A Compendium of 30 Selected Speeches on Developing the Nigerian Digital Economy (Vol.III)

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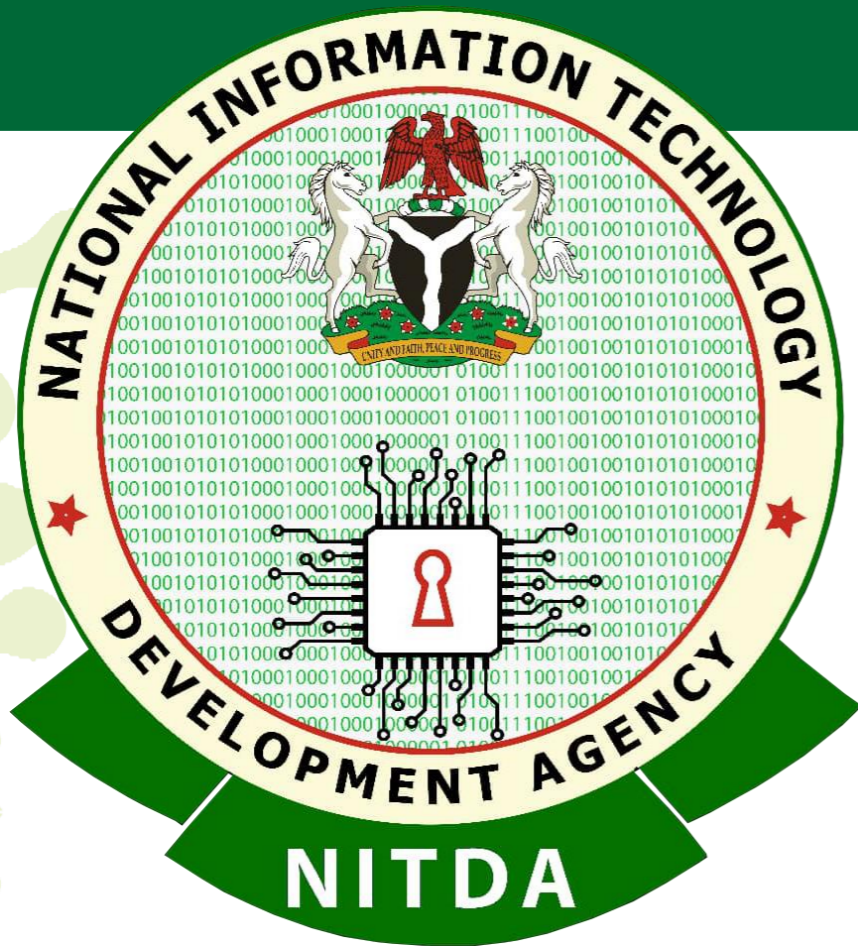**24** PUBLICATIONS **21** CITATIONS

Some of the authors of this publication are also working on these related projects:

Project   NITDA Regulatory Instruments View project

Project   Internet of Things (IoT), Open Government Data View project

NATIONAL INFORMATION TECHNOLOGY DEVELOPMENT AGENCY

SELECTED SPEECHES ON DEVELOPING THE NIGERIAN ICT SECTOR

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NITDA

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KEYNOTE ADDRESS OF

ISA ALI IBRAHIM (PANTAMI), PhD, FNCS, FBCS, FIIM,
DIRECTOR GENERAL/CEO NATIONAL INFORMATION
TECHNOLOGY DEVELOPMENT AGENCY (NITDA)

AT THE
**BUSINESS ROUNDTABLE FOR THE FINANCING AND
SUSTAINABILITY OF THE PROPOSED NATIONAL IT
PARK**

HELD AT
**THE CIVIC CENTER,
VICTORIAL ISLAND, LAGOS,**

**ON
THURSDAY, 10TH JANUARY, 2019.**

[Protocols]

May Peace, Mercy and Blessings be upon you!

It gives me great pleasure and delight to be a lead speaker at the business roundtable stakeholders' discussion bordering on the financing and sustainability of the proposed National ICT Park at the Abuja Technology Village (ATV). This event presents investment and partnership opportunities to venture capitalists, business angels, investment bankers and development partners.

May I use this opportunity to commend the organisers of this event for their commitment towards striving for the establishment of a National ICT Park in Nigeria, this is a giant step in the right direction. A meeting of this nature provides a platform and opportunity for Nigerian ICT and business stakeholders to discuss the prospects for investment in the Nigerian ICT sector, in this case – the National ICT Park.

The continuous evolution in the ICT sector is reshaping the global economic conditions considerably in the world's industrialized nations. This trend is likely going to continue even in the distant future. These developments have led to the structural modification of national and regional economic organization, with growth being influenced by the technological revolution, economic globalization, newer business models and

the emergence of a new productive system. The combination of technologies and economies of scale has emerged as an important trigger for job creation and growth.

During the 1960s and 1970s, and particularly following the global oil crisis, most countries increasingly recognized that innovation was a crucial element of competitiveness in the manufacturing and service sectors. They began to develop technology policies either to stimulate the transfer of public research results to create new products and processes or to enhance private sector efforts to innovate, notably through increased investment in innovation, research and development.

The Nigerian government through Ministry of Communications and her Agencies, has over the years tried to come up with relevant policies that will usher in public programs and procurements in high-technology sectors, incentives to engage in R&D, assistance in patenting, and economic friendly regulation for development.

I must admit that currently there is a near absence and/or lack of mechanical relationship between investment in R&D and innovation; rather most of the achievements recorded in the ecosystem can largely be said to be as a result of commitment and involvement of the private sector and relevant institutions in a common endeavour. It is with this spirit that the proposed

IT Park model needs to be thoroughly discussed with the private sector and all relevant government bodies so that the old narration can be changed to a befitting one. This new approach is also to underscore the fact that innovation is seldom an outcome of the effort of a single company or an institution. As a result, governments recognise the need to direct resources to stimulate the emergence and strengthening of clusters of firms, links with research institutions and universities, and knowledge dissemination. The proposed IT Park is planned to have a particular feature of new policies that will help to establish a citizen-centric and business friendly enabling environment that will spur development of innovation and entrepreneurial clusters for indigenous industrialization.

The IT Park is intended to bring together in one location the components necessary for making innovation happen: the academia; research institutions; and enterprises. However, its success will largely rely on the momentum and a long-term vision to be elaborately put together by those of us here – the private sector and government. I want all of us here to note that, the intangible side (energy, scientific knowledge, social consensus, entrepreneurship) is as important as the material side (infrastructure, technology facilities, R&D investment). This dichotomy was the challenge many IT Park projects faced which led to their failure. We want to avoid this failure, hence the call for this discussion.

For policy makers, parks are usually not to be developed for their own sake but must contribute to the building of learning regime and knowledge-based national economies. Government needs to respond through policy to local and regional demand by systematically embarking on high-technology research. This approach is expected to lead to the springing up of quasi-parks, incubators and start-ups across the country.

Distinguished participants, ladies and gentlemen, you may recall that the National Information Technology Development Agency (NITDA) was established in April 2001 to implement the Nigerian Information Technology Policy and co-ordinate general IT development in the country. It was mandated by the National Information Technology Development Act (2007) to create a framework for the planning, research, development, standardization, application, coordination, monitoring, evaluation and regulation of Information Technology practices, activities and systems in Nigeria.

Its role therefore is to develop Information Technology in the country through regulatory standards, guidelines and policies. Additionally, NITDA is the clearing house for all IT projects and infrastructural development in the country. It is the prime Agency for e-government implementation, Internet governance and General IT development in Nigeria. The Agency has over the years developed many strategies, programmes and initiatives

for the sector.

At NITDA, we are implementing a Roadmap that is aimed at transforming Nigeria into a knowledge-based society. The 7 key pillars of our Roadmap are: IT Regulation; Capacity Building; Digital Inclusion; Digital Job Creation; Government Digital Services Promotion; Local Content Development & promotion; and Cybersecurity.

In an effort to support ICT innovation and entrepreneurship, NITDA created a Special Purpose Vehicle (SPV), the Office for ICT Innovation and Entrepreneurship (OIIE) that is focused on identifying and supporting "techpreneurs" and ICT start-ups in the ICT space. The activities of the OIIE have enabled the ICT start-up innovation ecosystem in Nigeria to grow at a remarkable pace.

Recently, Nigeria has experienced a significant upsurge in vocational IT education that has led to an increase in skilled manpower for the ICT sector. This has become evident in the entrepreneurship drive of our young population and the increasingly significant role technology is playing in their lives. Millions of Nigerian youths are beginning to give-up formal employment to learn hands-on ICT skills like programming and networking, which has positioned them for better opportunities. Meanwhile, for ICT development to thrive in any society there

needs to be a sizeable number of highly skilled techpreneurs and availability of futuristic ICT environment and infrastructure. At NITDA, we are setting up IT Hubs across the country and encouraging entrepreneurship and innovation more than we have done since our independence 56 years ago. Thus, the creation of a National IT Park could mean more facilities for our incubators, start-ups and even accelerators.

At NITDA, there is also an Office for Nigerian Content Development in ICT (ONC), established as part of a sustainable institutional framework to enforce compliance with the Regulatory Guidelines for Nigerian Content Development in ICT under the NITDA Act, 2007. The strategic role of the ONC is to help develop a truly indigenous ICT industry for wealth creation in the local economy through the implementation of the guidelines. This way, we monitor and enforce compliance of local technologies to help and support our entrepreneurs and start-ups in the ICT ecosystem.

NITDA's digitalisation efforts focus on Digital Inclusion, Digital Job Creation, and Government Digital Services Promotion and Development. Digital services can effectively reduce the time spent by businesses on reporting to public authorities because of the possibility to reuse data, transfer business data directly from internal systems and to eliminate manual processes at all levels of the society. Our digitalisation and e-Government efforts

can improve the communication, flexibility and enforcement which businesses experience in their interaction with public authorities when ICT regulation is properly implemented.

The ICT sector is adjudged to be one of the major support sectors needed to promote growth and modernization of other sectors of the economy. ICT breaks distance barriers and, as such, can act in its own right as not just an enabler but, indeed, an effective catalyst to drive socio-economic transformation, growth, development and modernization across all sectors of the economy.

Our goal at NITDA is to develop an indigenous IT industry in our quest to diversify our economy for sustainable national development and the growth of global IT market. We believe with partnership and collaboration, this can be achieved significantly.

With many small businesses growing bigger every year via incubators, it is clear that technology parks are more than just commercial neighbourhoods. They can offer small companies resources beyond their ability to finance by themselves. Hence, touching lives, steering professionalism and boosting economic competitiveness. The success story of a well-financed and sustained National IT Park will support in the development of our economy.

In conclusion, I wish to once again thank you for accepting to partner with us in this laudable initiative, and I wish you a very fruitful session and deliberations.

Thank you all for your kind attention.

KEYNOTE ADDRESS BY

ISA ALI IBRAHIM (PANTAMI), PhD, FNCS, FBCS, FIIM,
THE DIRECTOR GENERAL/CEO, NATIONAL
INFORMATION TECHNOLOGY DEVELOPMENT AGENCY
(NITDA)

AT THE
**FIRST NATIONAL CONFERENCE ON SUSTAINABLE
SPECIAL EDUCATION IN NIGERIA**

HELD AT
**THE UNIVERSITY AUDITORIUM,
UNIVERSITY OF ILORIN,**

ON
TUESDAY, 29TH JANUARY, 2019.

[Protocols].

May Peace, Mercy and Blessings be upon you!

It gives me great pleasure and delight to be part of this important gathering - the First National Conference on Sustainable Special Education in Nigeria – organised by the Faculty of Communication and Information Science, University of Ilorin , This is in partnership with the National Information Technology Development Agency (NITDA) and other stakeholders. This event brings together industrialists, the academia and policy makers to discuss contemporary and pertinent issues affecting special education research, technology and it impact on our national development.

May I use this opportunity to commend the organisers of this event for their sacrifice and commitment towards striving for a better environment for the development of special education. Events of this nature provide a platform and opportunity for stakeholders to focus on the prospects for inclusiveness, innovation, research and development in Nigeria's educational sector; this is highly commendable and must be encouraged. That is why, we at NITDA found it necessary to be part of this initiative.

We live in an exciting era, where technological progress moves

at the speed of imagination. Technology has become a powerful catalyst for change, bringing people closer, making our society more efficient, and promoting a more sustainable world. We are emerging into a future where the digital and physical worlds will become more integrated, and boundaries no longer exist between technologies and human domain of cognitive control. The spread of Information and Communication Technology and global interconnectedness has great potential to accelerate human progress, to bridge the digital divide, and also to develop knowledge societies.

Technology empowers and enriches people's life, through products, solutions and programs that embrace innovation and shared values. Education is a fundamental right and is indispensable for the achievement of sustainable development. For education to create positive change, it must be inclusive and high quality.

Sustainable development is the ability of the economy to support the needs of the people of a country over a time, taking into consideration the economic, social and ecological constraints of the country. ICT for sustainable development represents a catalytic process for social change that seeks to foster through education training and public awareness for sustainable future.

Distinguished participants, ladies and gentlemen, you may

recall that the National Information Technology Development Agency (NITDA) was established in April 2001 to implement the Nigerian Information Technology Policy and coordinate general IT development in the country. It was mandated by the National Information Technology Development Act (2007) to create a framework for the planning, research, development, standardization, application, coordination, monitoring, evaluation and regulation of Information Technology practices, activities and systems in Nigeria.

Its role therefore is to develop Information Technology in the country through regulatory standards, guidelines and policies. Additionally, NITDA is the Clearing House for all IT projects and infrastructural development in the country. It is the prime Agency for e-Government implementation, Internet governance and General IT development in Nigeria. The Agency has over the years developed many strategies, programmes and initiatives for the sector.

At NITDA, we are implementing a Roadmap that is aimed at transforming Nigeria into a knowledge-based economy. The 7 key pillars of our Roadmap are:

1.   IT Regulation;
2.   Capacity Building;
3.   Digital Inclusion;

4.   Digital Job Creation;

5.   Government Digital Services Promotion;

6.   Local Content Development & Promotion; and

7.   Cybersecurity.

NITDA supports initiatives in developing programmes to build the necessary physical infrastructure, strengthen cybersecurity, develop digital skills for youth and others, improve digital inclusion for people, enhance the regulatory and market environment to increase access to ICTs, and promote ICT-centred innovation and entrepreneurship.

The Economic Recovery and Growth Plan (ERGP) of the administration of President Muhammadu Buhari, GCFR, places a premium on investment in people and emphasizes the need for social inclusion. Digital Inclusion ensures that disadvantaged groups are given access and skills required to enjoy the benefits of the information age. As such, it is important that our digital inclusion efforts should include people with special needs. At NITDA, we have specialized ICT Training for People Living With Disabilities (PLWDs) as a means of building their capacity to make them self-reliant. Participants are selected by a team of experts from the academia, civil society, representative associations of the PLWDs and the NITDA team. We design and deliver specialised training; give assistive technology tools and applications tailored towards individual needs and fund post-

event mentorship to empower the PLWDs and enable them to establish their own business. We also believe that it will enable them to serve as trainers and mentors to other PLWDs.

Innovation, imagination and strong decision-making skills are becoming increasingly important in meeting new challenges. We need to start implementing new teaching methodologies that facilitate the development of the skillsets required to fully participate in a highly globalised, digital world. The use of ICT can enhance and supplement classroom learning for students with special needs; an important tool in efforts aimed at providing quality education for all.

One of the problems facing developing countries today is, sustainable development. Information and Communication Technologies (ICTs) have been touted as potentially powerful enabling tools for educational change and sustainable development. Strengthening the relevance of ICT in education; organizations (both private and public) will lead to the success of achieving goals and objectives for self-reliance.

According to the World Bank, 1 Billion people globally live with one form of disability or another. The World Report on Disability (WRD), jointly published by the World Health Organization and the World Bank in 2011, narrowed that figure to over 25 Million as the number of Nigerians living with at least one form

of disability – a figure confirmed by Dr. Joseph Ify Chikunie, the National Coordinator of the Association of Indigenous People with Disabilities (AIPD) and a lecturer at the University of Lagos. This number constitutes a significant proportion of the Nigerian population and it is critical to improve their aptitude for and access to ICT for the benefit of the economy.

In the absence of effective education or rehabilitation, such disabilities have the potential to impede a person's full participation in the society and the performance of social roles. Thus, these set of people require a special form of educational methodology compared with their peers.

It has been widely reported that at school level, children with disabilities face serious barriers to accessing education. At the tertiary level the picture is not much better, with 80% of potential students with disabilities not being able to attend.It is time to get a lot more creative in promoting ICT based inclusivity.

Today, assistive technology can help students with certain disabilities learn more effectively. These technologies range in sophistication from "low" technologies such as a graphic organizer worksheet to "high" technologies including cutting-edge software and smartphone apps. These apps and tools, for writing, spelling, grammar, proofreading, and organizing are now available for free or at a low cost for use on iPads,

iPhones, tablets and computers. All we need is awareness, usage information and training. We are making efforts to ensure that such tools are included in our intervention to schools.

ICT-based interventions must take into account current institutional practices and arrangements. Specifically, drivers and barriers to ICT use need to be identified, including those related to curriculum and pedagogy, infrastructure, capacity-building, language and content, and financing. More than ever, capacity building and education are pivotal to support our digital agenda and to contribute to socio-economic growth. Investing in ICT and education is a prerequisite to invest in the future. It is about conveying knowledge, connecting the ecosystem and fostering collaboration between lecturers, students, parents, and university administrators, anytime and anywhere. It is about making our people, our communities, and our nations more informed.

I look forward to the deliberations and discussions to follow, and I pray for useful engagements and learning for all gathered here today. On behalf of all of us in NITDA, I welcome you to this event and wish you very fruitful deliberations. I look forward to receiving the outcome which will hopefully serve as input to policy formulation of Government.

I thank you for your attention.

WELCOME ADDRESS BY

ISA ALI IBRAHIM (PANTAMI), PhD, FNCS, FBCS, FIIM, MCPN,
DIRECTOR GENERAL/CEO, NATIONAL INFORMATION TECHNOLOGY DEVELOPMENT AGENCY (NITDA)

AT THE
STAKEHOLDERS' MEETING ON BUILDING A ROBUST CYBER-RESILIENT ECOSYSTEM IN MDAs AND PRIVATE SECTOR ORGANISATIONS IN NIGERIA.

AT
BON HOTEL, ABUJA

ON
30TH JANUARY, 2019.

[Protocol]

May peace, blessings and mercy be upon you all.

It is indeed a great privilege to welcome you to this Stakeholders' meeting aimed at fashioning ways of building a robust Cybersecurity ecosystem that would reposition public and private sector concerns in Nigeria to be resilient in cyberspace. The outcome of this meeting aims to engender the establishment of baseline information security guidelines for public/private organizations to be resilient in handling, responding to and mitigating against Cybersecurity attacks in their routine functions.

This event is the outcome of a carefully structured and crafted implementation of NITDA's mandate through the subset of the 2017-2020 Strategic Roadmap for NITDA, for which one of the threads of implementation is the standardization of NITDA processes using the ISO 27001 Standard. A rendition of the cliché, Charity begins at home, which portends that before you can recommend practices to other, do it yourself.

It is not the intention to reel out Cybersecurity statistics on breaches in the globe and Nigeria, but it is well-known that the threats are pervasive, as much as the obvious benefits for the use of online services. It is known that no one is exempt, so the

best we as stakeholders can do for our country is to establish such instruments that would compel everyone to partake of and ensure that on the aggregate, the country is safeguarded from both State-sponsored and other Cybersecurity crimes.

It is common knowledge that Cybersecurity threats are considered the third most potent in the risk profile of businesses. It therefore goes without saying that businesses should be structured to respond to such imminent threats, to evade going extinct or comatose in the event of successful attacks, which have economic, political as well as reputational effects on organizations and nations.

Those of us who attended the 2018 edition of the e-Nigeria International Conference and Exhibition would recall that the focus was on promotion of a digital economy through effective regulation in an era of disruptive technologies. It also highlighted Cybersecurity as the regulatory machinery through which Nigeria can make the most out of these technologies. The ever increasing impact of high profile breaches have heightened the negatives of these technologies, and in its trail come a compelling need to put structures in place for harnessing and harvesting the positives of the digital economy, while mitigating the negative impact.

In actualizing a cyber-resilient ecosystem, NITDA, the IT

regulatory and development Agency, deems it fit to select this crop of highly experienced stakeholders both from the private sector and public sector, to fashion acceptable minimum structures for information security assurance for the nation. In this regard, I urge you to focus on what works for different organizations, which are obviously on different pedestals in their appetite for planning, building capacities for organization/staff, purposefully focused investment in securing their organizations. In carrying out this, the as-is situation of Cybersecurity structures already in place (revealed from the questionnaires distributed and responded to by most of you) is available, and come up with what needs to be done, to improve our readiness to combat this imminent inevitable menace.

I therefore urge you to bring your wealth of experience to bear on this herculean national assignment, by deliberating on various ways of establishing minimum standards, infrastructure needs, application, processes improvement, capacity building, standards, investment profiling, and platforms/structures to partner with both national and international institutions. In addition, other operational details for incident response, capacity building and improvement of processes that would enable us minimize impacts to the barest should there be successful attacks and improve our resilience, should shape the focus of your deliberations.

I look forward to the deliberations and discussions to follow, and I pray for useful engagements and learning for all gathered here today. On behalf of all of us in NITDA, I welcome you to this event and wish you very fruitful deliberations. I assure you that the outcome of this stakeholders' meeting would form the fulcrum on which our regulatory, developmental and advisory functions, particularly in Cybersecurity, would hinge.

I thank you for your attention and may the Almighty bless you all.

THE NIGERIA NATIONAL BROADBAND PLAN 2013 – 2018: SUCCESS, PROSPECTS AND CHALLENGES

BEING A KEYNOTE ADDRESS

BY

ISA ALI IBRAHIM (PANTAMI), PhD, FNCS, FBCS, FIIM, MCPN
DIRECTOR GENERAL/CEO, NATIONAL INFORMATION TECHNOLOGY DEVELOPMENT AGENCY (NITDA), NIGERIA

AT THE
ATCON ORGANISED POST-NIGERIA NATIONAL BROADBAND PLAN 2013 – 2018

AT
THE TREASURE SUITES AND CONFERENCES, PLOT 66, 1ST AVENUE BY SHEHU SHAGARI WAY CBD, ABUJA

ON
THURSDAY, 7TH FEBBRUARY, 2019

[Protocols].

May Peace, Mercy and Blessings be upon you!

It is an honor and privilege for me to be here at this event which focuses on the Post-Nigeria National Broadband Plan 2013-2018. This is certainly an event that will help assess the National Broadband Plan 2013-2018, in terms of its achievements, challenges, and way forward, thereby increasing broadband penetration in the country within the next 5 years. This is in line with NITDA's statutory mandate as enshrined in the NITDA Act 2007, Section 6(a) and 6(m) where the Agency is mandated to provide Nigeria with universal access to Information Technology systems and accelerate Internet penetration.

Broadband, no doubt is the super highway for high performance and effective data transmission. It is described as a wide bandwidth data transmission which transports multiple signals and traffic types on media such as coaxial cable, optical fiber, twisted pair cable or radio. The importance of broadband to Nigeria's economic development cannot be over emphasized. We have seen its positive effects in different sectors of the economy such as Communications, Information Technology, Health, Agriculture, Education, Security, and what have you, even the coming election will ride on different forms of broadband infrastructure to ensure that data is delivered from

PVCs to remote servers. Regardless of these positive effects on the economy, there is an urgent need for all stakeholders in the technology and non-technology spheres to collaborate in building a broadband ecosystem that will help improve existing broadband services and significantly increase broadband penetration in the country, especially in the under-served and un-served regions in the country.

You may be aware that NITDA, since inception has immensely contributed to the increase in broadband penetration in the country. This assertion is evident considering over 660 IT intervention centers, we have established nationwide; these centers include Digital Divide Bridging Centers, Digital Job Creation Centers, Campus Area Networks for educational institutions, e-Learning centers for educational institutions, Virtual/Digital Library Centers, and IT hubs. Various broadband technologies such as VSAT, optic fiber, 4G, and microwave are deployed in these centers to ensure that beneficiaries enjoy full broadband enabled IT services.

In addition, we have issued several policies, guidelines, and frameworks to help stimulate broadband penetration in the country; these include Framework and Guidelines for Public Internet Access, Guidelines for Clearance of IT Project by Public Institutions, NITDA Public Key Infrastructure Regulations, Framework on Data Localization, Local Content Policy.

You are also aware that, NITDA is a critical stakeholder and member of the Nigerian National Broadband Council (NNBC) which is saddled with the sole responsibility of increasing broadband penetration in the country to 30% by 2018 by developing and implementing the Nigerian National Broadband Plan 2013-2018. The Council was initially constituted in 2013 by the former Minister of Communication Technology, Mrs Omobola Johnson, and between 2013-2015, the Council was able to develop and implement some of the requirements of the Nigerian National Broadband Plan. Subsequently, the Council was reconstituted in 2017 under the leadership of Barrister Abdur-Raheem Adebayo Shittu, the Honourable Minister of Communications.

The newly constituted Council consists of about 15 members including NCC, NIPOST, Galaxy Backbone, and NUC. The reconstituted NNBC reviewed the implementation of the Nigerian National Broadband Plan by focusing on four key areas namely: infrastructure; policy and regulation; communication,; and investment and finance. Sequel to rigorous research and deliberations, the NNBC presented their reports which highlighted the needed action/intervention required to address/resolve identified challenges and developed a work plan for the required programs and suggested time lines as well as stakeholders responsible for specific program implementation. The NNBC highlighted 15 areas of concern.

Ladies and gentlemen, the NNBC did not only meet the 30% broadband penetration target by 2018 but exceeded it by 1%. The current broadband penetration in the country stands at about 31% which was initially at 11% prior to the establishment of NNBC. This is a laudable achievement, given the fact that the increased penetration took place within a period of two years i.e 2017-2018. While we acknowledge this progress, it is important to note that more needs to be done to ensure a minimum broadband penetration of about 70%-80% within the next 5 years. This is not a tall order as many advanced countries have attained and surpassed this penetration threshold; for example, the United State is at 84%, United Kingdom is at 81%, and South Korea is at 100% broadband penetration.

I am very optimistic that the 70%-80% broadband penetration target can be achieved within the next five years with the continued implementation of NITDA's statutory mandate, Nigerian National Broadband Council's activities, ATCON's mandate, and other key stakeholders' contributions.

Before I conclude, I will like to mention a few things about NITDA and its activities. NITDA which was created in 2001 is saddled with the statutory mandate of implementing the National IT Policy, which is to create a framework for the planning, research, development, standardization, application, coordination, monitoring, evaluation and regulation of IT practices in Nigeria.

In order to accelerate the implementation of our mandate, we have abstracted and focused our mandate into the following seven pillars: capacity development; IT Regulation; Cyber-Security; Digital Inclusion; Government Digital Services Promotion; Digital Job creation; and Local Content Development and Promotion. Over the years, NITDA has been engaged in different IT development and regulatory activities aimed at developing and regulating IT in the country.

