

A Framework for Digital Government Transformation Performance Assessment and Toolkit for Developing Country

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ABSTRACT

In developing countries, the importance of digital transformation in the public sector cannot be over-emphasized. Information and Communication Technology (ICT), if its integration into development reforms is gotten right, will play a revolutionary role for developing countries to accelerate advancements while enabling possibilities of competing with top nations for social and economic growth. There is a range of issues that will drive digital transformation in the developing countries in which major ones, among others, are sustainability, globalization, economic conditions and technological innovations with the ultimate purpose of creating public values that would have a greater social, environmental, political and economic impact on society.

Achieving digital transformation objectives is no bed of roses rather a holistic approach with a strong foundation involving a whole lot of activities that must be put in place and executed. Therefore, approaches to digital transformation must be holistic and end-to-end.

While building a strong foundation, one of the approaches is to have a means of continuously measuring the performance of public institutions taking account of the peculiar challenges being faced in developing countries. This will enable the Government as a whole to make informed and better decisions. The paper seeks to address the challenges of inadequate data/information on Federal Public Institutions' (FPIs) performance post IT or digital transformation project implementation. It prevents the Government from establishing FPIs' digital transformation maturity.

This paper defines four digital transformation stages each with its defining characteristics, nine key assessment parameters, alignment of each parameter with the four stages to aid better understanding of what should be achieved in each parameter as public institutions move from one maturity stage to the next. It finally provides an assessment questionnaire template to assist public institutions and certified digital transformation maturity assessors in carrying out digital government transformation performance assessment.

CCS CONCEPTS

• **Computer** → **Computer in Government**; *Digital Government Transformation*; *Performance Assessment*, *Toolkit*

KEYWORDS

Digital Government, Digital Government Transformation, Digital Government Assessment, Digital Transformation Stages, Transformation Parameters, Transformation Toolkit, Digital Transformation Assessor

I INTRODUCTION

In its 2016 Trends to Watch report on government technology, IT advisory firm Ovum said traditional e-government methods were 'so passé', with an increasing need for agencies to implement digital government. Credibility of Government can only be gained and maintained through continual successful delivery public services and there remains no acceptance of failure in the critical systems that impact the lives of citizens [1].

Digital transformation in developing countries, will be a major driver of efficiency, productivity and innovation in optimizing limited resources, creation of new business models and markets that are yet in existence in every aspect of economic development currently being pursued across sectors ranging from agriculture, education, healthcare, energy, national defence, transportation, aviation, manufacturing, retail, financial services among others [1].

The digital economy is developing at a phenomenal rate and is the single most important driver of innovation, competitiveness and growth. The Fourth Industrial Revolution (4IR) will be driven by massive digitalization of the economy. The global digital economy will not be sympathetic to any country, government or organisations that refuse to embrace digital technologies and innovations to improve operations and innovate business models in the face of digitalization and globalization. It is no longer a gainsaying that effective digital transformation is the right path to social, political and economic development.

For instance, with the explosion of disruptive technologies in the Fourth Industrial Revolution and increase in connectivity empowered by cloud computing, IoT, AI, Robotics, blockchain, social media, big data analytics, Machine Learning (ML) technologies among others, the scope of Digital Economy has expanded to almost every industry at a truly global level. As a result, Digital Economy has become a modern economic model that is high on the agenda for many governments around the world and is the main driver of digital transformation [5].

The global economies never remain the same. According to the World Economic Forum, over 60% of global GDP is expected to be digitized by 2022 and an estimated 70% of new economic value for the next decade will be served on digital platforms [4]. Government all over the world are gradually becoming platform providers as against service providers.

Digital transformation is a process and public institutions are the engine room for economic development. Digital economy is the main driver of digital transformation and Nigeria has begun to take her rightful place in the comity of nations. The Federal Government had developed National Digital Economy Policy and Strategy (NDEPS) and implementation has commenced [3]. Currently, ICT sector is the top contributor to the country's GDP which stands at 17.83 per cent in Q2 2020. This is 20.54 per cent higher than its contribution a year earlier and in the preceding quarter, in which it accounted for 14.07 per cent. This contribution is unprecedented [6]. There is no doubt that the digitization of the economy is one of the most critical issues of our time.

However, digital transformation must be orchestrated before benefits and expectations are realized. There are situation where central or regional government agencies install multimillion dollar systems that fail for lack of consideration of the culture and capabilities of the intended user community [2].

