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SELECTED SPEECHES ON DEVELOPING THE NIGERIAN ICT SECTOR

By

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National Information Technology Development Agency (NITDA)

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SELECTED SPEECHES OF DEVELOPING THE NIGERIAN ICT SECTOR

By ISA ALI IBRAHIM PANTAMI PhD, FBCS, FIIM



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FOREWORD



When the President of the Federal Republic of Nigeria, His Excellency Muhammad Buhari, GCFR announced the appointment of Dr Isa Ali Ibrahim Pantami (FBCS), as Director General of the National Information Technology Development Agency (NITDA) in September 2016, the Information and Communications Technology industry in Nigeria expected a leader who is an embodiment of peace, justice and equity to bring stability to a very important but hugely underachieving institution. What most who knew him did not prepare for, was the speed at which the new head of Nigeria's premier ICT regulatory organ would hit the ground running.

This compilation of Dr Ibrahim Pantami's speeches and presentations, October 2016 to February 2018 becomes necessary for a number of good reasons. The consistency of his messages, his confidence in taking the main issues head on, and the clarity of his vision which has endeared this great scholar, cleric and administrator to a broad spectrum of stakeholders, colleagues and students. The complexity of challenges mitigating our nation's match towards sustainable and equitable progress, as well as the diversity of issues covered in his speeches and presentation within such a short period of time, make this compilation an invaluable body of

knowledge for the government, academia and industry, as well as students and enthusiasts alike.

It is therefore my fervent hope that the author's values and principles exemplified throughout this book will encourage its readers to strive to put our country Nigeria first in an attempt to make it a proud place to be called home by all and sundry.

Agu Collins Agu, PhD

Director, Corporate Planning and Strategy, NITDA
Abuja, 2018



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Inaugural Speech to the Members of Staff of NITDA on the 4th of October, 2016



May peace, mercy and blessings be upon you! All praises and thanks are due to the Lord of the universe. Good morning, senior management and staff of the National Information Technology Development Agency (NITDA). It is a great pleasure to meet with all of you today as your colleague and Director-General.

Let me begin by thanking you for the warm reception you have given me. I also want to thank the immediate past Acting Director General, Dr Vincent Olatunji, for his kind and gracious introduction last week when I came here to familiarise myself with NITDA and to collect the handover notes due to me, before my formal assumption of office. It turned out that our brother, Dr Olatunji, wasn't done putting together the handover notes, without which I couldn't start work effectively.

Fortunately, the notes were handed over to me on Friday, the 30th of September, 2016 at 3:15 p.m. I have given the notes a cursory, preliminary glance, and will keep in touch with Dr Olatunji to seek clarifications where necessary. I want to register my sincere gratitude to him for running the affairs of

this important Agency in an acting capacity for nearly 9 months, and for the handover notes he passed to me.

The handover notes have given me some insight into what is on ground here. In the next few days and weeks, I would like to meet with departmental and unit heads, individually and collectively, for a better appreciation of where the Agency is today and what challenges lie ahead of it.

First impressions, they say, last long. The first impressions that struck me when I first set foot here have been favourable, and I hope and pray these impressions endure throughout my tenure here. I began to feel at home from my very first day here. I can't stress it enough that I will continue to need your cooperation and support in our collective desire to grow this Agency, to fulfill its mandate, and to build on the praiseworthy successes of my predecessors.

I regard you all as my treasured colleagues, and I am here to work with you as a team. I need your prayers, advice, and cooperation in order to actualise the mission and vision of this Agency. I assure you that justice, fair play, transparency, and the rule of law will be the guideposts of my leadership and dealings with you. I have no enemies here; only friends. I am inspired by the timeless wisdom popularised by our President, Muhammad Buhari GCFR, in his inaugural address encapsulated in his famous declaration: "I belong to everybody and I belong to nobody."

I will strive to demonstrate in words and in actions that all of Nigeria is my constituency. Don't approach me with gossip. Don't come to me with malicious, ill-natured reports about other people. But I welcome any suggestion or information you have that will help grow this Agency we all love and work for. Remember, too, that you are welcome to call my attention to where you think I am going astray. Although I have a PhD in Computer Information Systems, I don't know it all; nobody does. I came here to serve Nigeria, and success is my priority.

My esteemed colleagues, the qualities that will make you successful during my tenure here are:

- 1) integrity;
- 2) expertise and professionalism; and
- 3) commitment to duty.

In addition, I want to categorically state that I am allergic to corrupt practices and favouritism. I will never tolerate these twin vices. So, let us join hands and say “No to corrupt practices and favouritism.”

In order to encourage productivity and motivate honest, ethical, hardworking members of staff, I will move staff welfare to the front burner, and introduce special awards for best performing staff. I am glad to continue with all the good projects of the Agency as long as they meet irreducible minimums in due process, and conform to the law that established the Agency. Where projects violate due process or

impose needless burdens on the core mission of the agency, they will be reviewed in the interest of the nation.

My doors are open to all staff members, including messengers and cleaners. Come forward with suggestions, ideas and observations. In official communications, official routine channels should be followed.

NITDA, as you all know, is a very strategic Agency. It is one of the most knowledge-based government institutions that require a harmonious blend of knowledge and creativity. Section 6 of the enabling law establishing NITDA and the Nigeria Outsourcing Policy and Institutional Framework for Nigeria (Paragraph 3.3) clearly encapsulates the general thrust of the objectives and functions of the Agency. To paraphrase Section 6, the law empowers the Agency to;

plan, develop, coordinate and monitor all matters relating to IT practices, activities and systems in Nigeria. This is further reinforced in the National Outsourcing Policy and Institutional Framework for Nigeria, which provides that, “The overall policy objective is the promotion of an enabling institutional, legal, regulatory, technological and Infrastructural environment for the sustainable development of the outsourcing sector in Nigeria.”

This therefore makes the Agency an important and strategic one, placing on it a huge responsibility and from which so much is expected. Clearly, the Agency is crucial to the

technological aspiration and development of our country in this ruthlessly competitive global world where we can't afford the luxury to lag behind. This is particularly true in these challenging economic times when our country dearly needs ICT in its bid to diversify its economy.

I would also like to remind all staff that the attainment of the objectives NITDA was set up to achieve is a collective responsibility of all staff. My role as the DG/CEO is to provide leadership, guidance, supervision, and motivation to all staff to harness all available resources towards the realization of our goals. In this task, as I pointed out earlier, I will be guided by the rule of law, established processes and procedures, equity and fair play. Accordingly, I will seek and require the support and cooperation of all staff. I want all of you to rededicate your energies and creativity towards moving the Agency forward.

Time flies quickly. There is no time for honeymoon. I am fully aware of that. I am also aware of the transience of this position. I won't be here forever. With your cooperation however, I want to use my time here to make a difference.

Finally, I want to reassure you that I have come here with an open mind. I am receptive to new ideas and suggestions. Most importantly, however, I want your single-minded commitment to ensure the success of NITDA and by extension the creation of a modern, IT-driven Nigerian society.

Thank you all for your time!



The Nigerian ICT Sector: A Haven for Investors



May Peace, Mercy and Blessings be upon you! I am very pleased to welcome you all to this very important Investment Forum. It presents us with a unique opportunity to tell our story to would-be investors, as well as receive useful feedback from them. I wish to express my sincere gratitude to the Management Team of the Dubai World Trade Centre for the partnership and support we have received in the coordination of this event.

Nigeria is a haven for investors! We have a large population of about 180 million people, many of whom are youths and are ICT-savvy. The size of our population offers investors a very large market for products. This is more interesting when one considers the fact that investors will also have access to a large base of highly skilled labour at a considerably lower labour cost than competing markets.

We also have one of the largest economies in Africa which, according to the International Monetary Fund (IMF), has a Gross Domestic Product (GDP) valued at 296 billion USD. According to the 2016 2nd quarter report of the Nigerian National Bureau for Statistics (NBS), the growth in our non-oil sector is driven by activities in Agriculture, Information &

Communication, Water supply, Arts entertainment and recreation, professional services and technical services.

The Information and Communication Technology (ICT) sector contributed 12.62% to the total nominal GDP in the 2nd Quarter of 2016, up from its 12.25% contribution in the 1st Quarter. We are redoubling efforts to increase the ICT's contribution to our GDP, as we consider it to be a veritable alternative to the oil sector whose contributions have dwindled over the past year. We invite you to partner with us on this mission.

Nigeria is equally blessed with abundant and varied types of natural resources, many of which serve as raw materials for the production of your devices. By having an investment presence in Nigeria, you will have a reduced need to import raw materials from Europe, Asia and the Americas. Furthermore, by refining those raw materials, you can also generate significant revenue by exporting them to other countries. We run a free market economy in Nigeria that encourages investment in the country, and the current rapid infrastructural development by the administration of President Muhammadu Buhari (GCFR) will make it easy for your business to be up and running in no time.

There are about 98 million regular Internet users in Nigeria and we have a teledensity that exceeds 100%. A National Broadband Policy is also in place to ensure that broadband is

available in the nooks and crannies of the country. The plan projects an increase in the broadband penetration from 6% to 18% by the year 2018. The level of ICT awareness amongst the populace has also grown impressively, coupled with effective deployment of ICT in both public and private sectors. It is also worthy to note that as at today, the security challenges of the past have been effectively dealt with.

Innovation and Entrepreneurship are key areas of focus for the Federal Government of Nigeria and we are sparing no effort to ensure that it receives the attention it rightly deserves. For example, we have sponsored 16 start-ups to participate at the Global Start-up pavilion at GITEX 2016. We are also setting up incubation centres across the country and encouraging entrepreneurship and innovation more than we have done in the 56 year history of Nigeria.

At NITDA, we have created a special office known as the Office for ICT Innovation and Entrepreneurship (OIIE) to provide the concerted effort required to provide a trigger for the anticipated significant increase of ICT's contribution to our GDP.

Mark Zuckerberg, the CEO of Facebook, was in Nigeria two months ago to attend the Aso Villa Demo Day- an initiative by the Nigerian Presidency to identify and promote 30 start-ups with the brightest home-grown innovative solutions. Mr. Zuckerberg admitted that he was blown away by the talent of

young Nigerians and many of his twitter and social media comments after the event, have reflected this. We invite you, our potential investors, to take advantage of this massive talent as you invest in Nigeria.

Our President is also keen on supporting entrepreneurs and he recently stated that "we recognize the private sector as the engine of growth, and a veritable partner in our economic agenda, and will therefore give the fullest support to foreign and domestic entrepreneurs."

We have experienced some degree of success in our participation at GITEX. For example, 2 of the startups we sponsored for GITEX 2015 forged partnerships with a Malaysian company at the event. Two others are being incubated by a Nigerian ICT firm and one Nigerian company that participated at GITEX 2015 forged a partnership with a German company to develop the software to drive their hardware. The product of this Nigeria-German partnership is being showcased at this year's event. It is our desire that we significantly scale up such partnerships and investments as a result of our participation at GITEX 2016.

The business environment in Nigeria is conducive and our President has recently commissioned the formation of a presidential commission to help to further improve the ease of doing business in Nigeria. Efforts are also underway in the Nigerian Senate to review the tax laws in order to improve the

ease of doing business.

We will be happy to get some feedback from you on how we can encourage you to invest in the ICT sector of Nigeria. We have a good working relationship with the Nigerian High Commission in Dubai. There is a Desk Officer that focuses on ICT-based investment at the consulate and liaises with another Desk Officer at NITDA. We urge you to take advantage of this as you dot the Is and cross the Ts in preparation for investment in Nigeria.

With these few words I wish to thank you for attending this Africa Investment Forum. I also warmly invite you to invest in the ICT sector of Nigeria and assure you that it would be a seamless and mutually beneficial partnership.

Thank you for your attention.



Leveraging on IT Innovation for Economic Diversification



May Peace, Mercy and Blessings be upon you! I am very delighted to welcome you all to this auspicious event. eNigeria is Nigeria's annual international conference on Information and Communications Technology (ICT), organised by the National Information Technology Development Agency (NITDA), in collaboration with relevant stakeholders. It provides a platform for brainstorming on emerging technologies, local innovation and relevant ICT issues for the socio-economic development of the country.

This is the 9th edition of eNigeria and our theme was deliberately chosen to align with the Federal Government's drive to diversify the economy. The diversification of our economy has become imperative in the face of dwindling revenue from the oil sector. ICT provides a veritable option for diversifying our economy and it has the added advantage of being able to improve efficiency and enhance productivity in all the other sectors of the economy.

We are fortunate to have a large percentage of young Nigerians that have a high level of interest in ICTs. We are creating an environment that supports high level ICT-based

capacity building for them. This will create the critical mass required to drive the Local Content programme of the Federal Government, championed by NITDA. We will collaborate with industry leaders and put policies in place to support young Nigerians to develop world class ICT products. This plan has informed our decision to invite several startups to eNigeria.

Nigeria loses \$2.8billion annually from the importation of ICT goods and services, including a whopping \$1billion spent annually on software imports. Locally manufactured computers represent less than 8% of all the computers imported into the country. Similarly, Nigeria is projected to expend about \$143.8 billion on ICT by 2019- a vast sum that translates to over 7 times the value of the 2016 national budget!

Needless to say, that we stand to benefit greatly from a Local Content Policy that encourages the development of local ICT products and services as this will significantly reduce capital flight. His Excellency, President Muhammadu Buhari, GCFR, rightly pointed this out at the Nigerian Economic Summit Group (NESG) 2016 meeting, where he stated that "Economic growth is impossible without a focus on made in Nigeria".

In addition to the emphasis that NITDA will lay on local content development and capacity building, we will also focus on regulation, E-governance and cybersecurity. We are making concerted efforts to create, as well as review existing

standards and guidelines. This will enable us regulate the sector in line with the highest global standards. We are committed to ensuring that incidents of fake and sub-standard ICT products and services become a thing of the past.

E-government will provide the dual benefits of improving efficiency in government and checkmating corruption. As we work towards getting our economy out of recession, it is pertinent to reduce waste to its barest minimum and we believe that E-government will support us in this effort. E-government will also provide the platform for the implementation of our nation's commitments on the Open Government Partnership. In addition to these, by using big data analytics we will be able to generate actionable data that will assist the government in policy formulation.

Security in the 21st century is highly reliant on ICTs and we want to encourage the development of ICT-enabled security services across all sectors of the economy. In addition to our support for the use of ICT for physical security, we are also committed to ensuring the cybersecurity of our nation. Our Computer Emergency Readiness and Response team (CERRT) and our Public Key Infrastructure (PKI) project will support in these efforts.

The issue of job creation is also very important to us at NITDA. According to the National Bureau of Statistics' national youth survey report; youths of working age, in the age bracket of 15

to 35 years are nearly 70 million. Unfortunately, they also report that over half of these are unemployed and many more are underemployed. We recognize that this challenge gives us a good opportunity to use ICT to empower our youth, create jobs and generate revenue for the country.

With these few words, I welcome you all to eNigeria 2016 and wish you very fruitful deliberations. Thank you for your attention.



An Overview and Status of the E-Agriculture Project



May Peace, Mercy and Blessings be upon you! I am delighted to welcome you all to this very important event, as it serves as a watershed for the National e-Agriculture project which we began about 2 years ago. I am grateful for the great support and endorsement that we have received from President Muhammadu Buhari GCFR, our supervisory Ministry (the Federal Ministry of Communications) and the partnership that we have received from the Federal Ministry of Agriculture and Rural Development.

Furthermore, e-Agriculture refers to the process of deploying, adopting and accepting ICTs into the different aspects of the Agricultural Value-Chain. According to the United Nation's Food and Agricultural Organization, it involves the conceptualization, design, development, evaluation and application of creative ways of deploying ICTs to improve outcomes in the Agricultural sector.

In addition, the workshop comes at a critical time in the life of our nation; a time where we have been challenged to look inward for other avenues for foreign exchange due to the dwindling income from petroleum products. It is widely

believed that the Agricultural sector of Nigeria has the potential to provide this alternative and we can significantly improve this potential by using ICT to drive the sector. This is one of the key motivations for our involvement in this project.

The National e-Agriculture Portal is a core part of the e-Agriculture programme. It was initiated in line with our objectives, as stated in the National IT Policy, as well as part of our e- Strategy, as captured in the Nigerian ICT4D Plan.

It is a one-stop shop for agricultural content for all the stakeholders in the Nigerian Agricultural sector. It provides an interactive interface for users to query datasets that are related to the Agricultural sector in Nigeria.

The system aims to make the various datasets of the Nigerian Agricultural sector readily available to stakeholders and highlights the strategic and operational components of the agricultural value chain in Nigeria.

Some key features of the Portal include the following:

- i) It provides a flexible system for identifying farmers in the country;
- ii) It gives a verifiable database of farmers;
- iii) It incorporates a dashboard for presenting relevant datasets in easy-to-follow formats;
- iv) It presents a platform for providing training for the stakeholders;

- v) It provides data analytics and business intelligence tools for stakeholders;
- vi) It provides a means of communicating key farming information like best practices and weather information to farmers; and
- vii) It provides a platform for linking various stakeholders in the agro-allied industries and hence a ground for marketing and advertising agricultural products.

The Front-end of the Portal gives the general information about it and shows icons for accessing and visualizing the content of the back-end. The Back-end of the Portal has an analytics engine to process the various agricultural datasets that form the basis for the displays on the front-end.

Furthermore, the datasets are sourced from various stakeholders, including the Federal Ministry of Agriculture and Rural Development, Nigerian Meteorological Agency (NIMET), the International Institute of Tropical Agriculture (IITA), etc. Interestingly, many of our stakeholders are here and with your partnership, we will always have the relevant data to keep integrating the systems.


We will take advantage of smartphone technologies, big data analytics, social networking and other cutting-edge technologies to ensure that farmers and stakeholders have actionable information upon which to improve their process and generate more income. The farmers will also have access to training through the Portal's e-learning module. They will

be able to take advantage of the Rural Information Technology Centres (RITCs) of NITDA to access relevant information using our facilities at those centres.


We realize that a number of our farmers will be more at home with content in their local dialect. As a result, we have plans for the domestication of the content in Nigerian languages.

Therefore, we are here today to obtain the buy-in of the key stakeholders that will drive the e-Agriculture project in the months and years to come. We are also eager to get your suggestions on the different aspects of the Portal to enable us integrate them into the ongoing upgrade of the overall systems.

With these few words, I wish to welcome you all once more, to this Workshop and I wish you very beneficial deliberation.



National Information Technology Merit Award (NITMA): Acceptance Speech



May Peace, Mercy and Blessings be upon you! I am delighted to attend this Information Technology Merit Award and Fellowship Conferment ceremony. It provides a good opportunity to encourage the stakeholders of the industry for their efforts in the past year and it also provides an opportunity to encourage stakeholders to redouble their efforts in the upcoming year. I wish to commend the Nigerian Computer Society (NCS) for this timely and important service to the industry.

It is with great pleasure that I stand before you to receive this Information Technology Award of Recognition on behalf of the National Information Technology Development Agency (NITDA). We are humbled by the recognition and grateful for the Award.

On behalf of the management and staff of NITDA, I wish to express my gratitude to the Nigeria Computer Society (NCS) family for the great support you gave us last week during eNigeria 2016. We are happy with the partnership that you have forged with NITDA over the years and I am eager to strengthen this partnership.

The process of developing the Information and Communication Technology (ICT) sector in a society as diverse and complex as ours is quite daunting. However, the potential benefits of developing such a critical sector of our economy far outweighs whatever challenges such a process may entail. A well-developed ICT sector will significantly improve our economy. It will reduce capital flight, create jobs, generate revenue and help to position Nigeria as an ICT hub for the Region.

As we join hands to develop the sector, I wish to request your support in the following 7 key areas:

1. Regulation
2. Capacity Building
3. Local Content Development
4. Job Creation
5. E-Governance
6. Cyber Security
7. Digital Inclusion

Considering the wide scope of NITDA's mandate and the need to channel limited resources appropriately, we have identified these 7 areas as areas of priority.

We will give a renewed emphasis to regulation and will ensure that we develop standards and guidelines for different aspects of the ICT sector. In addition to this, we will put the necessary machinery in place to ensure compliance.

The need for effective capacity building efforts cannot be over emphasized. We plan to support the training of thousands of our youth in order to provide them with entrepreneurship and ICT skills. Our scholarship programme will also be reviewed to enable us to strike a balance between the economic realities we face as a result of the high forex rate and the need to give our best and brightest a chance to study in leading ICT nations.

NITDA will take the issue of local content very seriously. We will encourage, celebrate and patronize Made-in-Nigeria solutions but will also ensure that such products meet strict quality standards.

We will tackle the high unemployment rate in the country through the creative use of ICT. We desire to make e-government the preferred platform for government-citizen interaction and we will implement the National e-government masterplan to make this happen.

There have been many stories on foreign news channels about how a number of countries unwittingly fall victim to espionage as a result of the ICT products and services that they utilize. We want to ensure that this does not happen in Nigeria and we intend to achieve this by strengthening our capacity to respond to cyber threats.

ICTs have the potential to generate revenue for the

government. The Information and Communication Technology (ICT) sector contributed 12.62% to the total nominal GDP in the 2nd Quarter of 2016, up from its 12.25% contribution in the 1st Quarter. We want to put things in place to significantly increase the contribution of ICT to the economy.

In conclusion, I wish to thank you once more for the Award. I also wish to invite you as our key stakeholder to support us in achieving our objectives in these 7 areas. Thank you for your kind attention.



Special Remarks at ISACA Lagos Chapter Inauguration Dinner



May Peace, Mercy and Blessings be upon you all. It is such a great honour done to me, and the Nigerian Information Technology Development Agency (NITDA) to be invited as a Special Guest to this August occasion. ISACA previously known as Information Systems Audit and Control Association, has become a force to reckon with in the global information technology professionals landscape. With membership of over 140,000 professionals in over 80 countries, any government that undervalues this association does so at its own risk.

Nigeria is at the point where great nations are made or marred. The birth pangs of acute poverty, unemployment, economic inequality, social upheaval etc. are bedeviling the nation today. Some countries have seized occasions like these to change the trajectory of their history. They made clear, candid and conscious choices of where they want to be and history has proven them right. The Republic of Korea (South Korea) today ranks as one of the most technology savvy nations on earth. It had topped the ranking on e-governance application for a number of years. Out of the ashes of the Korean war, having no natural resources and other geographical advantages, South Koreans decided to invest in

their people. That was not just a mere resolve, they reasoned, having missed the first and second industrial revolutions, they would not miss the third revolution which is the information technology era. That singular national consensus has given birth to global brands like Samsung, LG etc.