Some of our projects and programmes include over 660 IT intervention sites nationwide. We have trained many Nigerians within the educational system, government, and local communities in different areas of IT. We have set up numerous IT hubs in different parts of the country to help with the incubation and solidification of IT ideas. We have given a total of 399 scholarships in IT related programs both at the masters and doctorate level. We have partnered with various international government organizations to implement a masterplan for e-government for the country, this will ensure that all government services are integrated and accessed through a single window portal. In other words, government service delivery to citizens and businesses will be significantly improved. We have rolled out different national strategies and guidelines that border on Public Key Infrastructure (PKI), systems and network, data protection, data localization, IT project clearance by public institutions, data interoperability, government websites, and

public Internet access.

Distinguished participants, ladies and gentlemen, I encourage us all to take advantage of this event, most especially the plenary session, to explore ways of improving on the current success of the Nigerian National Broadband Plan. Contribute your expertise by reviewing challenges and providing viable recommendations that will help the country achieve a broadband penetration of 70%-85% in the next 5 years.

Finally, I will like to thank ATCON for taking the initiative to organize this special event. This admirable initiative clearly shows the Association's continuous commitment to the development of the country. We, at NITDA, are always available to support any deliberate action or initiative to utilize ICT in the development of the country.

I thank you for your attention.

WELCOME AND PROGRAMME OVERVIEW

BY
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TECHNOLOGY DEVELOPMENT AGENCY (NITDA),
NIGERIA

AT THE
**STAKEHOLDERS' ENGAGEMENT ON NIGERIAN
GOVERNMENT ENTERPRISE ARCHITECTURE (NGEA)**

AT
**ROCK VIEW HOTEL,
WUSE, ABUJA**

ON
THURSDAY, 21 MARCH, 2019

[Protocol].

May Peace, Mercy and Blessings be upon you.

It is my pleasure to welcome you all to the stakeholders' engagement on the Nigerian Government Enterprise Architecture (NGEA). The aim of this engagement is to present the draft of the country's Enterprise Architecture before you, esteemed stakeholders for contributions and to seek your support for joint and successful implementation. Our Public institutions form a big and critical enterprise that must be managed efficiently to ensure its resources, including IT, are maximized to create value for stakeholders given the prevailing political, legal and managerial/administrative contexts.

Essentially, an Enterprise Architecture provides an integrated and long-term view of the enterprise's strategic goals, structure, people, finance, data/information, business processes and services and their relationship with information technology and the external environment with the aim of deriving maximum benefits from the use and adoption of IT.

Even though IT projects/systems of some Federal Public Institutions (FPI) have significantly advanced individually, experience has shown that as each FPI increases its IT investments and widens the scope of e-government services,

IT systems are getting more complex and many problems are beginning to emerge. For instance, the following challenges are currently being noticed:

- Inefficient and un-scalable IT environment and poor interoperability of IT systems, inability to provide efficient shared services;
- Poor government-wide information sharing and exchange for effective service delivery;
- Maintenance of unnecessary multiple & unstandardized communication channels and customer interfaces;
- Duplication of IT resources due to inadequate knowledge of available IT capabilities across the government;
- High cost of IT investments; and
- Poor sustainability of IT projects among others.

The effect of these has obviously resulted in the inability of public institutions to fully translate national or their vision policies, programs, plans and strategies into effective enterprise change and public value. This has prevented IT, to some extent, from becoming an asset shaping strategic future opportunities of public institutions and the government as a whole. The implication and consequence of all these is a high rate of IT projects failures.

For instance, it was discovered from the survey of 106

participating MDAs at the strategic capacity building for CEOs of our Federal MDAs in August, 2018 that 66.04 and 4.72 percent of them are at the first stage and last stage of the e-Government Development Index (EGDI) respectively. The first is emerging stage while the last stage is connected/transformation stage. The emerging stage means MDAs' use of IT is limited to websites offering basic information online while transformation stage means the way each MDA or government as a whole operates has fundamentally changed, and there is better coherence, integration and coordination of processes and systems within and across government agencies.

This study shows that only about 4.7 percent of Federal Public Institutions are using IT in a somewhat efficient manner where some transactions leading to delivery of government services are completed and carried out through a single website or portal even if those transactions require actions and business processes from two or more government agencies.

Despite the above scenario, we have experienced some possibilities in ICT adoption which are evident in the Treasury Single Account (TSA), Integrated Personnel Payroll Information System (IPPIS), Government Information Financial Management Information System (GIFMIS), Bank Verification Number (BVN), e-Taxation, e-Passport, e-Wallet for farmers and business registration, among others. Presently, ICT contributes

over 13.63% to the nation's Gross Domestic Product (GDP). These good experiences are part of the few successful silo e-Government initiatives in the country that hardly talk to each other.

In addition to the previous challenges mentioned, ICT adoption and implementation in Nigeria naturally faces a lot of challenges ranging from inadequate basic infrastructures such as electricity, broadband and other digital technologies to insufficient human capital and the required skills in the public sector to effectively implement and utilize ICT solutions. We also have unfriendly and weak institutions; limited finance for ICT projects as a result of competing demands and an inability to properly align government businesses and ICT deployment among others. These challenges must be tackled creatively.

There is no gainsaying that there is a strong need for efficient deployment of IT in government to ensure desirable outcome sas it remains a major strategic tool for implementing government policies, strategies, plans and programs. Federal Public institutions can leverage efficient IT systems to improve governance and create innovative solutions that will transform our governance.

Right from the inception of my tenure as DG, NITDA, we have nurtured a vision for Government Digital Transformation

(GDT). We believe digitally transforming government as a whole is not an easy task in light of our peculiarity as a country. Implementation of e-Government must be holistic and integrated before government digital transformation can be experienced. My vision in NITDA is to facilitate and lead government digital transformation and ensure NITDA plays a critical role in building a digitally transformed government. We want to create an enabling environment through programs and initiatives that would facilitate the full adoption of ICT for effective governing processes for better service delivery. We are, therefore, committed to ensuring the required ICT skills are developed in the public service, government digital services are promoted and IT procurement and deployment in the public sector are properly coordinated. Furthermore, we want to partner with stakeholders to ensure silos are broken in our government IT systems and lay foundation for an agile, citizen-centric, smart, innovative and collaborative government.

In view of this, something must be done to ensure we fundamentally change our approach and have a rethink of e-Governance implementation. ICT needs to be integrated into all development and transformation options, reforms and plans. This necessitates a *Thinking Globally and Acting Locally* attitude.

Thinking globally to address these challenges requires building a foundation for execution, especially in the areas of IT

infrastructure and digitized business processes for automating government core capabilities for digital transformation. Foundation for execution requires a strategic framework that articulates how IT will be deployed and coordinated in government to create the expected value. Accordingly, there is a strong need to re-architect our IT environment to ensure this vision is achieved. Therefore, there is a need to develop an Enterprise Architecture that best represents our collective interest and takes us to the desired transformation stage. This is in line with the country's National e-Government Master Plan and NITDA's strategic focus.

It has been generally proven that one of the strategic directions for e-government is to adopt a Whole-of-Government (WoG) approach for deriving expected value from IT. This is a deliberate action for achieving Government Digital Transformation. GDT views Government as an entity by promoting the idea of ONE GOVERNMENT through ICT but still gives respect to individual Public Institutions' mandates that empower them to make certain decisions and choices while adopting IT to implement those mandates/functions.

Addressing this dichotomy and all the challenges highlighted is the primary goal of developing the draft "Nigerian Government Enterprise Architecture (NGEA)". The NGEA is built on three pillars:

1.   Government Operating Model;
2.   Enterprise Architecture Framework; and
3.   IT Engagement Model.

The operating model of government articulates how the government is going to adapt and use IT to drive its businesses and different sectors of the economy while Enterprise Architecture framework ensures people, processes, technology and other resources are better aligned with IT through standardized and interoperable technology platforms as we are building foundation for execution. The framework encourages shared IT infrastructure, service reusability but discourages duplication of IT systems. Lastly, the IT engagement model governs IT behaviour in order to ensure every IT project achieves its objectives and expected value.

Effectively, foundation for execution is targeted at ensuring reduction in the cost of IT investment with better return on investments; responsive and efficient service delivery; and to ultimately ensure IT helps build capabilities to be leveraged to drive innovation in different sectors of the economy.

The Nigerian Government Enterprise Architecture (NGEA) provides a clear road map for Whole-of-Government and GDT in Nigeria. Therefore, Nigerian Government Enterprise Architecture (NGEA) as a framework for long-term IT strategy

and plan and as well as a road map for achieving Whole-of-Government and Government Digital Transformation is apt and becomes absolutely unavoidable.

As a forward looking Agency, NITDA is committed to implementing this framework. Government transformation is a must, it however requires concerted efforts. We cannot do it alone; the support and cooperation of MDAs, IT industry, local and international development partners, technology giants are critical to our success and the success of the country at large. We are here to engage you as part of our rulemaking process to ensure the document represents our collective interest and achieve its purpose.

We have a collective responsibility to make this country a better place through ICT adoption in the most efficient and effective manner. In the 21st century, going digital for any government is the optimal route to attain Sustainable Development Goals (SDGs).

I, therefore, look forward to your active participation, contributions, inputs and advice on how to improve the draft Framework. I wish you all a very successful workshop.

THE NEED FOR ACTIVE ENGAGEMENT OF PUBLIC INSTITUTIONS IN THE IMPLEMENTATION OF IT REGULATORY INSTRUMENTS IN NIGERIA

AN ADDRESS

BY
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AT THE
BUREAU OF PUBLIC SERVICE REFORMS LUNCH TIME REFORMS SEMINAR

Thursday, 28th March, 2019.

[Protocols].

It gives me great pleasure to be invited to this event. I believe an event such as this is very critical if we must achieve our aim of reforming and bequeathing a more disciplined, efficient, fair and professional public service to coming generations. Indeed, any desire for national progress without the buy-in and readiness of the public service would lead us nowhere. I want to use this opportunity to commend the entire staff and Management of the Bureau of Public Service Reforms (BPSR) for your sustained efforts towards reforming public service delivery in Nigeria.

Technology has proven to be the key driver of institutional reforms globally. Information Communication Technology (ICT) has the power to transform public service from the bureaucratic, slow-responding behemoth it has become to a smart, responsive and efficient customer-oriented system. Technology helps to improve how data is exchanged from one point to another. Electronic governance- which is the infusion of information technology systems, processes and tools for delivery of government responsibilities has quadrupled revenue generation, improved citizen confidence in government and reduced the gap between government and the governed. Countries who desire efficient, effective and transparent governance have adopted ICT as the tool to effectively deliver on these expectations.

It is therefore a cardinal objective for government agencies to explore ICT as a necessary enabler for service delivery. From the National Information Technology Development Agency (NITDA)'s experience through various interactions with Federal Public Institutions (FPI), one can categorise them into three categories in terms of IT use and implementation:
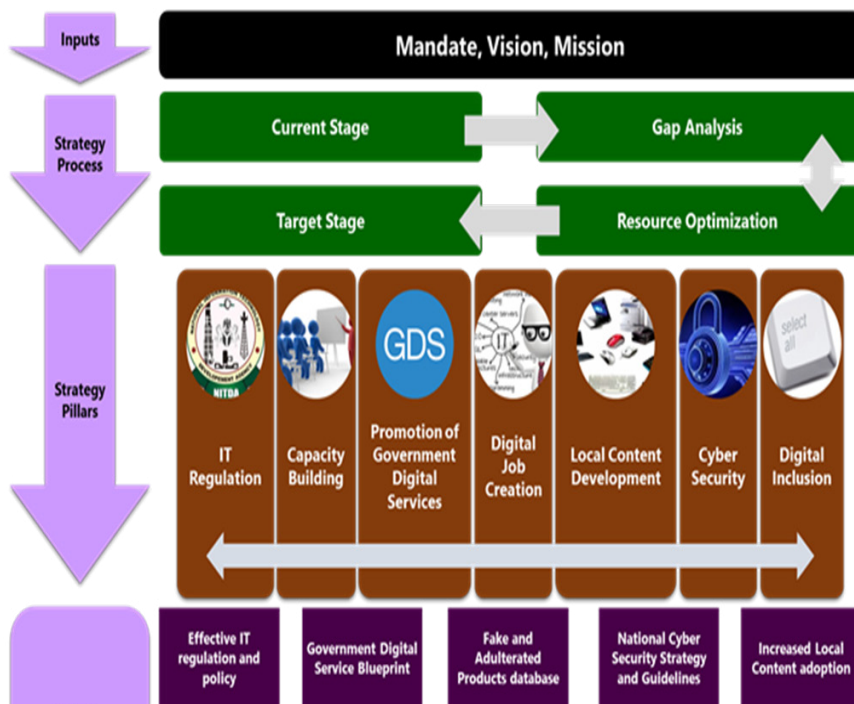 a) Highly Proficient b) Averagely Proficient c) Non-proficient.

Highly Proficient FPIs have an IT strategy, invest in simple to complex IT tools and systems to achieve their statutory objectives, attract motivated personnel and generally strive to excel in all that they do. Averagely Proficient MDAs have strong leadership who are striving to raise the productivity of the Agency; they are in a transitory mode in terms of personnel, knowledge and IT tools. The Non-proficient Agencies have no vision nor motivation to improve their processes. They do not have a consciousness of the value of their mandate to the government's agenda and they are generally lacklustre on issues relating to process improvement, public perception and productivity. It matters a lot how an MDA views itself. The vision consciousness of each MDA would determine its priorities and investment or otherwise on IT and process change.

Upon my assumption of office in 2016, I laid out a roadmap for the development of the IT sector in Nigeria. This roadmap aligns with the objectives of the National IT Policy of 2001; the NITDA

Act of 2007 and the President's Change Agenda. The Roadmap has seven critical components which are- IT Regulation; Digital Capacity Building; Promotion of Government Digital Services; Digital Job Creation; Local Content Development; Cyber Security; and Digital Inclusion. An Action Plan was developed in order to outline the specific actions to be taken by specific departments/ units to ensure the successful implementation of the Strategic Roadmap.

This is a pictorial depiction of the new NITDA's strategic roadmap for transforming the Nigerian IT sector:

The National Information Technology Development Agency (NITDA) is saddled with the statutory responsibility of regulating, developing and advising on IT matters. Section 6(a,b) of the NITDA Act 2007 make these provisions.

The Agency shall- Create a framework for the planning, research, development, standardization, application, coordination, monitoring, evaluation and regulation of Information Technology practices, activities and systems in Nigeria and all matters related thereto. NITDA also provides guidelines to facilitate the establishment and maintenance of appropriate information technology and systems application and development in Nigeria for public and private sectors, urban-rural development, the economy and the government.

This platform is aimed at helping government agencies through NITDA issued Regulations, Standards, Guidelines and Frameworks, in order for them to implement and further improve Nigeria's e-government rating.

Guidelines for Clearance of Information Technology Projects by MDAs
NITDA has been emphasising the need for the sector to be properly regulated in order for the country to effectively benefit from the full potentials offered by ICT. It may interest us to know that about $2 Billion is being expended on IT projects on

an annual basis in Nigeria. Accordingly, the apparent disparity between increasing budgetary allocation and expenditures on IT projects and services and the insignificant increase in automation of public services call for concern. The need for proper co-ordination can therefore not be over-emphasised. A major way to properly address this is the IT Projects Clearance initiative in MDAs. Our initial findings showed that many IT projects were riddled with the following challenges:

i. The conceptualisation and planning of many projects were done poorly and without clear sustainability plans;

ii. Many IT projects were being done in silos, thereby leading to duplication, waste and redundancies;

iii. MDAs were embarking on projects that 'sounded good' based on a contractor's pitch rather than expressed need and priorities of the MDAs; and

iv. IT was increasingly becoming a conduit pipe to siphon huge public resources.

All these and more led to the creation of a standing committee on IT projects clearance in NITDA. This Committee comprises professionals from all relevant walks of life. From its small beginning in early 2017, the Committee has grown to become a respected body by many MDAs who have interacted with it. Various Agencies have written or verbally expressed their appreciation of the Committee's inputs to making their projects more successful. Our goal at NITDA is to use the IT Projects

Clearance process to correct the ills identified above and to further entrench IT product manufacturing and services in Nigeria.

I am delighted to report to this gathering that our collaboration with relevant government organisations on this initiative is already yielding positive fruits. For instance, the Office for the Auditor General of the Federation now issues audit queries to MDAs who refuse to get NITDA clearance before embarking on their IT projects while the Economic and Financial Crimes Commission (EFCC) is also partnering with us to investigate government agencies that might be breaching the NITDA guidelines and policies. We also have a firm understanding with the Bureau for Public Procurement (BPP) such that NITDA clearance is now a prerequisite for issuance of Certificates of No Objection on IT projects. The Agency has within the last two years saved the Federal Government over N13 billion on IT projects. This is apart from the various advisory and support services given to MDAs without charge.

Standard and Guidelines for Government Websites in MDAs
NITDA has also issued the guidelines on government websites. Functional websites are critical to improvement of Ease of Doing Business. NITDA has a robust relationship with the Bureau for Public Service Reform (BPSR) geared at improving the efficiency of MDA websites. There is an Inter-Ministerial Task Team (IMTT)

which has embarked on monitoring, ranking and enforcing compliance with the dictates of the Standard and Guidelines for Government Websites in MDAs and other prescriptions of the BPSR. A pilot ranking exercise has begun under a merit-based and impartial system.

The objective of these Guidelines and Frameworks include:

i) To ensure that Government Institutions meet the broader communication objectives of the Government of Nigeria;

ii) To ensure that Government Institutions' websites are updated, maintained with accurate content for public consumption on a regular and timely basis;

iii) To ensure that Government websites are usable and easily accessible by the citizens;

iv) To ensure consistency in design and domain nomenclature for all Government Institutions' websites;

v) To guide IT personnel in designing, developing, managing and securing the websites within their respective Government Institutions; and

vi) To enable users of government websites access credible information in a manner consistent with global best practice.

Government Agencies are encouraged to study and adopt these Standards and Guidelines as failure to do so would defeat the government's goal of improving public service delivery. It is also important to note that Executive Order 001(2017) mandates

the use of websites for the dissemination of information.

It is also important to reiterate the fact that all government agencies at Federal, State and Local government stand to benefit a lot by coming onboard the .gov.ng domain. This domain extension is free, no rental payment, it is secure, and promotes local content. The .gov.ng policy is currently under review and would be presented to stakeholders in April. This review would further deepen the already unprecedented adoption rate of the Nigerian national domain.

Nigerian Data Protection Regulation

NITDA is empowered under Section 6(c) of the NITDA Act to develop guidelines for electronic governance and monitor the use of electronic data interchange and other forms of electronic communication transactions as an alternative to paper-based methods in government, commerce, education, the private and public sectors, labour, and other fields, where the use of electronic communication may improve the exchange of data and information.

As a result of the increased commercialization of personally identifiable information and its being prone to abuse, there has been a global increase in data protection laws. One of the most far-reaching laws is the European Union General Data Protection Regulation (EU-GDPR). The import of this on Nigerian public

sector is that Agencies who process personal data of European citizens would be liable if such data privacy is breached in the course of processing.

NITDA in line with the above stated mandate, has issued the NDPR with the aim of:

a) Safeguarding the rights of natural persons to data privacy;
b) Fostering safe conduct for transactions involving the exchange of Personal Data;
c) Preventing manipulation of Personal Data; and
d) Ensuring that Nigerian businesses remain competitive in international trade through the safe-guards afforded by a just and equitable legal regulatory framework on data protection and which is in line with best practices.

Government Agencies control a lot of personal data, it is therefore expedient that every affected agency studies the Regulation, appoint resident Data Protection Officers and a Data Protection Compliance Organisation which would provide requisite compliance services to it.

Nigerian Government Enterprise Architecture (NGEA)

The Nigerian Government Enterprise Architecture (NGEA) is a conceptual Blueprint and Framework for efficiently aligning the structure and operation (Nigerian Government's processes, information, people and other enterprise driving factors) of

government organizations with Information Technology for the purpose of achieving Government Digital Transformation Agenda. This is a vital part of public service reform effort of the present administration. It has been noted that some Federal Public Institutions (FPIs) have significantly advanced in information technology capacity and systems. Experience has shown that as each FPI increases its IT investments and widens the scope of e-government services, IT systems are getting more complex and many problems are beginning to emerge. For instance, the following challenges are currently being experienced:

1. Inefficient and un-scalable IT environment;
2. Poor interoperability of IT systems and inability to effectively share IT resources;
3. Poor government-wide information sharing and exchange for effective service delivery;
4. Maintenance of unnecessary multiple and unstandardized communication channels, customer interfaces and applications;
5. Replication of IT resources due to inadequate knowledge of available IT resources and capabilities across the government;
6. High cost of IT investments and poor sustainability of IT projects; and
7. Inability to efficiently and effectively achieve statutory mandates.

The consequence of all these is high rate of IT projects failure. Therefore, the objectives of the NGEA is to address all these challenges and provide a clear roadmap for a Whole-of-Government (WoG) and Government Digital Transformation (GDT) in Nigeria. FPIs are therefore invited to partner with NITDA to ensure that they produce and align their organizational Enterprise Architecture based on the framework issued by NITDA in order to solve most of the problems identified above.

Nigerian e-Government Interoperability Framework (Ne-GIF)

The development of a Nigerian e-Government Interoperability Framework (Ne-GIF) is one of the critical steps taken by NITDA to achieve the GDT. The framework specifies concepts, principles, policies, recommendations, standards and practices for MDAs to work together, towards the joint delivery of cross-portfolio services. The goal of the Ne-GIF is to ensure that services that require two or more MDAs' business processes are delivered seamlessly and at an affordable cost, using ICT.

The purpose of Ne-GIF is to:
1. Set the baseline framework for e-Government/IT systems interoperability across MDAs;
2. Provide a set of standard specifications and best practices for deploying e-Government/IT systems by MDAs in order to ensure seamless information exchange; and

3. To encourage deployment of e-Government/IT systems that promote cross-portfolio service provision by MDAs and interactions between government, businesses and citizens.

The inspiration behind Ne-GIF is that if government systems must work together, there must be a 'language standard' which would guide interoperability of systems. This language standard guides all consultants, officers of the FPI and other interested parties who may want to legitimately connect to government.

Framework and Guidelines for the Use of Social Media Platforms in Public Institutions

Social Media has the potential of giving a voice to everyone who is connected to the information superhighway. It further ensures round-the-clock engagement of the public. The social media offers a unique opportunity to government to engage effectively with their stakeholders especially citizens in real time. Effective usage of Social Media Platforms by the Nigerian Government could help enhance the country's political, economic and social development considering the huge number of Nigerians using the Internet and, by extension, Social Media platforms.

Frameworks and Guidelines are aimed at providing guidance on the use of Social Media platforms within the FPIs' communications environment in order to improve government

transparency, participation and interaction with the public.

The framework provides a structure for encouraging and also enabling Federal Public Institutions (FPIs) to build capacity for responsible and sustainable adoption of social media platforms in the public service. It is important for government agencies and institutions to adopt these guidelines in their engagement on social media. As we know, the rules of public service on public servants communication is still in force, however, these guidelines provide a dichotomy between official communication and private one. This is essential as the right to private expression must not be curtailed in favour of official communication. We therefore admonish every institution to study and apply these Guidelines in order to achieve the objectives of modern public communication.

CONCLUSION

From the foregoing, it becomes clear that every government agency needs to acquaint itself with the provisions of the various Regulations, Guidelines, Standards and Frameworks. NITDA is open to supporting government agencies towards actualizing their goals and making governance more efficient through the use of IT and IT-driven processes.

BEING A PAPER PRESENTED

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AT THE
**CELEBRATION OF INTERNATIONAL
GIRLS-IN-ICT DAY 2019**

THEME:
**EXPANDING HORIZONS WITH AN ICT SKILLED
GIRLFORCE**

Thursday, 25th April, 2019.

[Protocols].

Just when the barrage of bad news was about overtaking us as a nation; daily news headlines serving some unpalatable tales of sorrows, fear and fraud, suddenly, five young bright girls from Regina Pacis Model School, Anambra State, like comets, illuminated our nation and demonstrated the resilient goodness of the Nigerian. These star-girls produced an app which is aimed at detecting fake drugs, thereby stemming the deadly malaise in our country. The story of these girls illumines the great chance we stand as a nation when we pay attention to digital literacy for all of our young people- whether male or female.

As the Chief Information Technology Adviser to the Government, I am honoured to have interacted with Nigerian youths from almost every region, tribe and religion. The prodigious capacity of our youths to deliver world class solutions to almost all kinds of challenges is a story yet untold. The National Information Technology Development Agency (NITDA) through its Office of ICT Innovation and Entrepreneurship (OIIE) has organized 11 Start-up Friday events. We have sponsored many start-ups to global ICT events to show-case our budding talents, one common thread you see in our youths is the passion to overcome the limitations of their environment and attain global stardom. So many disruptive solutions are being nurtured by our vibrant youth population. Although, the problem of unemployment and

unequal opportunities cannot be wished away, yet it is very pleasant to know that the solution lies within our reach not outside of it.

Youth unemployment abound today not because of lack of jobs, but the reality is that the needed skills, aptitudes and attitudes required to compete in the 21st century labour market is starkly different from that of the 1990s. The internet has levelled the field in terms of access to information and critical support infrastructure needed to excel in a knowledge economy. Owing to historical and cultural practices, the girl-child remains the most unincluded in the digital economy.

The efforts of e-Business Life Communication Limited at sustaining the issue of girl-child digital literacy in our national psyche is highly commendable. Mike Nutter the former Mayor of Philadelphia rightly said, *bridging the digital divide is not just a moral issue, it is an economic and educational imperative...The civil rights issue of the twenty-first century will be knowledge and information access. If you can't access information in this global economy, unfortunately you will be left behind.* By implication, access of the girl-child to digital literacy is an inalienable right we must strive as a nation to deliver to our young ladies. The scars of socio-cultural deprivations can only be cured by a conscious effort at improving access to digital literacy and opportunities.

As the nation's prime IT Regulator, Policy driver and Adviser, you would permit me to share briefly some of the efforts we are making to improve digital access to Nigerian youths in general, and girls in particular. At NITDA, we realized the criticality of capacity building in order to see the Nigeria of our dreams. Upon assumption of office, we decided to focus on some core objectives out of our very elaborate statutory mandate. We called these focal areas NITDA Strategic Roadmap 2017-2020. The Roadmap focuses on 7 priority areas, namely: IT Regulation, Capacity Building, Promotion of Government Digital Services, Digital Job Creation, Local Content Development, Cyber Security and Digital Inclusion. An Action Plan was developed in order to outline the specific actions to be taken by specific departments/units to ensure the successful implementation of the Strategic Roadmap. Of the seven priority areas Capacity Building; Promotion of Government Digital Services, Digital Jobs creation and Digital inclusion all have as underlying goals- youth engagement and opportunities expansion.

Digital Capacity building is an area that was too big to miss. We realized that Nigeria having missed the first, second and third industrial revolutions, the only way to latch onto the emerging fourth industrial revolution is to build digital capacity. We have employed a multi-dimensional approach to this. We have made deliberate and continuing efforts at improving the capacity

of government to deliver on its mandate. We have organized Graduate Internship Scheme (GIS) training for eligible Nigerians on geo-political zones basis. This training empowers young people to learn entrepreneurial opportunities in App development, Internet of Things (IoT), Website development and management etc. We have given concessions to female applicants for this scheme. Also, the NITDA scholarship scheme is the foremost IT capacity building program in Nigeria. Over 300 scholars have benefitted from this scheme and many are adding tremendous value to our tertiary institutions and other places of interest. While we have some female beneficiaries, I must state that the ratio tilts too heavily to the male side, not because they are necessarily better, but because we have no female applicant from most states.