Government agencies looking to embark on digital transformation will need to turn their focus from technical automation, cost-cutting to customer experience and innovation. Agencies must be willing to undertake major organisational change. Information sharing is the foundation of complex inter-organizational networks of public, private, and non-profit entities. The challenges increase proportionally with the number of boundaries crossed, the number and types of information sources to be shared and the number of technical and organizational processes to be changed or integrated. [2].

Leadership, strategy, culture change, technical capabilities, organization structure, innovation, effective management among others are the key elements of a successful digital transformation. On top of that is the ability to continuously monitor and assess the performance of public institutions that embark on digital transformation. The essence of performance assessment is to have access to information and feedback that will enable public institutions and the Government in general to continuously optimizing all other critical success factors of successful a digital transformation programs/project. The effectiveness of such an

assessment will depend on the effectiveness of the methodology used and the strategy for implementation.

Therefore, the framework for digital transformation performance assessment must be established not only as a guide to enable public institutions to understand their level of maturity along the defined maturity stages but also provide guidance on how to move from one stage to the next across the continuum. Majorly, this framework helps to evaluate performance of digital transformation projects of public institutions.

1.1 Challenge:

Over the years in Nigeria, a lot of funds are spent on ICT and digital transformation projects by FPI without commensurate value. Many IT projects have failed. Expectations are not met and the citizens suffered for it. In addition, there is no data/information on FPIs' performance post IT or digital transformation project implementation and many FPIs claimed to have improved their digital transformation maturity [11] [12].

1.2 Objective:

By leveraging on the existing research works by the World Bank, the objectives of this paper are to:

1. define digital transformation stages and parameters, each stage with its peculiar characteristics, that enable Public Institutions to identify their levels of digitalization and how to move from one stage to the next along the digital transformation continuum;
2. provide tools and guide for public institutions and certified digital transformation program assessors by the Government's IT regulatory body or any other authority to carry out digital transformation performance assessments;
3. provide appropriate questions and method to determine Public Institutions' Digital Transformation Performance and government-wide digital transformation ranking; and
4. contribute to the developing countries' efforts at providing adaptable toolkits for digital transformation performance assessment

1.3 Research Question

The key questions are:

1. what are the key digital transformation maturity stages and characteristics of each stage?
2. what are the key parameters to be considered for assessing digital transformation maturity?
3. how to align digital transformation maturity stages and the key parameters?
4. how will public institutions navigate from one maturity stage to the next?

1.4 Delimitation:

This paper leverages the work by the World Bank on Digital Readiness Assessment (DGRA) Toolkit V.3, other secondary data and on-the-job experience working with the apex IT regulatory Agency in Nigeria. The framework and the implementation

strategy with certified Digital Government Transformation Program/project Assessors are being put to test with a pilot project. The learning and experience in implementing the framework is not part of the scope of this paper.

II LITERATURE REVIEW

Globally, the issue of digital transformation has been taken with seriousness. According to a survey conducted by McKinsey in 2018, 92 percent of company leaders thought that their business model would not remain viable at the rates of digitization. The global pandemic has accelerated the need for many industries to start their digital transformation process. The business and operational models of many governments and many industries pre Covid have revealed significant digital gap. Digital transformation trend has become a new competitive business advantage. In developing and implementing a successful digital strategy, digital transformation assessment plays a critical role [7]. Sometimes, it is difficult to start a project because it is not clear where the starting point is. Getting the right data significantly depends on assessment methodology and framework.

The United Nations developed a four-stage maturity model of e-government [8].

The maturity model was used for ranking the UN member states [9].

1. The 1st stage is “emerging information” services: In this stage, e-government Web sites provide static information.
2. The 2nd stage is “enhanced information services”: In this stage, the presence is enhanced with one way or simple two-way communication.
3. The 3rd stage “transactional services”: In this stage, a two-way interaction with citizens is possible.
4. The 4th stage is “connected services”: In this stage, Web sites are proactive in requesting citizens’ feedback via Web 2.0 tools. Government agencies are citizen centric and services are customer centric.

