7 for Project Title i	30							
					Milestone 2 for Project Title i	15		Milestone 5 for Project Title i	10									
					Milestone 3 for Project Title i	5		Milestone 6 for Project Title i	10									
Industry and Infrastructure	For projects that provide world class infrastructure and communications facilities for building a competitive ICT Industry. These projects have an overarching goal of provision of cost effective ubiquitous access to ICT for overall national development.	Project Title A						Pillar 2										
		Project Title B																
		Project Title B																
Capacity Building	Capacity building projects for development of a smart globally competitive workforce and digitally literate population.	Project Title A					Pillar 3											
		Project Title B																
Cross-cutting Issues:	This relates to ICT projects that cut across any of the above four pillars of the Roadmap or projects that are part of the ecosystem but are not clearly associated with the four pillars	Project Title A							Pillar 4									
		Project Title B																

Comments: Each project is categorized into different milestones and each milestone is rated in percentages. The sum of all the milestone ratings for a given project in a year is 100%.

For example: Project Title 1 under Governance Strategic Pillar is rated as follows: 35% + 20% + 40% + 5% = 100%. Same summation applies for Project Title 2 and others.

QUARTERLY ACTION PLAN (PROJECT) PERFORMANCE MONITORING							
MDA		xxx		PERIOD: xxx			
S/n	Projects	Key Deliverables (KD)	%	Has This Key Deliverable Been Met?		Reasons for Non Completion	Remarks
				Yes	No		
1		Milestone 1 for Project Title 1	35%	20%			
		Total	35%				
2		Milestone 1 for Project Title 2	25%	25%			
		Total	25%				
3		Milestone 1 for Project Title i	10%	20%			
		Milestone 2 for Project Title i	15%	20%			
		Milestone 3 for Project Title i	5%	20%			
		Total	30%				
4							
		Total					

Comment: The template is used to collate data for monitoring projects on quarterly basis. The achieved results for each milestone is recorded (##) in percentages.

Appendix VIII: Principles of Partnership

Background

1. The implementation of this ICT Roadmap and full realisation of its lofty objectives require some critical success factors. In addition to political will, these critical success factors include adequate funding, discipline for implementation, efficiency and quality of services, sustainability and requisite skills, amongst others.
2. In the face of dwindling government resources at all levels and competing needs, paucity of funds has been identified as a major constraint in the implementation of past efforts to develop and grow the ICT Sector, particularly with regards to infrastructure. It is gratifying to note that the huge deficit in infrastructure that has been hindering national development is not limited to the ICT Sector; it is a recurring decimal in virtually all Sectors in the country.
3. This realisation informed the establishments of the Infrastructure Concession Regulatory Commission (ICRC) in 2005 vide ICRC Act, 2005. It was however not until November, 2008 that the ICRC Board was inaugurated. The Act provides, among others, for the participation of private Sector in financing the construction, development, operation, or maintenance of infrastructure or development projects of the Federal Government through concession or contractual arrangements.
4. In fulfilment of its mandate, ICRC developed the National Policy on Public Private Partnership and this was approved in April, 2009 by the Federal Executive Council. The policy is applicable to all the Federal Government agencies and also sets the templates for other tiers of government in the country.

Key Principles of PPP

5. The National Policy on PPP sets out some key principles to determine whether PPP is an appropriate procurement option for public infrastructure and government services. These principles are highlighted below:
 - a. **Value for Money:** This is a key consideration that ensures that the private Sector will deliver value for money at costs that are affordable to both government and users (citizenry).
 - b. **Public interest:** Public authorities should ensure adequate consultation with the end-users and other stakeholders and the private Sector service providers should be mindful of the consequences of their actions for the impacted communities and work together to avoid or mitigate unacceptable outcomes.
 - c. **Risk Allocation:** This requires that risks are allocated to the party best able to manage them. The allocation of risk will therefore determine the chosen method of private Sector involvement and allocation of responsibilities,
 - d. **Output Requirements:** The contractual agreement between the public authority and the private contractor will be specified in terms of verifiable service standards to be provided on the basis of output or performance-based specifications.
 - e. **Transparency:** Transparency and openness are key requirements of all government procurement, particularly with respect to PPP projects. Fiscal discipline, procedural fairness, non-discrimination and observance of agreed principles and standards of responsible business conduct are some of the elements of this principle.
 - f. **Competition:** The benefits of private Sector participation in infrastructure are increased by effective competition and by ensuring that business activities are subject to appropriate commercial pressures, dismantling unnecessary barriers to entry, and implementing and enforcing adequate competition Laws.