By promoting government digital services, we are opening up grand opportunities for young innovators to help government agencies solve their IT based problems. For example, we have a Standard and Guideline for Government websites, this document states clearly how government websites should look like. An innovative person can take this up by looking at various public service websites, where they exist. A lot of money can be made by proposing to these government agencies, how to ensure their website complies with these standards and other requisite security and aesthetic requirements. This would not be done by old people, it is a challenge for young people, girls especially, to

take up and run with.

We are very optimistic that, with the requisite skills, Nigerian girls can chart their own causes, build sustainable businesses and even solve national problems. NITDA is committed to providing the platform that would unleash the creative genius of our *GirlForce*, in order for them to reach the pristine heights they dream to attain.

We have been striving hard to reverse the exclusion of many Nigerians from the digital revolution going on. The present administration has taken the issue of digital access as a priority, especially in order to prepare economically excluded people for the jobs of the new economy. In every human being, there is a measure of ingenuity that, given the right atmosphere, would flourish. This is the reason NITDA has organized various IT trainings for women and girls. Women and girls have somewhat been excluded from the ongoing IT revolution. This is most obvious in the rural areas where culture, poor infrastructure and low-literacy has increased the divide. NITDA as a development Agency has sought to go where the private sector would not venture, for now. Our goal is to change the narratives of inability, instability and inaccessibility to that of innovation, venturing and access. Slowly but steadily, we are achieving these goals.

From the foregoing, it would be clear that NITDA is working with clear focus and clarity of vision to improve digital literacy

and girl-child inclusion in the new economic order. We are now more determined to set Nigeria on the path of irreversible digital-led economy that would leave no one behind.

Thank you for listening!

POLICIES, STRATEGIES AND REGULATIONS FOR INFORMATION TECHNOLOGY DEVELOPMENT

KEYNOTE ADDRESS

BY
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AT THE
2019 INFORMATION TECHNOLOGY IN EDUCATION AND DEVELOPMENT (ITED) CONFERENCE

HELD AT
THE UNIVERSITY AUDITORIUM, BAZE UNIVERSITY, ABUJA, NIGERIA

ON
Thursday, 25th April, 2019.

May Peace, Mercy and Blessings be upon you all.

I am highly honored to be here at the 2019 Information Technology in Education and Development (ITED) Conference, an annual event organized by Academia in Information Technology Profession (AITP), an interest group of the Nigeria Computer Society (NCS) to deliver a Keynote Address on *"Policies, Strategies and Regulations for Information Technology Development".* I feel at home in your midst, being an Academician and a member of this great body.

The choice of this year's theme *"Advancing the Capabilities of Information Technology Professionals for Rapid National Development"* is apt, coming at a time when we are intensifying our efforts on economic diversification. Over the years, Nigeria has experienced dynamic growth in the ICT sector through various Federal Government initiatives, aimed at ensuring that the country competes favourably in the global digital economy. Among the Federal Government's initiatives are the release of the National Information Technology (IT) Policy of 2001, the creation of National Information Technology Development Agency (NITDA), the enactment of NITDA enabling Act of 2007, the development of the national ICT4D strategic plan 2008 and the development of NITDA Strategic Plan 2017-2020.

The National Information Technology IT Policy, approved by

the Federal Executive Council in March, 2001, gave rise to the establishment of National Information Technology Development Agency (NITDA). The general objectives of the Policy among others were to:

- ensure that Information Technology resources are readily available to promote efficient national development;
- guarantee that the country benefits maximally, and contributes meaningfully by providing the global solutions to the challenges of the Information Age;
- empower Nigerians to participate in software and IT development;
- encourage local production and manufacture of IT components in a competitive manner;
- improve accessibility to public administration for all citizens, bringing transparency to government processes; and
- establish and develop IT infrastructure and maximize its use etc.

In all these areas, substantial progress has been made.

The National Information Technology Development Agency (NITDA) was established in April 2001 to implement the national IT Policy. The NITDA Act was enacted and signed into law in 2007. Section 6 of the NITDA Act 2007 specifically states that the Agency Shall:

(a)   Create a framework for the planning, research, development, standardization, application, coordination, monitoring, evaluation and regulation of Information Technology practices, activities and systems in Nigeria and all matters related thereto and for that purpose, and which without detracting from the generality of the foregoing shall include providing universal access for Information Technology and systems penetration including rural, urban and under-served areas;

(b)   Provide guidelines to facilitate information technology and systems application and development in Nigeria for public and private sectors, urban-rural development, the economy and the government;

(c)   Develop guidelines for electronic governance and monitor the use of electronic data interchange and other forms of electronic communication transactions as an alternative to paper-based methods in government, commerce, education, the private and public sectors, labour, and other fields, where the use of electronic communication may improve the exchange of data and information;

(d)   Develop guidelines for the networking of public and private sector establishment;

(e)   Develop guidelines for the standardization and certification of Information Technology Escrow Source Code and Object Code Domiciliation, Application and Delivery Systems in Nigeria;

(f)   Render advisory services in all information technology matters to the public and private sectors;

(g)   Create incentives to promote the use of information technology in all spheres of life in Nigeria including the setting up of information technology parks;

(h)   Introduce appropriate regulatory policies and incentives to encourage private sector investment in the information technology industry;

(i)   Collaborate with any local or state Government, company, firm, or person in any activity, which in the opinion of the agency is intended to facilitate the attainment of the objective of this act;

(j)   Determine critical areas in Information Technology requiring research intervention and Development in those areas;

(k)   Advice the Government on ways of promoting the

development of information technology in Nigeria including introducing appropriate information technology legislation, to enhance national security and vibrancy of the industry;

(l)   Accelerate internet and intranet penetration in Nigeria and promote sound internet Governance by giving effect to the Second Schedule of this Act; and

(m)   Perform such other duties, which in the opinion of the Agency are necessary or expedient to ensure the efficient performance of the functions of the Agency under this act.

Since its establishment, NITDA has brought development to the ICT industry in all ramifications and also gave birth to other agencies of government to promote the integration of ICT into all development reforms and sectors of the economy. Among the Federal Public Institutions established afterwards include, Galaxy Backbone, NigComSat and the Federal Ministry of Communications. Currently, ICT is contributing about 12.58% to the Nation's Gross Domestic Product (GDP).

Other documents include:
- ICT4D Strategic Plan in line with NV20:2020
    - o   The National Information Technology Development Agency (NITDA) in collaboration with the United Nations Economic Commission for

Africa (UNECA) coordinated the development of the National ICT4D Strategic Action Plan. The Strategic Action Plan provides concrete implementation strategies for a period of 5 years for the key sectors –health, education, infrastructure, human resource development, Agriculture, Legal/Regulations, private sector/industry, media/community, amongst others - as part of an integrated approach to achieving national development within the context of the Federal Government of Nigeria's Seven Point Agenda, the National Economic Empowerment Development Programme (NEEDS) and various socio-economic development programmes and initiatives.

o   The seven point agenda includes: Power and energy, Food and security, Wealth creation, Transport sector, Land reforms, Security. Education. The broad goals of NEEDS, NEEDSII and the Seven-Point Agenda are poverty reduction, wealth creation and employment generation through the development of an enabling environment for growth.

- Draft National ICT Policy 2012
- The Nigerian National Broadband Plan 2013 - 2018
- Nigeria's ICT Road Map For 2017-2020

NITDA Strategic plan for ICT Accelerated Development

In order to further set the Country on the path of ICT accelerated

development and to compete with other countries around the world. The Agency developed a strategic plan that focused on seven (7) areas that are believed to be of National importance, namely: Local Content Development; Information Technology Regulation; Cyber Security; Capacity Building,; Promotion of Government Digital Services; Digital Job Creation; and Digital Inclusion. This is in line with the National ICT Roadmap 2017 – 2020 which focuses on four pillars namely: Governance, Policy, Legal & Regulatory framework, Industry & Infrastructure and Capacity Building. For this gathering, I will like to inform you how far we have implemented the strategic plan for the past Three years as follows:

Local Content Development

It has been estimated that Nigeria will spend about ₦120 billion by the year 2020 on importation of foreign technologies considering about 80% of ICT hardware and software purchases that are still being imported. The influx of foreign technologies into Nigeria has made our country a dumping ground of substandard technologies.

In an effort to discourage the frequent importation of foreign technologies, NITDA spearheaded On December 3rd, 2013, the Federal Government commenced the implementation of the Nigerian Content Development Initiative with the formal adoption of the regulatory Guidelines for Nigerian Content Development

in ICT. The Guidelines codified not only the earlier circulars and policies on local content development but also delineated roles and responsibilities for stakeholders and each sub-sector in the local Information Technology (IT) and Telecoms sectors. The Guidelines were thus developed with the collaboration of the Ministry, NITDA and the Nigerian Communications Commission to make provisions for the enforcement of local content in the whole ICT industry. Therefore, the main purpose of the Local Content Initiative and the Guidelines is to ensure that Nigerian ICT companies are able to significantly participate at all the rungs of the ICT value chain to create jobs, wealth and knowledge locally. As a regulation governed by sections 6, 17, 18 and 32 of the NITDA Act of 2007 and sections 1 and 3 of the Communications Act of 2003, the Guidelines have the force of law and are mandatory.

In 2016, NITDA presented a council memo during the meeting of the National Council on Communications Technology (NCCT), informing the Council of the ICT Local Content Initiative and seek Council's support for its rigorous implementation in order to revamp the economy and achieve significant value retention within the country from ICT products and services. All these initiatives has culminated into the signing of Executive order 003 and 005 by the presidency. The Agency is advocating strict compliance. The executive order mandated all Ministries, Departments and Agencies (MDAs) to have at least 40% of local

content in their procurement processes. This is to encourage local manufacture of ICT infrastructure, creation of job opportunities, provision of investment opportunities, strengthen the currency (Naira) in order to save cost for the Federal Government.

In addition, NITDA, being the clearing house for all IT projects in Nigeria, has setup a team of experts that are responsible for advising and guiding MDAs in their IT procurement processes. This has helped to reduce wastage and mismanagement of government funds.

To further boost the penetration of Information and Communications Technology and promote local content thereby saving the government money from procurement of foreign products, NITDA forged a strategic alliance with the National Office for Technology Acquisition and Promotion (NOTAP). These initiatives have produced the following result:

Information Technology Regulation
One of the ways that NITDA is growing the sector is through its regulatory power as the IT clearing house. NITDA has so far saved the Federal Government over ₦2.5 billion through clearance of MDAs IT projects. Though compliance to this regulation is not 100%, many MDAs are cooperating to this policy and NITDA is determined to ensure full compliance by all MDAs.

In addition, NITDA has reminded all MDAs about its seriousness to ensure strict compliance of all government websites are being hosted on the ".gov.ng" domain. This is in line with the Agency's mandate of ensuring internet governance and supervision of the management of the country code top-level domain (cctld.ng) on behalf of Nigerians. To guarantee compliance of this regulation, the Agency is willing to blacklist any MDA that fails to comply. Furthermore, NITDA is determined to implement the Public Key Infrastructure (PKI) policy. PKI, when fully implemented, will allow transacting parties conducting transaction over the Internet to authenticate each other's identities and ensure non-disclaimer of electronic transactions through the use of digital signatures.

Cyber Security

The Agency is committed to the security of all the National IT Assets. To this effect, the restructure of the Agency gave birth to a full-fledged Cyber Security department that has been tasked with the responsibility of coordinating and implementing the NITDA's role under the Cybercrime Act and National Cyber Security Strategy. The prompt response of the Cyber Emergency Readiness and Response Team (CERRT) of the Cyber Security department helped in providing security measure against the WannaCry Ransomware and Petya Ransomware that attacked some European and North American countries. In addition, the Cyber Security has been involved in public awareness and

campaign on Cyber Security threats.

Capacity Building

The Agency is aware of low capacity and the skill gap between the industry requirements and the products of our educational system. In an effort to make Local Content realizable, NITDA has embarked on series of capacity building for the youth. Over the years, NITDA had made significant progress in youth empowerment that includes training in Networking and Network Programmability, emerging technologies such as Internet of Things (IoT), Big Data Analytic, Free and Open Source Software (FOSS) such as Linux, Free and Open Source Hardware (FOSH) such as Arduino, Programming such as C and C++, Python, REST API, Security such as Cybersecurity and Cybersecurity Operations, Digital Literacy etc.

In addition, NITDA has instituted a scholarship program where many Nigerians have benefited from the Agency's sponsored PhD and Master degree programmes both within and outside the country. NITDA in collaboration with the Federal Ministry of Finance successfully conducted the Graduate Internship Scheme (GIS) program in some locations in Nigeria. During the program, more than 500 graduates went through intensive training in website design and mobile application development and were guided on how to become successful entrepreneurs.

Furthermore, NITDA has over the years, embarked on capacity building through deployment of the necessary IT infrastructure as a form of intervention to communities and schools throughout the country. Some of the intervention programs the Agency had embarked upon include:

- Wide Area Network (WAN) for Tertiary Institutions
- Digital Capacity Building Center (DCBC) for Communities formerly referred to as Rural Information Technology Center (RITC)
- Digital Job Creation Centers (DCJB) for Schools formerly called Knowledge Access Venue (KAV)
- Virtual Library
- e-Learning Centers

Moreover, NITDA through the Office for ICT Innovation and Entrepreneurship (OIIE) has made significant progress in youth empowerment through:

- **StartUp Friday:** "a meet-up designed to bridge the gap amongst startups, investors, mentors, buyers and other players within Nigerian ICT industry".
- **StartUp Clinic:** "a SMART gathering for a few startup, mentors, successful entrepreneurs, investors, industry specialist, business consultants and hub operators with the goal of solving problems and challenges startup businesses are facing".

NITDA has also supported startups to participate in international activities such as the Gulf Information Technology Exhibition (GITEX), an annual event that holds in Dubai, United Arab Emirates.

Promotion of Government Digital Services

NITDA is coordinating the Federal Government's effort in trying to digitize all its activities. Through this coordination, the Agency is gradually eliminating waste and promoting transparency in MDAs procurement processes.

NITDA is working hard to ensure the e-government policies are fully implemented within the country. This will allow the government to work as a single entity thereby ensuring all MDAs are connected together digitally sharing services.

Digital Job Creation

With a projection of about $2 trillion contribution of technologies to the global economy by 2020, ICT is viewed as an important enabler of economic growth and an area of job creation. NITDA is working with other stakeholders to establish opportunities for Nigerians. The Agency had been working on promoting Business Process Outsourcing and have held a pilot test on Online Outsourcing for about 50 youths across Nigeria successfully, IT infrastructure deployment in communities and schools, promotion of Start-ups, Graduate Internship Scheme

(GIS) program through teaching graduates on websites design, mobile application development and entrepreneurial skills are few of the activities NITDA has been involve with to ensure the actualization of digital economy in the country.

Digital Inclusion

ICT is applied in almost all facets of our lives ranging from Education to Finance. Processes such as digitization of pensioners, the use of the card reader and biometrics verification in the electoral processes, payment of government dues through the Treasury Single Account (TSA), the implementation of the Integrated Payroll and Personnel Information System (IPPIS) that has eliminated thousands of ghost workers and save the government about ₦20 billion monthly are few examples in which Nigerians are digitally included.

Furthermore, NITDA has begun the establishment of IT hubs across the country with 3 setups in Katsina, Gombe and Ibadan. These initiatives is expected to enhance digital inclusion of all Nigerians.

CONCLUSION

To attain Information Technology Development, our strategies, Policies and Regulation must be right. The current administration at NITDA is working assiduously to reposition the Agency through above strategic plan. In addition, the Agency

has witnessed considerable achievements through its "clearing house policy" as a lot of MDAs are cooperating with the Agency by submitting all their IT procurement projects for clearance. As a result, NITDA has been able to save money for the Federal Government.

On this note, I wish to congratulate the Academia in Information Technology Profession (AITP) for organising this important event and wish you a very successful conference.

I thank you for your attention.

SPEECH BY
ISA ALI IBRAHIM (PANTAMI), PhD FNCS, FBCS, FIIM
DIRECTOR-GENERAL/CEO,
NATIONAL INFORMATION TECHNOLOGY DEVELOPMENT
AGENCY (NITDA)

AT THE
12TH EDITION OF STARTUP FRIDAY

AT THE
**BASE LANDMARK ENUGU,
ENUGU STATE.**

ON
Friday 26th April, 2019.

May Peace, Mercy and Blessings be upon you all.

All Protocols duly observed.

I am highly delighted to welcome you all to the 12th edition of Startup Friday in Enugu. The National Information Technology Development Agency (NITDA) was established in 2001 to implement the National Policy on Information Technology. Later, an act of parliament further empowered NITDA to develop and regulate the IT sector in general.

Under my leadership, we are pursuing short and long-term initiatives and policies that will drive the growth of the Nigerian digital economy and ensure we are not only technology consumers but technology producers. Thus, NITDA's subsidiary, Office for ICT Innovation and Entrepreneurship (OIIE is established to foster the growth of technology startups and create an enabling environment for the ecosystem to thrive with the following objectives:

- Drive programs and initiatives that support ICT innovation and entrepreneurship;
- Partner with public sector, academia, private sector, development partners and MDAs on policies and incentives that support ICT entrepreneurship and commercialization;
- Collaborate with local and state Government to grow the state technology and innovation ecosystem;

- Establish, support and incentivize ICT innovation hubs, information technology parks and community enterprise hubs across Nigeria; and

- Render advisory services in all ICT Innovation and Entrepreneurship.

NITDA serves as a responsive and agile Government facilitator for the technology and innovation ecosystem. The wisdom of the creation of OIIE is to create an environment where startups are supported with tools to thrive, give them access to market thus, promote the development and adoption of local content in ICT. This will result in job creation and wealth in the country.

StartUP Friday (SUF) was conceived as an Abuja and Lagos Technology Entrepreneurs (TechPreneurs) meet up. However, Nigeria has 36 states and the FCT. Thus, we restructured the program for national impact. SUF is now not just a program but part of the cycle of NITDA support for TechPreneurs. We target to host 6 SUF annually with the aim of igniting the technology ecosystem of different states within the 6 geographical regions. We have hosted 11 editions across the 5 geopolitical regions and today is the 12th edition. SUF, Enugu targets not just ICT startups in Enugu but Abia, Anambra, Ebonyi and Imo. SUF, Enugu completes the first round of NITDA's regional technology entrepreneur ecosystem ignition.

Although this is our first time to host an event in Enugu, NITDA through its OIIE has been working with startups across Nigeria in several of our programs. These include; Startup Clinic (an entrepreneurship clinic), Future Hack (a hackathon for government digital solution), eNigeria and international events (such as GITEX). An Enugu based startup, ARONE which is founded by Emmanuel Ezenwere is one startup that NITDA has supported and we are still following up with him to ensure he succeeds. ARONE was part of the 6 startups who applied and qualified for NITDA sponsorship for GITEX 2018 and eNigeria 2018.

As part of his engagement, he benefited from
i) 5 days intensive bootcamp with most hubs in Abuja.
ii) Flights, accommodation and feeding for all engagement including 7 days in Dubai.
iii) A cash price of about $2,500, Arone was also part of the 2 startups that pitched to Mr President at eNigeria. There was no cash attached to this engagement but it was all expenses paid.

Furthermore, we are committed to making Nigeria a startup haven for global investors. Jumia, the only African unicorn, recently became the first African company to be listed in the New York stock exchange. Indeed there are many opportunities for technology entrepreneurship in Nigeria.

Today's event is driven by key stakeholders in the region and it's designed to build the state ecosystem while NITDA facilitates the event.

- Pre-SUF, NITDA visits the states and meet with the state Government, hubs, academia and other stakeholders to ensure the readiness of the state for the programme.
- An application portal is opened and Technology Entrepreneurs (Techpreneurs) in the region apply to pitch and the 10 best startups are shortlisted to pitch at the event.
- SUF facilitates understanding of role by stakeholders such as startups, government and academia in the technology innovation and entrepreneurship ecosystem. This also provides networking opportunities for startups to meetup with investors, mentors and buyers.
- An intensive startup boot camp is organized by NITDA and was delivered through Roar and TechX hubs in the region. The boot camp is to build the startup pitching and presentation skills. Great feedbacks by startups have been received from this exercise.
- The program features a fireside chat with participants drawn from key players in the private sector and Government to discuss the state's key priority areas. NITDA listens in to understand how best to support the state in its technology drive.
- NITDA leverages on the platform to create awareness about

its activities, initiatives and program.

- NITDA considers all startups as winners, therefore, grants are given to all 10 startups that pitched at the event to grow their enterprise.

Furthermore, the startups will be included in NITDA's database for further support with mentoring, workspace vouchers at hubs, entrepreneurial training, matching them up with relevant Government institutions for access to market and other support. All engagement with the technology ecosystem is broadcasted via our social media platform-Instagram, Facebook and twitter @ngrinnovation and @nitdanigeria.

Finally, I would like to appreciate the Enugu State Government for hosting us, hubs and other ecosystem builders in the South-East region for making this event a Success. I hereby officially declare open the StartUP Friday, Enugu.

EFFECTIVE MANAGEMENT OF ASSET DECLARATION: DIGITAL ASSET DECLARATION AND ONLINE PORTAL

BEING A SPEECH BY

ISA ALI IBRAHIM (PANTAMI), PhD, FNCS, FBCS, FIIM, MCPN
DIRECTOR GENERAL/CEO,
NATIONAL INFORMATION TECHNOLOGY DEVELOPMENT
AGENCY (NITDA)

AT THE
RETREAT OF THE BOARD, MANAGEMENT AND STATE DIRECTORS

AT THE
NAF CONFERENCE CENTER, KADO-ABUJA

ON
Thursday, 2nd May 2019.

[Protocols].

May Peace, Mercy and Blessings be upon you all.

It gives me great pleasure to be at this auspicious occasion aimed at further entrenching Nigeria's fight against corruption. The importance of the Code of Conduct Bureau (CCB) in our journey to cleansing the Augean stables of corruption became more obvious in the recent past when public officers were called to account for their acts. The success of the Bureau is, therefore, a joint national effort which every person of goodwill must support. It is in the light of this, that the Bureau's invitation for me to speak as the Director General and CEO of the National Information Technology Development Agency (NITDA) is taken with all seriousness and appreciation.

Section 2 of the Code of Conduct Bureau and Tribunal Act (Act) provides - ***The aims and objectives of the Bureau shall be to establish and maintain a high standard of morality in the conduct of government business and to ensure that the actions and behaviour of public officers conform to the highest standards of public morality and accountability.*** This mandate is far-reaching in our journey as a nation to greatness. Asset declaration by public officers is one of the important tools deployed by the government to avert corruption, detect conflict of interest and illicit enrichment of all public officers whether

elected, appointed or recruited. Corruption is indeed a problem in Nigeria like any other country and undermines sustainable development. In the words of President Muhammadu Buhari, GCFR:

"If we don't kill corruption, corruption will kill us."

There is no gainsaying that the current manual system of asset declaration and management is not efficient; has not facilitated the expected registration and compliance with the provisions of the Code of Conduct Bureau and Tribunal Act. The process is burdensome to both the Bureau and public officers. The challenge of low registration is evident from the Social Statistics Report issued by the National Bureau of Statistics (NBS) in 2015. The report also found that the number of civil servants who openly declared their assets stood at 44,943 in 2012 and 61,776 in 2013. It suddenly declined to 41,527 in 2014. However, it increased to 81,343 (57.48 %) in 2015. Kano State recorded the highest number among the states with 7,984 followed by Oyo and Gombe states with 5,796 and 5,780 respectively. While Abia State had the lowest number among the states with 49 in 2015. This is relatively low compared to the actual number of public officers across the Federation.

On this note, there must be a way to address these challenges. Adoption of Information Technologies in businesses and governments all over the world has proven to be highly effective

and efficient if properly managed. Adopting IT for asset declaration and management is not an exception. Digitization of government processes and services has proven to be an effective panacea to the wanton pillage of public resources and inefficiency. There was a time in our nation where it was taken for granted that over 40% of those on government payroll were 'ghost workers'. This has been drastically curtailed with the introduction of the Integrated Payroll and Personnel Information System (IPPIS) - a technological solution that has helped to save billions of public funds and significantly reduced inefficiency. There was also a time in our nation when the Federal Government alone operated about 20,000 bank accounts. The Government could not account for its own money, it had to borrow from its own resources at an exorbitant interest rate. This problem was again resolved by a policy (TSA) that was technologically-enabled. This brought about transparency in public accounts management. The foregoing and many more have demonstrated that the veritable and sustainable way of eliminating corruption is to adopt technology.

Therefore, the effort of the Bureau to digitize asset declaration processes through an online portal is highly commendable. This is the right move in the right direction. However, we need to think globally by adopting best practices; at the same time, we need to look inward and think locally by considering our peculiarities as a nation. Experiences have shown that a lot of private

organisations and the public sector have become disillusioned after their investment in IT. Most times, the investments are not yielding the results initially envisaged. Indeed, it is a global phenomenon that many IT projects are not delivering on their expectations.

In view of these, the Bureau must view both digitization and digitalization as important processes. They serve as extension of automation which emphasizes the goal to create and deliver new value to customers (public officers and government at all levels), not just to improve what is already being done or offered. It is not just about automating or inserting technology into an existing process. Nor is it about replacing paper or people. It is about creating new business designs and models to create unimaginable values using digital technologies. Digitization is not about taking people out of the process, but getting them back to doing what they are good at. IT is to support and augment people to help them realise their potential, not have them bogged down in paperwork and systems data entry by both the Bureau staff and public officers who fill forms to declare their assets. Digitization presents tremendous opportunities for innovation and competitive advantage. Creating this value requires a complete rethinking about the mandates of the Bureau and its relationships with other public institutions. The digitized data must be available and accessible in the right formats and seamlessly by other public institutions' IT systems.

This is to ensure the whole processes of carrying out the core functions of asset declaration, management and adjudication are highly improved between the Bureau, the Code of Conduct Tribunal, Appeal Court, Supreme Court as well as any other public institution at all levels of government.

NITDA in its role as the Information Technology Regulator of the country, in the last two and a half years of my leadership at the Agency, has given attention to the issues of infusion of IT into governance processes and government digital services improvement. We have engaged CEOs of Federal Public Institutions (FPIs) through our Strategic Capacity Building initiatives on two occasions to introduce to the new era of digitalization and the processes involved. We have issued a number of policies, frameworks, guidelines, and regulations to ensure that the adoption and deployment of IT in the public sector are carried out efficiently. This will ensure an adequate return on Government's investments (RoI) in IT and expectations and values are realized as planned. The Bureau's desire to digitize its processes stands a chance of greater success if the necessary prescriptions made by NITDA's regulations and development efforts are complied with. This is not limited to the Bureau alone but all public institutions that are embarking on the digitization drive.