Gartner also defines 5 levels of digital Government Maturity towards Government transformation. They are:

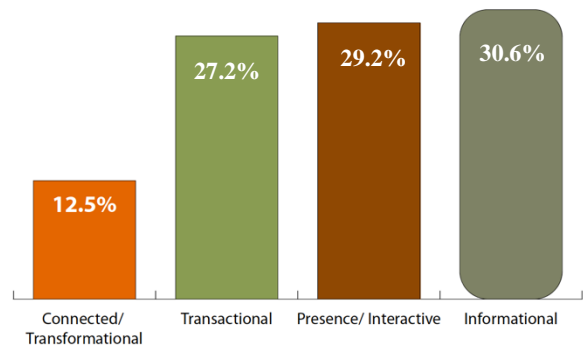
1. Stage 1- Initial (e-Government): At this level, the focus is on moving services online for user convenience and cost savings, but data and its uses are siloed and extremely limited.
2. Stage 2- Developing (Open): It is often coexisting with stage 1 Open government often takes the form of public-facing programs intended to promote transparency, citizen engagement and the data economy.
3. Stage 3- Defined (Data-Centric): the focus shifts from simply listening to citizen or user needs to proactively exploring the new possibilities inherent in purposefully

collecting and leveraging data. The KPIs are “how much of our data is open?” and “how many of our applications are built on open data.

4. Stage 4- Managed (Fully Digital): Agency has fully committed to a data-centric approach to improving government, and the preferred approach to innovation is based on open data principles. Data flows regularly across organizational boundaries, leading to easier interactions and better services for stakeholders/constituents.
5. Stage 5 – Optimizing (Smart): This stage ensures the process of digital innovation using open data is embedded deeply across the entire government, with buy in and leadership from the top tier of policymakers. New business models and platforms are emerging [10].

This trend captures the movement from e-government to digital government. At this level, the way public institutions work has fundamentally changed. Based on the experience working with public institutions, critical success factors for digital Government are among others are leadership, culture, organizational structure, capability, digital infrastructure, data privacy, information security among others are parameters. All these parameters must be factored into assessing digital transformation maturity.

Our report found that maturity levels of digital government varied across jurisdictions, with some agencies making advances in their interactions with citizens, and others still struggling.



The Federal Government of Nigeria recognizes the fact that Federal, State, LGA and their institutions are at different stages and phases of digital transformation and have varying priorities on their agenda towards building digital economy. For example, internet access and mobile penetration are at different levels in each of the 36 States and FCT. Also, adoption of ICT and digital technologies.

Nigeria has taken a giant step at building a strong foundation for digital transformation. The National Information Technology Development Agency (NITDA), the apex IT agency in Nigeria has developed a performance assessment framework and toolkit as a guide for public institutions and certified digital transformation program assessors to conduct digital government transformation maturity of Federal Public Institutions. The Framework can be

adapted to public institutions in other developing countries at the federal and regional levels.

III Digital Transformation Stages

The framework defines the digital transformation transition stages, the characteristics of each stage, the parameters for assessing digital transformation maturity and maps the stages with parameters to create relationships that help public institutions through NITDA certified digital transformation project assessors to determine digital transformation maturity of public institutions.

These stages will help public institutions to identify where they are along the digital transformation continuum.

3.1 Digital Transformation Transition Stages

Based on local and global realities, four (4) stages have been identified and defined to guide public institutions on their digital transformation journey.

1. Silo
2. Engaged
3. Digital Excellence
4. Digital Transformation



Figure 1.0: Digital Transformation Transition Stages

3.1.1 Silo Stage

The main characteristics of a Silo stage include:

1. There is no or generally low adoption of ICT;
2. There is no recognition for a need of specific organizational IT/ICT policy;
3. Most of the organization data is on paper and few is captured in spreadsheet;
4. Applications and database are being introduced to enable certain services that are informational;
5. Digitized data does not follow any standard format;
6. The organization's existing IT infrastructure and applications only serve the need of the organization without consideration for a whole-of-government;
7. The organization has no proper structure established to be accountable for and to ensure compliance with agreed national and international IT/ICT related frameworks, guidelines, standards, best practices, models among others;
8. Less than 20% of the organization's processes is digitized; and
9. There is little or no capabilities to specify, deploy, manage and innovate with ICT systems, organizational processes and services.

Note: Any public institution/agency that has these characteristics belongs to the Silo Stage of Digital Transformation continuum.

3.1.3 Engaged Excellence

It is a great deal for an organization to reach digital excellence stage. Achieving digital excellence stage prepares public institutions for a WoG. The main characteristics of a digital excellence stage include:

1. There is full adoption of ICT/digital technologies for organization's operations;
2. There exists an IT/ICT policy or strategy that ensures there is an organization's business and IT alignment;
3. There exists an IT Governance structure that is responsible and accountable for IT deployment decisions;
4. The existing IT Governance is also responsible for ensuring compliance with international and national IT/ICT related frameworks, guidelines, standards, best practices, models among others;
5. More than 80% of the organization's data is captured on database and databases are designed following global and national best practices and standards;
6. The deployment of ICT systems is in line with the provisions of a Government Enterprise Architecture, e-Government Interoperability Framework and other national and international regulations on IT/ICT design and management;
7. The organization's existing IT infrastructure and applications serve the need the organization and WoG requirements;
8. About 70% of organization's processes is digitized; and
9. There are capabilities to specify, deploy, manage and innovate with ICT projects, systems, organizational processes and services.