Here we are as a nation. We have missed a lot of opportunities for greatness and progress. However, I am very excited that there is still a window of opportunity left for us to change the narrative. As the Chief Technology Adviser to the Government of Nigeria, I have traversed this nation and seen the incredible talents that abound among our young people. I have sat to listen to hackathons and Start-Up presentations and I get thrilled at what I see happening in our technology ecosystem. Technology incubation Hubs are sprouting from Lagos to Jos to Kaduna. There is a silent but steady revolution happening.

NITDA's mandate is to harness information technology as a tool for national economic, security and social progress. As the regulator of this dynamic sector, there is indeed so much ground to cover. The new NITDA under my watch has sought to focus on giving clarity to operators to help them have a level playing ground. We are strengthening our regulatory function to ensure government keeps up with the pace of industry. By focusing on regulation, we are trying to ensure innovators play by the rules; that consumers get value for

money spent; that government contracts are open for Nigerians to compete; that Nigerian IT products gain international fame and we start pushing forward our brand to the world.

In line with the recent Executive Order 003, which mandates that 40% of Federal Government procurements are 'made-in-Nigeria', NITDA has been at the forefront of championing the full implementation of this Order in the IT sector. With an average of N500 billion spent on ICT annually, ploughing back N200 billion to Nigerian companies would not be a bad start. What NITDA has done in this regard is to rejig our IT project clearance function through advocacy and the establishment of a transparent processes.

All proposed IT projects by Federal MDAs must be cleared by NITDA. In this respect we have seriously engaged with MDAs who had chosen to use foreign software where highly competitive and excellent local alternatives exist. This action has caught the attention of industry groups who have written letters appreciating NITDA for such timely interventions to protect Nigerian IT professionals and companies.

NITDA has also been making strides to open up opportunities for IT professionals. Recently, we stepped up efforts to ensure government agencies all have functional websites. This has opened up opportunities for many practitioners to come forward and meet this need. Also, we are currently working

on the framework for a multi-stakeholder ownership of our e-government strategy. The implication of this is that professionals like yourself can be part of the process, contribute your ideas and partake in the implementation process.

Today is not a day for long speeches, but I want to state that the New NITDA is willing, able and ready to work with organisations like ISACA Nigeria, to implement global best practices and local best application to the myriads of our national challenges using technology.

Thank you for listening.



Goodwill Message at the International Girls-In-ICT Day 2017



It is a privilege to be here to witness the efforts made by IBI CENTRE and her partners to bridge the gap of gender inequality in ICT and to develop the nation in ICT.

Due to the rapid development in technology across the world, it is obvious that ICT skills will be needed for decades to come. In this vein, the Federal Government of Nigeria through NITDA has initiated several policies and programs to facilitate and guide the development of the ICT sector. Therefore, we need to groom software developers, network engineers, computer scientists and technicians to manufacture and assemble digital devices that would form part of the list of sustainable jobs that could be created through ICT.


NITDA applauds such initiative of capacity building especially for young girls because the girl child makes over 50% of the world population; consequently, training her empowers her to become active members of the global ICT world and is a move towards national development. Like the popular saying, when you educate a woman, you educate an entire nation.

The opportunities that lie in the ICT sector are very numerous. Let me therefore enjoin the girls to pursue


academic and business opportunities in this vast sector as the government is poised to transit quickly to a knowledge-based economy as obtained in other countries such as South Korea, China and India. The effective strategies for digital Nigeria can become a reality by the year 2020 and with this in mind, NITDA will continue to push for programs that will create jobs and be a catalyst for innovation especially for the girl child.

Finally, let me thank all the participants for their determination to succeed and especially congratulate the organizers of this event. Stay focused, determined and humble.

Thankyou all.



Keynote Address at the Opening of the International Workshop on IPv6 Organized by ATCON



It is an honor and privilege for me to be here at this opening ceremony of the international workshop on IPv6 organized by ATCON. This is certainly a workshop that will help promote the implementation of IPv6 for the sustainable development of the Nigerian economy. It is in line with NITDA's statutory mandate to develop the Nigerian economy using IT through human capacity development. Advanced countries have moved from a natural resource-based economy to a knowledge-based economy, and this was achieved through massive capacity development and implementation of IT.

These countries have not only been able to develop IT, but have also utilized IT in the development of other socio-economic sectors of their country so that these sectors can generate wealth and recognition for the country. I am very optimistic that this can also be achieved in our dear country Nigeria with the implementation of NITDA's mandate and the implementation of workshops such as the one unfolding today.

The Internet, as we all know is one of the most powerful forces for increasing innovation and economic growth. It has positively affected most of the Nigerian sectors such as banking, government, security, education, etc. However, the ability and capacity of the Internet to exist and function for economic growth is underpinned not only by software, hardware, and networks but most importantly by IP addressing. IP addressing ensures that every host on the Internet can communicate and exchange information. IP version 4 is still very pervasive in the world today, however its usefulness will soon fade because of its limited address space, limited mobility, limited management, limited security, and the inability to support innovative and complex technologies such as Internet of Things (IoT), cloud services, IP telephony, and Artificial Intelligence (AI).

The IoT implementation for example will benefit from IPv6 abundance of IP address space of over a 340 undecillion addresses (3.4×10^{38}). This address space can be assigned to every atom on earth and still have trillions of addresses left. The capacity for near infinite addresses will drive these technologies which will in turn help with the advancement of every sector of the economy of Nigeria. The telecommunications sector should be the first sector to adopt and implement IPv6. This is because IP telephony is a global trend and what may determine the company with the largest client base in the future is its early adoption and implementation of IPv6.

Implementation of IPv6 will exponentially increase both the Internet and mobile penetration in the country. This will create a multiplier effect in terms of increase in the country's knowledge base, jobs, security, health care, governance and business activities.

I am glad to announce to you that NITDA has already been involved in the advocacy, provision of training, and implementation of IPv6. We have conducted series of trainings and created awareness for government MDAs and tertiary institutions, this was done in collaboration with African Network Information Center (AFRINIC) and the IPv6 council Nigeria. In addition, IPv6 addresses have already been distributed to many tertiary institutions for test running. NITDA in collaboration with one of its technology hubs have also created the first indigenous IoT board (Amadioha) to facilitate early adoption of IoT and to popularize the implementation of IPv6.

Ladies and gentlemen let me put it to you that the best time to start the implementation of IPv6 is now. This is because the current address space offered by IPv4 has been significantly depleted. For example, international registries like IANA, announced as long ago as 2011 that it had no more blocks of IPv4 left to distribute, Asia-Pacific registry APNIC reached IPv4 exhaustion in 2011, the same fate was experienced by European RIPE-NCC registry in 2012 and South American

LACNIC in 2014. Even the North American registry, ARIN reached its final stages of IPv4 in 2014. These statistics show that IPv4 has outlived its usefulness and IPv6 is here to take over. In fact if you look closely at most of your smart phones and network devices, you will observe that there is already a provision for IPv6 addresses. The country needs to start implementation immediately otherwise we may be caught unawares when the rest of the world has fully migrated.

Continuous capacity development and advocacy should be carried out by all stakeholders. Telecommunication companies and Internet Service Providers within the country should be sensitized to the implementation of IPv6; they are very important because they constitute the Internet backbone of the country. NITDA on its own part will collaborate with the industry, IPv6 council of Nigeria, relevant government organizations, and the academia to roll out standards/guidelines and roadmap on the implementation of IPv6 in the country.

Before I conclude, I will like to mention a few things about the National Information Technology Development Agency (NITDA). 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.

Over the years NITDA has been engaged in different IT development programs and projects aimed at developing IT and other socio-economic sectors of the country. Some of our projects and programs include the Rural IT Centers which aims to deliver access to information and business development in rural areas and Knowledge Access Venues, which delivers access to information and e-learning to tertiary institutions. Others are the Campus Area Networks which provides campus wide network, Voice Over IP, and Internet service within tertiary institutions, and virtual library which delivers electronic library systems both in secondary and tertiary institutions.


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 implementation of IT ideas. We have given a total of 307 international scholarships in IT related programs both at Master's and doctorate level. Currently among other things, we have partnered with Korea International Cooperation Agency (KOICA) to implement a master plan 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 policies and guidelines that border on

Public Key Infrastructure (PKI), systems and network, data protection, data interoperability, and government websites.


I strongly advise that you take advantage of this workshop because it is a special and rare opportunity. It will provide you with the knowledge and skills to adopt and implement IPv6, in other words, it will prepare you for the next revolution in IT.

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

Thank you very much indeed.



The 2017 African Academy Safari Conference



It is a great pleasure for me to be present at the “2017 African Academy Safari Conference”, which aims at fortifying the youths with requisite IT skills required to be eligible for employment both locally and internationally and also to be self-employed. This is in line with NITDA's statutory mandate to develop IT through human capacity development. Advanced countries have moved from a natural resource-based economy to a knowledge-based economy, and this was achieved through massive capacity development and implementation of IT. These countries have not only been able to develop IT, but have also utilized IT in the development of other socio-economic sectors of their country so that these sectors can generate wealth and recognition for the country.

I am very optimistic that this can also be achieved in our dear country Nigeria with the implementation of NITDA's mandate and the implementation of programs such as the one unfolding today. The truth is that there are no jobs and there are plenty of jobs. The former represents conventional jobs while the latter represents the vast potentials in the ability to create jobs by individuals. Creation of jobs by individuals can be daunting for so many of us especially when the requisite

skills have not been acquired. Ladies and gentlemen, let me assure you that the fastest way to be employable or to be self-employed both locally and internationally in this modern time is by the acquisition of IT skills which can be applied in any sector of the global economy.

For example, through one of NITDA's numerous IT capacity development programs, we have been able to create a pool of software testers that now earn foreign currency just by testing software for international companies. The new wealth is knowledge and information, and there is no other way of acquiring these faster than to implement IT in the area of capacity development. Look at the likes of Apple, Cisco, Microsoft, Facebook, Google, and Uber. These companies hold the largest chunk of the global wealth because of nothing else other than their mastery and implementation of IT. Wealth acquisition is shifting at an exponential rate from natural resources to knowledge resources, which is made possible with the mastery and implementation of IT.

Before I continue I will like to mention a few things about the National Information Technology Development Agency (NITDA). 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. Over the years NITDA has been engaged in different

IT development programs and projects aimed at developing IT and other socio-economic sectors of the country. Some of our projects and program include Rural IT Centers which aims to deliver access to information and business development in rural areas and Knowledge Access Venue which delivers access to information and e-learning to tertiary institutions. Others are Campus Area Network which provides campus wide network, Voice Over IP, and Internet service within tertiary institutions, and virtual library which delivers electronic library systems both in secondary and tertiary institutions.

We have trained many Nigerians within the educational system, government, and local communities in areas such as essentials of IT, Cisco Networking, software development and testing, hardware development and testing, web development, emerging technologies, and embedded systems programming. 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 307 international scholarships in IT related programs both at Master's and doctorate level. Currently among other things, we have partnered with Korea International Cooperation Agency (KOICA) to implement a master plan 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 operated the Cisco Networking Academy Program from 2002 till date and in this period we have helped many Nigerians achieve all manners life transforming Cisco certifications. As a regional Cisco Academy, we have also coordinated the activities of local academies spread across the tertiary institutions in the country.

I.T is pervasive in every sector of the economy of every nation and it is a useful skill to acquire to be able to contribute meaningfully to the economy. As you may all be aware, IoT is the next frontier, meaning that the earlier we as nation grasped the concept and apply it, the better our chances are at being listed as one of the top economies in the near future. I strongly advise that you take advantage of this training because it is a unique opportunity.?

I want you to know that all of your physical assets can be taken away from you, but the skills you will acquire during this training can never be taken away by anybody, it is yours for life, it will benefit you in diverse ways and ultimately benefit the country. Before the completion of the training, I encourage everyone participating in the program come up with a strategy to ensure that Nigeria is at the fore front of using IoT and other contemporary Information Technologies as a means of creating employment and sustainable economic development.

Finally, I will like to thank Cisco for the sustainability of this annual training event. This admirable initiative clearly shows the company's commitment to the continuous development of the country. We at NITDA are always on standby to support any deliberate action or initiative to utilize ICT in the development of the country.

Thank you very much indeed.



The Role of ICT in Taking Nigeria Out of Recession



May Peace, Mercy and Blessings be upon you! I am very pleased to attend this important event. I wish to thank the leadership of NCS Abuja for organizing this workshop and also for giving me an opportunity to share some thoughts with you. Your theme, “The Role of ICT in Taking Nigeria out of Recession”, is very timely as it focuses on a key issue facing Nigeria at this time.

Our nation's economy is currently in recession and, as patriotic citizens, we need to do our part to get our country out of it. I strongly believe that Information and Communications Technology (ICT) can provide a pathway out of this situation and several studies agree that ICT can serve as a catalyst for economic growth.

The United States experienced a recession between December 2007 and June 2009 and they got out of that recession by stimulating the economy through investments in key sectors. One of such sectors was the ICT sector. For example, \$22 billion was spent to modernize the health ICT system, \$650 million was used for ICT in education and \$7.2 billion was spent to complete broadband and wireless Internet systems.

A recent study on “Socio-economic Impact of Internet in Emerging and Developing Economies” stated that there is a 1-2% increase in GDP for every 10% increase in Internet penetration. This study was corroborated by another study by McKinsey- a respected global consulting firm.

The Nigerian National Broadband Plan recommends a national broadband penetration of 30% by the end of the year 2017. According to the Nigerian Communications Commission (NCC), we reached a broadband penetration level of 20.85% in September 2016. A significant increase in broadband penetration would go a long way in improving the economy and increasing the contribution of ICT to our GDP from its current level, which according to the National Bureau of Statistics (NBS) stood at 12.62% for the 2nd Quarter of 2016.

Access to broadband will provide a gateway for our young entrepreneurs to access knowledge and will allow Nigerians to access media rich content. With broadband, doctors can provide sophisticated telemedicine services and spare their patients the trouble of traveling long distances for consultation. Broadband will enable farmers to enjoy real time access to weather and crop information for their farms. Educators can also enrich learning using Virtual Reality (VR) technologies. E-commerce can be greatly enhanced by broadband and this can make our 37million Micro Small and Medium Enterprises (MSME) more profitable.

With an appropriate enabling environment, broadband will enable our young entrepreneurs to come up with a number of innovative solutions to our local challenges. This will also support our local content initiative and reduce capital flight, thus reducing pressure on our foreign reserves. At the moment, Nigeria loses \$2.8 billion annually from the importation of ICT goods and services, including a whopping \$1 billion spent annually on software imports. Similarly, Nigeria is projected to expend about \$143.8 billion on ICT by 2019- a vast sum that translates to over 7 times the value of the 2016 national budget!

Needless to say that we stand to benefit greatly from a Local Content Policy that encourages the development of local ICT products and services as this will significantly reduce capital flight. His Excellency, President Muhammadu Buhari, GCFR, rightly pointed this out at the Nigerian Economic Summit Group (NESG) 2016 meeting, where he stated that "Economic growth is impossible without a focus on made in Nigeria". By supporting our local start-ups we can strengthen our campaign to focus on made-in-Nigeria ICT products and services.

In addition to our drive to patronize Nigerian ICT products, we also want to generate revenue for the country by exporting our ICT products and services. To this end, we are making concerted efforts to create, as well as review existing

standards and guidelines. This will ensure that our made-in-Nigeria products align with the highest global standards.

It is common knowledge that our over-reliance on the oil sector has led to the current unpleasant situation we find ourselves in. However, this challenge provides us with a good opportunity to effect a change that would lead to lasting benefits for our economy. In order to come out of recession we are compelled to explore other avenues for generating revenue and ICTs provide such an avenue. It is instructive to note that 50% of the world's 10 richest people acquired their wealth through ICT and have a combined net worth of \$258.4 billion. The other 50% also rely heavily on ICTs to drive their business and increase their revenue.

Countries are also leveraging on ICTs to transform their economies and have created wealth, employment and opportunities in the process. For example, the Asian Tigers (Hong Kong, Singapore, South Korea and Taiwan) are not really endowed with natural resources but they have compensated for this by using ICT to power their economies.

It is interesting to note that in the 1960s many of these economies were comparable to the poorest economies around the world. However, they are now considered to be leading economies in the world and boast of an average per capita GDP of over \$50,000. We have the natural resources and are equally blessed with talented human resources that

readily embrace ICTs. We can use this to our advantage and work towards transforming Nigeria into a regional hub for ICT innovation and entrepreneurship.

Technology innovation hubs and ICT parks will enable us incubate the best and the brightest ideas and guide them towards becoming global brands. We should strive to have our own “unicorn” from Nigeria within the next decade. A unicorn is a company valued at \$1 billion and above. We, at NITDA, are doing a lot to encourage start-ups and give them the right environment to flourish. We showcased some of them at eNigeria and also sponsored some of them to the Global Start-up event that took place during GITEX 2016 in Dubai last October.

The need for a digitally literate society cannot be overemphasized. It provides the foundation upon which we can build an ICT-driven economy. A resolution was made at the 4th National Council on Communication Technology (NCCT) to make Digital Literacy a minimum requirement for employment and promotion in the public service. A digitally literate public service will provide the efficient ICT service required to deliver the dividends of the change being championed by this administration.

We will not restrict ourselves to building a digitally literate workforce in the public sector alone. We will partner with the public and private sector, as well as development partners to

create a pool of highly skilled Nigerians that can cater for the technology needs of the nation. We also desire to have them serve as our ambassadors by taking up a portion of the global jobs available to the digitally literate. According to the International Data Corporation (IDC), as at the end of 2015, 1.3billion of such jobs were available.

India's elaborate ICT training programme played an important role in not only making them a global ICT hub but also making them a top employment source for global ICT jobs. Today, global tech giants Microsoft and Google have Indian CEOs and, according to the Ministry of Overseas Indian Affairs, the 25million Indians in Diaspora remitted \$72.2billion back home in 2015. I believe that we have the opportunity to create a similar story.

In addition to generating revenue, ICT can also help us to reduce waste, while increasing efficiency and improving productivity. E-government will help in this regard. E-government can also help us to generate data for all sectors of the economy. By using big data analytics, this will enable us generate actionable data that will assist the government in policy formulation. The lack of such actionable data in the past may have contributed in getting us to where we are today.

With these few words, I wish you very fruitful deliberations and may ICT become the platform to pull the Nigerian economy out of recession. Thank you for your attention.



NITDA's Road-Map for ICT Development in Nigeria



May Peace, Mercy and Blessings be upon you! I am highly delighted to attend this auspicious event as it aligns with our mandate at NITDA to support the development of the Information and Communications Technology (ICT) sector of the country. The theme of the Conference, “ICT for Sustainable Development”, is very apt. Events like these give us the opportunity to focus on ICT research and how we can adapt global best practices to our local ICT environment.

The Federal University of Technology Minna has been at the forefront of promoting cutting edge ICT research in the country and I am not surprised that you are hosting an event of such importance. It is also noteworthy that you are one of the few Nigerian Universities with a School or Faculty dedicated to studies and research on Information and Communications Technology. I wish to congratulate the Vice Chancellor, the Conference LOC Chairman, the Acting Dean of the School of Information and Communications Technology and everyone that has played a role in organizing this conference.

The National Information Technology Development Agency

(NITDA) is saddled with the onerous task of regulating and developing the ICT sector of the country. This task is especially important at a time when the administration of His Excellency, President Muhammadu Buhari, GCFR, is emphasizing the need to diversify the economy. This would help us to cope with the challenges faced as a result of the dwindling revenue from the oil sector.

The Information and Communication Technology (ICT) sector contributed 12.62% to the total nominal GDP in the 2nd Quarter of 2016, up from its 12.25% contribution in the 1st Quarter. We are eager to increase the contribution of ICT to our GDP.

It is our strong belief that the ICT sector provides a veritable option for attracting and retaining revenue for the country. We are also confident that ICT will serve as a key enabler of all the other sectors of the country and this would lead to wealth generation, job creation and increased efficiency in service delivery.

On assumption of office about 2 months ago, I sought to develop a Roadmap that would capture the key areas that my team and I would focus on. That Roadmap has identified the 7 key areas that we will focus on as an Agency. These areas are as follows:

1. Regulation
2. Capacity Building
3. Local Content Development

4. Job Creation
5. Digital Inclusion
6. E-Governance
7. Cyber Security

The regulation of the IT sector is the primary responsibility of NITDA and it will be given its pride of place and the concerted effort that it deserves under my leadership. Much as we can support the implementation of projects, our greatest impact will be in the area of creating the appropriate regulations and guidelines for the use of Information Technology in the country.

We will continue to create guidelines and regulations that align with global best standards, we will be able to guide the various Ministries, Departments and Agencies (MDAs) and the private sector on the effective ways of deploying ICT. We expect that this would significantly improve the productivity in the sector and will have a multiplier effect on the other sectors of the economy.

Capacity building is very important to us at NITDA and we will spare no effort in developing a digitally literate populace that will help us to transform the Nigerian economy from a resource-based economy into a knowledge-based one. This will enable us to implement the nation's local content policy and would go a long way in reducing capital flight.

Nigeria loses about \$2.8billion annually from the importation

of ICT goods and services, including a whopping \$1billion spent annually on software imports. Locally manufactured computers represent less than 8% of all the computers imported into the country. This shows that we stand to benefit greatly from a Local Content Policy that encourages the development of local ICT products and services. Our desire is to develop the ICT sector to such an extent that we can begin to generate revenue for the country that is comparable to revenue from the oil sector.


According to the National Bureau of Statistics' national youth survey report; youths of working age, in the age bracket of 15 to 35 years are nearly 70 million. Unfortunately, they also report that over half of these are unemployed and many more are underemployed. We recognize that this challenge gives us a good opportunity to use ICT to empower our youth and create jobs.

We are actively promoting the entrepreneurship culture by identifying and promoting start-ups. We attended the Gulf Information Technology Exhibition (GITEX) in Dubai in October 2016 and sponsored 16 Nigerian start-ups to the event. Our successful participation at GITEX was capped with the news that one our start-ups made it to the finals of the GITEX Start-up Event. We will keep supporting and encouraging our hubs and start-ups and will catalyse the development of the innovation ecosystem in Nigeria.


E-government enables government to provide its services online and it also supports citizen engagement, amongst other things. E-government has the potential to significantly reduce corruption, reduce waste and improve service delivery. Corruption has been a bane of the Nigerian society for decades and we, at NITDA, will support the Federal Government's drive to reduce corruption by facilitating the implementation of e-Government in Nigeria in line with the E-Government Master Plan. As we work towards getting our economy out of recession, it is pertinent to reduce waste to its barest minimum and we believe that E-government will support us in this effort.

It is noteworthy that the security situation in the country has greatly improved in the last 18 months. However it is also important that we do not rest on our oars. We will encourage the use of ICT in security and will provide standards and guidelines to support this effort.