The Policy and Guidelines for Clearance of Information Technology Projects in Federal Public Institutions (FPIs)

The IT Projects Clearance policy drive of the Federal Government and being carried by NITDA has yielded good results. The drive had led to the development of Guidelines for clearance of IT projects in FPIs. The policy drive also establishes a Committee of multi-disciplinary experts who review proposed IT projects and give advice and clearance where necessary. From its small beginning in early 2017, the Committee has grown to become a respected body by many FPIs who have interacted with it. Various Agencies have written or verbally expressed their appreciation of the Committee's inputs to make their projects more successful. Our goal at NITDA is to use the IT Projects Clearance process to correct the ills identified in IT projects implementation. It would be of immense benefit to the Bureau if it can present its ideas on the Asset Declaration Portal to NITDA at the earliest opportunity in order to benefit from the Agency's expertise in this regard.

Standard and Guidelines for Government Websites

NITDA has also issued the Guidelines on government websites. Functional portals are critical to the improvement of Ease of Doing Business. The Bureau's customers are public servants who deserve rich customer experience while interacting with its portal. The standards and guidelines prescribe specifications and best practices that ensure better users' experience, quick access

to needed information, and the security of the online systems among other benefits. The Agency has achieved unprecedented turnaround time in its .GOV.NG (Nigerian government identity on the internet) registration and management. Domain registration now takes just 2 hours if all the requirements are met. We just reviewed .GOV.NG and .MIL.NG policies with stakeholders yesterday to address different challenges in the process of acquiring and managing domains by public institutions.

Nigeria Data Protection Regulation

NITDA is empowered under Section 6(c) of the NITDA Act to - Develop guidelines for electronic governance and monitor the use of electronic data interchange and other forms of electronic communication transactions as an alternative to paper-based methods in government, commerce, education, the private and public sectors, labour, and other fields, where the use of electronic communication may improve the exchange of data and information.

Due to the increased commercialization of personally identifiable information and it is being prone to abuse, there has been a global increase in data protection laws. NITDA issued the Nigeria Data Protection Regulation (NDPR) with the main aim of safeguarding the data of Nigerians. The Bureau is a major data controller. The proposed portal would further increase the level of compliance. It is essential for the Bureau to put necessary

mechanisms in place to guarantee the privacy of people's data. The NDPR mandates Data Controllers like the Bureau to designate a job role of the Data Protection Officer (DPO) and to appoint a Data Protection Compliance Organisation (DPCO) which would provide requisite compliance services for it.

Nigerian Government Enterprise Architecture (NGEA) and Nigeria e-Government Interoperability Framework (Ne-GIF)

Experience has shown that as each FPI increases its IT investments and widens the scope of e-government services, IT systems are getting more complex and many problems are beginning to emerge. Consequently, challenges such as inefficient and unscalable IT systems, poor government-wide information sharing and exchange for effective service delivery, unnecessary replication of IT resources, high cost of IT investments and poor sustainability of IT project among others are being experienced in the FPIs. The effect of all these is a high rate of IT projects failures. In view of these, NITDA has issued both NGEA and Ne-GIF as blueprints to address these challenges.

NGEA is a framework that provides a roadmap for all public institutions for optimizing their operations while creating an efficient IT environment capable of translating national or their organization's vision, policies, programs, plans, strategies into effective enterprise change and public value. It prescribes

disciplined ways of organizing enterprise resources (business processes, data, information technologies, human, finance, etc.) to provide capabilities that enable the achievement of desired organizations' functions/mandates which will, in turn, have an effect on the national policies outcomes for digital transformation. It is a framework that positions IT as a strategic asset, shaping current and future strategic opportunities in the public sector and the Government at large.

Furthermore, NITDA also issued Ne-GIF as a framework that specifies concepts, principles, policies, recommendations, standards and best practices to enable FPIs work together, towards joint delivery of cross-portfolio services. The goal of the Ne-GIF is to ensure that services that require two or more FPIs' business processes are delivered seamlessly and at an affordable cost, using ICT. The Bureau would need information from various agencies such as the Corporate Affairs Commission (CAC), Central Bank of Nigeria (CBN), Federal Inland Revenue Service (FIRS), and security agencies among others to effectively carry out its mandate. This cannot be done without systems interoperability. Interoperability of IT systems underpin seamless exchange and sharing of information among public institutions which is a major driver of an efficient public service delivery. Success factors, such as change management and business process re-engineering approaches, required for enterprise change and interoperability of systems are adequately

prescribed in the frameworks. These are vital parts of the public service reform efforts of the present administration.

Conclusion

In conclusion, we therefore call upon the Bureau and other Federal Public institutions to support NITDA in its efforts of revitalizing the public sector digital space. The Agency has embarked on a journey of laying foundation for effective digitization; is creating an enabling regulatory environment for Government Digital Transformation. We will intensify these efforts and we are not going to relent.

Finally, let me use this opportunity to once again commend the efforts of the Board and Management of the Bureau towards effective digitalization of Asset Declaration and Management. The Bureau has a lot to gain by ensuring extant principles, standards and frameworks are put in place to actualize its objectives. NITDA is ready, willing and able to aid the Bureau to take Nigeria to the next level of probity, accountability and fairness.

I thank you for your attention.

21ST CENTURY EDUCATIONAL ROADMAP:
THE ROLE OF TECHNOLOGY

BEING A KEYNOTE ADDRESS

BY
ISA ALI IBRAHIM (PANTAMI), PhD, FNCS, FBCS, FIIM, MCPN
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NATIONAL INFORMATION TECHNOLOGY DEVELOPMENT
AGENCY (NITDA)

AT THE
IGBINEDION UNIVERSITY
ICT WEEK

ON
Saturday, 4th May, 2019.

All protocols duly observed.

May Peace, Mercy and Blessings be upon you!

I would like to start by congratulating the Vice Chancellor, Principal Officers and indeed the entire staff and students of this university. You have blazed the trail by becoming the first private university in Nigeria and it is no small feat that you are celebrating your 20th anniversary this week. I wish you many more decades of impactful contribution to the education sector of Nigeria and beyond.

The late African and Global Statesman, Nelson Mandela, fittingly described education as the "most powerful weapon which you can use to change the world". Jean Piaget, the renowned Swiss psychologist famous for his theory on cognitive development stated that "The goal of education is not to increase the amount of knowledge but to create the possibilities for a child to invent and discover, to create men who are capable of doing new things".

Education creates possibilities, develops the capacity to do new things and can truly change the world. Education evolves and the parameters for determining literacy today differ significantly from those used in determining literacy 10 years ago. For example, traditional literacy essentially entails an ability to read and write. These days, the term literacy has

been expanded to embrace the concept of digital literacy which includes a proficiency in digital technologies and their use in gathering, evaluating and processing information such that it can be communicated across digital media.

Our students will compete not just with fellow students from Nigeria. Rather, they will have to compete for jobs and opportunities with many people from across the globe. The good news is that we can take advantage of technology in our bid to train students that are digitally literate and globally competitive. Technology is not an end in itself but, when properly utilized it can serve as a trigger for transforming students and teachers into digitally literate citizens that can have a positive impact on the nation.

The National Information Technology Development Agency is responsible for the regulation and development of the ICT sector of Nigeria and we consider capacity building to be a very important area to focus on. Our ICT Roadmap is based on 7 pillars and capacity building is one of such pillars. We recognise that technology can aid the learning experience and we have made interventions in educational institutions across the country by providing virtual libraries, e-learning facilities, wide area networks, knowledge access venues, etc.

The first industrial revolution took place between the end of the

18th century and the beginning of the 19th century. It focussed on mechanization and was aided by the invention of the steam engine. The second industrial revolution took place nearly a century later at the end of the 19th century. The development of the combustion engine sought to maximize new sources of energy like gas and oil. The demand for steel grew exponentially and there was also a revolution in the transportation methods, with the emergence of cars and planes. Similarly, communication was greatly enhanced with the telephone and the telegraph.

Next was the third industrial revolution which came about another century later (from the late 1960s). It was characterised by the rise of the electronics, as a result of the design of the transistor and microprocessor. This allowed computers and telecommunications to become part of our lives.

Today we have the 4th industrial revolution, also known as 4IR or Industry 4.0. It integrates the physical, biological and digital worlds. The developments in domains like blockchain, artificial intelligence, Internet of Things, Virtual Reality, 3D printing, and related technologies have fuelled the dramatic changes in the way we live. Expectedly, this has also revolutionized the concept of education.

In critically assessing the role of technology in an Industry 4.0 defined 21st century, it would be useful to discuss the role of

the emerging technologies discussed earlier in how people are educated. Blockchain is a public distributed ledger system which records and verifies transactions. The information that is distributed via blockchain technology is reconciled in a database, stored in multiple locations and updated instantly. It is publicly verifiable and the fact that there is no central location makes it difficult for hackers to attack.

The technology was invented in 2008 but only became popular with the introduction of the Bitcoin. This makes people to erroneously feel that blockchain is only applicable in the financial sector. However, it can be used in other domains including that of education. For example, the transcripts and certificates issued by educational institutions must be easily verifiable and blockchain technology can improve this process and significantly reduce the incidence of fraudulent claims. Blockchain will also protect the academic system from the growing threats of plagiarism. It will make it easier for the relevant authorities to verify the authorship of books, journals and reports.

The mention of the term "Artificial Intelligence" usually conjures up images of science fiction and robots taking over our lives, giving the impression that they are futuristic and have little application in our present day lives. This could not be further from the truth. In simple terms, Artificial Intelligence, or AI,

essentially refers to the ability of a computer system to simulate human intelligence. As such, AI, is at work anytime we get the computers to carry out tasks usually performed by people.

AI can greatly simplify administrative tasks performed by workers and teachers. A significant amount of time is used in setting questions for exams, grading these exams and providing useful feedback to the students. AI can ease this burden. It can also be used to further the prospects of personalized learning. No two students are ever at the same level of learning and artificial intelligence recommender systems can enable these students to have a tailor-made curriculum that has been sieved out of the generalised curriculum.

Internet of Things (IoT) extends connectivity to physical devices, many of which contain some sensors. This connectivity enables the users to remotely control these devices.   IoTs are fast growing in interest and deployment and have found application in education. IoTs can make life more efficient for teachers, enabling them to focus on the actual task of teaching. For example IoTs can help the teachers to automatically take attendance and even monitor the levels of concentration of the students. IoTs can provide assistive technologies and play a key role in aiding persons living with disabilities to have a rewarding learning experience. IoTs can also lead to text book enhancements.

Virtual Reality (VR) refers to an approach where computers are used to create a simulated environment where the user can be immersed into. By using a VR headset, users can experience a media-rich, high quality environment that aids in learning complex concepts and courses.

It is said that an average person can retain about 20% of information that they hear, 30% of the information they see, while they can remember as much as 90% of the information they obtain from personal experience. VR makes this personal immersive personalized experience possible and with devices like the $20 Google cardboard, this VR experience can come at low cost.

A 3D-printer basically works like the common printer. The main difference is that while a traditional printer uses ink to print on a 2-D piece of paper, a 3-D printer uses more substantive materials like plastics, rubber and metal to print a 3-D model. It involves the scanning of an object, the slicing of these objects into layers and conversion into a physical object.

3-D printers have been available commercially since 1984. However, the high costs had made it difficult for mass scale use. Today, with costs as low as $200, there is a larger market for various categories of users, including the educators. With 3-D printing, educational institutions can help to create inventors

and make the learning experience hands-on. This approach should not be restricted to higher educational institutions. Rather, it should be cascaded down to the lowest levels of education around the country.

Here are a few interesting ways that 3-D can enhance education in the 21st Century:

1. Students of the Engineering field can develop prototypes;
2. Medical doctors and students can use it to print cheap medical training equipment. For instance, the College of Nursing at the University of Alabama recently saved an estimated $6000 on medical training equipment through 3-D printing;
3. Biology students can use it to print organs, cells, viruses and other important biological artifacts;
4. Graphic Art students can print out 3D versions of their artwork; and
5. Food and Nutrition students can create molds for edible food products.

Technology is a vital tool for the transformation of the education sector and we are delighted that you have chosen to focus on it at this event. We wish you a very successful anniversary and we look forward to hearing good news about how you keep using technology for enhancing the teaching and learning experience at the Igbinedion University, Okada. Thank you for your kind attention.

BEING A SPEECH PRESENTED

BY
ISA ALI IBRAHIM (PANTAMI), PhD, FNCS, FBCS, FIIM, MCPN
DIRECTOR-GENERAL/CEO,
NATIONAL INFORMATION TECHNOLOGY DEVELOPMENT
AGENCY (NITDA), NIGERIA

AT THE
**STAKEHOLERS' ENGAGEMENT FOR THE REVIEW OF
FOUR REGULATORY INSTRUMENTS DEVELOPED BY
NITDA**

HELD AT
**Grand Ball Hall, Barcelona Hotel,
23, Blantyre Street, Off Ademola Adetokunbo
Crescent, Wuse 2, Abuja.**

ON
Tuesday, 7th May 2019.

May Peace, Mercy and Blessings be upon you all.

All protocols duly observed.

It is my pleasure welcoming you all to this strategic engagement. We are hosting a carefully selected group of public institutions, private organizations and individual Nigerians who have excelled in their spaces to review and make inputs to the following draft regulations:

i. National Cloud Computing Policy;

ii. Electronic Commerce Regulation;

iii. Framework for the Implementation of the Nigerian ICT Innovation and Entrepreneurship Vision (NIIEV); and

iv. Framework and Guidelines for ICT Adoption in Tertiary Institutions

We are most appreciative of your time amidst busy schedules and other commitments.

NITDA has huge mandates broadly covering IT regulation, development and advisory roles. This is evident in section 6(a-n) of the NITDA Act, 2007. We believe that our regulatory and advisory roles should be geared towards the development of ICT and its integration into the socio-economic agenda of the government at all levels. We would not by any means stifle ICT development in Nigeria especially to the detriment of our

indigenous IT companies.

On assumption of office, we realized that the Agency did not have any instrument that stipulates a clear process for issuance of regulatory instruments. Our first of its kind Rule-making Process Regulation was therefore issued on 25th January, 2019. Engagement of relevant stakeholders while making ICT regulations is a critical component of the Rule-making Process. The Rule-making Process is a subsidiary legislation that provides clear procedure for issuance of the Agency's regulatory instruments. It involves analytical and critical thinking approach that we are sure if followed will give the country stakeholders' friendly, developmental and implementable ICT regulations.

We have made tremendous effort in the last two years. In the first quarters of 2019 alone, we issued five (5) regulatory instruments. These are:

i.   The NITDA Rule-Making Process Regulation;
ii. Nigeria Data Protection Regulation;
iii. Guidelines for Clearance of Information Technology Projects in Federal Public Institutions (FPIs);
iv. Framework and Guidelines for Public Internet Access; and
v.   Framework and Guideline for the Use of Social Media Platforms in Public Institutions

All these instruments were issued to address various challenges

facing us as a nation. Aside the rule making process explained previously, the other four regulations are to protect abuse in the use of personal data and guarantee the privacy of Nigerians; improve the quality of IT projects in Federal Public Institutions (FPI); ensure increased internet penetration and digital inclusion in a safer manner; and encourage adoption of best practice approach and modern way of communication in the public sector. It is no longer a gainsaying that our regulations are developmental. This is evident in the upward contributions of ICT to the country's Q4 2018 GDP which rose to 13.63%.

History is also about to be made soon as we have started the process of issuing another set of five regulatory instruments, also for the development of ICT sector and the country at large. We have had engagements with stakeholders to review two out of the five documents. All the contributions and comments have been adequately addressed in the updated documents. We are presenting a framework for implementing one of the reviewed documents while four other documents will be reviewed here today. These regulations are to address fundamental issues in our journey to greatness as a nation. Kindly permit me to give a brief preview of these draft instruments.

1)   NATIONAL CLOUD COMPUTING POLICY

Computing resources could be expensive, difficult to access or managed by most public institutions and Small Medium

Enterprises (SMEs). Therefore, we have to look at alternatives for addressing these challenges based on new trends in the technological landscape. We are promoting "The Cloud First" policy agenda for these public institutions and SMEs that enables them provide services to government from cloud environments. From our experience as IT regulator, going cloud for most of our FPIs and SMEs is a wise option. However, they must do that considering best practices and our peculiarity as a nation. FPIs and SMEs must be guided appropriately. Cloud has its own challenges such as privacy and data protection, service and data migration, procurement model among others. It is due to our desire to address these challenges and to unleash the gross economic potentials of a developed cloud service industry that we are gathered here to review the draft and enhance it to achieve our national objectives of security, efficiency and improved service delivery.

The benefits of cloud computing adoption by Federal Public Institutions and Nigerians in general could lead to capital costs savings, improved responsiveness to citizens' or customers' needs, increased transparency and enhanced public service delivery. In addition, cloud computing adoption could also facilitate the creation of new jobs and help Small Medium Enterprise (SMEs) cross the barrier of initial IT capital and investment challenges among others.

2)   ELECTRONIC COMMERCE REGULATION

Currently, Nigeria's e-commerce market is estimated to be valued at about USD $13 billion driven largely by a thriving Financial Technology (Fintech) eco-system. The Nigerian e-commerce sector has become beholden to global investment. This is evident in the over $70 million investment in our startups in 2018. Thriving companies in e-commerce such as Jumia, Konga, InterSwitch, etc. are harnessing collaborative digital networks to build ecosystems that are moving beyond linear supply chains to partner with providers of complementary products and services or sometimes even competitors. We are gradually seeing these companies create a brand-new economy along the e-commerce value chain. The recent listing of Jumia on the New York Stock Exchange is another pointer to the fact that there is potential in our e-commerce space.

This Regulation is focused on providing the requisite clarity for quality customer service and to ensure high standards in delivery of e-commerce services to Nigerians. We shall also vigorously seek to protect consumers within the ambit of our mandate. It is intended to guide current and intending e-commerce players. We recognise the roles of the Nigerian Postal Service, Central Bank of Nigeria, Consumer Protection Council and other stakeholders here present. Your inputs and suggestions would help to shorten our journey to having a national direction on electronic and online commerce.

3) NIGERIA ICT INNOVATION AND ENTREPRENEURSHIP VISION (NIIEV) AND FRAMEWORK FOR THE IMPLEMENTATION OF (NIIEV)

The Nigeria ICT Innovation and Entrepreneurship Vision (NIIEV) is a compendium of policy recommendations and incentives designed to catalyse the achievements of the Nigerian technology entrepreneurship ecosystem. NITDA produced the NIIEV as policy response to the aggregated demands of the tech ecosystem. The NIIEV is being implemented through the Office for ICT Innovation and Entrepreneurship (OIIE) - a subsidiary of NITDA.

President Buhari in his speech at eNigeria Conference in 2018 gave a clear directive that the NIIEV must be fully implemented. It is a furtherance of this directive that we have invited stakeholders to review the NIIEV framework and contribute to its implementation.

4) FRAMEWORK AND GUIDELINES FOR ICT ADOPTION IN TERTIARY INSTITUTIONS

The world is becoming digital and tertiary institutions are where most of the digital and modernization research come from. The adoption of ICT in a coherent manner in our tertiary institutions is therefore a major pre-requisite to galvanising Research, Development and Innovation for sustainable

national development. Accordingly, we must ensure a digitally conducive environment in our tertiary institutions as modern education demands an appreciation of core IT principles, systems and methodology for such academic endeavour to be regarded as functional. The goal here is to provide a flexible and comprehensive general framework and guidelines for the deployment of ICT tools in Nigerian tertiary institutions for effective and efficient support of the core business processes of teaching, learning, research, and administration.

It is worthy of note that the work done so far on the regulatory instruments were mainly done by middle management staff of the Agency. This is in line with our quest to build internal capacity in addressing daunting challenges and responsibilities of developing and regulating ICTs for the benefit of all stakeholders. To a large extent, it has become a cost-saving and value-for-money measure in the process of actualising the various regulatory goals of the Agency.

Ladies and gentlemen, your task here is of great essence to our dear nation. I urge you to give the exercise your best. We have carefully selected you because we believe that your inputs would produce the thoughts that would take our nation to the next level, we all yearn for.

I thank you all for coming and wish you a fruitful engagement.

WELCOME ADDRESS PRESENTED

BY

ISA ALI IBRAHIM PANTAMI, PhD, FNCS, FBCS, FIIM, MCPN
DIRECTOR - GENERAL/CEO,
NATIONAL INFORMATION TECHNOLOGY DEVELOPMENT
AGENCY (NITDA), ABUJA, NIGERIA

AT THE
**PRESENTATION OF THE DRAFT NIGERIA SMART
INITIATIVES POLICY FRAMEWORK (NSIPF) TO
STAKEHOLDERS**

HELD AT THE
**SANDRALIA HOTEL, AUGUSTO HALL,
NO. 1, SOLOMON LAR WAY, JABI, ABUJA.**

ON
Thursday, 9th May, 2019.

May Peace, Mercy and Blessings be upon you all.

All Protocols duly observed.

It gives me great pleasure to address you this morning, and to welcome you most cordially to the official presentation of the draft Nigeria Smart Initiative Policy Framework (NSIPF) for promoting smart initiatives in Nigeria. Permit me first to congratulate all of us the stakeholders at this event today which demonstrates that Smart Initiative is a topic of interest in Nigeria.

The strategic objectives of the NSIPF for promoting Smart Initiatives in Nigeria are basically to grow smart-enabled resources and build a vibrant smart data economy. In line with these objectives, NITDA is determined to create an enabling environment to support variety of self-grown smart innovations from this policy framework. Additionally, the NSIPF is expected to reinvigorate the building of vibrant smart data platforms for digital-led innovation in Nigeria with policy direction for connecting smart ecosystems that cut across smart-viable sectors and industries. Specifically, the purpose of this Nigeria Smart Initiative Policy Framework (NSIPF) for the implementation of Nigeria Smart Initiative (NSI) are as follow:

i.   Provide platforms for initiating R&D and creation of awareness on the potential opportunities of smart

initiatives in Nigeria;

ii. Provide platforms for increasing investments in smart initiatives, smart services and adoption, policy direction for setting up and growing smart ecosystem that cuts across potential sectors/industries;

iii. Provide overarching coordination, directions and strategies for each potential sector/industry to set up smart platforms, governance structure and appropriate business models;

iv. Provide recommendations for tools, architecture, specifications/standards, approaches/methodologies and other requirements for deploying smart solutions that are interoperable, cost-effective and in line with the pillars, vision and strategic objectives of Nigeria Smart Initiative; and

v. Provide direction and coordination for the implementation of Nigeria Smart Initiatives.

It is believed that we cannot rely on meeting our national vision on sustainable economic development through the conventional policies, approaches and tools. Hence, we need to make the best use of Nigeria's innovative potential through a focussed and well thought-out Nigeria Smart Policy Framework for promoting smart initiatives. The framework provides strong foundation and framework for adopting smart solutions needed to address the country's socio-economic challenges such as insecurity, unemployment, terrorism and kidnapping, corruption,

governance and democracy, economy and diversification, inefficient resource management, environmental and societal sustainability as well as climate change among others. It is important therefore to note that Smart Initiative in the Nigerian context will not be only about finding the best ways to empower people to develop solutions, but it is about helping the ICT sector in Nigeria to up-scale and institutionalise successful initiatives in a sustainable manner. The policy will also raise the visibility of our local innovators especially when implemented alongside similar frameworks/standards such as the Nigerian e-Government Interoperability Framework (Ne-GIF), Nigerian Data Protection Regulation, Nigerian Government Enterprise Architecture (NGEA), and a host of other policies launched by NITDA in the recent past.

Distinguished Ladies and Gentlemen, you will agree with me that the world over is moving into an Internet economy, a hyper connected world where data is the most valuable asset. This poses a significant threat to an oil-based economy like Nigeria and other economies that depend largely on natural resources. The new digital economy fueled by technological innovation with advances in Artificial Intelligence (AI), Internet of Things (IoTs), and Internet of Everything (IoE) promises to leave no sector untouched but only those who adapt very quickly to technological changes will derive the benefits that come with it. With the introduction of new technologies into cities through the

concept of Smart Cities, there is an upsurge in IoT market with use cases in core sectors including Smart Energy, Smart City, Connected Health, Connected Industry, Connected Buildings, Smart Agriculture, Connected Vehicles, and Smart Supply Chain promoting about 760 IoT vendors in hardware, software, and connectivity providers spreading across over 70 countries. In these innovative development, North America with 43% of verifiable projects takes the lead and it is closely followed by EU with 35% of the global IoT projects while Asia Pacific also recorded some significant projects with global market share of 16% without significant traces of similar projects on the continent of Africa. Consequently, African governments especially Nigeria standing as a regional leader will need to proactively do something about the new economy and its policy challenges in preparing for the disruption and pressure it brings to societies especially in the area of job and economic opportunities.

Relying on the most recent statistics from the International Monetary Fund (IMF), Nigeria still retains the number one position among the ten (10) largest economies in Africa closely followed by South Africa. With a population estimate of over 200 million people according to IMF report released in April 2019, Nigeria has GDP of $376.284bn making this nation – our country-- the highest GDP and the most attractive investment destination on the continent of Africa. The IMF report like

many other international analyses on the Nigerian economy consistently recommend the need for the country to make practical and more conscious efforts to improve investments in "tech industry" to enable us to compete favourably with top economies of the world. Interestingly, the tech industry most talked about to have held the greatest promises for our economy is exactly the sector where almost everyone in this hall today can play one or two roles in our collective resolve to achieve sustainable development in practical terms. The imperative here is that we cannot allow this country to continue to run a "catching-up" race in this critical sector.

We acknowledge the great challenges ahead especially in the areas of Investment and Funding, Infrastructure and Resources, Standards and Architecture, Interoperability, Insecurity and Privacy, etc but we must collectively agree to take the risks. Going forward therefore, NITDA as the country's IT regulator and developer will be working tirelessly with relevant stakeholders to mitigate the influence of known and unknown challenges in this area.

Permit me to remind us at this juncture that NITDA, as shown in the provisions of the NITDA Act 2007, is saddled with the responsibility of ensuring that Nigerians get the most of the opportunities offered by advances in technological innovations. In this regard, NITDA is making concerted efforts to promote Smart

Initiatives in critical sectors such as Health and Agriculture. In healthcare, we adopted collaboration and partnership strategies with the Federal Ministry of Health and other stakeholders to develop eHealth Policy as the starting point to provide an enabling environment for technology entrepreneurs who are willing to innovate and deliver novel healthcare solutions using advanced technologies that can assist health-care providers in procedure, practice management, remote care, health analytics, telemedicine, and digital/eHealth innovation to deepen domain expertise in the sector. In agriculture, I am happy to announce to us that NITDA is currently embarking on Smart Agriculture project called "Adopted Village" for Precision Smart Agriculture. The adopted village model will connect all agriculture stakeholders and entities through digital and smart platforms that will serve as drivers for connecting agriculture value chain towards the revival and diversification of the Nigerian economy.

Luckily for us, the Food and Agriculture Organisation of the United Nations have also introduced "Climate Smart Agriculture" projects in north-eastern states of Adamawa, Borno, and Yobe state as interventionist programme to strengthen the agricultural response to climate change in the region using innovative methods. We therefore expect the innovators to take a clue from these innovative solutions to grow more businesses in this area.

Ladies and gentlemen, supporting the development of Smart Initiatives is very important to us in Nigeria especially some of us in tech industry. I and my colleagues at NITDA desire to see home grown Smart Initiatives become an integral part of our development agenda, helping the society to be more responsive to social needs in critical sectors such as security, environment, health, education, and other areas that smart innovation will contribute to the national GDP.