Note: Any public institution/agency that has these characteristics belongs to the Digital Excellence Stage of Digital Transformation continuum.

3.1.4 Engaged Transformation

The digital transformation provides sufficient foundations for superior performance of the Government at all levels (Local, State and Federal). The way government operates fundamentally changed, and there is better coherence, integration and coordination of processes, systems, services and businesses within and across government agencies, partners, and third parties at the Global, Federal, State and Local Governments respectively. The main characteristics of a digital transformation stage include:

1. There is full adoption of ICT/digital technologies based on all known global and national standards for organization's operations;
2. Digital technology and innovation is at the core of the organization's business transformation strategy;
3. The organization IT governance has been institutionalized, reached mature stage and is responsible for ensuring compliance with international and national IT/ICT related frameworks, guidelines, standards, best practices, models among others;
4. All the organization's data is captured on database and databases are designed following global and national best practices and standards;
5. All organization's processes and data are digitized based on all known global and national standards;
6. The organization's existing IT infrastructure and applications serve the need the organization, WoG and digital transformation requirements;
7. There are capabilities across board (Federal, State and Local Governments) to specify, deploy, manage and innovate with ICT projects, systems, organizational processes and services;

8. Organization's IT/ICT systems and the enabling capabilities are highly compliant, responsive, stable, reliable, secure, scalable and cost-effective;
9. At the highest stage of digital transformation, the organization's IT infrastructure, applications and digital services are capable of providing citizens, businesses and customers, partners and third parties with opportunities for online, financial and non-financial transactions digital end-to-end; and
10. There is complete integration of IT systems by the Federal, State & Local Governments to provide digital services at local and global levels.

Note: Any public institution/agency that has these characteristics is at the Digital Transformation stage.

IV Digital Transformation Assessment Parameters

The following Nine (9) parameters have been defined to assess the performance of public institutions at the different stages on their journey toward digital transformation. These parameters are critical for practical assessment of FPIs on digital transformation.

4.1 Digital Leadership and Governance

Represents capabilities, expertise and know-how required by leaders at all levels of governance to adopt and adapt digital technologies and innovations as critical part of Government's reform strategies. This knowledge is required to lead a government-wide digital transformation. The leadership provides clear transformation vision, establish appropriate digital strategy, and institutionalize capable governance for digital business transformation implementation. It is prerequisite for every leader and CEO to have digital mindsets, make digital the core of governance and the main driver of public institutions' mandates.

Every public institution is expected to have a digital transformation strategy or plan aligning and tailored to its mandates and functions as well as national agenda especially on WoG. The Strategy/Plan should set directions for adopting and utilizing digital technologies and innovations for achieving organization's mandates and National agenda. This ensures appropriate alignment of organization's business and IT. The viability, alignment with organization's mandates and national agenda as well as the extent of implementation of the Plan/Strategy is critical to the level of the public institution on the ladder to digital transformation.

4.3 Digital Transformation Capabilities (Enablers)

Public institutions must develop and have capacity to deliver on digital strategy. Those capabilities include transformation, innovation and digital technology capabilities which cut across organization portfolio, programme or project, change, process, stakeholder, value and benefit realization management. Furthermore, business and IT alignment, IT policy/strategy development and implementation, IT Governance, cyber security, IT outsourcing, culture and processes innovation, digital use and business cases, business model innovation among others are other critical success capabilities required by public institutions to succeed in digital economy era.

4.4 Institutional Reforms and Change Management

Reforming public institutions at the digital age requires effective business process management, institutionalization of change management, appropriate organizational structuring, culture and mindsets alignment. This also requires significant investments in technological innovation and human capital development. Public institution must focus on employing capable personnel, train and retrain staff to ensure they acquire appropriate skills to face the challenges and opportunities of the digital economy.