With these few words, I wish you fruitful deliberations and a very successful conference. Thank you for your attention.



The Nigerian Software Industry as a Trigger for Economic Diversification and National Transformation



I am delighted and honoured to attend this important event with the theme “Technology as a Tool for National Transformation”. We are in a season when all hands are on deck to utilize Information and Communications Technologies (ICTs) for the diversification of our economy. The Software industry provides a veritable tool for such diversification and NITDA's partnership with stakeholders like ISPON is crucial.

Nigeria expends about \$2.8billion annually on the importation of ICT goods and services. A massive \$1billion, or about 4% of the proposed 2017 annual budget, is expended on the importation of software! As the regulator of the sector, NITDA is eager to reverse this trend and we are keen to ensure that our local content policy is promoted and enforced. We are committed to a local content policy for the development of our budding ICT sector and for the reduction of capital flight.

We are taking committed steps to reverse the uninhibited inflow of foreign software and we seek to identify and promote indigenous software as an alternative to the foreign software currently being imported. After all, existing

evidence suggests that the local software alternatives are performing well at a much lower cost.

The success story of the indigenous solution for the Treasure Single Account (TSA) policy of the Federal Government is a case in point. In February 2017, the Accountant General of the Federation revealed that the "sum of N5.244 trillion has so far been realized as inflows into the TSA account". He also stated that the "TSA implementation has taken us out of the Era of indiscriminate borrowings by MDAs and saved Government charges associated borrowing which amounted to about N4.7 Billion prior to full Implementation of TSA". NITDA is eager to support the local software industry to have many more success stories.

ISPON can assist us in this effort by providing us with a database of the software practitioners as well as a repository containing a list of the products of their members with a detailed description of their functions. On the one hand, this would enable us to properly liaise with the National Office for Technology Acquisition and Promotion (NOTAP) to ensure that approvals are only given for the importation of software for which there are no viable indigenous alternatives.


On the other hand, such a list will allow us to promote the local solutions, as well as provide the support needed to ensure that these products meet all the necessary standards for quality. Much as we are eager to promote indigenous

products, we are careful not to do so at the expense of the highest global standards. Our Office for Nigerian Content (ONC) is actively exploring support mechanisms for the local ICT industry that will position local vendors to provide high quality solutions for both the Nigerian and foreign markets.


Seated in this room are the captains of the Nigerian software industry. Your knowledge and experience can play a vital role in causing a transition in the national software industry- from one that is a net importer to one that is a net exporter of software products. I would like to encourage you to take your investment a notch higher by investing in the mentorship of the next generation.

According to the National Bureau of Statistics' national youth survey report; youth of working age- in the age bracket of 15 to 35 years- are nearly 70 million. Unfortunately, the report also states that over half of these are unemployed and many more are underemployed. It is common knowledge that our youth are tech savvy, as attested to by many, including Mark Zuckerberg during his visit to Nigeria last year. Through mentorship, training and support we can harness their potential to create a critical mass of software experts to reduce unemployment and attract foreign exchange into the country. NITDA is ready to partner with ISPON to make this happen.

With these few words I wish you very fruitful deliberations and useful connections over dinner. Thank you for your attention.



Playing in the New (Digital) Economy: The Nigerian Youth, NITDA and the National IT Aspiration



I am highly delighted to attend this auspicious event as it aligns with our mandate at NITDA to develop the Information Technology (IT) sector of the country. Events like these give us the opportunity to reflect on the great potential we have in our youth and it also provides us with a platform to support them and identify unique solutions that can be incubated and showcased to the world.

I am equally delighted to attend the event in Plateau State. The Plateau State government has always supported our activities. For example, His Excellency, the Deputy Governor was a key member of Nigeria's delegation to GITEX 2016 and he also led a team to the recently concluded 4th National Council on Communications Technology (NCCT). Plateau State is also one of the first States to heed our call to develop a specialized Agency to regulate and develop ICT at the State level. We are proud of your strides and are happy to support you in any way that we can.

The National Information Technology Development Agency (NITDA) is saddled with the onerous task of regulating and developing the IT sector of the country. This task is especially

important at a time when the administration of His Excellency, President Muhammadu Buhari, GCFR, is emphasizing the need to diversify the economy. This would help us to cope with the challenges faced as a result of the dwindling revenue from the oil sector.

It is our strong belief that the IT sector provides a veritable option for attracting and retaining revenue for the country. We are also confident that IT will serve as a key enabler of all the other sectors of the country and this would lead to wealth generation, job creation and increased efficiency in service delivery.

The Information and Communication Technology (ICT) sector contributed 12.62% to the total nominal GDP in the 2nd Quarter of 2016, up from its 12.25% contribution in the 1st Quarter. We are redoubling efforts to increase the ICT's contribution to our GDP, as we consider it to be a veritable alternative to the oil sector whose contributions have dwindled over the past year.

On assumption of office, a little over a month ago, I sought to develop a Roadmap that would capture the key areas that my team and I would focus on. That Roadmap would be made public at a latter stage but suffice it to say that some of my key areas of focus would be Regulation, Job Creation, E-Government and the use of IT in security.

The regulation of the IT sector is the primary responsibility of NITDA and it will be given its pride of place and the concerted effort that it deserves under my leadership. Much as we can support the implementation of projects, our greatest impact will be in the area of creating the appropriate regulations and guidelines for the use of Information Technology in the country.

We will continue to create guidelines and regulations that align with global best standards, we will be able to guide the various Ministries, Departments and Agencies (MDAs) and the private sector on the effective way of deploying IT. We expect that this would significantly improve the productivity in the sector and will have a multiplier effect on the other sectors of the economy.

The issue of job creation is also very important to us at NITDA. According to the National Bureau of Statistics' national youth survey report; youths of working age, in the age bracket of 15 to 35 years are nearly 70 million. Unfortunately, they also report that over half of these are unemployed and many more are underemployed. We recognize that this challenge gives us a good opportunity to use IT to empower our youth and create jobs.

We are actively promoting the entrepreneurship culture by identifying and promoting startups. We attended the Gulf Information Technology Exhibition (GITEX) in Dubai a

fortnight ago and we sponsored 16 Nigerian startups to the event and I am delighted to note that one of your startups participated and showcased a unique solution on Logical Addresses. Another startup currently employs about 100 Nigerians! Imagine the effect that promoting and supporting startups can have in the reduction of unemployment in Nigeria. Our successful participation at GITEX was capped with the news that one our startups made it to the finals of the GITEX Startup Event. We will keep supporting and encouraging our hubs and startups and will catalyse the development of the innovation ecosystem in Nigeria.

E-government enables government to provide its services online and it also supports citizen engagement, amongst other things. E-government has the potential to significantly reduce corruption, reduce waste and improve service delivery. Corruption has been a bane of the Nigerian society for decades and we, at NITDA, will support the Federal Government's drive to reduce corruption by facilitating the implementation of e-Government in Nigeria in line with the E-Government Master Plan. As we work towards getting our economy out of recession, it is pertinent to reduce waste to its barest minimum and we believe that E-government will support us in this effort.

It is noteworthy that the security situation in the country has greatly improved in the last 16 months. However it is also important that we do not rest on our oars. We will encourage

the use of IT in security and will provide standards and guidelines to this effect. Referring again to the startups that we took to GITEX, a number of them had solutions that address security challenges through mobile apps and IoT. In fact we also had a startup that locally developed a security drone. The solution by Logical Addresses also tackles a key security challenge of locating and identifying people. We look forward to supporting these and other solutions in a bid to use IT to shore up security within our borders.

Your focus on Internet of Things (IoT) at this event attests to the fact that you are in tune with the emerging technologies that are creating significant opportunities around the world. The International Data Corporation (IDC) estimates that the global IoT market will reach a whopping \$1.7 Trillion by 2020. By developing our skills in this area, Nigeria will be positioned to capture a slice of this huge market.

We have also recognized the importance of IoT at NITDA and have facilitated Embedded Systems training for hundreds of youths. Our Smartcities Initiative is also essentially powered by IoT. In fact, one of the participants in our Smartcities Initiative (Jalingo) won the National Institute of Standards and Technology (NIST) Global City Teams Challenge (GCTC) prize of \$10,000 at the Smartcities Innovation Summit in Austin, USA in June 2016. They won their award for an IoT solution to track the movement of people in the IDP camps.

NITDA is also partnering with the NIST standards committee to develop global standards for IoT deployment. We are also currently in consultations towards the developments of guidelines and regulations for the deployment of IoTs in Nigeria and we will be glad to get your comments and proposals.

With these few words, I wish you a very successful event. Thank you for your attention.



Information Technology Innovation for Sustainable Development



It is a great pleasure for me to be here present at this wonderful conference with the theme “Information Technology Innovation for Sustainable Development”. I must say that the chosen theme for this conference cannot come at a better time than now when the economy is trying to recover from recession. I strongly believe that some solutions to our economic challenges using IT will emanate before the end of this conference.

The radical change and advancement in both the Nigerian and global economy as we observe today is the result of IT implementation. IT as we know is pervasive in every sector you can think of, whether it is health, banking, education, manufacturing, security, agriculture, and many more. You will agree with me that IT has positively impacted on everyone of us; I am sure that without IT life may not be as easy as it is for us. Many of us can communicate over long distances from anywhere, send and receive money via computers and mobile devices, have access to humongous amount of useful information over the Internet, project our presence to anywhere in the world in real time and many more possibilities.

All these are made possible with Information Technology. However, have we as nation been able to strategically utilize IT for economic development? Have we made enough deliberate efforts to develop and co-ordinate a goal oriented IT implementation? These are some of the questions that should drive our deliberations during this conference.

We rely majorly on the oil sector. Oil has taken us this far, but will it continue to sustain the country? My answer to this is no, and this is because newer methods of generating energy are being invented and the world will get to a time where the need for oil will significantly plummet. In fact, I believe that moment has begun, considering the major shock felt by the country during the sudden drop in the oil price. Look at the likes of Apple, Cisco, Microsoft, Facebook and Google. These companies hold the largest chunk of the global wealth because of nothing else other than their mastery and implementation of IT.

These companies have developed and sustained the economy of their country using IT. We should understand that wealth acquisition is shifting at an exponential rate from natural resources to knowledge resources, and this is made possible with the mastery and implementation of IT. It is high time we paid less attention to our natural resources and focus on the strategic implementation of IT for economic development. Ladies and gentlemen, before I take my leave, kindly permit

me to say a few things about NITDA and how we have innovatively used IT for economic development.

NITDA from its inception has been at the fore front of regulating and developing IT in the country. NITDA which was created in 2001 and established by the NITDA Act 2007 is saddled with the statutory mandate of not only regulating and developing IT, but also using IT for the development of the socio-economic sectors of Nigeria. Over the years NITDA has been engaged in different IT development programs and projects aimed at developing IT and other socio-economic sectors of the country.

Some of our projects and program include IT intervention centers located in rural areas and educational institutions. These centers are aimed at bridging the digital divide and also building capacity in IT and other fields. We have partnered with Korea International Cooperation Agency (KOICA) to implement a master plan 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 policies and guidelines that border on Public Key Infrastructure (PKI), systems and network, data protection, data interoperability, and government websites.

NITDA is at the fore front of promoting indigenous IT solutions and innovation. We strongly believe that the development of capacity in indigenous IT solutions will help create enormous employment and wealth opportunities for Nigerians. It will help in increasing foreign income through outsourcing and foreign direct investments. It will create an environment for research and development which leads to invention and innovation in IT solutions. In order to achieve this ambition, NITDA created two special purpose vehicles for promoting indigenous IT solutions and innovation namely the Office of Nigerian Content (ONC) and the Office for ICT Innovation & Entrepreneurship (OIIE). The former is charged with the responsibility of implementing the guidelines for a Nigerian Content Development program that will promote the growth and development of Nigerian content in ICT and the latter is saddled with the responsibility of nurturing, cultivating and expanding ICT innovation and entrepreneurship within Nigeria. Expanding more on the activities of OIIE, the office has helped generated about \$4.3 million in the form of foreign investment through its activities and programs.

During this current administration, we have further strengthened our service delivery by focusing on the following 7 transformation areas namely capacity development, IT regulation, digital job creation, government digital service promotion, local content development and promotion, cyber security, and digital inclusion.

Cyber Security

The restructuring of the Agency gave birth to a full-fledge Cyber Security department 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 recently helped in providing security measures against the WannaCry Ransomware and Petya Ransomware that attacked some European and North American countries. In addition, the Cyber Security department has been involved in public awareness, training and campaign on Cyber Security threats.

Regulation

NITDA, being the clearing house for all IT procurement and services, has alerted all MDAs on NITDA's mandate of regulating IT sector so as to prevent IT from being used as a conduit for siphoning public funds. The current administration of the Agency has made it compulsory to all MDAs to submit all their IT related procurement for approval before and after project implementation.

Digital Job Creation

NITDA has created Digital Job creation centers across the country through its intervention programs. These centers are deployed with the aim providing a platform for income generation using IT.

Government Digital Service Promotion

NITDA is gradually increasing transparency and eliminating waste within MDAs through policies and standards the Agency has put in place. Some of these policies border on data integration and the realization of e-Governance.

Local Content Development

The Agency is advocating a strict compliance to the executive order signed by the Ag. President Prof. Yemi Osibajo. The executive order mandated all MDAs to have at least 40% local content in all their procurement processes. The Agency has strengthened the Office of Nigerian Content (ONC) to create platforms that can enable indigenous producers/developers to take advantage of the executive order. Furthermore, the Agency is playing a major role in the establishment of the first ICT University to drive local IT solutions.

Capacity Development


NITDA is committed to realizing a knowledge economy. This can be seen in the past and recent training the Agency embarked on in different parts of the country. We have trained many Nigerians within the educational system, government, and private sector in areas such as essentials of IT, software development and testing, networking, hardware development and testing, web development, Internet of Things (IoT), RFID, and embedded systems programming. To clearly show our dedication to IT capacity development, we have given a total of 307 international scholarships in IT related programs both at Master's and doctorate level.

Digital Inclusion


NITDA aims to bridge the digital divide especially in under-served areas of the country. Some of our projects and programmes to achieve this include IT intervention centers located in rural areas, educational institutions and IT hubs.

Distinguished Participants, IT is designed to solve business and economic problems, and when problems are solved and life is made easier, then development is realized. I want us to strongly ponder on this as we come up with strategies to use IT innovatively to solve our economic challenges. I wish you a happy and fruitful deliberation

Thank you very much.



Goodwill Speech at the NYSC Skills Acquisition and Entrepreneurship Development Program



It is a great pleasure for me to be present at the launching of this skills acquisition and entrepreneurship program which aims to create awareness among NYSC members of the importance of acquiring useful skills to help them start and sustain businesses, as opposed to the mentality of working for someone.

In developed countries almost half of the workforce are running their own businesses without necessarily waiting for employment from the government or the private sector. I strongly believe that the Nigerian youths can adopt this mentality. The truth is that there are no jobs and there are plenty of jobs. The former represents conventional government and private jobs while the latter represents the vast potentials in the ability to create jobs by individuals.

Creation of jobs by individuals can be daunting for so many of us especially when the requisite skills have not been acquired. That is why it is very imperative for youths, especially NYSC members to start thinking of that profession that they are naturally inclined to, and start acquiring the necessary skills required to create businesses out of the profession.

Before I continue I will like to mention a few things about the National Information Technology Development Agency (NITDA). 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.

Over the years NITDA has been engaged in different IT development programs and projects aimed at developing IT and other socio-economic sectors of the country. Some of our projects and program include Rural IT Centers which aims to deliver access to information and business development in rural areas and Knowledge Access Venue which delivers access to information and e-learning to tertiary institutions. Others are the Campus Area Network which provides campus wide network, Voice Over IP, and Internet service within tertiary institutions, and virtual library which delivers electronic library systems both in second and tertiary institutions. We have trained many Nigerians within the educational system, government, and private sector in areas such as essentials of IT, software development and testing, networking, hardware development and testing, web development, emerging technologies such as IoT, Virtual Reality and RFID, upstream IT such as embedded systems programming.

Our training has also been extended over the years to the NYSC members in different areas of IT so that they can be equipped with the requisite skills for success. We have given a total of 307 international scholarships in IT related programs both at Master's and doctorate level. Currently among other things, we have partnered with Korea International Cooperation Agency (KOICA) to implement a master plan 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 policies and guidelines that border on Public Key Infrastructure (PKI), systems and network, data protection, data interoperability, and government websites.

I strongly advise that you take advantage of our many practical IT courses which include IT essentials, networking, database management, Internet of Things, embedded systems, software development, project management and so many others. IT is pervasive in every sector of the economy of every nation and it is a useful skill to acquire to be able to contribute meaningfully to the economy. You are encouraged to start thinking of a skill to acquire right now, especially an IT skill so that together we all can use these skills to create businesses that will develop the economy of our dear country Nigeria.

Thank you very much indeed.

**E-Nigeria 2017:
At The International Conference
Centre, Abuja**

All Protocols duly observed. May Peace, Mercy and Blessings be upon you! I am extremely honoured to welcome you to the *10th edition of E-Nigeria*. This is Nigeria's flagship international conference that brings stakeholders together to deliberate on emerging technologies, local innovation and relevant Information and Communication Technology (ICT) themes for the socio-economic development of the nation.

Our theme, *Fostering a Digital Economy through Local Content and Effective Regulations* – was conceived after careful thought and meticulous planning. It indicates our approach for using ICTs to achieve the economic objectives of the Federal Government.

ICTs are fast changing the way we live and they now play a defining role in shaping the global economy, leading to a transition from conventional economies to digital economies. The digital economy comprises economic activities resulting from the billions of online connections between people, businesses and devices and it is said to account for 22.5% of the total global economy, based on a 2015 research by Accenture.

A digital economy is characterized by an increase in revenue, an empowerment of the citizens, reduction of corruption and the creation of jobs, amongst other things. It serves as an important enabler for economic growth since digital skills and technologies have the capacity to boost the productivity of every nation. Such skills and technologies are projected to contribute \$2 trillion to the global economy by 2020.

Many countries have experienced a high level of economic growth by growing their digital economy. For instance, a digital economy played a critical role in transforming Singapore from an economy with a GDP per capita income of \$6,500 to one with a per capita income of \$52,600. This 7-fold increase all took place within a period of 31 years, starting in 1985 when the National Computerization Plan was concluded.

The Nigerian economy is also making the important digital transition and this is evident from the sheer volume of online transactions being processed in the country. For example, in spite of the recession we experienced in 2016, electronic channels accounted for over N56 trillion (or about \$180 billion, based on the current exchange rate). In the same vein, we experienced a 204% increase in Internet transactions between 2014 and 2017 - from N5.41 billion to N16.45 billion.

This stands in contrast to the 22.7% decrease in cheque-based transactions within the same period - from N634 billion to N490 billion. Our aim is to build on these gains and increase the contribution of ICT to the total nominal GDP which, according to the National Bureau for Statistics, stood at 11.27% in the 2nd Quarter of 2017.

On assumption of office, a little over a year ago, I sought to identify the key areas of NITDA's mandate that have the potential to make a significant impact on the ICT sector and, by extension, grow our economy. To this end, we developed a Roadmap for the development of the Nigerian ICT sector that identified 7 pillars, 2 of which are captured in the theme of this Conference- ICT Regulation and Local Content Development and Promotion. The other pillars are Capacity Building, Digital Inclusion, Digital Job Creation, Government Digital Service Promotion and Cybersecurity.

Effective regulation will provide the framework for building our ICT sector in a sustainable way. A number of people are averse to the term regulation because it seemingly connotes rigidity rather than the flexibility we expect in a liberal market. However, this notion cannot be further from the truth. Regulation can create the platform for an adaptable and flexible environment necessary for ensuring that businesses thrive in a sustainable way. At NITDA, we are focussed on using regulation to stimulate development in the Nigerian ICT sector. We have even changed the name of our

in-house magazine to “The Info-tech Regulator” to reflect this renewed focus.

As part of our regulatory functions, we serve as the clearing house for all Information Technology (IT) projects and infrastructural development efforts in the country. As such, we have started reviewing all the proposed IT projects of Ministries, Department and Agencies (MDAs) of the Federal Government. This is in line with the policy objectives of President Muhammadu Buhari (GCFR) to maximize the efficiency, effectiveness and transparency of service provisions by all MDAs.

We are collaborating with the Bureau for Public Procurement (BPP) to ensure that a NITDA-issued IT Project Clearance Certificate serves as a prerequisite for the issuance of a No-Objection Certificate. We are also collaborating with the Economic and Financial Crimes Commission (EFCC) and the Office of the Auditor-General of the Federation to ensure that the certificates we issue are used to assess the level of compliance of IT projects. They also serve as a vital input to the audit process for such projects.

We are also developing regulatory standards, guidelines and policies to ensure interoperability in the deployment of IT solutions in both the public and private sectors of the economy. In addition to these, we have raised the awareness on the need for MDAs to use the .gov.ng domain for their

websites in order to increase the security of their content and to support the e-government drive of the government.

We have developed a Rulemaking Process for creating regulations, policies, guidelines, certification and licensing based on global best practice. This process will also be applicable to third-party ICT regulations that are proposed to us at NITDA.

The importance of a thriving Local Content Policy cannot be overemphasized. Our ability to develop a “home-grown” digital economy is dependent upon our ability to develop and harness the ICT-capacity of Nigerians. At the moment, a sizable amount of the proceeds of the digital economy still end up in the coffers of foreign organizations, since many of the goods and services are provided by them. Up to \$2.8 billion is expended on the importation of hardware and software products and services every year. Such capital flight does not augur well for our economy and we believe that our implementation of the Local Content Guidelines will stem the tide.

At NITDA we have established a Special Purpose Vehicle (SPV) that focusses on the development and promotion of Local Content in Nigeria. This SPV is known as the Office for Nigerian Content Development in ICT (ONC). Through the ONC we aim to develop a truly indigenous ICT industry. We have 5 focal programs for the first phase of the local content in

ICT program, namely:

- i) Public Data localization and repatriation program; to ensure that our sovereign data is hosted within our shores
- ii) Indigenous software adoption promotion program; to significantly reduce the demand for foreign exchange to import software where local alternatives exist
- iii) Quality ICT Manufacturing and after sales service support program; to significantly improve the quality of ICT hardware manufactured or assembled in Nigeria
- iv) Compliance Program; to monitor compliance, in line with NITDA's Nigerian Content Guidelines and other relevant Government Circulars
- v) Local Content Strategic funding intervention program; to support local ICT product manufacturers in the process of securing financial support

We are privileged to have stakeholders from the public sector, private sector and the international community at this conference. We want to use your presence as an opportunity to gather inputs and perspectives on how we can develop our nation's digital economy using the 2 pillars of Regulation and Local Content Development.