- g. **Capacity to deliver:** Authorities responsible for privately operated infrastructure must have the capacity to manage the commercial processes involved and to partner on an equal basis with their private Sector counterparts. Training will be provided to transfer relevant skills and understanding to those involved in projects, including decision makers, as part of PPP projects deliverables.
- h. **Engaging with the market:** Projects to be procured within this policy must have the formal approval of the Federal Executive Council before the involvement of the private Sector. Public authorities will communicate clearly the objectives of infrastructure policies and will put in place mechanisms for consultation between the public and private partners regarding these objectives.

PPP Process

6. In addition to these principles, the National Policy on PPP, itemises the PPP process to include
 - a. **Project development,** which includes identification of need; a systematic appraisal of technical solutions to the identified need; and preparation of economic, social and environmental cost benefit analysis, and approval of Outline Business Case (OBC) prior to the commencement of procurement.
 - b. **Procurement,** including creation of a project team and management structure; preparation of an Information Memorandum and bid documentation; a competitive and transparent procurement process, with a clear audit trail for the selection of bidders and the evaluation of bids; and approval of Full Business Case (FBC) before the decision to award a contract.
 - c. **Implementation.** This encompasses monitoring of design and construction, and subsequently operation and maintenance to ensure compliance with the required service standards; monitoring of payments against services delivered and any contingent liabilities.
 - d. **Maturity.** At completion, there should be inspection and preparation for the handover of any public assets in accordance with the specified requirements, if appropriate; analysis of future service delivery options and further procurement, if appropriate; and contract close and recording of lessons learned.

Challenges of PPP in ICT Sector

7. The potential for PPP in ICT Sector is enormous. However, there are some challenges that are peculiar to the Sector and need to be addressed if PPP will deliver the expected benefits. Some of these challenges are:
 - a. **Low understanding of the Dynamics of Funding ICT** initiatives by Financial Institutions, leading to low interest in funding ICT Sector projects and availability of loan facilities to ICT private Sector operators
 - b. **Weak Intellectual Property Protection** in the Country, hampering growth in such sub Sector area as software development
 - c. **Low PPP Capacity** in the Sector, to package ICT project as “bankable” and make them attractive for PPP
 - d. **Stronger focus and higher priority on physical infrastructure,** thus depriving ICT Sector of PPP enabled funding
 - e. **Social nature of ICT infrastructure and services,** resulting in longer period to recoup investments and lower rates of return in the short term
 - f. **Low Adoption and Utilisation of ICT in Government,** limiting the growth of the Sector and its potentials for big ticket transactions that could be implemented through PPP

- g. **General low literacy and, in particular, digital literacy**, a major constraint for e-government initiatives
- h. **Low patronage / weak local content enforcement in ICT Sector**, discouraging investments by local players

Mitigation

- 8. To mitigate against the challenges, the following measures are proposed;
 - a. Establishment of the National ICT Steering Council as proposed in the ICT Roadmap to provide the required leadership and secure appropriate focus and political will for ICT projects and initiatives,
 - b. Establishment of the Programme Management Office (PMO) to identify and prepare major initiatives in the Roadmap that can be realised through the PPP arrangement. This should be done in conjunction with the Infrastructure Concession Regulatory Commission (ICRC) and the various Team Leads in the Roadmap, and
 - c. A PPP Unit should be set up in the PMO with the necessary PPP capacity and skills to manage the PPP projects and act as liaison with the ICRC and private Sector participants.