4.5 Digital Infrastructure and Applications

Digital infrastructure and applications remain the critical foundation for effective digital service delivery and digital transformation in the public sector. Digital infrastructure and applications, from on-premise to colocation and to the cloud, must be deployed following national and international agreed standards. Standardization of digital infrastructure and applications remove obstacles of silo systems, promotes efficiency and helps public institutions to achieve interoperability requirements necessary for the delivery of shared services. Cloud computing is increasingly seen as a standardized strategic tool by leading digital governments as a way to achieve fast and agile deployment, as well as data consolidation and efficiency.

4.6 Compliance with National IT Legislation, Standards, Regulation and Best Practices:

Creating a sound legal and regulatory environment is a critical enabler for appropriate use and adoption of digital technologies and innovation for digital transformation. Having appropriate legal and regulatory environment is not enough but adequate compliance to rules is the main driver of success and benefits realization from the use and adoption of technological innovations. All public institutions are required to comply with all ICT related laws,

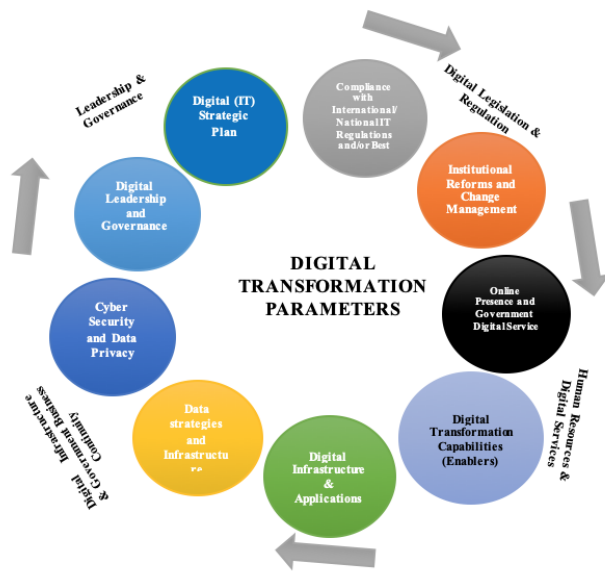


Figure 2:0: Digital Transformation Parameters

4.2 Digital Transformation/ICT Strategic Plan

regulations, standards, frameworks, best practices established by professional bodies and regulatory agencies of the Government.

4.7 Data Infrastructure and strategies

Data is the new oil of the digital economy. To improve efficiency and quality in public services, public institutions must improve their ability to collect, analyze and share data using new technologies and best practices. Public institutions remain the highest collector of data and this has been the main source of power to any Government in the World. However, data collection must be structured and standardized to enable sharing, privacy, transparency, improve public service delivery, boost innovation and support Government and all stakeholders in making informed decisions. The questions here are what is the data design structure, does data design well planned based on different formats that support business innovation and enable new business models? Does the organization have a single view of its data?

4.8 Online Presence and Government Digital Service

The efficiency gains from online services by Governments across the world are being translated into tangible and intangible values. The gains usually manifest in increased productivity, revenue generation, increase and operational efficiency. Government services are expected to be delivered digital-end-to-end. Also, public institutions are encouraged to provide multiple channel options for digital services. The key to creating an accessible and transparent digital government starts with focusing on the needs of citizens. The government's role is to serve the public's needs regardless of class, gender, race, geographies etc. Getting feedback and adopting user-centric design' principle is critical to successful Government digital service delivery.

An open participation and discussion among the citizens, private sector, civil society and academia in the public digital ecosystem will not only boost innovation, education and entrepreneurship, but also contribute to developing the country's digital economy. FPIs are expected to provide mechanisms for citizens' engagement and participation in public service design and delivery.

The assessment of public institutions will look into how organization is moving in the United Nations/Gartner e-Government Development Stages. i.e. From Presence to interactive to transactional and to transformation stages.

4.9 Information Security and Data Privacy

Strong cybersecurity and government business continuity management across the public administration and operations present a major challenge to Governments all over the world. The strategies and measures to ensure security and recovery of any risks from undefined cyber threats, disasters, pandemic should be prepared and treated as utmost priority. Public institutions are expected to abide by national and international best practices and standards on cybersecurity. Among others, public institutions will be assessed on the level of measures put in place for security of digital technology infrastructure, plan for business continuity and compliance to the country's data protection regulation and other privacy related legal framework.

5. Mapping of Digital Transformation Parameters and Stages

The mapping of each digital transformation parameter with stages is depicted in table A.2 in the Appendix. It is used as tool for FPIs and certified digital transformation assessors to understand the characteristics of a parameter across each stage of digital transformation.