We plan to give an update on the level of implementation of the resolutions that we adopt in this conference during the 2018 edition. We also plan to measure the impact of the implementation of these resolutions and give a report at E-Nigeria 2018.

With these few words, I welcome you all to eNigeria 2017 and wish you very fruitful deliberations. Thank you for your attention.



Cybercrimes: 'What We Know, What We Believe, And A Way Forward'



**A SPEECH PRESENTED BY DIRECTOR GENERAL, NITDA
AT THE AHMADU BELLO UNIVERSITY, ZARIA PUBLIC
LECTURE**

Protocols. I consider it an honour and privilege to deliver this public lecture at this great citadel of learning (Ahmadu Bello University). One thing the progenitor of this great institution, Sir Ahmadu Bello, the beloved pioneer and only Premier of Northern Nigeria, valued is knowledge. Standing before you to share knowledge and experience on ICT shows that although typologies of knowledge are evolving, yet the wisdom and vision of our great statesman is exceptional.

Society is always in a state of development, a work in progress. Man is seeking for ways to do things better, solve old problems, create new ones and solve them again. The era we are in is that of Information and Communication Technology (ICT). ICT offers exponential opportunities for hitherto economically deprived people to take their place in the evolving world order.

ICT tools and platforms are being used to address various challenges in governance, employment, provision of public

services, export diversification, structural transformation, and global competitiveness among others.

However, embedded in these technologies, as laudable and economically dominant as they are, comes various challenges arising from the use of these devices, applications, and software. The most predominant of these is criminal activities in cyber space.

Definition of Cyber Crimes

According to the Council of Europe (COE) Convention on Cybercrime, cyber-crime involves “action directed against the confidentiality, integrity and availability of computer systems, networks and computer data as well as the misuse of such systems, networks and data” (Council of Europe, 2001). A more appropriate definition was provided as follows;

Cybercrimes are computer mediated activities which are either illegal or considered illicit by certain parties and which can be conducted through global electronic network¹ Another scholar defined cybercrime as crimes committed on the internet using the computer as either a tool or a targeted victim².

There has been an exponential leap in criminal activities in cyberspace in recent times, particularly the breaking of news on ransomware (heartbleed, wannacry, petya, notpetya etc) attacks on computer systems worldwide.

What We Know

The number, sophistication and impact of cybercrimes continue to grow. These threats evolve to frustrate network security defences, and many business systems and home computers that do not keep what protection they have up to date. “Hacking” has evolved from the activities of a negligible number of very technical individuals to a popular, tool-kit available at a price online which can be purchased by criminal groups to carry out specific attacks.

Cybercrime is a very popular crime in Nigeria. Cybercriminals in Nigeria are notorious for luring people across the planet into fraudulent scams via spam mails, cash-laundering e-mails, and cleverly designed company partnership offers in pretence. Criminals involved in the advance fee fraud schemes (419) known as “yahoo yahoo” are popularly referred to as “yahoo boys”. A case in point was the case of Mike Amadi v. FRN, Amadi, succeeded in cloning the Economic and Financial Crimes Commission (EFCC) website, impersonated the person of Nuhu Ribadu, (its pioneer chairman) and swindled some unsuspecting persons of the sum of \$ 125, 000. He was charged to court, convicted and sentenced to 16 years imprisonment.

According to the Internet Fraud Watch, the Nigerian Money Letter offer is the 7th topmost internet crime activity in year 2000. This cybercriminal activity became so notorious at one

time that one of countries started issuing warning notices to their citizens alerting them of the Nigerian money letter. Nigerians have proven technically adept at the intricacies of successful perpetration of cybercrimes. It is technically possible to disguise IP addresses to mask the origin of a particular online communication. So many other technical exploits have been perfected by young Nigerians to perpetuate criminal activities online.

What We Believe

National Information Technology Development Agency (NITDA) as the national regulator in the IT sector is mandated to create IT awareness and ensure universal access in order to promote the adoption of IT in all sectors of our national life; as well as to enhance national security and law enforcement.

It is NITDA's astute belief that the future of Nigeria lies in her young people. The greatest resource the young people have is access to information. This generation unlike any before it, is adequately equipped with enough information to make it become the wealthiest and most enlightened of all Nigerians. NITDA is committed to assuring this future by investing and directing national action towards this important objective.

As a nation, Nigeria has a duty to redirect the negative perception of being cybercriminals to eminent cyber personalities with good global reputation as honest

innovators. Our experience in NITDA of interacting with the most innovative Nigerians on daily basis assures us that we have more patriotic and honest Nigerians than otherwise.

The Way Forward

Cybercrime is by no means peculiar to Nigeria. It has nonetheless become a persistent source of national chagrin within the comity of nations. Thus, combating the spectre of cybercrime and the attendant reputational deficit that it occasions has been high on the national agenda over the past decade. Several initiatives directed at protecting the interests of Nigerians in cyberspace, while laying the requisite groundwork for Information and Communication Technologies (ICTs) that foster development and aid growth in the Nigerian society, have been put forward. Agencies such as NITDA, Office of the National Security Adviser (ONSA), Nigerian Communications Commission (NCC), Economic and Financial Crimes Commission (EFCC) and more, have all worked towards curbing the menace of cybercrimes.

In efforts aimed at curbing cybercrimes, the Nigerian government introduced certain measures such as The Cybercrimes (Prohibition, Prevention). Act, 2015 is paramount in the legislative landscape. 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 among others, and a number of adhoc interagency committees for the Implementation of the strategy.

A presidential order was issued in 2015 to all Ministries, Departments and Agencies (MDAs) that request and retain biometric data, to expeditiously harmonize their biometric databases. It is expected that the data harmonization will effectively link all MDA databases. The Acting President, Professor Yemi Osinbajo explained that government's interest in the citizens' data harmonization is to assist the government in its quest to improve the socio-economic landscape of Nigeria, particularly targeting the poorest and most vulnerable persons, as well as to issue unique identification numbers to every Nigerian and legal residents for the improvement of national security, among others. Upon successful completion of the data harmonization process, it is expected that the government will be properly positioned to track and investigate cyber criminals.

Enormous human capital is required to midwife the cyber security challenge, I implore you, as students of Electrical/Electronic Engineering, to concentrate on your studies and be knowledgeable enough to design systems that would tackle cybercrimes in Nigeria and beyond, while also keeping an eye to write your names in gold by using technology to help solve the problems in our healthcare, agriculture, economy etc.

The Role of NITDA

The responsibility of regulating the IT industry is vested on the NITDA. The organization is established by the National Information Technology Development Agency Act, (2007). The mandate of NITDA is established by Section 6 of the Act. Section 6(l) particularly establishes the security function of the Agency, it states thus: The Agency shall...advise Government on ways of promoting the development of information technology in Nigeria including introducing appropriate information technology legislation, to enhance national security and the vibrancy of the industry. This conveys the responsibility to handle national security issues, even as it affects Nigeria's presence in cyber space. . The Agency has the vision to be “the prime Agency and catalyst for transforming Nigeria into a knowledge-based and IT-driven economy”. it has been striving more than ever to live this vision under our leadership.

The cyber security challenge is a global one, and can cripple the activities of a nation state should critical national information infrastructure such as, banking, eGovernance, transportation systems, nuclear plants, or robotic plants be degraded or incapacitated. In this regard, , the need has never been more compelling to focus attention on ways of detecting, deterring and defending our nation from cyber criminals. In response to this, NITDA, under the Dr Isa Ali Ibrahim leadership, has promptly established a Cybersecurity Department in the Agency.

The following activities are earmarked to position MDAs, private sector, Government, and indeed all Nigerian in a cybersecurity-aware state, and to institute necessary legal and institutional framework to secure our cyber space:

- a) **Creating Awareness in the Citizenry.** The need to create a culture of security consciousness is never brought to the fore than as it is now, particularly in cases of cyber security. Because of the various sources, purposes and techniques, it is imperative that NITDA created an environment where all citizens are aware of possible threats, mitigation strategies, and avoid same where necessary. In this respect, NITDA is creating awareness in MDAs by training ISOs, and is extending such campaigns through social media, publications, handbills, radio jingles and advertisements on how to stay safe in cyber space
- b) **Capacity Building.** Capacity building and training needs may be as divergent as the sources and targets of cybercrimes. Firstly, It is important to build capacity in the general public, to stay safe in cyberspace. Secondly, technical training is required for system developers and personnel handling sensitive payments systems, infrastructure, and those interfacing banking systems. Thirdly, top management needs training on policy development in cyber security and enforcement of guidelines. Fourthly, specialized training is required to initiate and handle countermeasures in the high-end technical, expertise to forestall cyber-espionage and targets at CNII.

- c) Child Online Protection. An ITU obligation to institute protection of children online, called Child Online Protection (COP) has established roots in NITDA, with legal framework and implementation of stakeholder committees in an advanced state.
- d) Institutional Capacity. Institutional capacity is a parameter for assessing Nations on the Global Cyber security Index (GCI). NITDA intends to give credence to this, in that MDAs would be encouraged to establish Cyber Security Desk Officers, who could serve as first pot of call for incidence, before they could be escalated for higher forensic and other incidence-handling mechanisms. This could also include individual and organizational certifications
- (e) Inter-Government and Private Sector collaboration. The need for collaborations in information and strategy sharing in cyber security is acknowledged globally. As such NITDA has initiated strategies for such collaborations to thrive. Stakeholder meetings and contributions to policy formulation, development and implementation have been effectively harnessed.

In conclusion, cybercrimes are a global phenomenon that could cripple the activities of nations and organizations. Almost everyone that uses connected computer devices are exposed, and needs to safeguard their little presence. by being aware of the gimmicks and tricks of the criminals. NITDA has

provided various platforms for enlightening the populace by issuing advisories and policy, standards and guidelines to all Nigerians

NITDA is strategically mandated and poised to creating awareness and educating her citizenry, and coordinating Nigeria's relationship with the international stakeholders in the space by participating in global discourse and make expert contributions with a view to making Nigeria the nation-state with an enviably safe cyber space and improve our valuation in cyber security indexes.



An Auspicious Time To Invest In Nigeria's Thriving ICT Sector



**A SPEECH PRESENTED BY THE DIRECTOR-
GENERAL/CEO, (NITDA) AT THE AFRICA INVESTMENT
FORUM AT DUBAI WORLD TRADE CENTRE**

All Protocols duly observed. May Peace, Mercy and Blessings be upon you! I am very delighted to welcome this August audience to this very important Forum. Let me start by expressing my profound gratitude to the Management Team of the Dubai World Trade Centre for considering us to be a worthy partner for the coordination of this event.

The Africa Investment Forum (AIF) is a gathering that provides a unique platform for investors and African stakeholders to focus on the prospects for investment in the continent's ICT sector. Today, I have the singular honour of discussing the invest climate and vast investment opportunities in Nigeria's thriving ICT sector.

Nigeria is strategically located between West and Central Africa, giving investors easy access to close to 180 million Nigerians and an additional 200 million West Africans, as well as 150 million Africans in Central Africa. We also have one of

the largest economies in Africa which, according to the World Bank, has a Gross Domestic Product (GDP) valued at \$405billion USD.

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 Nigerian 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. The Information and Communication Technology (ICT) sector contributed 11.27% to the total nominal GDP in the 2nd Quarter of 2017. We see a good potential for growth in the sector and we are creating an environment that can significantly increase the sector's contribution to the nation's GDP. As such, this is a good time to invest in our ICT sector and we invite you to partner with us in this season of growth.

At the moment, many developed countries of the world are experiencing an ageing problem with proportion of the citizens aged over 60 years rapidly increasing over the last few years. For example, a 2015 United Nations Report projected that by 2030, the population of people aged 60 years and over in upper-middle-income countries will be 545 million, marking a 70% increase in the 2015 figures.

In Nigeria we do not have an ageing problem, rather we have a youthful advantage- young people constitute about 65% of the Nigerian population! Many of these young people are ICT savvy and this, coupled with the massive expansion in the nation's educational sector, provides a good workforce for potential investors.

NITDA has an Office for ICT Innovation and Entrepreneurship (OIIE) that is focussed on identifying and supporting promising Nigerian startups in the ICT space. The activities of the OIIE have enabled the ICT startup innovation ecosystem in Nigeria to grow at a remarkable pace. One of our startups- Genie Games- won the 2nd position at the keenly contested Startup Movement Competition at GITEX 2016.

Many Nigerian startups have also won plaudits from home and abroad. For example, HopStop, an online city transit App acquired by Apple for a whopping \$1billion, was owned by a Nigerian-born Entrepreneur. Mark Zuckerberg, the CEO of Facebook, visited Nigeria last year and had very complimentary things to say about the quality of ICT talent in the country. His foundation also provided \$24million funding for Andella, a Nigerian company focussed on building World-Class Software Development Teams.

Konga.com, a Nigerian e-commerce company, attracted over \$65million funding in 2014. Also, out of a record-breaking total of \$366.8 million raised by African startups in 2016,

investments in Nigerian startups had the largest share of \$109.4 million. These investment stories underscore the viability of the Nigerian startups and the capacity of Nigerians to conceive ingenious ideas. We invite you, our potential investors, to take advantage of this massive talent pool as you invest in Nigeria.

Broadband access is important to economic growth and, according to independent studies cited by the International Telecommunications Union (ITU), countries can increase efficiency and have up to 1.38% growth in per-capita income by increasing broadband penetration by 10%. We realize this in Nigeria and have developed a comprehensive National Broadband Plan (NBP). A key goal of the plan is to increase the broadband penetration in Nigeria to 30% by 2018, up from about 6% in 2013. The efforts are already yielding positive results and the ITU Broadband Commission for Sustainable Development attests to this as they confirmed that we attained a broadband penetration level of 20.95% in September 2016.


The government has developed specific ICT policies to attract and retain investment. At NITDA we are implementing an Action Plan that is aimed at transforming Nigeria into a knowledge-based society. The 7 key pillars of our Action Plan are IT Regulation, Capacity Building, Digital Inclusion, Digital Job Creation, Government Digital Service Promotion, Local Content Development & promotion and Cybersecurity. We are open to investment in any of these areas.

The business environment in Nigeria is conducive and Nigerians are very hospitable people. Our President recently established the Presidential Enabling Business Environment Council (PBEC) to further improve the investment climate in the country and we are implementing an Executive Order aimed at increasing the ease of doing business in Nigeria. This Council has already completed 31 reforms that make it easier to invest in Nigeria. Our investors can now obtain a visa-on-arrival and have a seamless and speedy process of registering their business in Nigeria. This administration has also placed a lot of emphasis on transparency and accountability. Nigeria is an active member of the Open Government Partnership (OGP) - a global body that promotes transparency, citizen engagement, and anti-corruption. We have also produced a Nigerian OGP National Action Plan (2017 – 2019).


In August 2017, Nigeria's Federal Ministry of Industry, Trade and Investment (FMITI) published the list of 27 new industries eligible to enjoy the pioneer status incentive in Nigeria. Companies investing in these sectors receive tax holidays for three to five years. Some of the sectors include E-commerce services, Business Process Outsourcing and Software development and publishing. You are invited to invest in the sectors.

We also have a good investment opportunity in the hardware sector. The computer hardware industry has seen a lot of investment from Original Equipment Manufacturers (OEMs). The Ikeja Computer Village is the largest technology market cluster in West Africa and is estimated to contribute about \$2billion to Nigeria's economy annually. We currently have 7 local OEMs but they can only meet about 20% of the local demand for computer hardware. We are happy to facilitate the establishment of world class Original Design Manufacturing (ODM) factories in Nigeria to guarantee quality components assembly locally. This is another important area that we seek partnerships and investments.

Nigeria's ICT sector has a great potential and this is the right time to invest! I invite you all to take advantage of this mutually beneficial opportunity to invest in one of Africa's fastest growing ICT sectors. With these few words I wish to thank you all for attending this Africa Investment Forum and we look forward to partnering with you.



A Goodwill Message Presented To Participants At The Nigerian Blockchain Alliance Conference



Protocols. It is with great pleasure that I stand before this august assembly as we consider the most disruptive transactional phenomenon to have happened to man since the introduction of fiat currency. There has been a lot of discussions about blockchain applications in Nigeria recently. Blockchain Technology currently has over 700 use cases including smart contracts, virtual currencies, e-voting, supply chain management, file storage, identity management, intellectual property, land title registration, health benefits, insurance etc. The sphere of influence of this technology is broad-based. The technology, if properly harnessed, becomes a veritable means of addressing many developmental challenges facing a developing country like Nigeria.

NITDA is at the fore-front of ensuring that the right regulatory frameworks are in place to accentuate rather than stifle the blockchain innovation that has swept the global financial landscape. NITDA is well represented in the National Virtual Currency Committee hosted by the CBN. NITDA chairs the Research sub-committee; the Secretary of the Legal and

Regulatory sub-committee and a ranking member of the Technology sub-committee. The Agency does not pretend to have an encyclopaedic knowledge of the various dimensions, technologies and regulatory scope of the blockchain technology, so we are seriously building capacity by networking with public and private entities and sponsoring staff to events like this to get relevant knowledge to help us drive this important development.

To be clear, NITDA supports the development and application of blockchain in Nigeria. We know that the jobs of the future are dependent on innovations like this. The Agency is well aware of the multiplier effect blockchain technology would have on health records, education, financial inclusion etc. We are however not oblivious of the dark spots of the technology especially its huge possible negative on National security, job security, economy, etc. It is for this reason that there needs to be a concerted national effort in the proper application of this innovation. The quality of NITDA's representation to the first National Blockchain Alliance Conference organised by Cryptography Development Initiative of Nigeria (CDIN) and our financial support shows NITDA's unflinching resolve to work with necessary stakeholders to develop this important innovation

NITDA is statutorily mandated to regulate, render advisory services and incentivise information technology products, processes and services for the general well-being of Nigeria.

In view of this mandate, the Agency is working actively with other government agencies to regulate the use of this technology. We believe that lack of regulation holds back innovators and stifles innovation in this promising technology. Thus, the recommendations from this conference are highly anticipated by the Agency as an input into the current efforts being made. While awaiting a tailor-made regulation, I enjoin all stakeholders to continually abide by existing laws and regulations.

NITDA shall continue to encourage Nigerian innovators to optimally compete in this burgeoning space while also ensuring the technology's adoption is in the interest of Nigeria and all Nigerians.

Thank you for your kind attention.



Towards A Revolutionary Governance Of Africa In Readiness For The Fourth Industrial Revolution



**PRESENTED TO PARTICIPANTS AT THE 5TH EDITION OF
THE DIGITAL AFRICA CONFERENCE & EXHIBITION**

May Peace, Mercy and Blessings be upon you all. All Protocols duly observed. I am extremely delighted to be here in the midst of you all, to talk about solutions and programmes that will bring about sustainable development in our continent – Africa. This event very much aligns with our mandate at NITDA, which is to develop the Information Technology (IT) sector of Nigeria, by setting up the necessary regulatory and governance apparatuses that will stimulate the growth of the IT ecosystem. Africa is a continent truly blessed with opportunities and events like this give us the opportunity to reflect on the great potentials we have in this continent and how development can be achieved through various means.

This is the 5th edition of the Digital Africa Conference and Exhibition organised by Digital Africa Global Consult with NITDA as a partner. You will all agree with me that, over the years, Digital Africa has contributed immensely to ICT advocacy in Nigeria and the continent of Africa at large.

The World Economic Forum Founder Klaus Schwab aptly captured the series of changes that illustrate the revolutions. He said...

“The First Industrial Revolution used water and steam power to mechanize production. The Second used electric power to create mass production. The Third used electronics and information technology to automate production.”

(Schwab, 2015)

UNDERSTANDING THE FOURTH INDUSTRIAL REVOLUTION (FIR)

Every industrial revolution builds on the preceding one. The FIR therefore builds on the third. FIR is characterised by the fusion of technologies that is blurring the line between the physical, digital and biological spheres. In essence the FIR seeks to achieve the objective of anthropomorphosis in inanimate objects. It seeks to increase artificial intelligence while down-playing or reducing human interventions. The FIR has the potential to drastically change the way we live, work and do businesses. It covers areas such as Machine learning, Augmented reality, Internet of things, Mobile and Edge Computing, 3D Printing, Big Data and Analytics etc.

Like every Industrial revolution, there would be gainers and losers, there would be no middle-ground. The FIR is going to affect our security architecture and apparatus. You will

recollect that the United Arab Emirate recently deployed its first set of robotized 'police'. This innovation when perfected would greatly impact on policing, crime prevention, law enforcement and police recruitment. Agriculture of course is always an early bird in innovative technology adoption. In the emerging revolution, agriculture would no longer be left to the whims and caprices of nature, man would strive to use technology to predict whether, determine suitability of soil for the planting of certain crops, increase production, reduce waste and generally improve efficiency.

No doubt, the current threat technology poses to the professions is not showing any signs of slacking very soon, rather artificial intelligence is tending to render medical and legal professions as on-lookers in their own field. Through the use of big data analytics, we now have applications which can give over 80% accurate legal advice on most legal problems. This is no doubt an existential threat to lawyers. Simple and complex medical procedures and prescriptions, provided by eminently qualified professionals thousands of miles away, are available at the click of a button to anyone who desires it.

A future of Internet of Things (IoT), Big Data Analytics, Artificial Intelligence would surely look exciting to anyone who understands the potential changes our society is about to experience. We cannot however, shut our eyes from the reality of the enormous challenges the same future holds. Breach or abuse of privacy and data security, poor

connectivity, cybercrimes, loss of jobs due to the death of certain industries, environmental concerns etc. are issues that must be dealt with dispatch.

DIGITIZATION OF AFRICA

Africa is a continent with abundant potentials in ICT. The preparedness of African Countries for a digital future is in different stages. A quick review of selected countries would enrich this discussion.

Mauritius

According to the World Economic Forum's Global Information Technology Report 2015, Mauritius tops the list among Sub-Saharan African countries that are harnessing information technology efficiently. The Island Nation has identified ICT as one of the three main drivers of national development.

Thanks to its investment in the Lower Indian Ocean Network (LION) 2 submarine optic cable in 2012 and complementary policy initiatives to reduce the cost of broadband internet. Mauritius now ranks ahead of all the BRICS countries except Russia in terms of ICT readiness. The Country has a thriving Treasury Accounting System, Digital Court Recording System, Automated Finger Print System etc. Its policy frameworks include National ICT Strategic Plan 2007 – 2011 and 2011 – 2014; National Broadband Policy 2012 – 2020 among others

Rwanda

Rwanda commissioned its e-governance portal Irembo in August 2015. The portal is a public-private partnership platform conceived to fast-track government service delivery and improves efficiency in public institutions. The portal offers close to a hundred services including processing of birth certificate, drivers' license, application for criminal records etc. As part of its aggressive technology adoption initiative, Rwanda opened tele-centres in all the districts in the country. These centres are technology hubs where ICT services and trainings are carried on. The value of this especially in the rural areas is enormous. Opportunities are spread and young people are positively engaged.