Thank you.

BEING A SPEECH PRESENTED

BY
HIS EXCELLENCY
PROF. YEMI OSINBAJO SAN, GCON
VICE PRESIDENT OF NIGERIA

(Delivered by Isa Ali Ibrahim Pantami, PhD, FNCS, FBCS, FIIM
Director-General/CEO of NITDA)

AT THE
NORDIC-NIGERIA CONNECT

HELD AT
Radisson Blu Anchorage Hotel, Lagos

ON
WEDNESDAY, 22ND MAY, 2019

Protocols.

It gives me great pleasure to be here at the Nordic-Nigeria Connect. Indeed Sweden, Norway, Finland and Denmark have been countries that have partnered with Nigeria for a long period of time. Our relationship date as far back as the 19th century when your ships berthed on our shores in search of various items of economic interest. On a daily basis Nigerians enjoy Nordic fish, industrial products, technology transfer especially in the oil and gas sector and your ship-building expertise. On the other hand, many Nordic countries have been consistent patrons of Nigerian mineral and oil, making the relationships mutually beneficial.

Beyond the economic opportunities, social and educational exchanges have also been critical areas of interaction between us. Denmark for example ranks as the happiest people on earth same as every other Nordic country, yet it remains a global puzzle how Nigerians remain vivacious, ambitious and proud despite the various challenges being faced by the country. This boils down to the Nigerian spirit of resilience, hope and innovation. For us these traits are in-born. These are the traits that continue making Nigeria beholden to many despite the bad press we have had due to some few bad eggs among us.

In about a week, the first term of President Muhammadu Buhari

administration would wind down. President Buhari and I were elected on the mantra of Change in 2015. Our election was an unprecedented event in Nigeria. Here we had a candidate who had resiliently contested the presidential elections on four occasions leading the opposition to dislodge the incumbent president. That single event that had the world waiting in suspended animation proved that with Nigeria, nothing was impossible. We were elected for one single purpose- CHANGE! The nation was tired of the wanton ineptitude in governance, corrupt practices and arrogance of the ruling class. Nigeria voted us to usher in a new era of positive development. To bring honour, candour and diligence to public administration.

As the chairman of the National Economic Council (NEC), I have had the privilege of listening to various segments of our society. But I have paid more attention to the youths, I have listened to the Paystack story, how Shola and Ezra began a quiet revolution in payments processing back in 2014. Paystack has now become one of the most efficient payment processors in the country. Many did not pay attention to Andela until Mark Zuckerberg announced an investment in the Startup. Andela set out to solve the problem of top-class IT skills gap in Africa and the world. Andela recruits interns after a rigorous process in which less than 1% of over 70,000 scale through. The interns then go through a six-month intensive booth camp that sharpens them to become world-class. The energy, intelligence and zeal of the

over 500 strong office of young people in T-shirts and Jeans is enthralling.

Flutterwave is sited in a bunker-like structure. This company was founded by a team of ex-bankers, entrepreneurs and engineers. In less than two years of its founding this payment gateway has processed transactions valued over $2 billion and has over 45,000 merchants. Time would fail me to talk about Autogenius, Carido, Asoko Insight, Branch. These are startups that provide solutions ranging from auto-mechanics, micro insurance, micro loans, corporate intelligence etc. Indeed, the Nigerian genius is unleashed and we as government are reinventing ourselves to give optimum expression to these boundless bands of digital natives.

One common issue that has bothered many friends of Nigeria has been, why would such a beautiful and brilliant people have such leadership deficit. This question is what I think every participant here would want to see addressed. I doubt if your expectation is for me to reel out theoretical postulations on Innovating for Change. As friends of Nigeria, I believe the Nordic group of countries deserve to know what has changed or is changing in government to make life more abundant for our people. I would quickly highlight some innovation we have brought to governance in the last four years. We identified three main planks of challenges we needed to fix as quickly as we could.

The first was the gargantuan giant of corruption. No nation has ever survived the type of grand corruption this nation had gone through before our assumption of office. Tackling this issue needed strong and focused leadership. President Buhari was that leader who is ready to listen to good advice and innovative strategies to solve national problems. One of the first things we did was to mandate every government institution to comply with the Treasury Single Account scheme. This directive led to the consolidation of over 20,000 accounts and gave visibility to every government income and expense.

Another initiative we deployed with great success is the Voluntary Assets and Income Declaration Scheme (VAIDS). The scheme was an initiative to improve voluntary tax compliance targeted at the Nigerian elites. This recorded a huge success as government recovered over N30 billion within a year and got data for sustained compliance. The Economic and Financial Crimes Commission (EFCC) has recorded over 700 convictions in three years. These convictions are against some high-profile individuals among others. Our innovative approach to fighting corruption has earned global applause, the Foreign Policy magazine had this to say-

> *Buhari took office in 2015 pledging to combat corruption,*
> *and he won some important battles in the long-term war.*
> *During his term, the government recovered billions of dollars*

4 https://foreignpolicy.com/2019/02/28/nigerias-anti-corruption-vote/

in stolen assets, and financial flows through government ministries and agencies are now easier to track, which makes corruption harder.[2]

The average Nigerian has had very low expectation from government. To make government work for the poorest mass of our people, we embarked on some novel interventions that has left many wondering if this could be happening in Nigeria. If there is one thing I appreciate about the Nordic countries, it is your immense social investment. You have made sustained efforts at investing in your people. No wonder, you are some of the happiest people on earth. This government has brought about more economic inclusion by introducing micro loans to peasant farmers, petty traders and artisans. We are also implementing Home Grown Feeding (school-feeding) programme through which we are investing simultaneously in our school children and farmers. Some states have recorded over 100% increase in school enrolment while the national average has significantly improved. While these initiatives do not necessarily look beholden to superficial observers, these, to us, are the crucial investments that bring about sustainable peace and development.

Aside from social investments, it is on record that this administration has provided more infrastructure in a period it has earned least in the last 20 years. We have completed more

roads, connected more cities by rail, upgraded more airports and completed more power projects than any other government in the fourth republic. All these came about through innovative perspective. We decided that there would be no major turn-key project until we had completed the many uncompleted projects littering the surface of our country. This unceremonious approach to governance has delivered bounteous fruits to our citizens as the impact of government is being increasingly felt. These projects are aimed at stimulating sustainable economic growth.

We still have significant challenges in our security firmament. When we got on board the problematic areas were militancy in the Niger- Delta area and insurgency in the North East. In the Niger Delta we actively engaged all the parties in dialogue and we have been faithfully implementing the agreement.

This innovation in approach has secured peace and improved prosperity. On the North East we have recovered all the areas hitherto held by insurgents and are in the process of rebuilding the area. We have made substantial investment in the area and I also use this opportunity to bring the appreciation of Mr. President and all Nigerians to you for the Nordic bloc's commitment to rehabilitation and sustainable peace in the region. Your friendship and investment in our time of need is greatly appreciated by every Nigerian.

As we use this auspicious event to deliberate further on Innovating for Change, we look forward to your sincere interventions in forms of advice and support. We as a nation are determined not to fail, because the alternative would be cataclysmic for the global comity of nations. I want to assure you that indeed our nation Nigeria is on the cusp of positive change. While acknowledging the volume of work still left to be done, the aggregate consensus of Nigerians, however, is that the nation must change to work for all. This innovative change requires pragmatic leadership with mutually beneficial relationships such as that offered by the Nigeria-Nordic Community.

OPEN GOVERNMENT ADOPTION: PROSPECTS AND CHALLENGES FOR ACCOUNTABILITY AND TRANSPARENCY IN PUBLIC SERVICE DELIVERY

BEING A PRESENTATION

BY

ISA ALI IBRAHIM (PANTAMI), PhD, FNCS, FBCS, FIIM, MCPN
DIRECTOR GENERAL/CEO,
NATIONAL INFORMATION TECHNOLOGY DEVELOPMENT
AGENCY (NITDA), NIGERIA

AT THE
SIXTH COVENANT UNIVERSITY CONFERENCE ON e-GOVERNMENT IN NIGERIA

ON
Thursday, 13th June, 2019.

May Peace, Mercy and Blessings be upon you all.

Protocols.

It gives me great pleasure to be at this auspicious occasion aimed at charting the way forward in entrenching e-governance in the country. The National Information Technology Development Agency (NITDA) is saddled with the task of regulating and developing the IT sector of the country backed by an Act of parliament, NITDA Act, 2007. It is the prime Agency for e-government implementation, Internet governance and general IT development in Nigeria. These functions are backed by section 6 of the NITDA Act, 2007.

Our absolute and relentless support for e-governance development in Nigeria has made Covenant University a second home every year to discuss and chat the way forward on issues bothering on e-government. This year again, I am highly humbled and honored to be a special guest speaker to deliver a speech on "Open Government Adoption: Prospects and Challenges for Accountability and Transparency in Public Services Delivery".

The phrase "Open Government" was first used in the 1950s in the debates leading up to the passage of Freedom of Information Act (FOIA) in 1966 in the United States of America. Open government is a doctrine which holds that citizens have the right to access

the documents and proceedings of the government to allow for effective public oversight. Over the years, the traditional meaning has distorted and has shifted toward open government data. In this new shift, information technology is the main driver and enabler. As we know "the internet holds obvious promise as a tool for sharing more data, more widely, than has ever been possible.

Thus, the term open government or open government data (OGD) now refers to the concept that makes government data as a whole more open (that is, more publicly accountable and transparent) and as well a politically neutral motive that encourages innovation and value creation through easy and free distribution, use and reuse of government data even if they have nothing to do with public accountability and transparency. These possibilities are achievable through the use of information technology as an enabling platform.

Accordingly, government must find a way to ensure data is converted to structured formats that are usable to data prospects and make the data easily accessible. If the government makes this happen, then the concept of open government or open government data can be used as a double sword to achieve transparency and accountability and as well enable innovation and value creation potentials. These dimensions and potentials present a lot of prospects for open government adoption.

According to the World Wide Web Foundation Report, "In a well-functioning democratic society, citizens need to be informed and have access to information on government policies and progress. Open data which is freely available and shareable online, without charge dramatically reduces the time and money citizens need to invest to understand what government is doing and to hold it to account.

At the same time, because open data is made available in bulk and in formats that simple computer programs can analyze; comparing and combining data from different sources becomes faster and easier, even across national boundaries. This greatly enhances the ability of policymakers, scientists, and entrepreneurs to find solutions to complex development problems".

Open platforms give governments the opportunity to better understand the needs of their citizens. It also gives citizens the opportunity to participate more fully in governance. Information becomes more valuable as it is shared, less valuable as it is hoarded.

These prospects have led many scholars, international organisations, civil societies and individual to persuade governments all over the world to open their data to the public.

They argued that opening up government data has tremendous social, political and economic benefits. Access to knowledge unlocks economic value, and access to information enhances transparency, accountability and strengthens democracy. This is evident from the socio-economic development of advanced information societies.

As part of the global movement to take advantage of the opportunistic value argued for Open Government Data (OGD), many developed and developing governments have adopted and implemented various Open Government Data initiatives. Open Government Data has been claimed to be an extension of e-Government and a major factor in the United Nations e-Government Development Index (EGDI) and to achieving the global sustainable development goals (SDGs). Goal 16 of the Sustainable Development Goal (SDGs) recognizes the foundational role of transparent, accountable institutions for global development.

The United Nations (UN) has begun emphasis on the importance of Open Government Data (OGD) since its 2014 report on **e-government development index (EGDI)** and argued that OGD is becoming a new development resource. In her 2016 EGDI report, a substantive part of it was dedicated to OGD as a key performance indicator for EGDI. The focus is on the possibilities of using OGD to turn the 2030 Agenda for

sustainable development into actions.

In realization of the open government prospects in enhancing political, social and economic development, the Nigerian Government has made some progress on this trajectory. The Nigerian version of the Freedom of Information Act (FOIA) was signed into law in 2011 by President Goodluck Jonathan. In an effort to make commitment at a global level on open government, the present administration under the leadership of President Muhammadu Buhari (GCFR), had made commitment for Nigeria to join Open Government Partnership (OGP) in July 2016 as the 70th member country.

The OGP is an international multi-stakeholder initiative focused on improving transparency, accountability, citizen participation and responsiveness to citizens through technology and innovation. A national OGP is governed by equal representative of state and non-state actors.

There are four eligibility criteria that qualify a country to join OGP. They are fiscal/budget transparency, access to information, public official asset disclosure and citizens engagement. A country must be seen to have demonstrated commitment either by law or constitutional right.

After joining the OGP, Nigeria thereafter developed her 1st

National Action Plan (NAP) through a series of consultations and dialogues consistent with OGP Guidelines on country consultations and commitments. The first NAP was approved by the Global Support Unit at the 5th Global Summit and will complete its cycle in June 2019. The NAP has four thematic areas and three cross-cutting areas that drive different commitments. The thematic areas are: promoting fiscal transparency, access to information, anti-corruption and asset disclosure and citizen Engagement and empowerment. The three cross-cutting areas are technology and innovation, monitoring and evaluation and communication strategy. All the thematic areas are co-chaired by public and private actors and each thematic area is governed by a technical working group (TWG).

Having said all these, open government or open government data cannot succeed unless some enabling factors such as infrastructure, enabling laws/policies, guidelines and legal framework among other things that could promote and sustain open government agenda are addressed. These factors and challenges are global and national in nature.

At the global level, there are a lot of challenges facing the implementation of open government. These challenges are:

1. Inadequate leadership and political will by the government in power in most cases;
2. Unwillingness of public institutions that own public data to

voluntarily release their data;

3. Lack of trust from citizens due to inability of government institutions to guarantee their privacy while implementing open government initiatives;

4. Inadequate collaboration between government agencies, private sector and academia to make open government programs and initiatives citizen driven rather than government driven.

At the shore of our country, the challenges are similar but there are few ones that are peculiar to Nigeria. In addition to those mentioned above, the challenges that are peculiar to Nigeria are:

1. Lack of enabling law, policies and legal framework to support open government data implementation;

2. Lack of infrastructure and financial resources to support open government initiatives;

3. Lack of capacity, education and awareness on the possibilities or innovations that could emanate from open government; and

4. Lack of efficient National OGP Portal and other platforms that guarantees high quality data and encourages reuse of data to support research & development, innovation and entrepreneurship.

For us in Nigeria, there is leadership and a strong will from the presidency but we must find a way of bringing public institutions

on board. NITDA in collaboration with other stakeholders are working to ensure these challenges are addressed holistically at national level. NITDA is the co-chair of technology and innovation technical working group as technology cuts across all the thematic areas. As co-chair, we believe our major responsibility is to make available technological tools and capabilities to all the thematic areas of the OGP commitments while ensuring that the two dimensions to open government- accountability and transparency as well as innovation and value creation are realized.

We are researching on a suitable Technology Framework for National Open Government Partnership portal and any other open platforms. The effort is to ensure the technology framework encourages transparency and accountability and at the same time promotes innovative services and value creation through private companies and innovators. We have received inputs on the framework from local and international communities. We were at the International Conference on Theory and Practice of Electronic Governance (ICEGOV 2018) for this purpose.

Noting the significant lessons, insights and experience gained from the 1st NAP, OGP NAP Committee represented by the Co-chairs of the Thematic areas is developing a robust roadmap for the development of Nigeria's 2nd NAP as a matter of urgency. We would use this opportunity to address the challenges of

open government identified so far.

On this note, I want to confirm that my dream as the Chief Information Technology Officer of the country is to lay the foundation for a digitally transformed Nigeria and ensure that Information and Communication Technology tools and resources are available for this transformation.

I want to encourage the academia, political leaders, policymakers and captains of industry here present to take advantage of the conference to come up with resolutions and recommendations that will help the country better promote and address challenges of open government adoption not only for accountability and transparency in public service delivery but also to use open government to promote innovation and value creation in service delivery.

I want to say a big thank you for your attention.

BEING A SPEECH PRESENTED

BY
ISA ALI IBRAHIM (PANTAMI), PhD, FNCS, FBCS, FIIM, MCPN
DIRECTOR-GENERAL/CEO,
NATIONAL INFORMATION TECHNOLOGY DEVELOPMENT
AGENCY (NITDA), NIGERIA

AT THE
**NIGERIA DATA PROTECTION REGULATION (NDPR)
AWARENESS SEMINAR**

HELD AT
**LCCI Hall Olowopopo Drive,
Alausa, Ikeja, Lagos**

ON
Tursday, 20th June, 2019.

Protocols

It gives me immense pleasure to be here at the behest of the Nigeria Computer Society (NCS). Indeed, the NCS has become a respected voice representing some of the most important professionals in Nigeria today. Information technology has become the single most vital tool in our journey to greatness as a nation. I am proud to be a Fellow of the Nigeria Computer Society, especially under the distinguished leadership of our quintessential Prof. Aderounmu. I also use this opportunity to specially recognise the work of Mr. Tokunbo Smith in the promotion of the Nigeria Data Protection Regulation (NDPR). Mr. Smith, we appreciate your relentless effort to entrench data privacy and protection in Nigeria.

Ladies and gentlemen, the mandate of NITDA is broad indeed, so also are the expectation of Nigerians from the Agency. In the last three years we have made strident efforts to reposition NITDA to discharge its onerous responsibilities. We drew up a strategic action plan with seven pillars viz: IT Regulation, Capacity Building, Promotion of Government Digital Services, Digital Job Creation, Local Content Development, Cyber Security and Digital Inclusion. We have made tremendous progress in all these seven identified areas, because we have received immense support from the industry and especially the NCS which is the umbrella association.

Our journey to the NDPR began in 2013 when we issued the Draft Data Protection Guidelines. After that we issued the updated draft of the guideline which then became a Regulation. A Regulation being a subsidiary legislation, has equal status with the establishment Act based on the combined reading of Sections 12 and 19 of the Interpretation Act of 1963.

Many have asked, what gives NITDA the Authority to issue a Data Protection Regulation? This is a good question because, as my learned friends hinted me, late Justice Niki Tobi said-

One can add something to something, but one cannot add something to nothing because there will be nothing to receive the 'something'. The 'something' which will have nothing to support it will fall away, following Newton's scientific law of gravity or gravitation.

(Owners M/V Baco Liner 3 v. Adeniji (1993) 2 NWLR (Pt. 274) pg. 203)

So, if NITDA has no authority to regulate Data Protection, therefore all efforts, no matter how well intended would amount to nothing.

Section 6 NITDA Act 2007, The Agency Shall-

(a) *Create a frame work for the planning, research, development, standardization, application,*

coordination, monitoring, evaluation and regulation of Information Technology practices, activities and systems in Nigeria and all matters related thereto

(c) *Develop guidelines for electronic governance and monitor the use of electronic data interchange and other forms of electronic communication transactions as an alternative to paper-based methods in government, commerce, education, the private and public sectors, labour, and other fields, where the use of electronic communication may improve the exchange of data and information.*

Section 10 of the Interpretation Act

(2) *An enactment which confers power to do any act shall be construed as also conferring all such other powers as are reasonably necessary to enable that act to be done or are incidental to the doing of it.*

Let me quickly highlight the key issues in the NDPR.

a) **Lawfulness and Legitimacy:** Article 2.1(1a) provides that Personal Data shall be collected and processed in accordance with specific, legitimate and lawful purpose consented to by the Data Subject.

b) **Specific Purpose:** In addition to Article 2.1(1a) cited above, Article 3.1(7c) mandates the Data Controller to expressly

inform the Data Subject of the purpose(s) of the processing for which the Personal Data are intended as well as the legal basis for the processing. This has hitherto been observed in the breach. This, we believe would change as government is poised to stem the tide of brazen breach of people's right to privacy.

c) **Data Minimization:** Data Controllers are expected to collect the minimum required data and avoid unnecessary surplusage. Data that is not useful for the Controller ought not to be collected. No data shall be obtained except the specific purpose of collection is made known to the Data Subject. This principle relates also to the principle on purpose of collection. By insisting that the purpose for collecting or further processing of a data set must be communicated to the Data Subject, the regulation has closed the door to a multitude of potential abuses.

d) **Accuracy:** The NDPR provides that collected and processed Personal Data shall be adequate, accurate and without prejudice to the dignity of human person (Art. 2.1(b)). The NDPR prohibits the abuse or inaccurate representation of personally identifiable data, even if such data where given with due consent. Data Controllers and processors are required to ensure regular update of personal data in their custody to achieve this.

e) **Storage and Security:** Data Controllers are required to store data only for the period they are reasonably required to so do. The Regulation does not explicitly provide for a time period because that detail, we believe should be left to contract agreement. However, where such is not specified, the dispute redress mechanisms can specify what would constitute sufficient storage period. The Regulation also places the onus of security on the Data Controller and Processor. Art. 2.1(d) provides- personal data shall be secured against all foreseeable hazards and breaches such as theft, cyberattack, viral attack, dissemination, manipulations of any kind, damage by rain, fire or exposure to other natural elements.

f) **Confidentiality, Integrity and Availability:** Article 3 generally enumerates the rights of the data subject. One of the underpinning principles of the NDPR is that data control must comply with basic minimum standards of information security management. The Regulation specifies the role of the Controller and the Data subject in such case.

g) **Compliance and Enforcement:** One of the novelties of the NDPR is its compliance structure. The Regulation creates a nouveau class of professionals- Data Protection Compliance Organisations (DPCO). A DPCO is any entity duly licensed

by NITDA for the purpose of training, auditing, consulting and rendering services and products for the purpose of compliance with this Regulation or any foreign Data Protection Law or Regulation having effect in Nigeria (See Article 1.3 (xiii)). These professional firms would provide requisite training, services and other support to Data Controllers to aid their compliance with the NDPR. I hope to come back to the immense potentials of this arrangement shortly.

On enforcement, the NDPR classified Controllers into large and small categories. Those who process data of more than 10,000 data subjects are liable to forfeit 2% of their Annual Gross Revenue (AGR) while those handling less than 10,000, would lose up to 1% of their AGR. The NDPR would both bark and it would bite errant data controllers.

NITDA is well aware of the Data Protection Bill 2019 and we support it in principle, we however believe that the Nation has a lot to gain if the implementation of the Bill takes cognisance of the concepts espoused in the NDPR.

I would leave the in-depth analysis of the NDPR to the very enlightened speakers here present. I thank you for listening and wish you a fruitful engagement.

SECURITY & CONNECTING NIGERIANS FOR ENHANCED INTERNET GOVERNANCE

BEING A KEYNOTE ADDRESS

BY

ISA ALI IBRAHIM (PANTAMI), PhD, FNCS, FBCS, FIIM, MCPN

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AT THE

2019 EDITION OF THE NIGERIA DIGISENSE FORUM (NDSF) SERIES ON INTERNET GOVERNANCE FOR DEVELOPMENT (IG4D) AND NIGERIA IPV6 ROUNDTABLE

ON
Thursday, 20th June, 2019.

May Peace, Mercy and Blessings be upon you all.

[Protocols]

It is my pleasure to be here today at the 2019 edition of the Nigeria DigiSense Forum on "Internet Governance for Development (IG4D)" and "Nigeria IPV6 Roundtable". I want to use this opportunity to commend the promoters of this event for their consistency since 2009. Thank you for your efforts in advancing and expanding the ICT discourse.

The National Information Technology Development Agency (NITDA), as you may be aware, is charged with the responsibility of developing and regulating the Information Technology sector in Nigeria. As such the Agency is willing to support stakeholders that are willing to collaborate & contribute towards the development of the sector. We use a forum such as this to engage with stakeholders in different areas of information and emerging technologies. Such engagement efforts are geared towards ensuring the growth and optimal use of these technologies for our socio-economic development.

The internet is central to global digital evolution. The United Nations Educational, Scientific and Cultural Organization (UNESCO) acknowledges the potential of the Internet for fostering sustainable human development and building

inclusive knowledge societies, and also for enhancing the free flow of information and ideas throughout the world.

Therefore, the issue of how the internet is governed while also connecting Nigerians in a secure manner is an important one. Internet governance refers to the rules, policies, standards and practices that coordinate and shape global cyberspace. The cyberspace and how it is governed is a global issue. Nigeria is a major stakeholder of the global cyberspace. For instance, the .NG country code Top Level Domain as the Nigeria's identity on the internet has begun to grow rapidly. In three months alone, that is, December 2018 to February 2019, it grew by three per cent to reach 134,320 from 131,000 in December 2018. This is due to the recent efforts of NITDA on local content promotion.

The broadband penetration is put at thirty point nine percent (30.9%) as of the end of 2018 surpassing the 2018 target by 0.9%. While commending the facilitation efforts of the NCC and other critical stakeholders on this achievement, it is important to note that we, as stakeholders in the ecosystem, must never rest our oars till every Nigerian, urban or rural, rich or poor, young or old is connected and can get online.

Accordingly, NITDA has facilitated the establishment of various organisations such as Nigeria internet Registration Association (NiRA), and the Internet Exchange Point of Nigeria among others

to promote and ensure the safe use of the internet in Nigeria. We are collaborating with different local and international organisations such as Nigeria Internet Governance Forum (NIGF), International Telecommunication Union (ITU), Internet Assigned Number Authority (IANA), and Internet Corporation for Assigned Names and Numbers (ICANN) to ensure the internet is adequately governed and Nigeria is a major influence in decisions that are being taken at the global level.

As the custodian of .NG domains and other internet related infrastructure that promote digital growth and inclusiveness, we are ensuring that the cyberspace is secure and well managed. Also, for us, the coming of the 4th industrial revolution coupled with the digital revolution sweeping across many parts of the country in various stages of implementation further compounds the issue of internet governance and thereby making it even more critical.

Hence, NITDA in its new roadmap is focusing on 7 priority areas: IT Regulation, Capacity Building, Promotion of Government Digital Services, Digital Job Creation, Local Content Development, Cyber Security and Digital Inclusion. Whilst capacity building, digital inclusion and cyber security all relate directly to this keynote address, all the other priority areas also play important roles in supporting development and empowerment of not only the unconnected but the entire citizenry.

In our attempt to bridge the gap between the digital haves and digital haves-not, NITDA has established ICT innovation hubs across the six geo-political zones. Three IT Innovation Hubs have been established across in North-West, South-West and North-East. The plan is to establish ICT hubs in all the geopolitical zones. In addition, the Agency has established a number of Virtual Libraries in most of the Federal tertiary institutions, Digital Job Creation Centers (DJCC) across the country especially in the rural areas. We are currently establishing Digital Divide Bridging Centers (DDBC). All these centres have full internet access. We also recently issued Framework and Guidelines for Public Internet Access (PIA) to ensure safe use of free internet access in Nigeria. This is to close the digital divide and capacity gap for the desired digital-led economy.

The Agency is promoting entrepreneurship culture in Nigeria through its subsidiary, Office for ICT Innovation and Entrepreneurship (OIIE), with very close collaboration and partnership with stakeholders including, but not limited, to the National Social Investment Office (NSIO), other government agencies, ICT Hubs, multinationals, Angel investors, venture capital firms etc. Furthermore, The Nigerian ICT Innovation and Entrepreneurship Vision (NIIEV) with inputs from all public and private sector stakeholders and endorsed by His Excellency, President Muhammadu Buhari, GCFR will be launched in a few

weeks' time.