6. Digital Transformation Assessment Questionnaire

The table A.1 provides a framework for setting standard questions that provides FPIs or certified digital transformation assessors clues to conduct digital transformation performance assessment. It contains columns that explains each parameter. The next column provides set of questions based on each parameter while the column that follows allows the assessors to choose any of the four stages (silo, engaged, Excellence and transformation) based on the response by the respondents. The next column automatically allocates score based on the stage chosen in the previous column while the next columns provide means to indicate evidence and comments why the stage is chosen. There are about 68 questions in all.

V CONCLUSION

This paper presents a framework for assessing the performance of public institutions' digital transformation. The framework is being used to assess Federal Public Institutions (FPIs) in Nigeria. The Framework and the toolkit is being used as Digital Transformation Index to show the performance of FPIs.

The strategy for the implementation is aimed at creating an entirely new digital transformation assessment market. The FPIs in Nigeria are mandated to conduct assessment every two years through certified digital transformation programs/projects assessors. Those service providers that implement IT/digital transformation projects for FPIs are not allowed to engage in assessment to ensure there is no conflict of interest.

The idea is to allow FPIs use the framework to assess their level of maturity. However, there is a need for an independent assessment without bias which will give true picture of the situation in each FPI and at the same time represent a whole of government performance on digital transformation. The report is published on a national portal where FPIs are ranked according to their scores.

This framework is leveraging array of regulatory instruments and programs by the Federal Government of Nigeria to improve the country's digital transformation maturity while ensuring digital economy is developed.

Conducting the performance assessment every two years and the data generated creates a new market aside the value of improving and sanitizing the digital transformation space. This paper shared this approach and idea for adaptation and adoption in other developing countries

The future research will share experience and lesson learnt on implementation. It is hoped that this work has created areas that

will open up more research towards a widely accepted framework to contribute to the body of knowledge.

A APPENDICES

A.1 Digital Transformation Assessment Questionnaire

SECTION Toolkit guidelines	NO.	QUESTIONS Each question is assigned with a digital transformation parameter and tag as defined in the performance assessment toolkit	QUESTIONS GUIDE This provides meaning and context to the questions in order to get a better perspective of the answers	RESPONSES Please choose a digital transformation stage indicating your organization's level of digital transformation maturity: <i>Not Engaged, Digital Excellence or Digital Transformation</i>	RESPONSES WEIGHT This field calculates the score on a scale of 1-4 based on the response: <i>Not Engaged = 2, Digital Excellence = 3 and Digital Transformation = 4</i>	EVIDENCE (provide evidence here e.g. web link, reference, etc.)	COMMENT Always justify your response
Digital Leadership and Governance							
This parameter represents capabilities, expertise and know-how required by leaders of the PFIs to adopt and adapt digital technologies and innovations as critical part of their	1a	Is the leadership aware of the potential and opportunities ICT can enable?	<p>Confirm the capability of the leadership (senior officials (e.g. Board and CEO)) in setting strategic direction and championing the overall digital transformation agenda for the PFI.</p> <p>Verify the level of leadership's belief in the enabling potential of IT/ICT to accelerate actualisation of the PFI's mandate/functions.</p> <p>Also, confirm the level of leadership knowledge and exposure in using digital technology to enable new possibilities.</p>				

reform strategies.							
Digital Transformation/ICT Strategy							
Digital Transformation Capabilities (Enablers):							
Institutional Reform and Change Management							
Technology/Digital Infrastructure & Application							
Compliance with National IT Legislation, Standards, Regulation and Best Practices							
Data Strategies and Infrastructure							
Information Security and Privacy							
Online Presence and Government Digital Service							