Rwanda has gone on to become an African success story in terms of e-governance and technology adoption. Buses and public spaces have internet access thereby ensuring a truly smart nation. My recent visit to that country left me with a good impression and some positive take-away.

Ghana

Ghana has made government services (otherwise called e-services) and payments to government (otherwise called e-pay) available to its citizens as part of its e-government strategy. The pilot phase was launched in 2014 while wider adoption has occurred after then. This has morphed into the one-stop government information system.

Another good innovation the Ghanaians have adopted is the Government E-Workspace comprising Correspondence Management System (CMS), Portal Content Management System (PCMS), Document Management and Meeting Management Systems. When fully, operational this concept would not only improve public service delivery, it would also force efficiency in public service system.

PREPARING NIGERIA FOR THE FOURTH INDUSTRIAL REVOLUTION- NITDA'S STRATEGY AND ACHIEVEMENTS

A Strategic Roadmap was developed for the Agency in order to refocus and address the critical areas of its mandate. Considering the wide scope of the mandate, 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. Figure 1 below depicts the NITDA strategic framework to transform the Nigerian IT Sector.

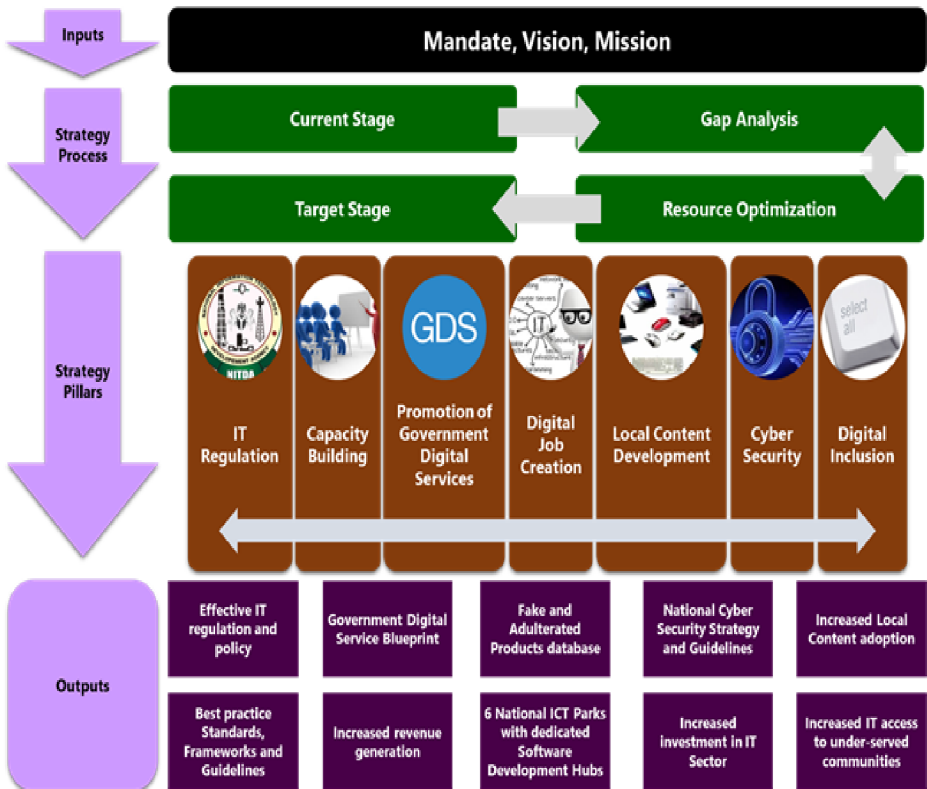
1. REGULATORY ROLE: ACTIVATING THE CLEARING HOUSE STATUS OF NITDA

NITDA has assumed its statutory place as the regulatory clearing house. This is giving direction to the IT industry

and helping investors gain clarity of what government is doing.

2. THE NATIONAL E-AGRICULTURE PROJECT

The National e-Agriculture project is a strategic initiative



of the National Information Technology Development Agency (NITDA) in collaboration with the Federal Ministry of Agriculture and Rural Development (FMARD). It is aimed at making the various datasets of the Nigerian Agricultural sector readily available to stakeholders, while highlighting the strategic and operational components of the agricultural value chain in Nigeria.

3. CAPACITY BUILDING AND ACCELERATION OF IT BUSINESSES

- NITDA sponsored 16 start-ups to 2016 edition of the GITEX event. Two of the start-ups got to the final stage of the GITEX2016 competition.
- A Nigerian company (Precise Financial Systems) successfully demonstrated an iTeller banking solution that was developed to run on the hardware of the German partners they met at the Nigerian Pavilion during GITEX 2015. iTeller is a complete suite of automated cheque lodgement and processing solution which comes with multi-functional applications and capability.
- some of the startups are already being accelerated and mentored by other companies within and outside the country

4. VIRTUAL LIBRARIES IN TERTIARY INSTITUTIONS AND E-LIBRARIES IN SECONDARY SCHOOLS

NITDA Virtual Library was developed with the aim of providing online research materials to staff,

stakeholders and other researchers. In addition to the Virtual Library at NITDA, the Agency also deployed Virtual Libraries in a number of tertiary institutions as well as e-Libraries in Secondary Schools across the country. There were 8 Virtual Libraries and 4 e-libraries deployed within the period under review.

5. KNOWLEDGE ACCESS VENUES (KAV)/ DIGITAL OPPORTUNITY CENTRES

KAV is a model project designed to provide basic ICT facilities and Internet connectivity primarily to schools and similar environments where teaching and learning is taking place. It involves the deployment of a network of Internet connectivity, computing devices and related IT infrastructure including alternative solar power energy in the school community capable of giving uninterrupted access to Internet services. Eighty Five (85) centres were deployed across the six geopolitical zones in the country

6. CAMPUS WIRELESS WIDE AREA NETWORK (WAN)

This is a special intervention project that is targeted at Nigerian higher institutions of learning. The project involves the establishment of a fully functional campus wireless network connectivity that primarily provides campus-wide wireless Internet services. It is a model design that lays down an ICT infrastructure foundation, carefully designed for scalability to accommodate future growth and expansion.

Eleven (11) universities have benefited from this project. In addition to this project is the e-Learning application deployed with educational materials, designed in accordance with the Nigerian educational curricular.

7. LOCAL CONTENT COMPLIANCE

NITDA is championing the enforcement of the recent Presidential Executive Orders in the IT sector. This would direct at least N200 billion of the N500 billion budgeted for IT goods and service procurement to Nigerian businesses.

8. CYBER SECURITY

The Wannacry distributed denial of service attack on over 100 countries in the world, is another incidence that projected NITDA's cyber crisis management capacity. Due to the renewed confidence and partnership with global brands like MicroSoft, NITDA successfully provided preventive support to all government agencies. We also used all mediums to sensitize Nigerians on the outbreak, as well as educating on preventive and remedial actions. All these efforts proved fruitful as Nigeria came out of the crisis with no reported incidence of hijack.

CONCLUSION

Nigerians are gradually but surely becoming digitally included. Biometric Data capturing for workers and pensioners, examination administration, communication, payment to government through the Treasury Single Account (TSA) etc. are strategies to digitally include Nigerians. Beyond this, the establishment of technology parks, wifi zones etc. would all lead to a digitally inclusive society

The ultimate goals of governance are to empower and accelerate the ability to make informed service decisions and to help in achieving desired goals and objectives. So, effective governance plays a key role in mitigating the challenges associated with Fourth Industrial Revolution (FIR). Thus, the continent must come together and collaborate in ensuring that the advancements of the 4th Industrial Revolution are harnessed successfully. There is therefore the need to expand on this and relate it to the need for Governance to be revolutionized.

At NITDA, we are critically re-positioning and building on existing knowledge and frameworks, issues of interest in this area, such as infrastructure, Human Resource, Investments and Governance in terms of Regulations and Policies. We are also creating a more conducive operating environment in terms of consistent policies, technology transfer and fair competition.

With these few words, I wish you a very successful deliberations and I hope the outcomes of the Conference will be made available in good time to policy makers, IT practitioners and relevant stakeholders for actions. God bless you all, and God bless the Federal Republic of Nigeria and Africa at large.

Thank you for your attention.



Executive-Legislative Relations: Gaps, Challenges and Prospects



**PRESENTED TO PARTICIPANTS OF THE EXECUTIVE
INTELLIGENCE MANAGEMENT COURSE (EMIC) 10**

May Peace, Mercy and Blessings be upon you all. All Protocols duly observed. I am highly delighted to speak to this important group; the Executive Intelligence Management Course 10 participants. I am equally delighted to deliver this lecture titled: 'Executive-Legislative Relations: Gaps, Challenges and Prospects' as one of the highlights of the course as organised by the Institute for Security Studies. The institute, has over the years, been playing an important role in the training of senior public and civil servants from various MDAs in the country with focus on national defence, modest public safety and justice.

NITDA

As you may be aware, The National Information Technology Development Agency (NITDA) is saddled with the task of regulating and developing the IT sector of the country. But before I talk on the strategic role of the NITDA as one of the agencies under the executive arm, and the impact the relationship between the different arms of government has had on the agency, let me first draw our attention to some

cardinal issues regarding the theme of this year's course; Executive-Legislative Relations: Gaps, Challenges and Prospects.

First, democracy is a system of government that is maintained through the rule of law as established by a written constitution. In a presidential system, as being operated in this country, the president is the head of state, and oversees the executive arm of the government. The executive arm, as you are aware, is responsible for administering or implementing laws. The other two arms of the government are the legislative and the judicial arms. The legislative arm is primarily responsible for making laws and performing oversight functions for the peace and good governance of the country based on section 4 of the 1999 constitution. The judiciary on the other hand is responsible for adjudication and interpretation of the law.

In the Federalist No. 47 (1788), James Madison, commented that “the accumulation of all powers, legislative, executive, and judiciary, in the same hands, whether of one, a few, or many, and whether hereditary, self-appointed, or elective, may justly be pronounced the very definition of tyranny”. Thus, the need for separation of powers. However, in Nigeria, and in other world democracies, the three arms of the government—the executive, the legislative and the judiciary—have some overlap in their constitutionally assigned functions. Hence, although the legislative is charged

with legislation, a bill does not become law until the president affixes his signature as required by sections 58 and 59 of the 199 constitution. Similarly, Presidential appointments to the Judiciary or to the Federal Executive Council require the approval of a majority vote in the Senate. These and other provisions provide a "check and balance" mechanism within the Constitution, which are believed to prevent the exercise of arbitrary power by each of the arms.

So without much ado, let me talk about the gaps, the challenges and the prospects of the existing relations, between the executive and the legislative arms, in light of the impact such relations has had, on the National Information Technology Development Agency, based on my experiences since I assumed as the chief executive officer of the agency. NITDA, as you may be aware is supervised by two committees in the legislature. Some of the gaps and challenges include:

Gaps and Challenges

- **Delay in the enactment of our laws:** In Nigeria, the delays in enactment of laws, for instance, the budgetary appropriations bill has had negative consequences, including delay in the implementation of new policy initiatives and investment projects that ought to be implemented with new budget. Whilst it is the responsibility of the Executive arm to prepare and submit the budget to the legislative arm in a timely manner, the processes and stages of the budgetary proceedings in the National Assembly takes its toll and

impact negatively on agencies like ours if also not done in a timely manner. So, in the case of exigency, the urgency with passing laws is limited. Consider, as another example the time it took to pass the cybercrime law despite its urgency.

- **The Legislative Oversight Function.** It is the view of many government agencies and departments under the executive arm that the legislature sometimes overstep in carrying out their oversight functions due to the thin line or overlap of functions as I earlier stated. However, this can be addressed properly if the MDA is well aware of its core functions and mandate as provided in the Act that establishes that agency. That is why since I started at NITDA, I have encouraged the management and staff to be well acquainted with the Act and mandate of the agency, and in doing so, they are well aware of the core functions and objectives of the agency in order to avoid any strain relations with any institution; executive or legislature as the case may be. I have also restructured and reorganized the agency for improved collaborations with all arms of government and service delivery to all citizens.

Impact on NITDA and Prospects

NITDA was established by an Act of the Legislature, specifically, the National Information Technology Development Agency Act (NITDA Act) of 2007. However, the need to amend the Act to keep up with the global best practices that aligns with the ever changing IT ecosystem has

been a challenge. As such, lack of effective processes in reviewing and legislating laws can slow down interaction between the two Arms and pose as a challenge.

Often times, the Vision of the Executive is lost with the Legislature at the time they are translating the Executive Vision to actual Law. A good example is the gap between the ICT4D Policy which NITDA was created to drive and the NITDA Act 2007 – which established the agency. Hence, the need to review the act. In order to avoid future occurrences, the major stakeholders involved in the development of a policy for the executive arm of the government should be carried along in the law making process in order not to lose what was earlier envisioned.

There is a need also to look at comparable relationships and best practices in other Jurisdictions and learn from them.

Prospects

The new NITDA Roadmap captures the key areas that my team and I focus on; some of these areas include: Regulation, E-Government, Capacity Building and Cyber-security. We envision strategic collaborations with the legislature in these key areas.

The regulation of the IT sector is the primary responsibility of NITDA and it will be given the attention that it deserves under my leadership. Our greatest impact is in the area of creating the appropriate regulations and guidelines for the use of

Information Technology in the country. This is an important area that the legislature can provide strategic support.

On the other hand, e-Government enables the provision of government services online and also supports citizen engagement, amongst other things. e-Government has the potential to significantly reduce corruption, reduce waste and improve service delivery. NITDA is supporting the Federal Government's drive to reduce corruption by facilitating the implementation of e-Government in Nigeria in line with the National e-Government Strategy. NITDA is also currently working on standard and guidelines for e-parliament with the hope of improving legislative processes and efficiency. Capacity building for the legislature in areas of governance and the use of innovative tools in carrying out their oversight functions can also be encouraged by the executive in order to foster a better interaction between these two arms of government.

It is noteworthy that the security situation in the country has greatly improved in the last 18 months. However, it is also important that we do not relent in our efforts. At NITDA, we continue to encourage the use of IT in security. We will also continue to create guidelines and regulations that align with global best practice.

As we guide the various Ministries, Departments and Agencies (MDAs) and the private sector on the effective ways

of deploying IT, we expect that this would significantly improve productivity and provide seamless interaction and collaboration between all the arms involved in governance in Nigeria.

With these few words, I wish you a very successful training. God bless you all, and God bless the Federal Republic of Nigeria.

Thank you for your attention.



Connecting the Unconnected for Development



SPEECH DELIVERED AT THE NIGF 2017 Edition

Opening Protocols

The Chief Host, His Excellency, The Executive Governor of Kaduna State; The Special Guest of Honor, HE The Hon. Minister of Communications, The Conference Convener & Chair, NIGF Multi-stakeholders Advisory Group, Mrs Mary Uduma; other dignitaries and keynote speakers... and respected conference attendees – May Peace, & Mercy be upon you all.

This is the 6th (2017) edition of the Nigeria Internet Governance Forum organised with NITDA as a major stakeholder. The NIGF as you may be aware is the multi-stakeholder forum responsible for dialoguing and making decisions about the development and use of the Internet in this country. The National Information Technology Development Agency, as you may also be aware, is charged with the responsibility of developing and regulating the Information Technology sector in Nigeria and thus supports stakeholders that are willing to collaborate & contribute towards the development of the sector.

We have built a strong partnership with the NIGF and together have contributed immensely to ICT advocacy in Nigeria. We also look forward to stronger relations that will impact positively to Information Technology use especially as it relates to sustainable development of our dear nation.

Connecting the Unconnected for Development

The keynote address is on connecting the unconnected for Development. I will first address the different views on development, then talk about who the unconnected are and conclude with the steps we, as a development and regulatory agency are taking to connect the unconnected in order to support the achievement of some key developmental goals.

Development can mean a lot of things to different people. It is viewed as structural or societal change by some, or the achievement of the millennium development goals (MDG) or of recent the sustainable development goals (SDGs) by the United Nations for instance. Whilst the entire concept is inherently both complex and ambiguous, we, like other development agencies subscribe to the view that development is not immanent and unintentional process but as an intentional activity targeted at enhancing the capabilities of people in order that they have real opportunities to do and be what they have reason to value.

There are a lot of ways through which sustainable development can be achieved. Needless to emphasize though,

it is my strong belief that technology provides a lot of opportunities and a veritable options for development to take place or be achieved. I am also confident that technology serves as a key enabler of all the other sectors as such would lead to wealth generation, job creation and increased efficiency in service delivery. Even in classical economic terms, the Information and Communication Technology (ICT) sector is said to have contributed about 12.62% to the total nominal GDP in Nigeria during the 2nd Quarter of last year, up from its 12.25% contribution in the 1st Quarter.

Connected to What? Unconnected with what?

It is safe to say we are talking about being connected to the internet and the myriads of opportunities it facilitates for its users. I cannot begin to enumerate here, but John Doerr, a venture capitalist, rightly predicted that the internet would lead to “the largest legal creation of wealth”

However, A recent PEW research has shown that there are about 4.3billion unconnected people in the world, 80% of whom are in under-developed or developing countries. That is, for every Internet user, there are two people who don't use the Internet at all; this skews predominantly rural, low-income and female.

The Role of the NITDA

Now that we know who the unconnected to the internet are,

what are the roles being played by regulators and developers of the IT ecosystem in Nigeria to connect the unconnected? The National Information Technology Development Agency (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 (if you consider ICT literacy as a capability) and digital inclusion relates directly to this keynote address, i.e. connecting the unconnected, all the other priority areas also play important roles in supporting development and empowerment of not only the unconnected but the entire citizens. Yesterday, you have all heard how the agency promotes entrepreneurship culture in Nigeria by identifying and promoting Startups through the NITDA's Office for ICT Innovation and Entrepreneurship (OIIE).

1. Increased IT Access to Underserved Communities

With respect to capacity building and digital inclusion, the agency we have increased IT Access to different communities through the provision of our RITCs and of recent DCBCs. For instance the agency has provided over eighty digital capacity building centres (DCBCs) in secondary schools and other tertiary institutions in various locations in the country in the last quarter of 2016 alone. The DCBCs are solar powered centres equipped with computers, e-learning facilities and

connected to internet. The centres are collocated in these institutions of learning (some of which are in remote areas) to improve digital literacy, reduce the knowledge gap and bridge the digital divide in order to empower the youth with adequate knowledge that will enhance their living standard and connect them to the world.

2. National E-Agriculture Project

Leveraging on existing and emerging technologies, and to connected unconnected farmers in the rural area, the agency in collaboration with the Federal Ministry of Agriculture and Rural Development (FMARD) came up with the National e-Agriculture project as a strategic initiative aimed at making the various datasets of the Nigerian Agricultural sector readily available to stakeholders, while highlighting the strategic and operational components of the agricultural value chain in Nigeria.

3. Virtual Libraries and WANs in Tertiary Institutions

NITDA's has provided several Virtual Libraries in different locations in the country in order to connect researchers with their peers and contemporaries in order to facilitate and make more conducive the teaching and learning environment. There were about 8 Virtual Libraries and 4 e-libraries deployed within the period under review. The establishment of a fully functional

campus wireless network connectivity that primarily provides campus-wide wireless Internet services is also another initiative that consciously supports connecting a targeted group for sustainable developmental processes.

4. Regulations

Much as we can support the implementation of projects, our greatest impact will be in the area of creating the appropriate regulations and guidelines for the use of Information Technology in the country. For instance, towards the promotion of transparency and efficiency, the agency is facilitating compliance as it relates to the use of ICT by MDAs for efficient service delivery and pursuing the adoption of open data policy to increase access to relevant information to citizenry for making informed current & future decisions. We will continue to create guidelines and regulations that align with global best practice.

These, and so many other innovative strategies are being driven to facilitate development of the IT sector in the country with the intent that, not only the unconnected, but the entire populace will benefit and be empowered.

“Long-term resilience of development efforts can only be achieved through locally-informed and context-appropriate applications of science and technology”.

Education is one of the most powerful instruments for reducing poverty, exclusion and lays a foundation for sustainable development. We will continue to try and bridge the knowledge gap by providing appropriate information and communication technology (ICT), to drive improvement of the educational and development prospects of our dear country.

With these few words, I wish you a very successful conference and thank you for your attention.



Nigeria: A Land Of Information Technology Opportunities



GOODWILL MESSAGE PRESENTED AT THE KDC AREWA YOUTH CONVENTION

May Peace, Mercy and Blessings be upon you all. All Protocols duly observed. I am highly delighted to attend this auspicious event as it aligns with our mandate at NITDA to develop the Information Technology (IT) sector of the country. Nigeria is truly a land of opportunities and events like these give us the opportunity to reflect on the great potential we have in our youth. It also provides us with a platform to support them and identify unique solutions that can be incubated and showcased to the world.

I am equally delighted to attend the event in Kano State. The Kano State government is doing a lot to support the development of ICT in the State and this includes the support for innovators. We are happy to have partnered with Kano state in this regard and commend your effort. I also wish to thank Khalifa Dankadai Company Nigeria Limited (KDC) for the foresight that led to the hosting of this event.

The National Information Technology Development Agency (NITDA) is saddled with the task of regulating and developing

the IT sector of the country. This task is especially important at a time when the administration of His Excellency, President Muhammadu Buhari, GCFR, is emphasizing the need to diversify the economy. This would help us to cope with the challenges faced as a result of the dwindling revenue from the oil sector.

It is our strong belief that the IT sector provides a lot of opportunities and a veritable option for both attracting and retaining revenue for the country. We are also confident that IT will serve as a key enabler of all the other sectors of the country and this would lead to wealth generation, job creation and increased efficiency in service delivery.

The Information and Communication Technology (ICT) sector contributed 12.62% to the total nominal GDP in the 2nd Quarter of 2016, up from its 12.25% contribution in the 1st Quarter. We are redoubling efforts to increase the ICT's contribution to our GDP, as we consider it to be a veritable alternative to the oil sector whose contributions have dwindled over the past year.

On assumption of office, I sought to develop a Roadmap that would capture the key areas that my team and I would focus on. That Roadmap would soon be made public but suffice it to say that some of my key areas of focus would be Regulation, Job Creation, E-Government and Cybersecurity.

The regulation of the IT sector is the primary responsibility of NITDA and it will be given its pride of place and the concerted effort that it deserves under my leadership. Much as we can support the implementation of projects, our greatest impact will be in the area of creating the appropriate regulations and guidelines for the use of Information Technology in the country.