Whereas security can mean various things from physical security to cyber security, I will focus on the cybersecurity part since we are in an ICT forum though it must be noted that ICT also supports and enhances physical security. As we move forward with connecting everyone to the internet, we must not forget the security aspect of this. People will inadvertently at some point now or in the future use devices and applications to facilitate activities - learning, exchanging information and making payments to name a few. Whilst these technologies make life easier, various challenges will manifest as a result of their use. The most predominant of these are criminal activities in the cyber space.

Cybercrime occurs everywhere and is by no means only a Nigerian problem. It has caused serious reputational damage to the country. The Nigerian government introduced certain measures such as the Cybercrimes (Prohibition, Prevention) Act, 2015. The law provides for the prohibition, prevention, detection, response, investigation and prosecution of cybercrimes and for other related matters. That is followed by the National Cybersecurity Policy and Strategy, and a number of ad hoc interagency committees for the implementation of the strategy. Office of the National Security Adviser (ONSA), NITDA, Nigerian Communications Commission (NCC), Economic and

Financial Crimes Commission (EFCC) among others, are to implement and ensure sustained implementation.

NITDA seeks to create a cybersecurity-aware state, and to institute necessary legal and institutional framework to secure Nigeria's cyberspace as enshrined in NITDA's Act of 2007 Section 6(l): *"Advice the Government on ways of promoting the development of information technology in Nigeria including introducing appropriate information technology legislation, to enhance national security and vibrancy of the industry".* Our Computer Emergency Readiness and Response team (CERRT) along with the National Public Key Infrastructure (NPKI) project will support in these efforts. Various other efforts such cybersecurity awareness and capacity building across all geo-political zones, support for the creation of a legal framework for Child Online Protection (which in itself is an ITU obligation), capacity building for cybersecurity desk officers in the public sector and continued collaboration with MDAs and the private sector in areas of policy formulation, development and implementation are being carried out.

The current Management at NITDA led by my humble self is working assiduously to ensure we connect the unconnected Nigerians as well as ensure safe cyberspace for all. Therefore, I call on the private sector to support the Government's efforts at ensuring this is achieved.

To this end, I wish you very successful deliberations and I hope the outcome of the forum will be made available in good time to policymakers, IT practitioners and relevant stakeholders for actions. God bless you all, and God bless the Federal Republic of Nigeria.

I thank you for your attention.

EMERGING TECHNOLOGIES AND INNOVATIONS: ISSUES FOR TRANSFORMATIONAL LEADERSHIP IN THE NIGERIAN ARMY

BY
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AT THE
NIGERIAN ARMY HEADQUARTERS DEPARTMENT OF TRANSFORMATION AND INNOVATION TRANSFORMATIONAL LEADERSHIP WORKSHOP

HELD AT
THE NIGERIAN ARMY RESOURCE CENTRE, MAMBILA BARRACKS ROAD, ABUJA, FEDERAL CAPITAL TERRITORY

ON
Thursday, 20th June, 2019.

May Peace, Mercy and Blessings be upon you all.

[PROTOCOLS]

It gives me great pleasure to be one of the discussants at this auspicious occasion aimed at chatting the way forward in entrenching emerging technologies and innovations in transforming Nigeria Army leadership's digital capabilities for effective security and safety of the country's territorial boundaries.

Continuous leadership transformation and dynamism of the Nigerian Army and the Military, in general, is a must if Nigeria- the giant of Africa is to maintain its economic and regional influence and powers. Then, the leadership has to be strategic in its operations by fully exploiting the capabilities of digital technologies in most efficient manners. My invitation at this occasion as the CEO of National Information Technology Development Agency (NITDA) and the country's Chief Information Technology Officer (CITO) is taken with all seriousness. The fact remains that the success of the Military is a joint national effort which every person of goodwill and patriotic citizens must take seriously.

Emerging technologies and innovations are all about the new technical innovations or advancements being made by human

in making the world a better place. These technologies and innovations are digital in nature. These digital technologies have become major parts of our lives today and surely has made the tough lives easier yet quick. Emerging technologies such as Sensor technology, Internet of Things (IoT), Advanced Data Analytics, Drone, Geo-Information Technology, Blockchain, Artificial Intelligence, Virtual reality, Augmented reality, RFID, Robotics, mobile collaboration to mention a few, are changing innovation space in every sector.

The military has always pioneered emerging technologies. For example, technologies such as the Internet, Microwave, drone among other innovations are invented by the military and because of military operations. Digital technologies are transforming old and inefficient ways of working and making businesses much more agile. The question is how can the same transformation happen in the defence sector, where success on deployments depends so much on the ability to make the right decision under pressure? At a global level, digital technologies are supporting military operations in the areas where it needs to curb terrorist acts, help flooded communities and support relief work among others at very short notice. These internal security mandates are in addition to the primary responsibility of the military in the area of external defence operations. Performing these responsibilities effectively and efficiently is challenging.

For instance, establishing a conventional command and control centre into a deployed environment can be lengthy, costly and cumbersome. Accordingly, advanced countries are taking alternative options. Countries are beginning to establish command and control centres around digital technologies and those centres are smarter than the conventional ones. Mostly, such centres are set up faster with a significant reduction in the number of physical and human sustainment. Most importantly, a smart defence center gives field commanders among other things the collaborative tools, real-time information and agility they need to direct operations in a short period of time and under significant pressure.

To cite a typical example, the use of digital technologies and innovations was demonstrated in April's 2016 'Smart HQ' project powering the joint UK-France Griffin Strike military exercise. This exercise powered by defence digital technologies and innovations with advanced aerodynamics answered the question (how can the defence sector be agile and efficient where the success of deployments depends so much on the ability to make the right decision under pressure?) as "Yes".

In view of the global dimension in threats and trends of modern warfare, countries must be transformational in their thinking in building a security architecture that stands the test of time. For instance, the US established the Cyber Command recently, Israel

has a drone unit, South Korea is building robotic soldiers. Other nations are transforming their military architecture by infusing emerging technologies.

The warfare is moving toward deployment of highly automated robotic killing machines in real-world battlefields. The US Army Research Laboratory is making advancement in the "Internet of Battle Things". This is not too different from the warfare technologies available today such as unattended ground sensor, Unmanned Aerial Vehicles (UAVs) guided missiles and drones; physical robots from those as small as insects to large vehicles that can carry troops and supplies. Intelligent things, both networked and teamed with human warfighters, will be a ubiquitous presence on the future battlefield. The United Nations have started a discussion on the realities of Lethal Autonomous Weapons Systems (LAWS) and its implications.

Therefore, the topic "emerging technologies and innovations: issues for transformational leadership in the Nigerian Army is apt and we must do justice to it.

The Nigerian Army is known over the years for its professionalism in **peacekeeping missions and other combating expertise.** The Nigerian Army has the capacity for the greatest innovation if the right environment is created.

Our internal challenges have called for the involvement of the military in the internal security of the country in the last two decades. Since the return to democratic rule in 1999, Nigeria has witnessed different forms of conflict ranging from terrorism to human abduction and kidnapping, hostage taking, incidents of cattle rustlings to pipeline vandalism, crude-oil theft and civil unrest among others. All these have consequences on human and material resources as well as socio-economic stability of the country.

In spite of the challenges, we must commend and congratulate Nigeria Army for its achievements so far. We respect your courage. Going forward, the leadership of the Nigerian Army must think continuously out of the box. The Nigerian Army should lead **the military's digital technologies strategic road map (M-DTSR).**

The leadership strategy must prioritize emerging technologies and innovations and this should be centred around:

1. How emerging technologies and creative innovations can be integrated into the operations of the Nigerian Army. The integration should concentrate on digital innovations at:

   a. Protecting the territorial integrity of the country; and

   b. Proactively combating terrorism and security

crisis mentioned above.

2. The need for Nigerian Army leadership to re-focus towards developing and implementing creative strategies and innovative ways in intelligence gathering, analysis and subsequent actions. All the processes are to be aided by emerging technologies.

3. Research and Development: More research needed to be carried out in advancing intelligent gathering, adversarial learning and reasoning, cyber ware, surveillance among others. The leadership must engage and fund research that would help meet its needs.

4. Capacity Building for the Officers. Equipping the officers with modern knowledge of the digital age and cyberwar is key to recording success in the fight against terrorism. There is a need for technology capacity need assessment.

5. The leadership should continually act LOCALLY and think GLOBALLY.

The NITDA management under my leadership, in spite of the challenges, is creating an enabling environment to ensure every sector of the country use and adopt ICT for their operations in a more efficient manner. The following enabling environment in which NITDA has created is more targeted at and peculiar to the defence sector:

1. Nigeria Smart Initiatives Policy Framework (NSIPF) will support the Army in harnessing the power of innovative

and smart solutions in carrying out its operations proactively. The implementation of this policy framework has identified Defence as a key sector that will benefit from Nigeria Smart Initiatives. We would partner with the Military and other security agencies to develop its Smart Security Strategy.

2. Nigeria Government Enterprise Architecture Framework: The Army should leverage this architecture framework to build an efficient technology-driven security architecture. This will enable the Army to integrate its legacy systems with emerging technologies in an optimized manner thereby bringing total digital transformation to the military operations.

3. Intelligence and sharing of information is key to the military formation. We have issued Interoperability framework to guide public institutions including the Army to support information sharing and exchange.

4. Our Policy and effective management of .MIL.GOV.NG is to protect the Military on the World Wide Web.

We, therefore, call on the military leadership to improve its strategic initiatives on intelligent gathering, analysis and actions; develop and lead the military's digital technologies strategic road map (M-DTSR). There is a need for the Army to also advance its research and development efforts in order to fully exploit digital innovations for improved national security.

To this end, we are open to collaborative initiatives that promote the safety and security of our dear country's cyber and physical space. NITDA is ready, willing and able to aid the military to take Nigeria to the next level of security advancement.

Thank you for your attention.

BEING A KEYNOTE ADDRESS DELIVERED

BY

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CIBN Centre for Financial Studies
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Victoria Island, Lagos.

TOPIC:
MANAGING THE 'NEW OIL'- DATA PROTECTION AND
MANAGEMENT STRATEGIES FOR THE NIGERIAN
BANKING INDUSTRY

ON
Tuesday, 25th June, 2019.

Protocols

Data Collection, processing and usage is as old as mankind. Earl Ferrers stated, The collection of personal data is as old as society itself. It may not be the oldest profession but it is one of the oldest habits. When Adam, the first man was in the Garden of Eden naming the various creatures, what he was doing was data processing and labelling. He stored this information in his memory and passed it on to his children. This same activity of data gathering, processing and usage has continued in various forms and means. The need to protect personally identifiable information started receiving serious academic interrogation through a Harvard Law Review article published in 1890. The author stated:

> Instantaneous photographs and newspapers have invaded the sacred precincts of private and domestic life; and numerous mechanical devices threaten to make good the prediction that 'what is whispered in the closet shall be proclaimed from the house-tops'

The reality of our modern, technology driven-era is that so much data is entrusted to organisations and systems one hardly knows. As a matter of fact, multibillion-dollar infrastructure and resources have been deployed just for the purpose of capturing personal data. Businesses prefer to be paid in Data rather than

in Naira, hence the rising wave of 'FREE' things on the internet. The cost of the 'FREE' is paid for by the personal information freely given to the platform owner. Data, actually is wealth and it is indeed the New Oil. Those who control data control money, the society and people's lives. Facebook, Alphabet (owners of Google), Amazon, Alibaba etc. are highly successful because of the volume and value of data they control. Those who hold data hold the key to a sustained wealth in the digital economy. Our phone numbers, email addresses and other personally identifiable information is worth thousands of dollars. Those who know how to aggregate data and transform it to commercial value would continue to prosper in the new economic framework.

On the flip side, the abuse of personal data has led to dissolution of marriages, dysfunctional children, national security breach, financial fraud, cybercrimes, and civil strife among many other unpleasant outcomes. It is due to the far-reaching impact of data control and processing that governments all-over the world have started taking steps to stem the tide of data privacy abuse. It is in this regard that the National Information Technology Development Agency (NITDA), drawing from its mandate in Section 6(c) of the NITDA Act 2007, which empowers the Agency to develop guidelines for electronic governance and monitor the use of electronic data interchange and other forms of electronic communication transactions, decided to issue the Nigeria Data Protection Regulation (NDPR). The NDPR is the country's

boldest attempt at crafting a regulation that protects the rights of data subjects, cover data protection principles, ensure an efficient and inclusive compliance framework among others.

There has been some independent reviews and feedbacks on the Regulation. Permit me to share a few-

The Regulation is ...in substantial compliance with the GDPR and may provide more comfort to Nigerian entities doing business in the EU or with EU entities. – AeLex Law firm

NDPR is a step in the right direction.... it would promote transparency, consolidate accountability of Data Controllers and ensure that individuals are empowered to exercise control and demand compliance with their preferences where personal data is to be processed. - BusinessDAY

The Nigerian Data Protection Regulation 2019 ...is the first comprehensive and robust effort to regulate the data management sphere in Nigeria. - Andersen Tax LLP

There have also been criticisms that the implementation period was too short since the Regulation was issued in 25th January, 2019 and implementation began on 25th April, 2019. While observation is well-noted, it must however be stated that the shortness of time was majorly in favour of Nigerian businesses. Why so? Most digital businesses are international, since the EU

General Data Protection Regulation began in May 2018, every moment lost without a data protection law makes countries like ours the losers. We believe, the shortness of time has also been compensated by our licensing of Data Protection Compliance Organisations (DPCO) who are mandated to help entities attain compliance in the quickest possible time.

Objectives of the NDPR

The basic objectives of the regulation include:

a) safeguard the rights of natural persons to data privacy;

b) to foster safe conduct for transactions involving the exchange of Personal Data;

c) to prevent manipulation of Personal Data; and

d) to ensure that Nigerian businesses remain competitive in international trade through the safe-guards afforded by a just and equitable legal regulatory framework on data protection and which is in tune with best practice.

Key Terms of the NDPR

"Personal Data" means any information relating to an identified or identifiable natural person ('Data Subject'); an identifiable natural person is one who can be identified, directly or indirectly, in particular by reference to an identifier such as a name, an identification number, location data, an online identifier or to one or more factors specific to the physical, physiological, genetic, mental, economic, cultural or social identity of that natural person; It can be anything from a name, address, a

photo, an email address, bank details, posts on social networking websites, medical information, and other unique identifier such as but not limited to MAC address, IP address, IMEI number, IMSI number, SIM, Personal Identifiable Information (PII) and others.

'Consent' of the Data Subject means any freely given, specific, informed and unambiguous indication of the Data Subject's wishes by which he or she, through a statement or a clear affirmative action, signifies agreement to the processing of Personal Data relating to him or her.

"Processing" is any operation or set of operations which is performed on personal data or on sets of personal data, whether or not by automated means, such as collection, recording, organisation, structuring, storage, adaptation or alteration, retrieval, consultation, use, disclosure by transmission, dissemination or otherwise making available, alignment or combination, restriction, erasure or destruction;

Core Principles of the Nigeria Data Protection Regulation

a) *Lawfulness and Legitimacy:* Article 2.1(1a) provides that Personal Data shall be collected and processed in accordance with specific, legitimate and lawful purpose consented to by the Data Subject.

b) *Specific Purpose:* In addition to Article 2.1(1a) cited

above, Article 3.1(7c) mandates the Data Controller to expressly inform the Data Subject of the purpose(s) of the processing for which the Personal Data are intended as well as the legal basis for the processing. This has hitherto been observed in the breach. This, we believe would change as government is poised to stem the tide of brazen breach of people's right to privacy.

c) ***Data Minimization:*** Data Controllers are expected to collect the minimum required data and avoid unnecessary surplusage. Data that is not useful for the Controller ought not to be collected. No data shall be obtained except the specific purpose of collection is made known to the Data Subject. This principle relates also to the principle on purpose of collection. By insisting that the purpose for collecting or further processing of a data set must be communicated to the Data Subject, the regulation has closed the door to a multitude of potential abuses.

d) **Accuracy:** The NDPR provides that collected and processed Personal Data shall be adequate, accurate and without prejudice to the dignity of human person (Art. 2.1(b)). The NDPR prohibits the abuse or inaccurate representation of personally identifiable data, even if such data where given with due consent. Data Controllers

and processors are required to ensure regular update of personal data in their custody to achieve this.

e) **Storage and Security:** Data Controllers are required to store data only for the period they are reasonably required to so do. The Regulation does not explicitly provide for a time period because that detail, we believe should be left to contract agreement. However, where such is not specified, the dispute redress mechanisms can specify what would constitute sufficient storage period. The Regulation also places the onus of security on the Data Controller and Processor. Art. 2.1(d) provides- personal data shall be secured against all foreseeable hazards and breaches such as theft, cyberattack, viral attack, dissemination, manipulations of any kind, damage by rain, fire or exposure to other natural elements.

f) **Confidentiality, Integrity and Availability:** Article 3 generally enumerates the rights of the data subject. One of the underpinning principles of the NDPR is that data control must comply with basic minimum standards of information security management. The Regulation specifies the role of the Controller and the Data subject in such case.

g) **Compliance and Enforcement:** One of the novelties of the NDPR is its compliance structure. The Regulation

creates a nouveau class of professionals- Data Protection Compliance Organisations (DPCO). A DPCO is any entity duly licensed by NITDA for the purpose of training, auditing, consulting and rendering services and products for the purpose of compliance with this Regulation or any foreign Data Protection Law or Regulation having effect in Nigeria (See Article 1.3 (xiii)). These professional firms would provide requisite training, services and other support to Data Controllers to aid their compliance with the NDPR.

On enforcement the NDPR classified Controllers into large and small categories. Those who process data of more than 10,000 data subjects are liable to forfeit 2% of their Annual Gross Revenue (AGR) while those handling less than 10,000, would lose up to 1% of their AGR. The NDPR would both bark and it would bite errant data controllers.

The Regulation

NITDA policies, guidelines and regulations carry the same power and potency as the Act of the National Assembly establishing the Agency. As such culpable offenders of these guidelines and other regulations of the Agency can, on conviction serve various jail terms and /or fines commensurate with the offence so committed.

Specifically, Penalty for default in this Regulation is calibrated according to volume of data processed: above 10,000 attracts a fine of 2% of previous year's Annual Gross Revenue or N10,000,000, and below 10,000 a fine of 1% or N2,000,000.

Path to Compliance

Article 4.1(4) provides: *The Agency shall by this Regulation register and license Data Protection Compliance Organisations (DPCOs) who shall on behalf of the Agency monitor, audit, conduct training and data protection compliance consulting to all Data Controllers under this Regulation.* The DPCOs shall be subject to Regulations and Directives of NITDA issued from time to time. The criteria and conditions for grant of license are explicitly provided on the NITDA site at https://nitda.gov.ng/nit/data-protection-criteria/ . NITDA's goal is to create an eco-system of Data Protection Professionals which we envisage would provide sustainable employment for over 300,000 people.

In the wisdom of the drafters, criteria are spelt out for entities that would carry out compliance services. The Data Protection Compliance Organizations (DPCO) are entities, duly qualified, licensed by NITDA and could be law, audit, and IT professional services firms. Critical requisite experiences needed include data infrastructure management, protection and legal services, information audit, IT contract management and/or EU GDPR

service provisioning.

DPCO services to Data Controllers include data protection due diligence investigations, outsourced Data Protection Officers, data sciences, data infrastructure and service management, data breach remediation, investigation and planning, privacy breach impact assessment, training and awareness, etc. Financial obligations for the licensing regime are calibrated according to quantity of data subjects.

Conclusion

The NDPR strives to bring sanity to the handling of personal data as it is a critical resource for transformation of economies. The NDPR, addresses all issues and safeguards necessary for the handling of Personal Data belonging to Nigerians - processed either within its shores and/or transmitted outside.

Businesses can benefit from operating in compliance as transparency and best practice implicitly enshrined in the Regulation begets business growth and boast customer confidence. Furthermore, costs associated with a data breach such as paying back any money taken as a result of the breach, legal costs, compensating affected customers, share-value plummeting and having to pay for the right protection, can be avoided.

There are various conditions that can put a Data Controller in breach of this Regulation. The landscape is vast - almost limitless. DPCOs can create a huge industry and business empire by closely working with Data Controllers, to avert breaches or file for redress. For this regulation to bring desired fruitage, it needs to be owned and socialized, and NITDA needs your cooperation and support as we strive to ensure the safe use of our data, and avoid being in breach of the Law.

While wishing this august body a fruitful deliberation, I want to assure you that NITDA is willing, able and ready to cooperate with professionals like you to help actualize our common aspirations of a more productive business environment for the benefit of all.

Thank you

SPECIAL REMARKS BY

ISA ALI IBRAHIM (PANTAMI) PhD, FNCS, FBCS, FIIM
DIRECTOR-GENERAL/CEO
NATIONAL INFORMATION TECHNOLOGY DEVELOPMENT
AGENCY (NITDA)

AT THE
**DIGITAL AFRICA CONFERENCE
AND EXHIBITION 2019**

ON
Tuesday, 25th June2019

May Peace, Mercy and Blessings be upon you.

I am delighted to be a part of this august occasion- the 7th edition of the Digital Africa Conference. The National Information Technology Development Agency (NITDA) is happy to partner with the organizers of this Conference because we are committed to supporting the efforts of the ICT industry in Nigeria and because we see a convergence between the goals of this Conference and our goals as an Agency.

The Digital Africa Conference aims to inspire the digitization of every sector of the African economy and our efforts at NITDA are focused towards transforming Nigeria into a knowledge-based and IT-driven economy. We have developed a Roadmap to enable us implement our mandate and it is based on the following 7 pillars:

i.   Regulation;
ii.   Capacity Building;
iii. Local Content Development and Promotion;
iv.   Cybersecurity;
v.   Digital Job Creation;
vi.   Government Digital Services Promotion; and
vii. Digital Inclusion

The theme is this year's event "Africa's Tech Renaissance: Positioning Africa for The Age of Abundance" is quite insightful

and inspiring. We have known an Africa whose wealth has been measured by the minerals and natural resources it has been endowed with but we now move into an era where the wealth of the continent will be measured by its tech resources and the creativity of its citizens. The expression "data is the new oil" has almost become a cliché but as a nation that has depended on oil for decades, it is time that we examine that expression more closely.

First of all, we will observe that the leading companies of today are not the Standard Oils of yesterday that sell natural resources, rather they are the Googles, Facebooks and Amazons of this age who have a high level of valuation primarily because they warehouse massive amounts of useful data.

Incidentally, there are a number of parallels between data and oil:

- First a few similarities:

    o   Both play a key role in powering economies; oil for powering the industrial economy and data for powering the digital economy;

    o   The degree of wealth any organization or nation possesses is directly proportional to the amount of the resource that they control;

    o   Both need to be refined to be useful; with big data analytics and artificial intelligence, data is being refined

to create impressive insights and great wealth.

- Now for some differences:
    - o   Oil is finite while data is seemingly infinite;
    - o   Oil when used can barely be reused, whereas the same data can be used for different purposes at the same time.

Just before I end the comparison between data and oil, I would like to point out that both can experience the negative effects of banditry and militancy. We all understand how these vices relate to natural resources. With regard to data, it can manifest as identity theft, loss of privacy, fake news, etc.

To limit the manifestation of these vices, NITDA has developed the Nigeria Data Protection Regulation (NDPR). It provides an important framework to safeguard the rights of citizens to data privacy. It explicitly states that no data shall be obtained except the specific purpose of the collection is made known to the data subject. It also mandates that the data collectors obtain consent of the data subject before using their data.

We are delighted to host a session at Digital Africa this year and you are all invited to the NITDA Session on Day 3. It will give us the opportunity to give you some additional details of our efforts at NITDA that are helping to build a Digital Nigeria.

I wish you all a fruitful Conference and we look forward to receiving a copy of your Communique. Thank you for your kind attention.

**THE ROLE OF NITDA
IN PROVIDING A CONDUCIVE ENVIRONMENT FOR
INNOVATION TO FLOURISH**

BY
**ISA ALI IBRAHIM (PANTAMI), PhD, FNCS FBCS, FIIM,
MCPN,**
DIRECTOR-GENERAL/CEO,
NATIONAL INFORMATION TECHNOLOGY DEVELOPMENT
AGENCY (NITDA)

AT THE
**KADICT HUB:
STEM FESTIVAL
MURTALA SQUARE, KADUNA**

ON
Tuesday, 25th June, 2019

All Protocols duly observed.

May Peace, Mercy and Blessings be upon you!

I am honoured to attend the 2nd Annual STEM Festival of the Kaduna ICT Hub. NITDA recognises the importance of Information Technology (IT) as a vital trigger for innovation and we salute the efforts of His Excellency, Mallam Nasir El-Rufai in stimulating the development of IT in the State. It is no surprise that Kaduna State won *the Best State Government in Adoption of IT* Award at eNigeria 2018.

It is well known that Science-Technology-Engineering-Arts-Mathematics, now commonly known as STEAM provides the platform upon which IT can thrive in much the same way the steam engine provided a platform for the success of the first industrial revolution. In the past, scholars tilted more towards the Science-Technology-Engineering-Mathematics (or STEM) fields; they believed that these are the subjects most responsible for innovation.

Thankfully, though, they have realized that the Arts also play an important role in innovation. For example, Leornardo da Vinci is reputed to be one of the greatest inventors that the world has ever known. It is interesting to note that da Vinci was not only a great painter but is also renowned in the fields of civil

engineering, chemistry, geology, geometry, hydrodynamics, mathematics, mechanical engineering, optics, physics, pyrotechnics, and zoology. He reiterated the importance of the Arts in a famous quote: "Principles for the Development of a Complete Mind: Study the science of art. Study the art of science. Develop your senses- especially learn how to see. Realize that everything connects to everything else."

A more recent example is the famous Media Lab of the Massachusetts Institute of Technology (MIT) which does not restrict its research to fixed academic disciplines, but draws from technology, media, science, art and design. Another is the concept of Design Thinking, which has gained a lot of acceptance in recent times. It is a process for creating things and it is both an art and a science for human-centric problem solving. All great innovators in engineering, science, literature, music, art and business have practiced it.

The National Information Technology Development Agency (NITDA) was established in April 2001 to implement the National IT Policy. The core of our activities centre around the regulation and development of the IT sector. We also offer advisory services to both the government and the private sector with regard to information technology. Our mandate is very broad and covers every sector of the Nigerian economy. On assumption of office in September 2016, my team and I developed a Roadmap and

Strategic Action Plan to guide us in the implementation of our mandate and to maximize our level of impact.

The Roadmap addresses 7 core areas which we refer to as the pillars, namely:

      viii.   Regulation;

      ix.   Local Content Development and Promotion;

      x.   Government Digital Services Promotion;

      xi.   Cybersecurity;

      xii.   Capacity Building;

      xiii.   Digital Job Creation; and

      xiv.   Digital Inclusion.

Innovation is a central theme in the implementation of the activities for all these pillars. With regulation we have defined a rule making process that accepts input from stakeholders and we ensure that our regulatory instruments adapt to the trends in the ICT sector. We have developed standards, guidelines, frameworks and policies for different aspects of ICT for the various sectors of the economy.

The Local Content Development and Promotion pillar seeks to ensure that Nigerians play a leading role in development of IT products and the delivery of IT services in the country. Much as we desire this, we are also particular about the quality of services and products of our local ICT companies and we monitor them to ensure that they embrace creativity in their processes.