A.2 Mapping of Digital Transformation Parameters and Stages

S/N	Parameters	Silo Systems Stage	Engaged Stage	Digital Excellence Stage	Digital Transformation Stage
1	Digital Leadership and Governance	<p>1. The Public Institutions's leadership & management lack knowledge of the potential and opportunities of ICT;</p> <p>2. Leadership strategies, value propositions and decision making are not driven by digital technologies and innovations;</p> <p>3. There is no responsible and accountable governance structure for IT/digital systems and project implementation;</p> <p>4. No resources or little budgetary provision for ICT/e-Government projects.</p>	<p>1. The Public Institutions leadership has been paying attention to digital possibilities and potentials;</p> <p>2. The Public Institutions leadership has recognized the need for digital technologies and innovations to drive its strategies and decisions;</p> <p>3. The Public Institutions leadership has put processes in place to establish responsible and accountable digital governance structure;</p> <p>The Public Institutions has identified the resources (including funds/budget) needed to start implementation of the strategic plan.</p>	<p>1. The Public Institutions leadership has digital mindsets with clear understanding of the potential and possibilities of digital technologies on its organization's innovations and transformation;</p> <p>2. Digital technologies and innovations are the drivers of the Public Institutions's leadership strategies and decision making;</p> <p>3. The leadership has established digital governance with capable individuals to make critical decisions for digital technologies adoption, use and management on behalf of the Public Institutions;</p> <p>4. The Public Institutions has budgetary provision to start implementation of the strategic plan and the budgetary provision has always been released for the purpose;</p> <p>5. The Public Institutions's leadership sets KPIs, establishes service innovation processes and benefits realization plans for the entire digital transformation.</p>	<p>1. The leadership with the Management coordinate and lead the overall digital transformation of the Public Institutions;</p> <p>2. Digital is at the core of leadership decisions and forms the basis for business development/governance reforms;</p> <p>3. The IT/Digital Governance is well institutionalized, capacitated, and responsible and accountable for decisions on digital transformation implementation;</p> <p>4. The leadership ensures appropriate use of the budgetary provision for digital transformation plan;</p> <p>5. The Public Institutions establishes mechanisms for the assessment of KPIs set for each IT project against objectives and make appropriate decisions based on the output/result of the assessment;</p> <p>6. The Public Institutions's leadership monitors and reports the impact of the digital transformation;</p> <p>7. The Public Institutions is using the lessons learned from implementation and the output of the KPIs to develop future Strategic Plan for excellent performance.</p>
2	Digital Transformation/ ICT Strategy	<p>1. No clearly defined vision and objectives to drive the mandates of the Public Institutions;</p> <p>2. No IT/ICT strategic plan or digital transformation plan to drive the organization mandates and objectives.</p>	<p>1. There is awareness and the need to define a clear vision and set objectives to drive the mandates/functions of the Public Institutions;</p> <p>2. The Public Institutions has recognized and made move to develop IT/ICT or digital transformation plan to drive the organization's mandates and objectives.</p>	<p>1. The Public Institutions has a clearly defined vision and strategic objectives in line with its mandates/functions</p> <p>2. The Public Institutions has established clear road map to drive its vision and mandates/functions;</p> <p>3. The Public Institutions has launched IT/ICT or digital transformation strategic plan and commenced implementation;</p> <p>4. All stakeholders (e.g. CEOs, Director, Departments Heads, staff, external stakeholders etc.) understand and support the vision of the digital transformation.</p>	<p>1. The Strategy/Plan is well communicated to all stakeholders and they are supporting its implementation;</p> <p>2. The Public Institutions is consistently demonstrating its commitment to achieving the Vision and Strategic Plan through clearly thought out IT/ICT projects implementation;</p> <p>3. The Plan is providing strategic direction, making the Public Institutions achieving superior performance and putting it on the path of sustainable growth and development.</p>
3	Digital Transformation Capabilities (Enablers)	<p>1. The Public Institutions has no clear view of digital capabilities gap required for digital transformation;</p> <p>2. The Public Institutions has little or no knowledge of transformation management, technology management and/or innovation management;</p> <p>3. The relevant skills required for digital transformation are wanting</p> <p>4. There is no specialized training and education programs on digital use and adoption.</p>	<p>1. The leadership is aware of the capability challenge and has the leadership and political willingness to close the gap;</p> <p>1. The Public Institutions has carried out digital transformation capabilities need assessment, is making available the required resources to address the gaps and taking necessary actions through policies, strategies, review of processes, provision of budget among others to build the needed capabilities.</p>	<p>1. The Public Institutions has successfully trained employees in various identified digital transformation capabilities gaps;</p> <p>2. The Public Institutions has established and institutionalized processes and governance for building and managing transformation, technology and innovation capabilities;</p> <p>3. The relevant employees have the capabilities to successfully embark on and carry out digital transformation initiatives.</p>	<p>1. The Public Institutions has all the required digital transformation capabilities to operate competitively and successfully in digital economy space;</p> <p>2. The Public Institutions is building the future skills and capabilities for the 4th Industrial Revolution.</p>