We will continue to create guidelines and regulations that align with global best practice. We will also be able to guide the various Ministries, Departments and Agencies (MDAs) and the private sector on the effective ways of deploying IT. We expect that this would significantly improve the productivity in the sector and will have a multiplier effect on the other sectors of the economy.

The issue of job creation is also very important to us at NITDA. According to the National Bureau of Statistics' national youth survey report; youths of working age, in the age bracket of 15 to 35 years are nearly 70 million. Unfortunately, they also report that over half of these are unemployed and many more are underemployed. We recognize that this challenge gives us a good opportunity to use IT to empower our youth and create jobs.

We are actively promoting the entrepreneurship culture by identifying and promoting startups. We attended the Gulf Information Technology Exhibition (GITEX) in Dubai a fortnight ago and we sponsored 16 Nigerian startups to the

event. One of the startups we took there currently employs about 100 Nigerians! Imagine the effect that promoting and supporting startups can have in the reduction of unemployment in Nigeria. Our successful participation at GITEX was capped with the news that one of our startups made it to the finals of the GITEX Startup Event. We will keep supporting and encouraging our hubs and startups and will catalyse the development of the innovation ecosystem in Nigeria.

E-government enables government to provide its services online and it also supports citizen engagement, amongst other things. E-government has the potential to significantly reduce corruption, reduce waste and improve service delivery. Corruption has been a bane of the Nigerian society for decades and we, at NITDA, will support the Federal Government's drive to reduce corruption by facilitating the implementation of e-Government in Nigeria in line with the E-Government Master Plan. As we work towards getting our economy out of recession, it is pertinent to reduce waste to its barest minimum and we believe that E-government will support us in this effort.

It is noteworthy that the security situation in the country has greatly improved in the last 18 months. However, it is also important that we do not rest on our oars. We will encourage the use of IT in security and will provide standards and guidelines to this effect. Referring again to the startups that

we took to GITEX, a number of them had solutions that address security challenges through mobile apps and IoTs. One showcased a locally developed security drone. We look forward to encouraging start-ups from Kano that can provide solutions to our security challenges as we seek to use IT to shore up security within our borders.

With these few words, I wish you a very successful event. Thank you for your attention.



The Digital Economy: Strategies for Growth in a Connected World



May Peace, Mercy and Blessings be upon you all.

All Protocols duly observed.

Introduction

I am highly delighted to attend this auspicious event. This year's ICTEL EXPO and conference themed: “The Digital Economy: Strategies for Growth in a Connected World” is very timely. It is in important events like this, we have the opportunity to reflect and share opinions on innovations and trends going on in the Information and Communication space with key stakeholders from both the public and private sectors as well as the academia. This event also provides us with a platform to identify unique solutions that can be incubated and showcased to the world as answers to the decline in growth of opportunities that leads to development despite the tangential advancements in technology and knowledge. Furthermore, this event very much aligns with one of our key mandates at NITDA, which is “to develop the Information Technology (IT) sector of Nigeria, by setting up the necessary regulatory and governance apparatuses that will stimulate the growth of the IT ecosystem” – and in turn impact the economy.

The spread of ICT into all corners of the world has had a profound effect on economic development, and it has strengthened the processes of the digital economy formation through the transfer of the different types of social and economic activity into an electronic environment – the Internet. This is particularly so in areas where communication, access to information, learning, research, and innovation play a key role in driving success. There are a lot of ways through which growth of the digital economy can be achieved. Specifically, what is being done in NITDA to support the aforementioned processes of digital economy formation? Also what should businesses do to invent effective ways for the digital economy to grow?

The Role of the NITDA

What are the strategies for growth of the digital economy from the perspective of NITDA? The National Information Technology Development Agency (NITDA) in its new roadmap under the leadership of Dr Pantami, 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.

1. Support for ICT Innovation and Entrepreneurship

We have actively promoted the entrepreneurship culture in Nigeria by identifying and promoting Startups. The

NITDA's Office for ICT Innovation and Entrepreneurship (OIIE) is dedicated to execute this activity. It has successfully and continually conducted events like the StartupFriday and StartupClinic that provides a platform for youth to showcase their ideas for further development and/or connect with investors. We also attended the Gulf Information Technology Exhibition (GITEX) in Dubai and sponsored 16 Nigerian Startups to the event. One of the Startups we took there currently employs about 100 Nigerians! One can imagine the effect that promoting and supporting Startups can have in the reduction of unemployment in Nigeria.

2. Increased IT Access to Underserved Communities

With respect to capacity building and digital inclusion, the agency we have increased IT Access to different communities through the provision of our RITCs and of recent DCBCs. For instance the agency has provided over eighty digital capacity building centres (DCBCs) in secondary schools and other tertiary institutions in various locations in the country in the last quarter of 2016 alone. The DCBCs are solar powered centres equipped with computers, e-learning facilities and connected to internet. The centres are collocated in these institutions of learning (some of which are in remote areas) to improve digital literacy, reduce the knowledge gap and bridge the digital divide in order to empower the

youth with adequate knowledge that will enhance their living standard and connect them to the world.

3. Government Digital Services

E-government enables government to provide its services online and it also supports citizen engagement, amongst other things. For instance, leveraging on existing and emerging technologies, and to connected unconnected farmers in the rural area, the agency in collaboration with the Federal Ministry of Agriculture and Rural Development (FMARD) came up with the National e-Agriculture project as a strategic initiative aimed at making the various datasets of the Nigerian Agricultural sector readily available to stakeholders, while highlighting the strategic and operational components of the agricultural value chain in Nigeria.

4. Virtual Libraries and WANs in Tertiary Institutions

NITDA's has provided several Virtual Libraries in different locations in the country in order to connect researchers with their peers and contemporaries in order to facilitate and make more conducive the teaching and learning environment. There were about 8 Virtual Libraries and 4 e-libraries deployed within the period under review. The establishment of a fully functional campus wireless network connectivity that primarily provides campus-wide wireless Internet services is also another initiative that consciously supports connecting a targeted group for sustainable developmental processes.

5. Regulations

Much as we can support the implementation of projects, our greatest impact will be in the area of creating the appropriate regulations and guidelines for the use of Information Technology in the country. For instance, towards the promotion of transparency and efficiency, the agency is facilitating compliance as it relates to the use of ICT by MDAs for efficient service delivery and pursuing the adoption of open data policy to increase access to relevant information to citizenry for making informed current & future decisions. We will continue to create guidelines and regulations that align with global best practice.


These, and so many other innovative strategies are being driven to facilitate development of the IT sector in the country with the intent for developmental impact.

The Role of Businesses


As it becomes harder to delineate between traditional economy and the digital economy, it is essential for businesses (whom you all represent here today) to support government initiatives that seeks to address policy issues related to electronic communications infrastructure and services. Britain for instance has a Digital Economy Act to support the transformational processes going on. The Harvard business review has also identified 4 key issues

businesses must consider in order that the digital economy grows and or succeeds. These are: customer expectations, product enhancements, collaborative innovations, and organizational forms. I dare say, that meeting the expectation of your customers and rethinking structures and cultures to better deal with new market environments and business models is of utmost importance if you want to witness and support the growth of the digital economy. Companies already adapting are leading the way.

With these few words, I wish you a very successful conference & Exhibition and thank you for your attention.



Electronics, Computers And Computation: Nigeria's Giant Strides At Developing The ICT Sector



**KEYNOTE SPEECH AT THE OPENING CEREMONY OF THE
12TH INTERNATIONAL CONFERENCE ON ELECTRONICS
COMPUTERS AND COMPUTATION (ICECCO)**

May Peace, Mercy and Blessings be upon you all. All Protocols duly observed. I am highly honored to be here at Nile University to deliver the Keynote Speech before this distinguished audience at the “12th International Conference on Electronics Computers and Computation (ICECCO)” hosted by NILE University of Nigeria.

Science, engineering and technology have proved to be the engine of growth for developed nations. The development of any nation is usually indicated by the degree and extent of the sociocultural, socioeconomic and political improvement brought by the enterprises of science and technology. Developments in science and technology are fundamentally altering the way people live, connect, communicate and transact. This change has brought profound effects on the economic development of nations. Technology is the outcome of the application of science and engineering while information technology is the study or use of systems

(especially computers and telecommunications) for storing, processing, analyzing, retrieving and sending information. IT is becoming an integral part of our lives because there has been remarkable achievement in computer miniaturization and increase in computation power. Engineers have managed to double the number of transistors they can fit on computer chips every two years. They do it by regularly halving the size of transistors. Today, after dozens of iterations of this doubling and halving rule, a typical computer chip holds Nine million of them per square millimeter.

Information and communication technology as a subset of science, engineering and technology has been recognized as a major enabler of the Nigerian economy. This recognition necessitated the Federal Government to develop and publish National Policy on Telecommunications and National IT policy in 2000 and 2001 respectively. The major thrust of the IT policy in Nigeria can be gleaned from its vision and mission statement. The vision of the policy is to make Nigeria IT-capable country in Africa and a key player in the information society by the year 2015, using IT as the engine for sustainable development and global competitiveness. On the other hand, its mission statement is to use IT for Education, Creation of Wealth, Poverty Alleviation, Job Creation and Global Competitiveness. The policy relies on human capacity building as the major strategy for realizing its vision and mission. The National IT policy that was approved in March

2001 by the Federal Executive Council led to the establishment of National Information Technology Development Agency (NITDA) in April 2001 to implement the policy as well as promote the healthy growth and development of the IT industry in the country. Even though the journey was slow, the target could not be met from 2001 to 2005 and then 2015, I however believe we are on the right track and we would get there soon.

The establishment of NITDA has brought development to the ICT industry in Nigeria in all ramifications and also given birth to other agencies of government to promote the integration of ICT into all development reforms and sectors of the economy. Among the aftermath of the creation of NITDA are Ministry of Communications, Galaxy Backbone and NigComSat among others. Currently, ICT is contributing about 12.58% to the Nation's Gross Domestic Product (GDP).

Service and technology are the differentiators between countries that are able to tackle poverty effectively by growing and developing their economies, and those that are not. The extent to which developing economies emerge as economic powerhouses depends on their ability to grasp and apply insights from science and technology and use them creatively. Innovation is the primary driver of technological growth and higher living standards. To promote technology advancement, developing countries should invest in quality education for youth, and continuous skills training for workers.

In view of the role of ICT in national development, NITDA has developed strategic roadmap in order to address the issues that are slowing down the growth of ICT in the country. The Agency also wishes to set the country on a path to compete with other countries around the world. The strategic roadmap 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.

NITDA'S STRATEGIC PLAN

a) 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 are still being imported. The influx of foreign technologies into Nigeria has made country become a dumping ground of substandard technologies.

In an effort to discourage the frequent importation of foreign technologies, NITDA is advocating strict compliance of the Executive order 003 signed by the then Acting President Prof. Yemi Osinbajo. 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) and 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 will ensure wastage and mismanagement of government funds are minimized substantially and also guarantee that procurement of all IT goods and services are for National development.

To further boost the penetration of ICT 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).

The Agency has also setup a Special Purpose Vehicle (SPV), the Office of the National Content (ONC) and charged the office with the development, promotion and monitoring of local content technologies in Nigeria.

b) Information Technology Regulation

As the IT clearing house, NITDA has so far this year, saved

the Federal Government about ₦5.5 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 to hosting all government websites and portals 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 conduct transaction over the Internet to authenticate each other's identities and ensure non-repudiation of electronic transactions through the use of digital signatures.

c) Cyber Security

The Agency is committed to the security of all the National IT Infrastructures. 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. Recently, 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 department has been involved in public awareness and campaign on Cyber Security threats.

d) Capacity Building

In an effort to transform Nigeria from a resource-based economy to a knowledge-based economy, 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 of over five hundred (500) National Youth Service Corps (NYSC) members and students undergoing their Students Industrial Work Experience Scheme (SIWES) program on IT essentials. Currently, NITDA has been is Cisco Networking Academy partner and through this program, capacity in various area such as Networking, Cybersecurity, Technopreneur, Programming etc have been built across various Ministries, Department and Agencies (MDAs) including tertiary institutions.

In addition, NITDA has instituted a scholarship program where many Nigerians have benefited from the Agency's sponsored PhD and Master degree programmes abroad. NITDA in collaboration with the Federal Ministry of Finance successfully conducted the Graduate Internship Scheme (GIS) program in Lagos and Gombe states respectively. 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 through the National Information Technology Development Fund (NITDEF) has over the years, embarked in 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.

The Federal Government's commitment to capacity building was further demonstrated recently during the ICT Start-up Ecosystem stakeholder Engagement Summit. At the event, the Honorable Minister of Communications, Barrister Abdur-Raheem Adebayo Shittu, said the Federal Government has since 2001 spent a total of \$70 billion to support IT start-ups and has assured everybody that government will not rest until it provides the enabling environment for all Nigerian start-ups to thrive.

e) Promotion of Government Digital Services

NITDA is coordinating the Federal Government's effort in trying to digitize all its activities. To effectively carry out the assignment, the restructure also gave birth to another full-fledged department called e-Government Development and Regulations to coordinate the promotion of government digital services. 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 through shared IT resources.

f) 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 source of sustainable job creation. NITDA is working with other stakeholders to create 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 involved to ensure the actualization of digital economy in the country.

g) Digital Inclusion

ICT is applied in almost all facets of government 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 saved the government about ₦20 billion monthly are few examples in which Nigerians are digitally included.

Furthermore, NITDA's proposal to establish IT hubs across the Nation will further increase digital inclusiveness to all Nigerians.

CONCLUSION

While ICT cannot be seen as a panacea for all government challenges, they do offer enormous opportunities and solutions in solving most of these challenges. ICT can be a medium for poverty reduction and job creation thereby increasing a Nation's Gross Domestic Product (GDP).


In Nigeria, the implementation of the ICT policy by the Ministry of Communications and other stakeholders such as NITDA, has contributed immensely to the Nation's economic development thereby saving the Federal Government billions of Naira. According to the President, his Excellency Muhammadu Buhari, GCFR, Nigeria has recorded significant gains through result of ICT application. The President said this during the opening ceremony of the e-Nigeria 2017 conference that was hosted by NITDA. He added the Federal Government has saved the country billions of Naira through implementation of the TSA, IPPIS, the use of card readers in electoral processes etc.

The current administration at NITDA is working assiduously to reposition the Agency through capacity building, deployment of IT infrastructure across the Nation, publications and enforcement of policies and regulations. 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. Another area NITDA has been thriving is the promotion of local content and youth empowerment through the establishment of Office of the National Content (ONC) and Office of ICT Innovation and Entrepreneurship (OIIE) respectively.


On this note, I wish to congratulate the management of Nile University for hosting this important conference and wish you very successful deliberations.

God bless you all.

I thank you for your attention.



Opening Address by the Director General and CEO of the (NITDA), at the Nigerian Software Stakeholders Roundtable.



The Executive Governor of Lagos State, His Excellency, Mr Akinwumi Ambode, ably represented, The Honourable Minister of Communications, ably represented by the Director ICT, Federal Ministry of Communications, Mrs Monilola Udoh, Representatives of Ministries, Departments and Agencies of Government here present, Presidents of CPN, ISPON, ITAN, NIG, CCMON, ICT Local and other groups here present, IT enthusiast and software developers, Gentlemen of the media, Ladies and gentlemen, May peace, blessings and mercy be upon you all and good morning.

This meeting is an important one as the Federal Government is assiduously working hard to diversify Nigeria's national income and to harness efficiencies that will deliver better governance to Nigerians. It is clear that ICT is at the center of these efforts. I'm delighted to note that second only to the Oil and Gas sector, ICT is at the forefront of driving a local content initiative, which is anchored on ensuring Nigeria leverages on local capacities to develop the economy, utilize national resource and create opportunities for Nigerians.

Notably, software development is a shining example of Nigeria's capacity to effectively proffer solutions to complex problems, create opportunities and develop a pipeline of young entrepreneurs who we celebrate every day. In administration of Government today, the effect of projects like the Government Integrated Financial Management Information System (GIFMIS), Integrated Payroll and Personnel Systems (IPPIS) and the Treasury Single Account (TSA) demonstrates how germane ICT is to a properly and efficiently run government.

The exploits of Nigerians in Financial Technology (Fintech), Enterprise Resource Planning (ERP) tools and mobile application development is acknowledged globally. Recently, an International report produced by Hackrank placed Nigeria in the top 50 software developing countries in the world. This is notable, but clearly isn't good enough for the effort and potential we have witnessed in the last three to five years. We can do better and should do better, this is exactly why we are gathered here.

The Executive Order 3 On Support of Local Content Procurement by the Federal Government and the Presidential Executive Order 5 for Planning and Execution of Projects, Promotion of Nigerian Content In Contracts and Science, Engineering and Technology, issued yesterday, 5th February 2018 by His Excellency, President Muhammadu Buhari GCFR, further strengthens the Regulatory Guidelines for Nigerian

Content Development in ICT 2013 in support of the development of indigenous software capabilities. Particularly, the recently issued Order mandates MDAs to engage professionals in planning technology projects like software development and deployment. The Order also empowers agencies like NITDA to provide comprehensive database of verifiable skills and capacities in ICT to ensure only indigenous companies are considered for procurements where capacity is available locally.


Therefore, with this opportunity and support from the current administration, we are here to discuss as a stakeholders in our country; hubs, private sector, government agencies, academia and trade groups in ICT, all vital to the development of our software industry what we must do to take advantage of these Orders as capital to grow our capabilities to service the world. Our deliberations today will set the tone for the development of a roadmap that will highlight top level activity and allocate responsibilities to all stakeholders in developing this space.

At NITDA we are committed to coordinating these efforts. We have demonstrated our willingness by enforcing the Guidelines for Nigerian Content Development in ICT 2013 at all cost. Recently, we have taken severe and legal action against violators of the Guidelines for Nigerian Content Development in ICT. I am happy to inform you, that we have begun to witness tremendous results in ensuring public


sector patronage of local entrepreneurs. I want to commend and acknowledge the support and partnership of ISPON who have also championed efforts to ensure MDAs who have sought to patronize foreign software where local alternatives exist were unable to do so. I assure you that NITDA will do all it can within its powers to ensure no single kobo of the Federal Government will be spent on acquiring technology that local and capable alternatives exist. We have charged our local content office (ONC) to continue to be vigilant in surveillance and to be agile in driving enforcement of the Guidelines for Nigerian Content Development in ICT.

I will not say more at this time, it is important that deliberations begin in earnest, I look forward to the conversations today and the collective ideas we shall share for action. Let us move our country forward.

Thank you and welcome.



Director General's Speech at the Stakeholder Meeting with Indigenous Original Equipment Manufacturers (OEMs) in Lagos.



Pease, Mercy and Blessing be upon you all. I appreciate you all for taking time out of your hectic schedules to meet with us this morning. It is proof of your commitment, discipline and dedication to build solid business and to join hands with NITDA towards the development of a vibrant IT sector. I also wish to congratulate you for your vision and resilience in building credible businesses in these challenging times. This is proof that with our collaboration and support we can develop a quality IT manufacturing industry in Nigeria.

Our commitment to building a truly indigenous IT sector cannot be understated. Therefore, Local Content Development is one of the seven strategic pillars of NITDA as articulated in the NITDA Roadmap launched shortly after my resumption as Director General. Also, the Executive Order 003 of the Acting President, Prof. Yemi Osibanjo SAN, towards the development of Local Content by mandating patronage of local content in the procurement process of MDAs further

strengthens our hand to act decisively to ensure your products are patronized. It also shows that NITDAs Roadmap is on the right path for National Development

The Executive Order 003 and NITDAs Guidelines for Local Content Development in ICT informed my swift action as soon as I was briefed on the challenges you have faced with the procurement of devices in the N-POWER program. It will be unfair, disingenuous and illegal for public funds to be used to patronize foreign equipment when Nigerians have strived so hard and toiled to build businesses to diversify our economy and create jobs. I signed the letter personally to Bank of Industry (BOI) demanding an explanation and reversal of any process that short-changes indigenous OEMs registered with NITDA. It this commitment and support you will see from NITDA in increasing measures to support to you.

However, as we do our task to support you, we will also demand good faith from you. This will be exemplified in delivering quality devices and providing adequate support for your products. Currently, we are dissatisfied with the quality and support given by local OEMs. You will bear witness that several attempts have been made to ensure the continuous patronage of local NITDA registered OEMs, in most cases customers are left disenchanted and disappointed, this is also a major cause for low patronage. At NITDA, we as the regulators are yet to receive the kind of support that will encourage us to advocate strongly for you.

This has to change. We need to work together to develop quality manufacturing practices and develop world class support for products sold. Anything short of this will be disappointing. I urge you to consider this as we plan to work together. I assure you of my relentless support to drive your businesses forward.

Therefore, I have instructed the Office for Nigerian Content Development in ICT (ONC) to devise a plan for quality ICT manufacturing in partnership with your umbrella organisation – Certified Computer Manufacturers of Nigeria (CCMON), to update and develop a plan you will abide by for quality manufacturing. Furthermore, I expect a detailed plan on how indigenous OEMs will provide support for customers and users of your products, particularly the MDAs who have patronized and continue to patronize your products. NITDA will not be shy to sanction anybody who performs less than it is desired, we have put our reputation on the line to support you passionately, and we demand the very best.

Please be assured of our support. We are delighted to meet with you today, I will also listen to your concerns and requests. I urge that we make the best use of our time together in a constructive and meaningful dialogue. Hopefully, at the end of this meeting I shall make comments and respond to some of your enquires and request if any. I wish you safe journey as you return to your bases, thank for honouring this invitation.

May Almighty God bless and protect you.



Students As Contributors: “The Digital Learning Farm”



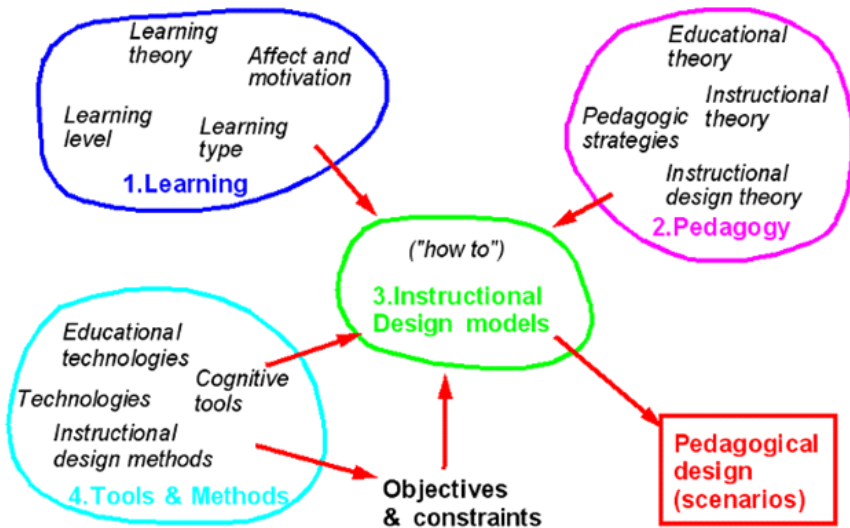
**AT THE MAIDEN EDITION OF ANNUAL TECH-WEEK
ORGANIZED BY THE AHMADU BELLO UNIVERSITY
DEVELOPERS ON AUGUST 10, 2017.**

My very sincere gratitude to Ahmadu Bello University Developers, organizers of Tech Week 2017, for creating the much important dialogue on learning in the 21st century. Although I have been asked to speak on role of students in the “Digital Learning Farm”, I thought the occasion calls for a deep look at the status and relevance of Education Technology (EdTech) as a sustainable sector in Nigeria.