Government Digital Service Promotion supports the revamping of the process of communication between the citizens and government through the use of innovative ICT products.

Cybersecurity has assumed a greater level of importance as we make the transition from a resource-based society to a knowledge based one. Today, data has truly become the new oil. Unfortunately, some of the vices that have characterized the resource-based economy can manifest in a knowledge-based society; vices like theft, spillage and banditry can manifest themselves in loss of privacy, hate speech and fake news, to mention a few. The pillar supports the innovative ways of staying ahead of the cybercriminals.

The capacity building pillar addresses IT-focussed education of the people and the people as they represent the most important drivers for innovation in any economy. The Economic Recovery and Growth Plan of the administration of President Muhammadu Buhari, GCFR, also identifies the crucial role of citizens in the successful implementation of innovative policies and problems that will support the development of the economy.

Digital Job Creation is a necessity for today as the traditional brick-and-mortar businesses of yesteryears are being replaced by a growing number of click-and-mortar businesses. These businesses thrive on innovation and we are helping Nigeria

to build a work environment that identifies, incentivizes and celebrates IT-enabled creativity in the work place. Finally, the Digital Inclusion pillar ensures that access to innovative ICT tools and services is not the preserve of a select few. Instead, it seeks to integrate those who will hitherto have been excluded from the benefits of such services. Our recent efforts have supported persons living with disabilities, women and girls.

At this stage, I will shed light on some specific activities of NITDA that have deepened the level of innovation in the country, though the IT sector, they are:

1. Setting up an Office for ICT Innovation and Entrepreneurship (OIIE)
2. Underpinning Innovation with Traditional IT Research
3. Capacity building, Promotion of Digital Literacy and Participation in International Events

NITDA established a subsidiary called the Office for ICT Innovation and Entrepreneurship (OIIE). The OIIE supports the development of the ICT startup ecosystem. The Office organizes a number of ICT based events such as the Start-Up Friday, Start-Up Clinic and, recently, the Future Hack event. The most innovative startups are then selected and supported. Recently, the Nigeria ICT Innovation and Entrepreneurship Vision (NIIEV) was developed through a stakeholder approach and has also been endorsed for implementation by Mr. Presdient.

It is a unifying document that comprises policy recommendations and incentives designed to strengthen the Nigerian technology entrepreneurship ecosystem. The Vision addresses the following:

- Digital Infrastructure;
- Education Reform, Skills Development and R&D; and,
- Support for the Ecosystem for Innovative Entrepreneurship.

We recognize that sustainable innovation must be underpinned by high quality research. To this end, the Infotech Research and Innovation Unit in the Corporate Planning and Strategy department of NITDA is coordinating IT-based and IT-powered research for different aspects of the economy. These effort has also involved us interfacing with academic institutions and the research departments of development partners and multinational institutions. The latter are encouraged to support ICT based research as part of their Corporate Social Responsibility efforts.

The level of innovation of a country is inextricably tied to the level of innovation of its citizens and this depends on the quality of education of the citizens. We have organized training in some emerging technologies as a way to inspire the participants to

further develop their ICT capacity. We have supported capacity building efforts for primary, secondary and tertiary institutions and we have not left out the NYSC.

In the past, literacy basically entailed the ability to read and write but today the concept of literacy has been taken a notch higher and extends to the digital domain. NITDA is a key player in the recently established National Digital Literacy Council and the aim is to drive the adoption of digital literacy across the country. We also support the participation of indigenous companies and startups at important ICT events across the globe. This helps to build their capacity and deepen their understanding of ICT trends and global best practice.

We are also very active in the Micro Small and Medium Enterprise (MSME) space and are core partners of the MSME Clinic programme of the Office of the Vice President. Among other things, we support the MSMEs to take their business to the web, we teach them how to market their businesses on social media, how to carry out research to enhance their businesses by learning from similar businesses in the same field as theirs.

We are committed to strengthening STEAM efforts and the institutionalization of innovation in the Nigerian ICT sector and are proud to partner with the KadICT Hub. With these few words, I wish you a very successful and rewarding event.

HI-TECH TODAY

AN ADDRESS

BY
ISA ALI IBRAHIM (PANTAMI), PhD, FNCS, FBCS, FIIM, MCPN
DIRECTOR GENERAL/CEO,
NATIONAL INFORMATION TECHNOLOGY DEVELOPMENT
AGENCY (NITDA), NIGERIA

AT THE
AT TECHNICAL PRESENTATION AND AN EXECUTIVE NETWORKING RECEPTION OF CARBON QUEST UK, THE BRITISH DEPUTY HIGH COMMISSIONER'S RESIDENCE, OYINKAN ABAYOMI DRIVE, IKOYI, LAGOS

ON
Thursday, 27th June, 2019.

May Peace, Mercy and Blessings be upon you all.

[Protocols]

It gives me great pleasure to speak at the technical presentation of the Hi-Tech Association in Nigeria event. This event presents an opportunity to address the future of emerging technologies in Nigeria, with a focus on opportunities for Internet of Things (IoT) adoption, innovation, job creation and contributions to the growth of the economy.

May I use this opportunity to commend the organisers of this event for their sacrifice and commitment, towards striving for an improved technology innovation, solution and adoption in Nigeria. This is commendable and must be encouraged.

We can all agree that IoT and associated wireless applications have taken us beyond connectivity to become part of our lives - creating a global nervous system. The world we live in is a rapidly game-changing innovative technological space, where-in the introduction of new technology is continuously transforming stakeholder expectations.

Digital innovation is re-shaping industries by disrupting existing businesses and operating models and also impacting society by presenting a series of potential opportunities reflected in

economies of scale.

When base technologies such as mobile, cloud, sensors, analytics, robotics and IoT are combined, the digital disruption that results from these combinations creates a new evolution in the world digital space. Thus, IoT has become one of the most significant technologies with a tremendous impact on social and industrial environments. It completely changed the understanding of gathering informational resources, doing exchange of data or the ways of communication.

The world population is expected to grow to about 7.6 billion by 2020 with growth in internet connected devices predicted to reach about 50 billion according to the Internet Business Solutions Group. This will result into having more internet connected devices than people. No doubt, the African environment is gradually feeling the wave of this technology which is facilitated by the widespread use of smartphones, cheap bandwidth and availability of big data analytics.

Adopting IoT technology in areas such as transportation, security, health, manufacturing, home and cities would facilitate improvement in the ease of doing business, deliver better environmental management, introduce comfort in homes and improve efficiency in industrial operations.

Statistics shows that about 48 percent of Nigerians are living in urban areas with the potential of a geometric increase as urbanisation continues to happen. With the number of people living in urban areas around the world predicted to rise to 6.4 billion by 2050, Nigerian cities like Lagos, Abuja, Kaduna, Port Harcourt and Kano to mention but a few, are going to get smarter. According to a recent Nielsen report, Nigeria has a rapidly-expanding middle-class population of over 42 million people. This has become evident in the entrepreneurship drive of its population and the increasingly significant role technology is playing in their lives.

Government institutions are playing key roles in making towns and cities run effectively. However, with a growing population and issues such as traffic, pollution, and public safety, cities are becoming more challenging to manage. Adoption of technology by making cities smart will no doubt help in solving most of these concerns.

Distinguished ladies and gentlemen, you may recall that the National Information Technology Development Agency (NITDA) was established in April 2001 to implement the Nigerian Information Technology Policy and coordinate general IT development in the country. It was mandated by the National Information Technology Development Act (2007) to create a framework for the planning, research, development,

standardization, application, coordination, monitoring, evaluation and regulation of Information Technology practices, activities and systems in Nigeria.

Its role therefore is to develop Information technology in the country through regulatory standards, guidelines and policies. It is the prime Agency for e-government implementation, Internet governance and general IT development in Nigeria. The Agency has over the years developed many policies, programmes and initiatives to facilitate the adoption of emerging technologies in the country.

NITDA has a Special Purpose Vehicle (SPV), the Office for ICT Innovation and Entrepreneurship (OIIE), which is focused on identifying and supporting promising Nigerian start-ups in the ICT ecosystem. The activities of the OIIE have enabled the promotion of local IoT solutions and providing those solutions with access to market and creating collaborative spaces where people can tinker and build.

There is also another Special Purpose Vehicle (SPV), the Office for Nigerian Content Development in ICT (ONC). ONC is established as a subsidiary of NITDA as part of a sustainable institutional framework to enforce compliance with the Regulatory Guidelines for Nigerian Content Development in ICT under the NITDA ACT, 2007. The strategic role of the ONC is to help develop

a truly indigenous ICT industry for wealth creation in the local economy through the implementation of the guidelines.

Nigeria is the 6th largest producer of crude oil and, over the years, we have relied heavily on proceeds from the oil sector. However, the administration of President Muhammadu Buhari, GCFR, has placed a lot on emphasis on growing the non-oil sector. This focus is paying off; according to the National Bureau for Statistics (NBS), the contribution of the non-oil sector to the real GDP has increased from 89.98% in the 1st Quarter of 2016 to 91.11% in the 2nd Quarter of 2017.

Deploying wireless technology in gas pipeline monitoring, energy generation, distribution, energy optimisation and usage will result in increased productivity, efficiency and safety. IoT technologies can also help to enable smooth and efficient delivery of electricity with green energy initiative and management. Saving more energy would result in cost reduction and increases reliability.

Digital inclusion is a pillar within NITDA's strategic roadmap. The Agency works towards providing universal access for Information Technology and systems penetration including rural, urban and under-served areas. Today, gadgets carry a huge number of sensors. A smart phone already has sensors like GPS, accelerator, and compass. IoT technology will help to

facilitate digital inclusion such as tele-assistant for aging and rural citizens.

One of the greatest challenge of IoT implementation is security of data and devices. Security and safety is a priority to the Nigerian Government with a budget of over one trillion Naira on security in 2019. Additionally, our cyber space is of great concern and constantly protected. NITDA also considers cybersecurity very critical by having it as one of the pillars of its strategic roadmap. The market potential of IoT is estimated to be worth $19 trillion in 2020. This is shared between private sector, estimated to have $14.4 trillion and public sector, estimated to have $4.6 trillion market share. This means there is an opportunity which countries like Nigeria can leverage on for its technology ecosystem.

In conclusion distinguished ladies and gentlemen, the fourth industrial revolution is upon us as the largest economy and largest population in Africa, we stand to gain immensely by leapfrogging from our present situation in the ICT ecosystem development to engaging the values of IoT, given the future requirements of the 70 percent youth population that makeup the Nigerian and indeed, African Population.

I look forward to the deliberations and discussions to follow, and I pray for useful engagements and learning for all.

Thank you all for your kind attention.

GOODWILL MESSAGE DELIVERED

BY
ISA ALI IBRAHIM PANTAMI, PhD, FBCS, FIIM
DIRECTOR GENERAL/CEO
NATIONAL INFORMATION TECHNOLOGY DEV. AGENCY
(NITDA)

AT THE
LAGOS EDUCATION TECHNOLOGY FAIR 2019 SUMMIT

TAGGED
"APPLICATION OF TECHNOLOGY TO ENHANCE HUMAN CAPACITY DEVELOPMENT AND INNOVATION IN AFRICA"

HOLDING AT
MUSON CENTRE, ONIKAN LAGOS

ON
28TH – 29TH, JUNE 2019

May peace and mercy be upon you all.

I am particularly delighted and honored to give a presentation at this very important summit on the topic tagged **"Robust ICT Policy Framework for a Knowledge Based Economy".** Permit me to express my appreciation to the management of EduTechAfrica 360 for the invitation to be part of this event that could not have come at a better time than now when there is need to leverage on Information and Communication technology for enhancing human capacity development and innovation in Africa.

Over the years, the Federal Government of Nigeria has initiated or adopted several ICT related policies and laws aimed at guiding the development of the ICT sector and harnessing its power for National development. But Nigeria, like other nations, faces the inevitability of the fast technological and market convergence of the global ICT industry and must therefore continue to evolve new ICT policy frameworks to accommodate convergence and maximize the potential of ICT for National development. ICT has increasingly become one of the dominant factors affecting every facet of development not only in Nigeria but the world over. Significant ICT advances are constantly taking place and continue to impact on socio-economic operations at various levels of society. ICT advances have brought about changes in the way business is conducted. At the moment nations and

organizations are investing more resources into the development and use of ICT in order to be more efficient and effective in their operations.

The link between a robust ICT policies and a knowledge based economy cannot be overemphasized and this can be viewed in a multidimensional way. The transformation of Nigerian economy which involves internal and external relationships through Information Communication Technology (ICT) to optimize products and services delivery is the most important element in the development of Nigeria as a nation. The development of information industry should be the driving force for industrialization and the late-take-off advantage should be taken to achieve a leap-forward development of the social productivity.

That is, the process of economic globalization and network based information flow will be further accelerated. Nigeria will be entering the era of creating a relatively comfortable life for all the citizens and speeding up the modernization drive. Therefore, for Nigeria economy to successfully be implemented on the basis of knowledge to meet the demands of citizenry both locally and globally, it is expedient to set in motion necessary mechanisms to implement the plan of action and adopt e-strategies.

Knowledge-based economy or knowledge economy as it

is widely known is an economy that makes effective use of knowledge for economic and social development. The development of knowledge economy based and the value added as created by qualified knowledge is directly related to a national-scale economic growth and sustainable productivity. Long-run sustained use of ICT in companies is likely to lead to higher profits and increased market share, but only if it is combined with organizational change and upgrading of skills of employees. New wireless and display technologies change office equipment and design, and the nature of work itself changes in a knowledge economy where creativity and innovation became more important than simple productivity in routine task.

On assumption of office in September 2016, my team and I came up with a Roadmap to develop the Nigerian ICT sector focusing on the following seven key areas:

1.   Regulation
2.   Capacity Building
3.   Digital Job Creation
4.   Local Content Development and Promotion
5.   Digital Inclusion
6.   Government Digital Services
7.   Cyber Security.

In the area of capacity building, we are developing human capacity through deliberate programs aimed at building the ICT

capacity of Nigerians. These include scholarship schemes for Masters and PhD degrees within and outside the country. We also organize training programmes for women, girls and People Living with Disabilities (PLWDs). We have a subsidiary called the Office for ICT Innovation and Entrepreneurship (OIIE) and it focuses on identifying and supporting ICT innovation and entrepreneurship in the country. Furthermore, we have an Office for Nigerian Content Development (ONC) which is our subsidiary focused on developing a truly indigenous ICT industry for wealth creation in the local economy through the implementation of the guidelines on Nigerian content development in ICT. We will spare no effort in developing an ICT capable populace that will help transform the Nigerian economy from a resource-based to a knowledge-based one.

Ladies and gentlemen, our expectations are high on this conference. Its outcome would add substantial value to the debate on how best ICT policies framework can accelerate Africa's development to a knowledge based economy. I strongly believe that the Continent's effort at adopting technology at all levels of governance can be greatly enriched by the theme and outcome of this conference. This, in my view, will go a long way in ensuring the enthronement of a technologically advanced Africa.

I thank you for your attention. God bless.

NITDA'S GIANT STRIDES IN REPOSITIONING THE IT SECTOR IN NIGERIA

BEING AN AWARD ACCEPTANCE ADDRESS

BY

DR ISA ALI IBRAHIM (PANTAMI) FNCS, FBCS, FIIM, MCPN

DIRECTOR GENERAL/CEO,
NATIONAL INFORMATION TECHNOLOGY DEVELOPMENT
AGENCY (NITDA), NIGERIA

AT THE

12TH EDITION OF THE AFRICAN LEADERS PAR EXCELLENCE AWARD & CONFERENCE

ON
Saturday, 29th June, 2019.

May Peace, Mercy and Blessings be upon you all.

[Protocols]

I am extremely honoured to be receiving such an important award as "The Most Valuable Public Personality of the Year 2019" and pleased to join past recipients who I have long admired and respected. I am earnestly grateful for the recognition I have received today, because I am very sure that every other nominee for this award were as capable if not more, of winning this award.

You may recall that I was appointed as the Director General/CEO of the National Information Technology Development Agency (NITDA) in September, 2016, by President Muhammadu Buhari GCFR. This was as a result of and a reinforcement in the administration's strong belief in the potential of the ICT Sector in Nigeria and the contributions I believe I could make towards national development. Upon assumption of office, we created a strategic roadmap aimed at repositioning the sector and focused on seven priority areas: IT Regulation, Capacity Building, Promotion of Government Digital Services, Digital Job Creation, Local Content Development, Cyber Security and Digital Inclusion.

Over the course of the since my appointment, I am happy to state that great strides have been made across all 7 pillars:

In IT Regulation, the Agency has developed and published several regulatory instruments. This year alone, five (5) regulatory instruments were signed into law in the first quarter while additional five will be released in the next few weeks. Furthermore, the Agency's regulatory interventions in the IT Projects Clearing House functions are focused on, among others, to ensure efficient utilization of public resources, to prevent duplication or superfluous projects, development of local content and to ensure shared services are used where possible as well as prevention of failed IT projects while encouraging better project outcomes. The process ensures that IT projects are effectively conceptualized and, the Agency's regular surveillance activity has captured over 750 IT-specific projects of Federal Government and resulted in a saving of over 16 Billion Naira in compliance with this process so far.

Within the Local Content Development pillar, NITDA's Local Content Guidelines were further strengthened by Executive Order's 003 and 005. It been estimated that Nigeria will spend about N120 billion by the year 2020 on importation of foreign technologies considering about 80% of ICT hardware and software purchases are still being imported. NITDA seeks to ensure that a larger percentage the procurement by MDAs are actually awarded to Nigerian indigenous firms who in turn develop quality software applications and hardware devices.

In line with the Federal Government's efforts at economic diversification, our efforts resulted in an unprecedented increase in the patronage of locally assembled devices. Records have shown that in 2015, Indigenous Original Equipment Manufacturers (OEMs) sold 98,224 devices in 2015, 154,424 in 2016 and 355,647 in 2017. This is unprecedented in the history of the country and this is expected to continue to grow significantly.

Furthermore, as a result of the Ease of Doing Business Initiative of the present administration and other friendly policies, NITDA's efforts attracted the establishment of AfriOne as an Indigenous IT company and an Original Equipment Manufacturer (OEM) in 2017. The Agency is reviewing 6 other applications for the Indigenous IT companies and Original Equipment Manufacturers (OEMs). We have also succeeded in regulating MDAs to repatriate sensitive government data and operations back to Nigeria from various overseas Data Centers.

Under the promotion of government services, digital job creation and digital inclusion pillars, the agency is facilitating the innovation and entrepreneurship culture in Nigeria through its subsidiary, Office for ICT Innovation and Entrepreneurship (OIIE), with very close collaboration and partnership with stakeholders including, but not limited, to the National

Social Investment Office (NSIO), other government agencies, ICT Hubs, multinationals, Angel investors, venture capital firms etc. Furthermore, The Nigerian ICT Innovation and Entrepreneurship Vision (NIIEV) with inputs from all public and private sector stakeholders and endorsed by His Excellency, President Muhammadu Buhari, GCFR will be launched in a few weeks' time.

Furthermore, the use of ICT in promoting Government digital services promotion resulted in President Buhari administration's enforcement of the Treasury Single Account (TSA), the Integrated Payroll and Personnel Information System (IPPIS) and the Bank Verification Number (BVN) policies, all ICT-enabled interventions aimed at enhancing the administration's public financial management reforms. These policies resulted in monthly savings of about N24.7 billion as well as facilitated the recovery of huge sums of money including the recent N1.6 billion from single account.

On Cyber Security, we are all aware that today's war is beyond the use of physical weapons – it is being waged in the cyberspace. NITDA in collaboration with other relevant Agencies of Federal Government have put effective measures at ensuring the security of the Nigerian cyberspace. It has forged alliances with international organisations and has been able to use it in mitigating catastrophic consequences huge damage and loss of

data of some recent cyberattacks such as the WannaCry.

It has also carried out several awareness programs across the geo-political zones on cyber security risks and management. It is also working on establishing a cybersecurity alliance involving public and private sectors to ensure maximum protection and coordination at the county level.

Furthermore, NITDA recently released the Nigeria Data Protection Regulation, aimed at ensuring adequate protection of citizen's data.

Winning this award would not have been possible without the support and inspiration of my colleagues for whom I have the deepest respect, and from whom I have derived the strength to challenge myself and perform better at each stage. Most importantly, I sincerely thank H.E. President Muhammadu Buhari, GCFR for the opportunity to serve and without whose continued support these achievements wouldn't have been realized. To my colleagues for helping me reach a stage where I can proudly hold up this award as a mark of my achievement, I say thank you. To the organizers, I say thank you as well and I promise that this is an encouragement for us to do more and we can only get better at our work.

God bless you all, and God bless the Federal Republic of Nigeria.

Thank you for your attention!

SPEECH BY

DR ISA ALI IBRAHIM (PANTAMI) FNCS, FBCS, FIIM
DIRECTOR GENERAL/CEO,
NATIONAL INFORMATION TECHNOLOGY DEVELOPMENT
AGENCY (NITDA), NIGERIA

AT
THE 2ND EDITION OF FUTUREHACK
NORTH CENTRAL ON EHEALTH CHALLENGES

VENUE:
NILE UNIVERSITY, ABUJA

DATE:
Tuesday, 2nd July, 2019

May Peace, Mercy and Blessings be upon you all.

All Protocols duly observed.

I am delighted to welcome you all to this hackathon event with the theme: "Innovative Technology for Addressing Local Challenges in Health sector in Nigeria for Social and Economic Development". FutureHack is an initiative of the Office for ICT Innovation and Entrepreneurship (OIIE), a Subsidiary of the National Information Technology Development Agency (NITDA. FutureHack is a national technology hackathon event, in which computer programmers and others involved in software development, including graphic designers, interface designers, project managers and domain experts to collaborate intensively on software projects. FutureHack is held at an academic environment to inculcate innovation and entrepreneurship culture in students and it is designed to generate ideas (and prototypes) to drive Nigeria's digital economy. This year, 3 editions of the FutureHack will be held in three (3) geopolitical regions -North-Central, North-West and South-West as follows:

1. FutureHack, NORTH-CENTRAL will focus on eHealth and hosted at NILE university, Abuja
2. FutureHack, NORTH-WEST will focus on eAgriculture and hosted at ABU, Zaria
3. FutureHack, SOUTH-WEST will focus on eEducation and hosted at OAU, Ile-Ife.

you may be aware, the African continent is a den of problems waiting to be solved and presents the next biggest market worldwide. In particular, Nigeria has a rapidly growing youthful population. The eHealth edition is aimed at finding futuristic and innovative ideas that address existing challenges in the Nigerian health sector. The challenges include:

1. Limited access to health services specifically at rural areas.
2. Records on death and birth based on health issues such as infant mortality rate for research and planning.
3. Automating the National Health Insurance Scheme for improved services.
4. Uneven access to skilled healthcare professionals.

Technology is already redefining the health industry for example Big data is now used in medicine as medical records get digitized, much more detailed comparative patient analysis becomes possible as lifestyles and medical histories can allow us to truly understand health risks and the impact of different treatments. The use of Social media may become the feedback mechanism that leads to continual optimization of health services. Also, tracking keyword activity on social media and search engines, tend to help identify and respond to disease outbreaks like Ebola.

Mobile technology of telemedicine is increasingly being used to reduce pressure on healthcare systems by removing the need to travel to see a healthcare professional. Surgical robots exist that enable more precise surgery, which speeds up recovery time, and also enables specialist surgeons to treat patients thousands of miles away.

In NITDA's strike towards the economic diversification initiative of His Excellency, President Muhammadu Buhari GCFR, we use this platform to stimulate creativity among the teaming and able Nigerian youth both in country and diaspora. Prior to today's event, NITDA in Collaboration with Ministry of Health and some of its agencies collectively identified the existing challenges in the sector. Representatives of these organizations are here to listen to the outcome of the hackathon event.

We believe today's Futurehack on eHealth will yield several viable ideas that will leverage on technology to improve the quality of health and increase demand for a better health in Nigeria.

Finally, our massive gratitude goes to the VC Nile University and their entire staff for giving us the befitting avenue to implement this event. We are sure it will further stimulate the innovation and entrepreneurship drive of the students.
Thank you very much for the listing.

ADDRESS BY

ISA ALI IBRAHIM (PANTAMI), PhD, FNCS, FBCS, FIIM, MCPN,
DIRECTOR-GENERAL/CEO,
NATIONAL INFORMATION TECHNOLOGY DEVELOPMENT
AGENCY (NITDA)

AT THE
14TH NIGERIA COMPUTER SOCIETY
(NCS) CONFERENCE

HELD AT
THE INTERNATIONAL CONFERENCE
CENTRE, GOMBE

ON
Tuesday, 16th July, 2019

All Protocols duly observed.

May Peace, Mercy and Blessings be upon you!

It is my singular honour and privilege to address this distinguished audience at the 2019 edition of the International Conference of the Nigeria Computer Society (NCS). The year 2019 is a pivotal one for NCS as we celebrate the 41st anniversary of the Society as well as the 14th edition of the NCS Conference. On behalf of myself, the staff and the management of NITDA, I wish to extend hearty congratulations to the NCS President and his team for this achievement.

The theme of this year's Conference, "Smart Nations, Digital Economies and Meaningful Lives" is very timely and is in sync with the global and national pulse on the need to use technology to better the lives of citizens. It sets the tone for interactions on how we can integrate technology into every facet of our lives-from health to finance, from governance to education and every other sector of the Nigerian economy.

The term 'Smart nation' focuses on the use of technology to empower citizens to live meaningful and fulfilled lives. Its predecessor is the term 'smart cities' which has been part of our tech parlance for some time; it was first used in the 1990s and then was actively promoted by companies like IBM around

the year 2010. It refers to cities where governments use technologies and, more importantly, data to better understand the cities in order to deliver better services.

Smart cities have had their high and low points. Many of the challenges encountered in the deployment of smart cities stemmed from a disconnect between companies developing technology and the government officials in the cities who manage those projects. The smart nation concept tries to address these challenges and has been actively promoted by the Singaporean government. It focusses on integrating technology into urban projects in a way that has a direct bearing on the lives of people.

The 2019 World Economic Forum meeting noted that human capacity or talent, not technology, is the limiting factor in transforming innovations into successful results. Similarly, a March 2019 publication by the Harvard Business Review reported a survey of directors, CEOs and senior executives and showed that 70% of digital transformation initiatives do not reach their goals. One of the reasons adduced for this was the tendency for organisations to focus more on technology that on the need to develop solutions with a predetermined user experience in mind. That is, technology was deployed but the real needs and capacity of the end users was not taken into account. The design of a Smart Nation Concept places a strong emphasis on people and rightly so.

It is thus interesting to note that the theme of this conference also includes a focus on meaningful lives as technology is really only worth deploying if it can make a tangible impact on the lives of people. This is a strong motivation for NITDA's IT Projects' Clearance initiative. We are committed to ensuring that government funds that are used for ICT projects provide tangible value for money in the lives of the citizens, are interoperable with other ICT projects, do not represent any form of duplication and are sustainable, amongst other things.

As we spend the next few days brainstorming, it is critical that the solutions that we propose are based on a commitment to promote people before technology. Our drive towards a Smart Nation should be based on a strong desire to enable Nigerians to live meaningful lives with respect to education, food, security, healthcare, wealth and so on.