The Association for Educational Communications and Technology (AECT) defined EdTech as the study and ethical practice of facilitating learning and improving performance by creating, using and managing appropriate technological processes and resources. As an academic field, EdTech research is a multidisciplinary area often comprising communication, education, psychology, sociology, philosophy, artificial intelligence, computer science, public policy and administration. As a practice, EdTech involves the systematic application of scientific knowledge in various

forms including multimedia, audiovisual, to mention only a few. Often with the goal of improving teaching and learning processes as well as the overall efficiency and performance of an educational system, EdTech could also be viewed as the design science of education determining “how different designs of learning environment contribute to learning, cooperation, motivation” etc (Collins 1992:24).

The Instructional Design Space



The wave of digitalization experienced in the last two decades has brought about new possibilities to this sector, as well as necessitated the expansion of its impact across many other fields including, but not limited to finance, health, agriculture, public administration and security. Going forward, the new

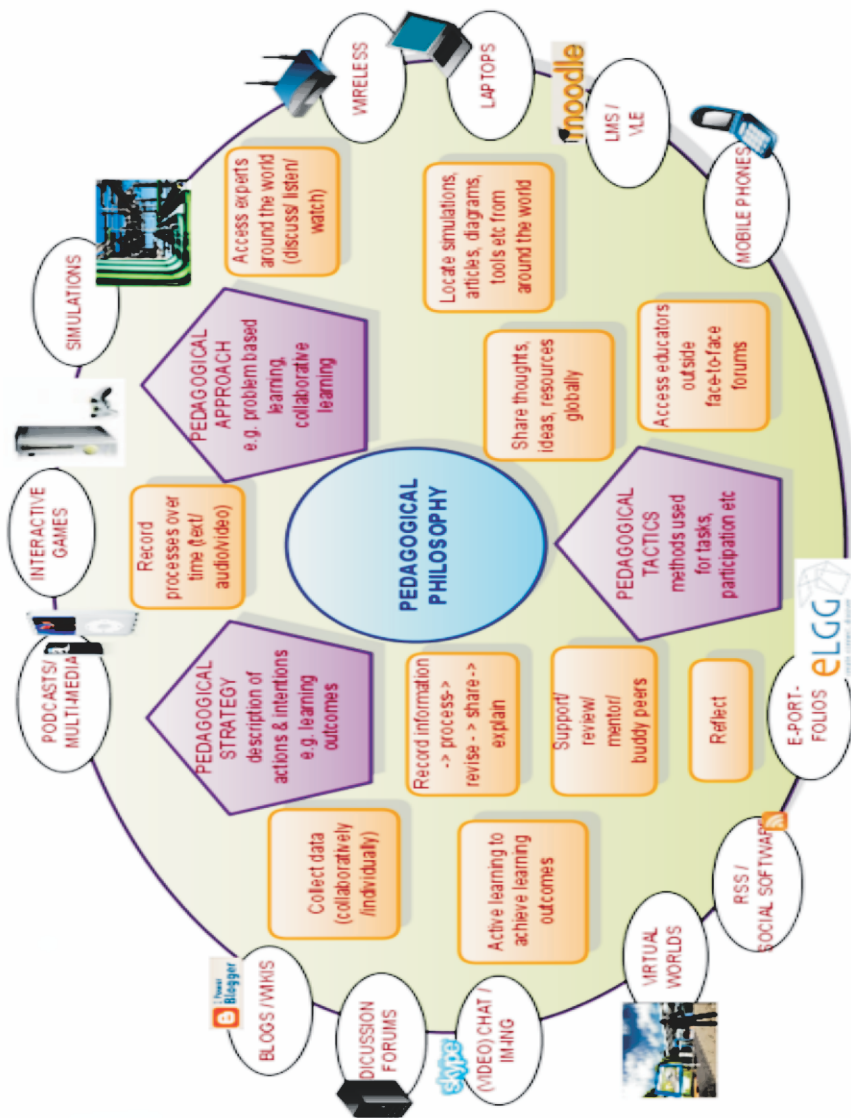
wave of digitalization and globalization will be dominated by codes – cyber security, robotics and life sciences will be dominated by the advanced industrial economies; FinTech, EdTech, HealthTech, AgricTech etc offers the most opportunities to improve economies and societies in the southern hemisphere.

Therefore, the 'Digital Learning Farm' could be viewed as a multidisciplinary laboratory designed to promote the use and application of technological tools to improve teaching and learning processes and systems. Primarily, students are both the raw materials and the end users of the 'Digital Learning Farm'. In other words, students are an ever present decimal in the digital learning value chain.

Having said that, it is my view that a more logical approach to assess the contributions of students is from the perspective of the Nigerian economy. After all, the essence of education is to harness opportunities for increasing the value of life. Despite the presence of multiple challenges including inadequate funding, infrastructure and manpower, the nation's demographic advantage could be highly vital to the future of EdTech in Nigeria. A robust EdTech ecosystem will result in better trained students at all layers of the education system, in addition enormous social and economic benefits to the Nigerian society and economy. For instance, data provided by the National Bureau of Statistics indicate that Nigerian families collectively contribute about N100 million annually

to the Ghanaian economy through secondary and tertiary education.

Therefore, it is proper to conclude that the 'Digital Learning Farm' in particular and the EdTech ecosystem in general holds great opportunities for 62.27% of the Nigerian population aged 0-24, according to 2006 census. That being said, the question is how to move closer to utilizing these opportunities. A concerted effort must be made to develop a national framework for the evolution of a robust and sustainable EdTech ecosystem to enable the Nigerian economy. The National Information Technology Development Agency (NITDA), members of the academia, ICT start-ups and incubation hubs, research institutions, digital content developers and carriers such as the Mobile Network Operators (MNO), brick and mortar publishers such as Longman and McMillan, financial institutions, development agencies and civil advocates must work together to develop a new EdTech ecosystem to cater for the educational needs of the Nigerian society. As the ICT development and regulatory agency in Nigeria, NITDA is positioned to provide the needed leadership through a collaborative approach with other stakeholders. Diagram below describes a fully developed EdTech ecosystem.



Owen (2008) Pedagogical underpinning for ICT enhanced Teaching and Learning Design.

Thank you.



Technology Supporting National Growth



May Peace, Mercy and Blessings be upon you all. All Protocols duly observed. (If it is necessary in the UK sir.) I am very pleased to welcome you to this event. I am highly delighted, humbled and honoured to be here to present a paper on “Technology Supporting National Growth”. It presents me with a unique opportunity to tell our story to the investors here present on the potential opportunities ICT would offer them in Nigeria.

Today era is called an information era, after agriculture and industrial ages. The Information Era represents the dawn of the Technology Age, a period when data and technologically created materials begin to displace Industrial Age goods. It was a period where information became a centrally important component of the society and formed the basis for the creation and manufacturing of goods and services.

The period beginning around 1970- a time when large amounts of information are widely available to many people, largely through computer technology. It is a description of the modern period in which the manipulation of information has become a major global industry. In this era, Information is a new form of wealth and technology, ICT specifically, is a new

vehicle for creating the wealth and we are successfully creating a knowledge-based world. Data/Information has become and recognized as the new energy, the new oil. In this era, Information has transformed many areas of human endeavors ranging from materials, energy, transportation, biology, health, society, manufacturing & industrialization, governance, computing, services industry, telecommunication etc.

The era has experienced technological and Information technology advancement-The development of global information networks (internet), allowing data, voice, video and location transmission through wired and wireless grids led to the development of an information-centered society. Computing power continued an exponential growth throughout the period, allowing for complex real-time modeling and the development of autonomous systems of basic intelligence. In this era, everything is becoming smart-cities, governments, and the world we live. The world is successfully building a knowledge-based society through a number of technologies like Hybrid Cloud Computing, Internet of Things (IoT), Big Data Analytics, Machine Learning, Speech-to-Speech Translation, Digital Security, Natural-Language, Quantum Computing, Speech-to-Speech Translation, Virtual Reality, Volumetric and Holographic Displays, and Autonomous Vehicles, Digital Dexterity, and so many other technologies. All these IT-enabled technologies have potential in Nigeria to thrive.

Having lost the industrial age, Africa with 15% of the world population cannot afford to miss the digital age. Nigeria is a major factor. Government's support is essential for technology growth. On the other hand, technology is the driver and critical to national growth. Encouraging technological development is clearly in governmental interests, as it encourages competition which leads to improved products and services. In realizing this fact, Nigeria, in the last two decades has embarked on reforms to promote and encourage long term ICT investments. Since the return to democracy in 1999, Nigeria has embarked upon an ambitious reform programme towards greater economic openness and liberalization. As a result, Nigeria has become a top recipient of foreign direct investment in Africa, with inflows which have surpassed those to South Africa since 2009. The federal government's "Transformation and Change Agenda" recognise private sector development as the main engine for economic growth.

Nigeria has prospects for investors. How do I mean? We have a large population of approximately 180 million people, many of whom are youth that are either ICT experts or ICT literate. The size of our population offers investors a very large market for products and services with a potential of high Return on Investment within a short period of time. In addition to that, Nigeria is equally blessed with abundant and varied types of natural resources, many of which serve as raw

materials for the production of electronic devices. By having an investment presence in Nigeria you will have a reduced need to import raw materials from other continents. Furthermore, by refining those raw materials, we can also jointly generate significant revenue by exporting them to other countries.

The markets are open and highly competitive back by government policies. We run a free market economy in Nigeria that encourages and incentivizes investment in the country. This is more interesting with the fact that investors will also have access to a large pool of highly skilled labour. You may also recall that Mark Zuckerberg, the CEO of Facebook, was in Nigeria a year ago to attend the Aso Villa Demo Day, an initiative by the Nigerian Presidency to identify and promote 30 start-ups with the brightest home-grown innovative solutions. Mr Zuckerberg admitted that he was “blown away” by the talent of young Nigerians. Many of his social media comments after the event have reflected this. By investing in ICT in Nigeria, you are assured of taking advantage of this massive talent.

The Information and Communication Technology (ICT) sector contributed 12.62% to the total nominal GDP in the 2nd quarter of 2016, up from its 12.25% contribution in the 1st quarter. We are redoubling efforts to increase ICT's contribution to our GDP, as we consider it to be a veritable alternative to the oil sector whose contributions have

dwindled over the past year. We invite you to partner with us on this mission in order to achieve a win-win relationship. According to National Bureau of Statistics (NBS), ICT sector's contribution to GDP moved from \$18 billion in private sector investments, including Direct Foreign Investment (FDI) in 2009, to \$30 billion in 2014, to \$32 billion in July 2015, and currently to N1.58 trillion as at June 2016, which represents an increase of 1.0 per cent, relative to the first quarter in 2016.

There are about 91 million regular Internet users in Nigeria, and we have a teledensity that exceeds 100%. A National Broadband Policy is in place to ensure that broadband is available in every part of the country. The plan projects an increase in the broadband penetration from 6% to 18% by the year 2018. In addition, Nigeria Industrial Revolution Plan is also in place to grow our industries in the areas of agro allied; metal and solid minerals; oil and gas and construction, manufacturing and services and make them competitive. Furthermore, the Federal government has just come up with Economic Recovery and Growth Plan that focuses on Micro, Small, Medium and Enterprise (MSMEs); economic diversification; Investing in People; Governance & Transparency and Building Competitive Economy.

The current infrastructural development effort and significant security improvement brought about by the current administration of President Muhammadu Buhari,

GCFR, will make it easy for your business to be up and running within a short period of time. Recently, the Acting president signed three executive orders giving specific instructions on a number of policy issues. One of them is the promotion of transparency and efficiency in business environment designed to facilitate the ease of doing business in the country. Recently, the Presidential Enabling Business Environment Council (PEBEC) releases a national action plan to be implemented across the priority areas, entry and exit of goods, entry and exit of people as well as government's transparency and procurement- over the next 60 days.

At NITDA we have created a special office known as the Office for ICT Innovation and Entrepreneurship (OIIE) to spearhead ICT's contribution to our GDP through “techpreneurs” and ICT start-ups. We are also establishing technology hubs in various geopolitical zones to boost innovations. In addition, we have developed and we are still developing investors' friendly guidelines and other regulatory frameworks to create an enabling environment and open market for IT procurement in the Ministries, Departments and Agencies of Governments. Interestingly, the level of ICT awareness amongst the populace has also grown impressively. So is the deployment of ICT in both public and private sectors. As stated earlier, it is also noteworthy that as of today, the instability that characterized Nigeria's immediate past has been significantly brought under control. To increase the

tempo and ensure balance in supply and demand for technology adoption, we have intensified awareness and sensitization through initiatives such as press releases, capacity building etc. in different areas of technology usage.

We therefore call on our potential investors here present and all over the world who are interested in Nigeria to come and tap in the potential opportunities Nigeria is offering. It is going to be a win-win situation. The technology opportunities are large and highly untapped.

At this juncture, I will like to give room for questions on the areas of your interest. Thank you for your attention.

Accelerating Government Transformation With Technology: NITDA's Vision And Strategy

May Peace, Mercy and Blessings be upon you all. All Protocols duly observed. I am highly delighted, humbled and honoured to attend this strategic event. I am here to speak on accelerating government transformation with technology: NITDA's vision and strategy. This is a challenging and at the same time interesting topic. It is challenging because government transformation is challenging. It is interesting because I am highly passionate about enabling the government transformation with Information Technology. That is my specialization and the government has given me the mandate. As our society progressed towards the information age, it has become increasingly essential than ever before to make our government more accessible, efficient, transparent and accountable to the people. Our public service must be highly competitive, innovative and digitally-enabled to deliver public services and effectively drive government programs and policies. This is no easy task. The Nigerian government is becoming more complex and wide-reaching than ever before. Citizens believe and expect that public services must be delivered effectively and at speed, which makes the challenge

more daunting. Rightly, the duty of government is to serve everyone regardless of age, gender, opinion or the places in which they choose to live. For these reasons and because government by nature is bureaucratic and tends to be a monopolistic provider of services, it has been slow to use the transformative potential of digital technology to change the way it does business. Therefore, government is at a double disadvantage, big and slow. By harnessing digital technology in governance, we can transform our government for better. Government transformation is therefore about change. It is, in essence, a change of working, public service culture, strategy, processes, and people's disposition—changes that are made possible by digital technology. It is important to note that digital technology is not change itself; it enables the change to government transformation.

The Federal government of Nigeria in realizing the capability of digital technology in transforming government created National Information Technology Development Agency in 2001. 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. Therefore, government digital transformation is at the heart of NITDA creation. As a country, we have done a lot to transform our government especially in the areas of strategy, policies and digital infrastructure investments. However, these efforts are not properly coordinated and streamlined.

Digitally transforming our government and Integrating ICT into development programs and governance reform requires overcoming major challenges. Some of the challenges hampering our collective desires of government transformation have always been among other things, unfriendly institutional and legal environment; poor coordination of government policy, programs and services; silo deployment of IT systems and lack of government-wide shared infrastructure and services; inadequate IT workforce skills and ICT-based citizen engagement platforms etc. In addition, the legitimacy of a government, in this period of knowledge economy and information society driven by ICT, requires full-scale inclusion, participation and co-creation of customized and personalized services for citizens. Furthermore, our national peculiarities in terms of multi-tribe society; population and huge demand for accessible public services; increased complexity of societal problems with new challenges of agitations, security and terrorism etc. demand a digitally transformed governance. On the other hand, it is good to know that technology is not a complete panacea to digital government transformation. Many factors are involved. Hence, transforming government in Nigerian requires a holistic and tailored approach.

As a proponent of government transformation and with the mandate given to me as the Chief Information Technology Officer of the country, on assumption of office in October

2016, I sought to develop a roadmap that is built on seven pillars. Three of these pillars are geared towards government digital transformation. They are capacity building, IT regulation and government digital service promotion. This led to the creation of e-Government Development and Regulation department to champion the implementation of the shared vision in collaboration with our stakeholders. Our dream for creating this department is to ensure NITDA plays a critical role in building a digitally transformed government. We want to create enabling environment through programs and initiatives that would facilitate the full adoption of ICT for effective governing processes, policies and services integration and a whole-of-government to ensure better service delivery. The department, under my leadership, has been mandated to ensure the required ICT skills are developed in the public service, government digital services are promoted and IT procurement and deployment in public sector are properly developed and regulated. Furthermore, the department is coming up with strategy in collaboration with relevant stakeholders to ensure we break up the silos in our government IT systems; lay a foundation for an agile, citizen-centric, smart, innovative and collaborative government. We are ready to facilitate a transparent, accountable, engaged, locally responsive and globally competitive government through the adoption of ICT in governance; ensure result-oriented public-people-private partnership for digital services; build an inclusive information society and knowledge-based digital economy.

We are aware, the vision might be difficult to achieve, but we strongly believe it is attainable by doing the right thing and doing things right, through collective determination and commitment, strong political and leadership will. We believe the transformation is a process and we have strategically positioned ourselves for this change. We have started by building a strong foundation through IT regulations. We are developing standards, guidelines and frameworks to be leveraged upon in building a highly integrated, efficient whole-of-government. We are developing investors' friendly regulatory frameworks to create an enabling environment and open market for IT procurement in the Ministries, Departments and Agencies of Governments. We are entering into strategic partnerships to build the efficient and sustainable IT infrastructure across government and deliver services across multiple channels for service takers.

As a clearing house for all IT projects in government and in compliance with the Federal Government directive that MDAs and all other institutions of the Federal Government planning to embark on IT projects must obtain clearance from NITDA, we have developed MDAs IT project clearance instruments, put up strategy to support MDAs with advice and guidance in procuring and implementing such projects. Our aim is to reduce duplication of efforts and cost of IT investment in governance, ensure interoperability of e-Government systems, facilitate and enable shared and standardized IT

infrastructure, encourage sharing of experience and learning across MDAs among other things.

Knowing fully that critical components of digital transformation are people, processes, technology and resources, we have initiated a process to develop Government Enterprise Architecture (GEA) with the involvement IT decision makers, top government officials and major stakeholders. GEA is a blueprint that ensures these four critical components are effectively aligned to build foundation for government transformation. Digital transformation involves back-end office re-engineering, IT infrastructure standardization, consolidation and integration of business processes and data across government agencies to enable delivery of effective and consolidated services through the front-end offices at an affordable cost to the citizens. The GEA will articulate how IT is going to deliver these promises efficiently.


The issue of identity management in public sector is also a major factor of public service digital transformation. We have engineered processes to quickly establish and implement National Public Key Infrastructure (PKI). PKI is the backbone of national identity management to ensure a rapid digital transformation in in the country. Implementation of PKI will generate a lot of new applications and digital services. I have commissioned two committees to fast track its

implementation in collaboration with relevant stakeholders to ensure data/information exchange within and outside the country is secure. We want to earn the trust and confidence of our people and the international community in using our cyberspace and digital services.


To increase the tempo and ensure balance in supply and demand for technology adoption, we have intensified awareness and sensitization through press releases, capacity building, workshops and conferences etc. in different areas of technology usage targeting various categories of stakeholders and service users.

My dream again as the Chief Information Technology Officer of the country is to lay the foundation for digitally transformed government by ensuring application of ICT turns our financial constraints to financial freedom; Poor public services to improved and satisfactory services; widespread of corruption to transparent and accountable government; and information poverty to knowledge-based economy. Government transformation is a must, it however requires concerted efforts. We can't do it alone; we need the support and cooperation of MDAs, IT industry, local and international development partners, National Assembly, technology giants like Microsoft. We look forward to you for more support in achieving our shared vision.

I will like to end my speech at this juncture. I wish you a productive deliberation. Thank you for your attention.



Smart Technologies And Infrastructure: Communications Technologies, Platforms And IoT Applications For Smart Cities



May Peace, Mercy and Blessings be upon you all. All Protocols duly observed. It is my pleasure to be here today. I am highly delighted, humbled and honoured to be invited as the chair of smart technologies and Infrastructure for smart cities at the ongoing SmartCities Nigeria- leveraging on technology solutions to improve the efficiency of cities. It presents a platform and opportunity for me to share my view on the smart city in Nigerian perspective. It's critical for successful implementation of smart cities in the country thereby improving living conditions of our people. This is because, as you can see, there are major stakeholders gathered here today to chart a way out on the pertinent issues regarding smart cities implementation in Nigeria.

Having said that, I will quickly remind us as the chair, my dear panelists, and smart audience our job in this session. Our primary job is to discuss smart technologies and infrastructure that is, communication technologies, Platforms and IoT applications required for achieving smart

cities. In that regard, we would x-ray smart city fundamental Infrastructure and Networks requirement; Safety and security issues; application of urban technologies like Geographical Information Systems, Internet of Things, cloud computing and big data analytics etc.; how intelligent transport solutions can help solve transportation challenges in our cities especially traffic monitoring and efficient logistics and how these systems can be integrated seamlessly to create social and economic value.

Quickly, let me make this point, working toward realizing smart cities is a must for the government in collaboration with stakeholders. However, as a developing country, with our peculiarity as a country, there is a need for us to rethink about smart cities implementation. We should be innovative about it and ensure implementation are sustainable. The focus should be on short and long terms plans for building green field cities as well as rebuilding or retrofitting existing cities to be smart, future ready and sustainable. We need to be conscious of climate change. There is need to build a sustainable business model, our own architecture for smart initiatives and ensure the right infrastructure are available. Infrastructure such as broadband; electricity, smart devices and agents; smart urban spaces; web-based applications, mobile technologies and e-services as well as open government data issues are crucial to achieving sustainable smart cities. Having this in mind will help us have a productive discussion.

Since I assumed office in October 2016, NITDA under my leadership has been refocused to properly regulate and develop the IT industry. Some of the infrastructure mentioned above are beyond our control. We are, however, working diligently and partnering strategically with relevant stakeholders in the country and international development partners to ensure fundamental infrastructure is available to realize the promises of the ICT. We are also rolling out a regulatory framework for IoT-enabled applications to provide a standardized framework for smart initiatives in government to ensure data generated through smart applications are protected and centrally available for the creation of social and economic value. We would support this with the right PPP regulatory framework and guidelines to create a friendly investment environment for smart initiatives. I have commissioned two committees to fast track implementation of National Public Key Infrastructure (PKI) to ensure data/information exchange within and outside the country is secure and we earn the trust and confidence of our people and the international community in using Nigerian cyber space and e-services generated through smart cities.

I hope this would give us insight on how to have a productive discussion. I am also interested in innovative ideas on the way forward for smart cities implementation in Nigeria. I also hope this discussion will also produce implementable recommendations through which we can develop an action

plan and road map for smart cities implementation in Nigeria. Let's get to work, do the talking and begin to walk the talk as soon as possible.



Implementation Of ICT In Government



May Peace, Mercy and Blessings be upon you all. All Protocols duly observed. It is my pleasure to be here at the technical session of the technology in government submit, 2017. This forum has accorded me the opportunity to meet with IT professionals in the public sector. We have a lot of programmes that have been lined up for 2018 and beyond to engage IT professionals in government. I believe with my presence here today has kick-started the engagement. I look forward to seeing more fruitful engagements in the future.

Technology in government has become a global phenomenon and an essential required feature of all governments in both the developed and developing societies. Applying technology in governance holds tremendous potential to improve the way governments deliver public services and enhance broad stakeholders' involvement in governance. Before now, e-Government main objectives were to ensure efficiency and transparency in governance. Beyond these objectives, e-Government has been recognized as a major driver of government transformation in all aspects. It is a known fact that e-Government and ICT tools can among other things, reduce corruption and cut down the cost of governance

thereby improve national economic development and growth; enhance access and quality of services; improve government policies' performance; reduce the burden of regulatory compliance; render public agencies more transparent and accountable; increase public service productivity and transform government as a whole. Nigeria as a developing country has her own share of good experience of e-government or ICT adoption to streamline and improve government business activities. Such good experience where Nigeria has recorded success in using ICT to drive government policies can be found in TSA, IPPIS, GIFMIS, BVN, JAMB online, WEAC online, e-Taxation, NIN, e-passport, e-wallet for farmers, business name registration automation by CAC among others.

e-Government or technology in government has been proved to be a development resource and a tool for achieving sustainable development goals in 2016 United Nations' e-Government Development Index (EGDI) report. The correlation between the economic development of a country and ICT/e-Government development is evident in the report. The United Kingdom, Australia, Republic of Korea, Singapore and Finland are the top five. Nigeria is ranked 143rd. Gone are the days when a nation's development is determined by the number of its natural resources. Natural resources are no longer sustainable as a means of economic development for a country. Corruption, over-dependence on oil for long time

and neglect of other sectors of the economy caused Nigeria a painful experience of economic recession. Therefore, there is no better time to diversify the economy than now and use ICT to drive every other sector of the economy including governance. The good experiences mentioned earlier are part of the few successful silo e-government initiatives in the country. Digitally enables every sector of the economy, developing and transforming government as a whole is not a child's play knowing fully our peculiarity as a country. Integration of ICT in governance and economy must be holistic before achieving the ultimate goal of digital transformation. However, adoption of technology in government and its implementation in Nigeria will naturally face 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 to effectively implement and utilize ICT solutions; inadequate and unenforceable regulations and weak institutions; poor coordination of government policy, programs and services to inadequate finance for ICT projects as a result of competing investment demands, silo deployment of IT systems and lack of government-wide shared infrastructure and services are among others. These challenges must be tackled creatively.

At this period when the country must recover as quickly as possible from the economic recession, we must collectively

learn from the successes and mistakes of the top economies and e-government ranked countries. We need to be strategic in IT investments to avoid what is called IT productivity paradox and IT bottleneck. In 2014, a report revealed that “\$3 trillion USD was spent by governments around the world in the first decade of the 21st century on e-Government projects and programs, yet the rate of failure of e-government projects in countries with developing economies was very high-estimated at around 60-80 percent (with the higher rate of failure in Africa) leading to a massive wastage of financial, human and political resources, and inability to deliver the potential benefits of e-government to its beneficiaries”. Hence, we must ensure that every IT investment is creating value, opening up opportunities for innovations and is creating capabilities to be leveraged to drive other sectors of the economy.

Having known the opportunities technology in government could afford our development stride especially our sustainable development and the challenges implementation of technology in government could face as a country; then 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 THINKING GLOBALLY and ACTING LOCALLY attitude. Technology adaptation is critical, think

globally and act locally principle must play out. We must consider our peculiar environment where electricity is a major issue, unfriendly institutional environment, users' culture and adoption have to be put into consideration while designing digital services. These opportunities and challenges have necessitated NITDA under my leadership to refocus based on a new strategic roadmap with the following key priorities areas: Capacity building development, digital job creation, government digital service promotion, local content development, cybersecurity, regulation and digital inclusion. In response to the implementation of this roadmap, an e-government development and regulations department has been created to ensure NITDA plays a critical role in using e-government to address different national concerns such as corruption, economy and sustainable development.

This is a technical session and I believe we should engage ourselves in technical and academic discussions. To think globally as mentioned earlier, we must build what is called foundation for execution which is the IT infrastructure and digitized business process automating the government core capabilities that will enable government digital transformation for effective service delivery. Through foundation for execution, developed nations have transformed their societies for better using information and communication technology. The foundation for execution has three components which any government must learn. First,

government operating model which articulates how the government is going to adapt and use IT to drive its business processes and different sectors of the economy efficiently. The second thing is government enterprise architecture (GEA) which ensures people, processes, technology and other resources are better aligned as the government builds its IT infrastructure through standardized and consolidated technology platforms for digital transformation. Government enterprise architecture should encourage shared IT infrastructure, service reusability but discourage duplication among other things. Lastly, IT engagement model governs IT behaviour in order to ensure IT projects achieve their objectives. It also entails effective e-government project management. If we are able to build the foundation for execution successfully through a suitable government enterprise architecture and IT engagement model, there would be a drastic reduction in the cost of IT investment with commensurable value for IT investments; ensure MDAs are very responsive and efficient to service delivery; and ultimately ensure IT helps build capabilities to be leveraged to drive other sectors of the economy. NITDA, under my leadership, has initiated the process of building the foundation for execution. One of such efforts is the enforcement of MDAs IT projects clearance mandate with the aim of building standardized IT infrastructures as well as efficient IT systems and services in the government. It is aimed at reducing the cost of IT investments and ensure

commensurate value is derived from every IT investment. Ultimately, the efforts will spur innovations, enhance MDAs responsiveness to their obligations even in the face of new regulations and policies as well as to ensure IT becomes a major driver of economic growth. It is good to put on record that NITDA's IT clearance policy has saved the government about N5.5 billion Naira in 2017 alone. We are going to engage you very soon while building Government Enterprise Architecture and national e-Government Interoperability framework.

To act locally, we must support local content development in ICT. MDAs should promote indigenous ICT companies to ensure their ICT products and services are highly patronized. This will help grow our economy. NITDA has established Office for Nigerian Content Development in ICT to enforce guideline for Nigerian Content Development in ICT by ensuring ICT products and services procurement is 100% sourced locally except where they are not available. This office also ensures indigenous ICT companies provide a high quality of service. We are also enforcing this guideline through MDAs IT clearance exercise. For any IT project to be cleared, one of the criteria is the conformance to the guideline for Nigerian Content Development in ICT. Furthermore, aside from technology management, change management and capacity building are very critical to the success of technology in government. There is this saying that for any e-

government/ICT project to be successful, technology carries 20%, business process re-engineering is 35% while change management takes 40% and luck is 5%. We should take note. Because we need to develop human capital with the right skills in the public service, we have collaborated and supported South Korean Government through Korea International Cooperation Agency (KOICA) and Federal Ministry of Communications to build capacity for e-Government in Nigeria. About Nine Hundred and Twenty-Seven (927) public servants have been trained both in Nigeria and Korea. We are about to implement a massive digital literacy policy across public service in collaboration with major stakeholders. We have started massive campaigns on the switch to the .gov.ng domain. We discovered that only about 40% of Federal government MDAs uses the .gov.ng domain. gov.ng is the Nigerian identity and brand on the internet being managed and administered by NITDA. Government businesses must be conducted in this zone.

Therefore, as our society progressed towards the information age, it has become increasingly essential than ever before to make our government more accessible, efficient, transparent and accountable to the people. As we all know, public service is the engine room of any government activities for translating public policies into development agenda. Our public service must be highly competitive, innovative and digitally-enabled to deliver public services and effectively

drive government programs and policies. You are to drive this change by ensuring IT is aligned with government agenda. One of the topmost agenda and reform programs of the present administration is Economic Recovery and Growth Plan (ERGP). The ERGP has three broad strategic objectives to achieve: restoring growth, investment in Nigerian people and building a globally competitive economy. Nothing can enable this plan more than efficient use of ICT. This agenda of the government informed the main theme of this year submit- "Achieving National Economic Recovery and Growth – The Role of Information and Communications Technology". The role ICT will play in achieving this plan cannot be overemphasized and it must be a collective responsibility of all of us sitting here today. That is why we are here today to build our capacity as IT professionals to be able to respond effectively to IT to government's policy directions. Having realized that Government policies keep changing, our proposed GEA will be visionary and a foundation for using IT to support frequent government's economic and national development policies and strategies such as ERGP. As an IT development and regulating Agency, driving and enabling the ERGP with IT has been our concern. NITDA will be more than happy to facilitate implementation of workable recommendations from this submit.

My dream as the Chief Information Technology Officer of the country is to lay the foundation for digitally transformed

government by ensuring application of ICT turns poor public services to improved and satisfactory services; widespread of corruption to a transparent and accountable government; and information poverty to a knowledge-based economy. Government transformation is a must, it however requires concerted efforts. We can't do it alone; we need the support and cooperation of MDAs, IT industry, local and international development partners. We look forward to you for more support in achieving our shared vision.

In conclusion, I want to encourage IT professionals here present to take this technical workshop seriously. IT is a field where the operators must continue to learn. Continuous learning is the hallmark of the IT profession. As a country, we are already underdeveloped with IT, we need to take a pragmatic step towards using IT for national development. I hope the seminar will be able to address issues around Cyber Security threats and mitigation, e-Government fundamentals, Cloud and shared services, Data Base Systems design and implementation, e-government portal design among other IT related courses in the public sector. Above all, we must continue to build synergy. Underdevelopment and inefficiency of IT systems in the MDAs cannot be resolved in silos, by one or few Agencies of government but a collective effort. Thank you for your attention.



The Impact Of e-Government Strategy On Public Service Delivery In Nigeria



May Peace, Mercy and Blessings be upon you all. All Protocols duly observed. I am highly delighted, humbled and honoured to attend this strategic event. It presents a platform and an opportunity for me to share my ICT vision and strategic roadmap with our honourable lawmakers as the country's Chief Information Technology Officer. This is critical toward realizing the required legal and political supports for Information Technology development in Nigeria. 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. NITDA is mandated to implement the Nigerian Information Technology Policy and co-ordinate general IT development in the country. Our role as an Agency 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.

I am equally delighted to attend the event in Kaduna State. Kaduna State Government is doing a lot in exploiting ICT for governance. The Governor is among the few digital governors. He has remarkably encouraged the use of ICT in the State for increased efficiency and better public service delivery. Notable among them is the deployment of ICT in three sectors of the State economy namely, Agriculture, Education and Health as a major boost that would transform the sectors for better efficiency, service delivery and accountability. Kaduna State has recently commissioned an ICT hub in a bid to achieve its target of having vibrant ICT sector and also launched an innovative tool to democratize monitoring and evaluation in Kaduna as well as to track performance of the State's projects. The platform is called the "Eyes and Ears Project Citizen Feedback System, (CitFeed)". These are deliberate innovations at ensuring the governed are better served.

Having said that, I will quickly remind us of my job here today. I am to discuss the "Impact of E-Government Strategy on Service Delivery in Nigeria". One of the new global trends in governments in the last two decades is the application and integration of ICT into governance reforms. This concept is basically termed e-Government. It is defined by United Nations as the use and application of information technologies in public administration to streamline and integrate workflows and processes, to effectively manage

data and information, enhance public service delivery as well as expand communication channels for engagement. E-Government has become a global phenomenon and an essential required feature of all governments in both the developed and developing societies. E-government holds tremendous potential to improve the way our governments would deliver public services and enhance broad stakeholder involvement in governance. e-Government objective was to ensure efficiency and transparency in governance. Beyond this, e-Government is seen as enabler of government transformation in all aspects. No doubt about the efficacy of ICT integration into developmental agenda of government. Much progressive results about the role of ICT for development are evident from clear indication of ICT's impact on OECD countries and some dramatic results from few pilot projects in developing countries. It is a known fact that e-Government and ICT tools can among other things, reduce corruption and cut down the cost of governance; enhance access and quality of services; improve government policies' performance; reduce the burden of regulatory compliance; render public agencies more transparent and accountable; increase public service productivity and transform government.

The Nigerian Government in realizing this global trend, especially at the Federal Government level, has taken conscious steps to build e-Government strategy in the last

couple of years to improve public service delivery. In March 2001, Federal Government approved the National Information Technology Policy and began the implementation with the formation of NITDA in April, 2001. In order to set up a basis for e-Government initiatives, the Federal Government through NITDA, in 2004 adopted a private-public partnership of a tripartite joint venture registered as National E-Government Strategies Limited (NeGSt) comprising government, Consortium Banks and a strategic partner. NeGSt's mandate was to facilitate and implement e-Government programmes and projects in Nigeria as well as create a single point of NITDA's approved architecture to guide the evolution of digital government solutions with consistent standards, guidelines, frameworks, capacity building, ICT infrastructure, operating platforms and applications across MDAs. Major achievements of this partnership were eReadiness capacity building (eRCB) programme for MDAs, e-Registration of teachers and e-passport project.

In 2005, NITDA facilitated the formation of Nigeria Internet Registration Association (NIRA) as a stakeholder-led organization and transferred the management of the Nigeria's country code Top Level Domain.ng (ccTLD.ng) to it through an MOU. Federal, State and Local Government constituents are mandated to use .GOV.NG zone for their websites and other e-government applications across the

three levels of government. The .GOV.NG zone is Nigerian Government identity on the internet. It's safe, secure, globally recognized and reachable. NITDA has taken upon itself to manage and administer the registration of this zone. At the Federal level, about 80% of MDAs are on .GOV.NG domains and efforts are being sustained to realize 100%. This is another deliberate strategy for e-Government development in the country.

Another e-Government strategy was the establishment of Galaxy Backbone in 2006 to provide shared ICT infrastructure for the public sector. The aim was to fast track government ICT infrastructure deployment; derive more value from investments in ICT by reducing duplication and cost of IT investments, enhance inter-operability of e-Government systems and improve G2G public service delivery through integrated and common services platform among other things.

NITDA played a major role in all of these various e-government strategies and they were consciously initiated to improve public service delivery in three major forms of e-government service delivery model, that is, G2G, G2B and G2C. The strategies and political will of the government have paved way for some e-Government applications and systems we use today to better deliver public services through the service delivery models. e-Government strategy is specifically impactful in the following areas that form the core

of essential government services: Finance, Economy, Welfare, Education, Agriculture, Democracy and Governance, Transportation, Health, International relations and Trade and Investments to mention a few. In order, not to take much of our time, I will briefly mention some of the government policies and initiatives enabled by e-Government with great impacts on public service delivery attributed to the aforesaid core areas.

Treasury Single Account (TSA) is a Federal Government policy powered by Remita. The enforcement of this policy by President Mohammad Buhari-led administration has much impact on the Federal Government financial management. According to the Account General of the Federation at the end of March, 2017, the TSA has saved additional N4 billion monthly, noting that a total collapse of government activities would have occurred if TSA was not in place. Aside the economic benefits, REMITA has facilitated ease of transactions and payments between Government and businesses as well as Government and citizens.

Integrated Payroll and Personnel Information System (IPPIS) and Bank Verification number are part of e-Government strategy by government to eliminate ghost workers, thus reduce waste in the system. In April 2017, Ministry of finance said IPPIS is saving government N20 billion monthly. In addition, one of the objectives of IPPIS is prompt payment of salaries directly to employees' accounts with appropriate

deductions and remittances of third party payments. The IPPIS is one of the Federal Government reform initiatives to transform the Nigerian public service and make it more efficient and effective in service delivery.

Some other major on-going e-Government initiatives that have positive impact on public service delivery are: e-Voting, for example, accreditation of voters through PVC; e-Authentication- for example, National Identity Number (NIN), National database harmonization and integration; e-Immigration- for example, e-passport project; e-Health- for example, Mobile Drug authentication; e-Education- for example, WAEC online, JAMB online, National Open University, e-Transportation- for example, e-Driver's license, Online Vehicle Registration (e-Vreg); e-Agriculture- for example, National e-Agriculture Web Portal, e-Wallet for farmers, Seed Import and Export Permit, e-Business- for example, automation of business names registration; etc. The impact of these e-government applications on government service delivery cannot be overemphasized.

The Federal Government in pursuit of national and economic development in 2012 made another step forward to improve e-Government adoption in the public sector for effective governing processes. It entered into partnership with South Korean Government through Korea International Cooperation Agency (KOICA) to build capacity for e-Government in Nigeria. Korea was ranked number one for

three consecutive times in biennial e-Government Development Index (EGDI) in 2010, 2012 and 2014 by the United Nations. The Federal Government is represented by the Ministry of Communication Technology, National Planning Commission, NITDA, and Public Service Institute of Nigeria (PSIN). There are three components to the project, (1) e-Government Master Plan, e-Government capacity building for civil servants (22, 625 to be trained) and establishment of e-government training centre. The e-government masterplan has been submitted to the Federal Executive Council (FEC) for approval as national e-government strategy and action plan. For the capacity building program, Six Hundred and Sixty-Five (665) public servants have been trained both in Nigeria and Korea.

To build upon these achievements, on assumption of office in October 2016, I sought to develop a Roadmap that would capture the key areas that my team and I would focus. The roadmap is based on seven key priority areas which include Capacity building, IT regulation, Digital job creation, Government digital service promotion, Local content development & Promotion, Cyber security and Digital Inclusion. My conviction and dream for e-Government as a development resource for sustainable national development in which NITDA must play a vital role led to the creation of a new department called e-Government Development and Regulations (eGDR). Before my tenure, e-Government existed

as unit in NITDA. As much as e-Government strategy has achieved, I realized much is still needed to be done to implement government policies and programs in a more coherent manner. Most of e-Government systems in the country still exist as silos. We must break the silos to enable full realization of e-Government objectives especially as it related to efficiency and better service delivery. Our dream for creating this department is to ensure NITDA plays a critical role in using e-government to address different national concerns such as corruption, economy and sustainable development. We want to create enabling environment through programs and initiatives that would facilitate full adoption of ICT for effective governing processes; policies and services integration and a whole-of-government to ensure better service delivery. This is a shared vision in NITDA and we are working smartly to deliver this mandate in the interest of the country. We are ready to transform governance, encourage participatory governance, promote the creation of information society and knowledge driven economy through sustainable e-government programs and IT regulations. You will ask me how are we going to achieve this?

We are aware, the vision might be difficult to achieve, but we strongly believe it is attainable by doing the right thing and doing things right, through collective determination and commitment, strong political and leadership will. We have

started by building strong foundation through regulations. We are developing standards, guidelines and frameworks to be leveraged upon in building a highly integrated, efficient whole-of-government. For instance, we have developed standards and guidelines for government websites. This is to ensure better service delivery and in compliance with the Acting President, Prof. Yemi Osibanjo's (SAN) executive order on ease of doing business in Nigeria.

As a clearing house for all IT projects in government and in compliance with the Federal Government directive that MDAs and all other institutions of the Federal Government planning to embark on IT projects must obtain clearance from NITDA, we have developed MDAs IT project submission template, gathered a team of experts to support MDAs with advice and guidance in procuring and implementing such projects. Our aim is to reduce duplication of efforts and cost of IT investment in governance, ensure interoperability of e-Government systems, facilitate and enable shared IT infrastructure among other things. In our 2017 capital budget, we realized the strong need for Government Enterprise Architecture (GEA). GEA will be a foundation for government transformation and coherency; a blue print for aligning National Economic Recovery and Growth Plan's (ERGP) vision and strategy with IT/e-Government solutions deployment. The GEA will articulate how the silos will be broken in order to have a single view of government. A

whole-of-government involves back-end office reengineering, consolidation and integration of business processes across government agencies to be able to deliver effective and consolidated services through the front-ends office at affordable cost. Advanced phases of service innovation cannot be achieved without modernizing and integrating many back-office functions. Citizen-cantered and citizen-driven service delivery involves breaking up silos, integrating across agencies, innovating new ways of doing business, and creating a service-focused culture. All these will be articulated in the GEA.

On the .GOV.NG domains for government websites; we have resolved to move Nigeria totally from the first stage of launching an e-government to the next level. The first stage is the establishment of online presence via websites, portals and gateways. We are developing programmes to ensure 100% online presence of all the Federal, State and Local government constituents this year. Under my leadership, we have reduced registration time to two (2) hours upon request if the required information is provided. We will also ensure government websites evolve gradually from this information stage to interaction and transaction stages respectively through orchestrated plans, policies and initiatives. The transaction stage features more sophisticated services, offers citizens the ability to have a single view of government and to do transactions around the clock.

The Internet Corporation for Assigned Names and Numbers (ICANN) is planning to perform a Root Zone Domain Name System Security Extensions (DNSSEC) key signing key (KSK) rollover by October, 2017. We are collaborating with NIRA to ensure it is free Root zone KSK rollover exercise. We want to ensure .NG ccTLD zone is signed before the rollover date. We are also building capacity in that regards as well. This is a deliberate attempt to ensure .NG and by extension .GOV.NG - Nigerian identity on the internet is secure and safe to deliver services to the citizens and businesses. The few things we mentioned among others are what we are doing as an Agency to ensure we improve on the gains of the previous e-Government strategy on service delivery in Nigeria.

My dream again as the Chief Information Technology Officer of the country is to start the process of facilitating ICT-enabled government transformation by ensuring application of ICT turns our financial constraints to financial freedom; Poor public services to improved and satisfactory services; widespread of corruption to transparent and accountable government; and information poverty to knowledge-based economy.

We can't do it alone; we need the support and cooperation of MDAs, IT industry, the National Assembly and other stakeholders. Leveraging on the role of ICT to improve on government service delivery is a must, it however requires

concerted efforts. ICT is fundamental to implementing these plans and policies; it remains the major enabler and driver of economic recovery, diversification and sustainability. We look forward to National Assembly for more supports as the need may arise. At this juncture, I will like to stop. I wish you a successful conference.

Thank you for your attention.