The final part of the Conference theme- digital economies- provides a binding effect between technology and people since it represents a paradigm shift from the traditional ways of transacting to more digitally-enabled techniques. There is significant progress in this regards and the National Bureau of Statistics (NBS) reported that there were over 557 million transactions valued at about N34trillion on e-payment platforms in the Nigerian banking sector! That is a massive amount.

For example, the approved 2019 budget is N8.92 trillion and the amount spent online in the 1st quarter alone is valued at close to 400% the annual national budget. A digital economy will translate into transactions that go beyond just monetary transactions and this serves as a trigger for the successful implementation of a Smart Nation.

The Sustainable Development Goals (SDGs) of the United Nations, the Economic Recovery and Growth Plan (ERGP) of President Muhammadu Buhari's administration and our IT Roadmap at NITDA all lay a strong emphasis on the importance of putting the citizens first. We are confident that technology can help us achieve this goal and we are keen to continue our partnership with NCS, you our stakeholders and the entire ICT ecosystem in Nigeria to ensure that our people live meaningful lives through the aid of technology.

We are confident that innovative ideas will come from this Conference and we eagerly look forward to receiving your resolutions and the Communique. I thank you for your kind attention and wish you a very successful Conference.

THE IMPERATIVES OF INDIGENIZATION AND DATAFICATION IN THE QUEST FOR A SMART NATION

BY
ISA ALI IBRAHIM (PANTAMI), PhD, FNCS, FBCS, FIIM, MCPN,
DIRECTOR-GENERAL/CEO,
NATIONAL INFORMATION TECHNOLOGY DEVELOPMENT AGENCY (NITDA)

AT THE
COLLEGE OF FELLOWS (COF) BREAKFAST MEETING

DURING THE
14TH NIGERIA COMPUTER SOCIETY (NCS) CONFERENCE

AT THE
INTERNATIONAL CONFERENCE CENTRE, GOMBE

ON
Wednesday, 17th July2019

All Protocols duly observed.

May Peace, Mercy and Blessings be upon you!

Introduction

I am truly honoured to join the annual breakfast meeting of the Committee of Fellows (COF) for the first time and I consider it a privilege to address this gathering of illustrious personalities of the ICT sector of our dear country. You have played an essential role in the development of the sector and, like Isaac Newton said, the succeeding sets of ICT practitioners in Nigeria have been able to see further by standing on the shoulders of giants like you.

It is well accepted that great influence comes with great responsibility; a responsibility to serve as role models and catalysts for the digital transformation that we all desire in the country. It is with this in mind that I have chosen to speak on the Imperatives of Indigenization and Datafication in the Quest for a Smart Nation. I believe it captures 2 important issues that can determine our success in the Fourth Industrial Revolution.

Indigenization

I have decided to use the term 'indigenization', rather than the common term 'local content' because some people tend to perceive anything local as being inferior to anything foreign.

Interestingly, many of us still crave for our 'local' delicacies when we go to foreign lands in spite of the meal options abroad. Regarding ICT products and services, it is critical that we reinforce the mindset that foreign does not need to be superior in quality when compared with local. After all, even what people consider to be foreign is actually local to those who have developed such a service or product.

Indigenization refers to the process of creating things that are native and ensuring that products and services are developed or transformed in such a way that they suit a local culture or context. With respect to ICT then, we need to double our efforts in the promotion of products and services that have been developed in the country and those that have been customized to suit our context. However, it is important that we ensure that our indigenous products stand the test of quality. We must be swift in identifying quality issues, addressing them and refining our ICT products and services to make them attractive for use both within and outside Nigeria.

We stand to gain a lot from the promotion and adoption of indigenous ICT products and services. It will provide employment, develop the ICT ecosystem and stem the tide of capital flight. For instance, last year the NOTAP asserted that 70% of the technologies imported into the country are software. This translates to a staggering figure when compared with an

estimated amount of between $500million and $1billion of the technology imported every year. A good portion of these funds could have easily been channelled towards the development of our indigenous software industry.

The Executive Order #005 for Planning and Execution of Projects, Promotion of Nigerian Content in Contracts and Science, Engineering and Technology was signed by President Muhammadu Buhari on the 2nd of February 2018. Similarly, the then Acting President, Prof Yemi Osinbajo signed the Executive Order #003 on support for local content in public procurement by the Federal Government on May 18, 2017.

On our part at NITDA, we have carried out the directives of these Orders both through our IT Projects Clearance Committee and through our subsidiary- the Office for Nigerian Content in ICT. We have also ensured that some of the largest deployments of software in the Nigerian public sector have been locally developed. Our efforts have led to the tripling of the number of indigenous hardware products sold. We have also emphasized the need for quality by mandating new standards on manufacturing, such as the ISO 2015 standard.

A plan for indigenization of ICT must be undergirded by a commitment to research and development, as well as a support for innovation. The leading lights in the ICT community, many

of which are seated here, need to be part of these efforts. Our actions should also support reorientation and change management.

Datafication

Datafication can be defined as "the transformation of social action into online quantified data, thus allowing for real-time tracking and predictive analysis. Simply said, it is about taking previously invisible process/activity and turning it into data, that can be monitored, tracked, analysed and optimised. Latest technologies we use have enabled lots of new ways of 'datify' our daily and basic activities". This definition was given by Viktor Mayer-Schönberger, a Professor of Internet Governance and Regulation at Oxford and Kenneth Cukier, a journalist at The Economist and New York Times bestseller, in their book "Big Data: A Revolution That Will Transform How We Live, Work and Think".

There is an explosion of data today and the Data Never Sleeps project estimates that 188 million emails are sent every minute and there are 2.5 quintillion bytes of data generated everyday; a quintillion is a 1 with 18 zeros after it! Another interesting thing to note is that 90% of the data that has been generated was only generated in the last 2 years! The plethora of sensors and IoT devices have made it easier to capture and store data.

This data revolution has redefined our concept of strategic and lucrative resources. Nigeria has measured its wealth based on the minerals and natural resources that it has been endowed with. However, as we make a concerted effort to diversify our economy we need a paradigm shift to understand that today's wealth is no longer primarily embedded in the earth but is now in the data that we can extract from embedded and sensorized devices. Data now has the potential to generate earnings comparable to those currently generated by oil.

This trend is already being reflected around the globe, that is why the most prosperous companies of today are not those based on natural resources such as Standard Oil, rather they are those that intelligently mine data such as Google, Facebook and Amazon. It would be interesting to compare and contrast data and oil since we have become accustomed to wealth based on natural resources. In terms of the similarities:

- They are both pivotal in powering economies; data powers the digital economy while oil powers the industrial economy;
- They are both indicators of wealth as the degree of wealth any organization or nation possesses is directly proportional to the amount of the resource that they control;
- They are only useful after they have been refined; with big data analytics and artificial intelligence, data is being

refined to create impressive insights and great wealth. They have the following contrasting features:

- Oil is finite while data is seemingly infinite; As at 2019, the Nigerian oil reserves are being depleted by about 2.3 million barrels per day while as at 2016 there were close to 1 million tweets per day from Nigeria;
- Oil when used can barely be reused, whereas the same data can be used for different purposes at the same time.

Unfortunately, both can be subject to nefarious activities such as banditry and militancy. The effect of these vices on our natural resources are well known to us. On the other hand, with regard to data, these vices can manifest as identity theft, loss of privacy, fake news, etc.

NITDA has developed the Nigeria Data Protection Regulation (NDPR) as a way to limit the manifestation of these vices. It provides an important framework to safeguard the rights of citizens to data privacy. It explicitly states that no data shall be obtained except the specific purpose of the collection is made known to the data subject. It also mandates that the data collectors obtain consent of the data subject before using their data.

As Fellows we can support efforts that promote the use of

data and encourage our young ICT professionals to use data in innovative ways to provide insights that can develop our economy and sustain its growth. The work by the IT company BudgIT is an interesting example. They analyze the budget and provide useful insights for decision makers and businesses. We need to support activities that stem the 'yahoo-yahoo' boy syndrome by enabling these people to channel their obvious ICT talent into more ethical and productive activities.

Conclusion

Once again I wish to thank the President and entire leadership of the NCS for the opportunity to share a few thoughts with you. I encourage us to ponder on the Imperatives of Indigenization and Datafication as we seek to develop a Smart Nigeria. Thank you for your kind attention.

SPECIAL REMARKS DELIVERD

BY THE
ISA ALI IBRAHIM (PANTAMI), PhD, FNCS, FBCS, FIIM
DIRECTOR GENERAL/CEO NITDA

DURING
THE SERVICOM TRAINING

AT
CHELSEA HOTEL,

ON
Monday, 29th July, 2019.

All protocols duly observed.

It gives me great pleasure to welcome you all to this Sensitization program with the theme" SERVICE EXCELLENCE IN THE PUBLIC SECTOR" being organized by the SERVICOM unit of NITDA.

I am delighted to have you all here as you participate in this event. The program is aimed at promoting the importance of excellence in service delivery in the public sector which is intended to help build a nation. As we all know, the public sector is designed to specifically help government meet the challenges of providing excellent service. This can be done by following international best practice in customer service delivery through having effective service strategy, processes, mindset, behavior and building an excellent service culture.

Improving service excellence follows a cycle of continuous improvement: it is an incremental, measurable and consistent set of actions to become better in what we do. Feedback on service level and customer satisfaction forms the basis of continuous service improvement. The Public sector should be ready to move fast and adapt to ever changing requirements, find innovative solutions to deliver services that meet and go beyond the expectation of the public. In order to do so, public servants should continually revisit established ways of doing things.

Public officers should be able to deliver smartly at every level in the sector, smart organizations are in a better position to operate within quality frameworks so as to achieve excellence. Excellence should be a goal to be relentlessly pursued with the right attitude, discipline, and commitment. The public sector should adopt the use of quality management system and increase the use of ICT tools including e-services which will generate reasonable gains in terms of improved service delivery and also play a major role in national development.

It is pertinent to know that NITDA began operations in 2001 and the focus was on implementing the National Information Technology Policy. The NITDA Act was passed in 2007 to empower the Agency to regulate and co-ordinate IT development in the country. NITDA has now become "the clearing house for IT projects for the public sector. The Agency is committed to bringing government services closer to the public through Information Technology". With such a vast mandate, building skills and competence within the Agency is key to ensuring the delivery of its mandate. Hence, this program is designed with the following objectives in mind:

- Help staff of the Agency become more self-aware and understand their own focus and how each person has an impact on the customer experience;
- Build on individual service competences;

- Understand the value and importance of teamwork;
- Identify who customers really are, and what their needs and expectations are;
- Improve communication and listening skill.

It is important to note that technology is one of the drivers of service delivery because it has raised the bar for service expectations. At the click of a button, everyone accesses Information and knowledge as a result, consumers and members of the public now have less tolerance for poor service. Therefore, service delivery is critical especially for a technology focused Agency.

This program is specifically for the public sector employees and is designed to be an exciting and memorable two-day event for all participants. I am confident that what is learned will last long after the program has been completed.

"Excellence at organizational level can only be achieved through excellence at individual level".

Thank you and have a successful event.

GUEST LECTURE BY

ISA ALI IBRAHIM (PANTAMI), PhD, FNCS, FBCS, FIIM
DIRECTOR-GENERAL/CEO (NITDA)

ON
**INFORMATION TECHNOLOGY IN IMPROVING
ACADEMIC RESEARCHES**

AT
NIGERIAN CONFERENCE ON PHYSICAL SCIENCES

AT
UNIVERSITY OF CALABAR

ON
Tuesday, 20th August, 2019.

All Protocols duly observed.

May Peace, Mercy and Blessings be upon you all.

I wish to express my hearty congratulations to the Faculty of Physical Sciences and the entire leadership of the University of Calabar for putting this important conference together. The study of the physical sciences is very important because it gives us an understanding of the natural phenomena that govern how our world operates and this gives us the capacity to develop technologies that can improve our lives.

The National Information Technology Development Agency (NITDA) is mandated to implement the Nigerian Information Technology Policy through IT development and regulation. Our role therefore is to ensure Information Technology adoption and development in the country through regulatory standards, policies, frameworks, guidelines, programs and initiatives.

NITDA was established in 2001 following the Federal Executive Council's (FEC) approval of a National IT Policy for Nigeria. The Agency serves as the clearing house for IT projects in government as conveyed to MDAs by a service-wide circular no SGF.6/S.19/T/65 of April 18, 2006 and a more recent Federal Government circular no 59736/S.2C.II/125 of 31st August, 2018 signed by the SGF. The NITDA Act was passed in 2007, outlining

the Agency's mandate to Regulate and oversee the Development and effective deployment of IT for sustainable development in Nigeria.

Furthermore, the Agency has a Roadmap that has the following 7 priority areas:

   i.   IT Regulation;
   ii.   Capacity Building;
   iii.   Local Content Development & Promotion;
   iv.   Digital Job Creation;
   v.   Government Digital Service Promotion;
   vi.   Cyber Security; and
   vii.   Digital Inclusion

According to the Cambridge Dictionary, Research is the study of a subject carefully or in detail, especially in order to discover new information or understand the subject better.

According to UNESCO, Information and Communication Technologies (ICTs) refer to forms of technology that are used to transmit, store, create, share or exchange information. This broad definition of ICT includes such technologies as: radio, television, video, DVD, telephone (both fixed line and mobile phones), satellite systems, computer and network hardware and software, as well as the equipment and services associated with these technologies, such as video as well as the equipment and services associated with these technologies, such as video

conferencing and electronic mail.

Society depends on research to progress and ICTs can aid in carrying out all the tasks associated with academic research.

A typical research process includes the following steps:
1. Definition of research problem
2. Review of literature
3. Formulation of a hypothesis
4. Preparation of a research design
5. Collection of data
6. Analysis and interpretation of data
7. Report writing

There are a wide range of ICT tools that address each of these areas and we will be taking about some of them.

ICT Addresses the 'D-I-S-C' Challenges in Research. Some of the key research challenges that can be addressed by ICT are in the areas that I term the 'D-I-S-C' areas, namely:
1. Distance: Distance can be an issue when carrying out research. Information technology can blur geographical barriers and enable researchers to collaborate remotely.
2. Integrity: ICT allows scientists to replicate research results, prevent plagiarism and generally enhance the integrity of research results.

3. Speed: Time, they say, is money in the business arena but time is also of the essence in the area of research. ICTs have provided high performance tools for quick analysis of data.
4. Cost: The advances in ICTs and the creation of user-friendly tools have made the per-unit cost of research cheaper.

There are also some key applications of ICT in Academic Research and quite a number of ICT tools have been integrated into activities in the academic space. Some of them include:
1. Internet of Things (IoT)
2. Big Data Analytics
3. Digital Libraries
4. Virtual Instrumentation
5. Artificial Intelligence
1. IoT in Research

According to International Telecommunications Union (ITU), Internet of Things (IoT) is a global infrastructure for the information society, enabling advanced services by interconnecting (physical and virtual) things based on existing and evolving interoperable information and communication technologies. It refers to the interconnection of devices, usually to sense relevant data. IoTs are very useful in academic research because they aid in data collection and data analysis. With the

proliferation of all kinds of sensors that are used in different spheres (telecom, medicine, agriculture, energy, geology, the physical sciences, etc), researchers can obtain real-time data in data formats of interest.

Smartphones have provided researchers with a whole range of sensors that they can use to obtain data. Researchers have been able to make giant strides in the area of personalized health monitoring as a result of cheaper and more reliable wearable sensors.

Farmers have significantly increased their yield by monitoring multiple parameters through sensors installed on farms. RasGas, a Qatari Liquefied Natural Gas (LNG) provider installed sensors on trains and used IoT to save an equivalent of 3 days of energy production, which translated to about $8million

2.   Big Data Analysis

The quality of research conducted is directly proportional to the relevant data utilized. There is an explosion of data today and the Data Never Sleeps Report estimates that 188 million emails are sent every minute and there are 2.5 quintillion bytes of data generated every-day; a quintillion is a 1 with 18 zeros after it! Another interesting thing to note is that 90% of the data that has been generated was only generated in the last 2 years! There are 5Vs used to describe Big Data;

1. Velocity
2. Volume
3. Value
4. Variety
5. Veracity

With data analytics, researchers can make sense of the massive amounts of data available to them to obtain actionable insights that are based on real data.

3. Digital Libraries

Researchers cannot do without libraries. However, libraries have been transformed from the traditional brick and mortar institutions to digital institutions that give users the flexibility of accessing high quality materials regardless of where they are located.

4. Virtual Instrumentation

Researchers need to conduct experiments and these experiments require the appropriate instruments. One challenge is that in many cases it is difficult to buy multiple instruments that many researchers can use. Another challenge occurs when there are no existing instruments to carry out the specialized experiments required and this requirement is common for researchers. Virtual instruments provide a solution for this by making it possible to design user and purpose defined instruments that

are mainly powered by software. These instruments can be designed with software such as LabVIEW or can be programmed on Field Programmable Gate Arrays (FPGAs).

5.   Artificial Intelligence

Artificial Intelligence is changing research in ways such as:

a. The simplification of routine admin tasks that would have otherwise slowed down the research process;

b. Provision of smart content that is tailored to the specific requirements of the research;

c. Provision of personalized training for the researchers to provide skills needed for the research.

Virtual Reality and Augmented Reality have also becoming important ways of building the capacity of research teams for a low cost. For example, the Google Cardboard costs just $15.

NITDA has made some considerable milestones in Strengthening IT Research. This can be seen in the areas of:

1. IT Regulation;

2. Standards, Guidelines, Regulations & Frameworks-

    i.   Developed a draft e-Commerce Regulation for stake-holders review

    ii.   Nigerian Cloud Computing Policy. (Cloud First Policy)

    iii.   Nigerian ICT Innovation and Entrepreneurship Vision (NIIEV)

     iv.   Framework & Guidelines for ICT adoption in Tertiary Institution in Nigeria;

3. Cyber-Security – Internal Implementation of ISO27001;
4. Innovation Support and Digital Job Creation (Startup events, IT hubs, Policy support for ecosystem);
5. FutureHack;
6. Capacity Building; and
7. Interventions.

In conclusion, ICT is transforming our lives in every way and they are very useful in transforming research in a way that significantly reduces challenges that researchers face. NITDA is committed to ICT Research on the one hand and the use of ICT to enhance Research on the other. We look forward to collaborating with the academic community to further deepen the integration of ICT into academic research in the country.

Thank you for your kind attention. I wish you a very successful Conference.

SPEECH BY

ISA ALI IBRAHIM (PANTAMI), PhD, FNCS, FBCS, FIIM
DIRECTOR-GENERAL/CEO (NITDA)

AT
THE MINISTERIAL SCREENING

AT
THE SENATE

ON
Friday, 26th July, 2019.

Distinguished Senators,

Thank you very much the president of the senate Dr, Ahmad Lawal, the deputy president of the distinguished senator Ovie Omo-Agege, all other principal officers here present, Distinguished Senators from my beloved state Gombe State-Distinguished Senator Mohammed Danjuma Goje, Distinguished Senator Saidu Alkali and Distinguished Senator Amos Bulus. I also extend greetings to Distinguished Senator Abdulfatai Buhari, other Distinguished Senators in the ICT and Cybercrime Committee here present, my friends and associates that joined me to this Distinguished Chamber, good evening and may peace, mercy and blessings be upon you.

Mr President sir, I begin by thanking Almighty God for blessing me with this golden opportunity to be here in this distinguished chamber today and I use the opportunity to thank the President of the Federal republic of Nigeria, President Muhammad Buhari for finding me worthy of this nomination to be part of his cabinet. I also use this opportunity to thank this distinguished chamber for the opportunity given to me to appear before respected personalities for the screening. I consider this an honour and I appreciate it. My relationship with this respected chamber has been cordial from the time I joined the National Information Technology Development Agency at an official level on one hand and personal on the other. We maintained a very good and

cordial relationship that it helped me significantly in promoting and transforming the IT sector in the country.

I will speak briefly about my personality. According to my father, I was born and grew up in Pantami Quarters of Gombe Local Government in Gombe State around 20th October 1972. I was enrolled into a traditional school that we call Sangaya Qur'an school where I spent more than 4 years. Later on I was admitted into primary school then secondary school-Government Science Secondary School, Gombe. After secondary school I was again sent to another town where I spent 3 years acquiring religious knowledge. After that, my father sent me to university at the Abubakar Tafawa Balewa University (ATBU), Bauchi, where I studied Computer Science as my first degree. After my first degree I was retained by the university to teach and I proceeded to obtain an MSc in Computer Science also from ATBU. I obtained a Masters in Business Administration (MBA) in Technology Management at ATBU before moving to the United Kingdom (UK) for further studies. At the UK I had the privilege of attending the Robert Gordon University in Aberdeen Scotland, where I obtained my PhD in Oil and Gas Computing. During my stay at Aberdeen I had the privilege of teaching and supervising students at the undergraduate level. After my studies I was contacted by the Saudi government and I got an opportunity to go there to teach at the prestigious International Islamic university for 2years. I happened to be, with all sense of

humility, be the first Nigerian ever to teach at that prestigious university. I also spent many years at ATBU teaching at the Faculty of Information Technology; I taught there for over a decade. As noted earlier, I have a background of research in oil and gas computing.

In addition to these, I had the opportunity of attending Harvard University in the United States. I also had another opportunity of attending Massachusetts Institute of Technology (MIT) and the International Institute for Management Development in Lausanne, Switzerland, where I was also trained on Strategic Innovation. Furthermore, I was at the Cambridge University where I was trained on management. I had the opportunity of attending all these institutions and part of what I have achieved in academia, particularly at ATBU, where I happened to be the pioneer technical staff of the Information Technology department, was to champion the development of the entire curriculum of that department. I had the opportunity of training over a thousand students in the university in IT related courses and most of them are all over the country adding value to this great nation. At Saudi, I also happened to be among the pioneer staff that established the Faculty of Computer and Information Technology and was the head of technical writing department.

On the 26th September 2016, President Muhammadu Buhari, GCFR, appointed me as the Director-General and the CEO of the

National Information Technology Development Agency (NITDA). I joined the Agency on the 26th of September 2016 and I am grateful for honour by Mr. President; he brought me back to the country and I have had the opportunity of contributing my quota towards the development of our country. I am approaching the 3rd year as the CEO of NITDA and I will briefly describe some of my achievements at NITDA. The first is the reactivation of our responsibility of being the IT clearing house for all federal public institutions when it comes to IT projects. That effort alone has saved over 16billion naira for the Federal Government of Nigeria. This achievement is an unprecedented one, with all sense of humility. I believe that this is something that if it is maintained will go a long way in reducing the percentage of IT project failure in the country. Furthermore, part of what we have achieved at NITDA within this time frame is the enforcement of our local content policy and this means that Government is not in any way allowed to patronize foreign IT equipment until and unless if we are convinced beyond reasonable doubt that we have no capacity to it in Nigeria. As long as we have the capacity to produce any or to manufacture or to develop any software then the importation of such products is not allowed. Through that effort alone, what we have achieved in 2017 is unprecedented. In 2013, before I joined the Agency, the patronage of our local computers was around 82,000. In 2014, it became 92,000. In 2015 and 2016, it became around 92,000 and 150,000 respectively. However, by 2017 with our modest

effort, we were able to catapult that number to around 265,000 within a single year. This achievement is also unpresented.

In addition to these, I had the privilege of leading the Agency, with the support of my staff, to promote the deployment of ICT centers to 246 institutions in Nigeria. In addition to these, we established world class virtual libraries in federal universities all over the country. We also established Wide Area Networks all over the country and we trained Nigerians in various areas in ICT. This included people with disabilities; we gave specialized training to a substantial number of people with disabilities to the extent that some of them as of today have established their ICT centres and they partake in delivering ICT services and earning income.

Some Encomiums
by the Senators

Questions

#1. [Prof Robert Ajayi Boroffice, Ondo North, Deputy Senate Leader]

First of all, let me congratulate the nominee on your nomination for the post of a minister of the Federal Republic of Nigeria. Secondly, let me congratulate you for the good work you have done in NITDA.

#2. [Senator Mohammed Adamu Aliero, Kebbi Central]

Mr Nominee, let me first of all congratulate you for being appointed as a nominee by Mr President. Secondly, Mr President, let me state that this is one appointment that would certainly add value to this government. The IT sector in Nigeria needs to be transformed. It is one sector that has the capacity of employing thousands and thousands of people and I believe we have a technocrat, a well accomplished scholar who is equal to the task..so your appointment is a well deserved appointment.

#3. [Dr Aliyu Sabi Abdullahi, Niger North, Deputy Chief Whip]

First let me align myself in congratulating Dr Pantami on this very landmark achievement and appointment. Definitely you've left your mark in 2 areas- your very deep knowledge of Islamic studies and ICT.

#4. [Ibrahim Hassan Hadejia, Jigawa North-East]

The nominee, I want to extend my congratulations and I also want to tell this Senate that I can attest to most of the achievements that have been reeled out by the nominee as DG of NITDA. I have been to his office to make certain requests in terms of our initiative and the last time I was there he graciously arranged almost a 2 hour long technical session and at the end of the day he acceded to almost all 7 of the requests that we wanted, including arranging the women in ICT initiative in Jigawa, where we were given maybe a reasonable number of slots for the 5 week training.

Mr President, I can tell you that it was almost a miracle for we had young girls that have never operated a computer in their lives undergoing a 5-week intensive training and they were handed laptops and other accessories and before you knew it, they went back to their communities and became graphic designers, designing greeting cards, wedding invitations and even banners and posters for politicians when the time came. I also know that under his watch, the mandate of NITDA was made manifest. A lot of us didn't even know what NITDA was meant for in the past.

#5. [Senator Barau Jubril, Kano North]

Mr Nominee I am fascinated by your resume. It shows that you

have a very very good pedigree. In any case, you are well known in this country and one does not need to look at your resume before he agrees that you have a profound pedigree. You are in the same mound as the Vice President. The Vice President is an accomplished Pastor at the same time a Legal luminary. You are an accomplished Islamic Cleric at the same time an accomplished ICT expert.

#6. [Senator Abdulfatai Buhari, Oyo North]
Congratulations Mr Nominee!

#7. [Senator Adedayo Adeyeye, Ekiti South]
I congratulate the nominee! From your resume, you are a very qualified person..very knowledgeable in ICT, having attended some of the best schools in the world.

#8. [Senator Danjuma Goje, Gombe Central]
I stand here today a very proud person. Very proud because this candidate, whose only one side you have heard. There are 2 sides and it is very important to hear the second side. A computer scientist, that part you have heard but he is also a man of very high integrity and is a very very good, excellent, well known Islamic scholar...On behalf of the caucus in Gombe State, 3 of us, and on behalf of Gombe people, we are unianimously grateful to Mr President, for recognizing this very very special talent and bringing him to limelight. We totally endorse his nomination

and pray to Allah SWT to continue to guide you and raise you higher and higher and higher and higher. On this note, I will ask my colleagues and Mr President to ask the nominee to take a bow and go.

#9. [Senate President Ahmed Ibrahim Lawan]

The nominee indicated that he also has an Oil and Gas background, this will be a very valuable disposition and experience for us when we start working on the Petroleum Industry Bill (PIB); his training will come handy.