<p>4</p>	<p>Institutional Reforms and Change Management</p>	<p>1. ICT/Digital technologies are notal ways considered as a critical tool for enhancing the realization of the Public Institutions's reforms/policies objectives and outcomes; 2. The Public Institutions still believe in the traditional paper-based civil service working culture and there is little effort/commitment for a shift; 3. ICT is not a major consideration for streamlining Public Institutions's processes, implementing procedures and tasks; 4. The Public Institutions has not considered institutionalizing change Management processes as a result of ICT/digital technologies adoption.</p>	<p>1. Attention is given to integrating ICT in institutional reforms and policies formulation of the Public Institutions; 2. There is considerable shift from traditional paper-based civil service culture into committed organizational digital mindsets orientation as a result of inefficiencies of paper-based operations; 3. The need for adopting ICT to streamline business processes is obvious and there are steps taken to adopt ICT for efficient business processes and service delivery; 4. There is great attention to organizational change management as a result of changes that could arise from ICT/digital technologies adoption.</p>	<p>1. The Public Institutions centers developmental reforms, policies formulation and implementation around digital technologies and innovations; 2. There is clear evidence of ICT implementation to drive policies and reforms objectives; 3. The implementation of paper-reduction exercise has commenced and workers have begun to adopt ICT/digital tools for productivity enhancement; 4. There are continuous business process management activities to reengineer and innovate the Public Institutions business processes; 5. The processes for managing digital technologies adoption changes has been established and change management practices have been institutionalized across the Public Institutions.</p>	<p>1. ICT/Digital technologies and innovations have become the core and main driver of the Public Institutions's policies and reforms agenda; 2. The Public Institutions has achieved about 90% paperless organization with productivity, efficiency and responsiveness; 3. The change management processes and practices are institutionalized and are being used to successfully manage each ICT/digital technology project; 4. The Public Institutions's business processes is driven by innovations and there is considerable evidence of success; 5. There is evidence of successful and a well-managed ICT/Digital technologies projects driven by a well-established change management practices.</p>
<p>5</p>	<p>Technology/ Digital Infrastructure & Application</p>	<p>1. There is basic or no IT infrastructure or applications required for digital transformation by the Public Institutions; 2. The basic IT infrastructure and applications deployed does not follow standards and best practices that support interoperability and integration requirements for a Whole-of-Government; 3. All the Public Institutions processes and data are completely paper based; 4. The basic IT infrastructure and applications are deployed only to serve the need of the Public Institutions; 5. There are no established processes for managing IT infrastructure and applications based on global best practices.</p>	<p>1. The Public Institutions is investing in in-house IT infrastructure and applications (such as LAN, Internet, Hardware, data center, database, off-the-shelf applications, and other general-purpose software among others) that will support business operations and efficient service delivery; 2. The IT infrastructure and applications have not matured, deployment is not well coordinated and standardized to support Whole-of-Government; 3. Few processes and data are digitized 4. The existing IT infrastructure and applications required for digital transformation can only serve less than 50% of the employees and stakeholders; 5. The Public Institutions has initiated the establishment of processes and governance for managing IT infrastructure and applications; 6. The Public Institutions is getting to know the importance of Cloud services and putting resources for its adoption.</p>	<p>1. The IT infrastructure and applications have matured, and deployment is based on both globally acceptable and national agreed standards and/or best practices to support whole-of-government; 2. There are processes and governance established and institutionalized for managing IT infrastructure; 3. The IT infrastructure and applications have matured and is standardized to support whole-of-government requirements, one stop shop and no stop shop approach to service delivery; 4. The Public Institutions is gradually migrating IT and public services into the cloud.</p>	<p>1.The IT infrastructure and applications have matured enough to support any whole-of-government requirements, single window or no stop shop approach to service delivery; 2. The capability to manage in-house infrastructure and applications as well as cloud services has considerably matured and being utilized; 3. The IT infrastructure and applications have become assets and foundation for shaping future innovations and development 4. Cloud and emerging technologies infrastructure driven services have become the norm.</p>

6	Compliance with International/ National IT Regulations & Best Practices	<p>1. The Public Institutions has little or no knowledge of relevant globally acceptable standards and best practices from ISO, IEEE among others, for IT/ICT management, governance, and Business-IT alignment;</p> <p>2. The Public Institutions has little or no knowledge of relevant national IT regulatory instruments (such as IT clearance, NGEA, Ne-GIF, NDPR, NCCP, Guidelines for Nigerian Content Development in ICT among others)</p> <p>3. The Public Institutions generally lacks IT regulation compliance culture;</p> <p>4. There is little compliance with globally acceptable IT regulations and/or best practices;</p> <p>5. There is no or poor compliance with any of the National IT/ICT legislation, standards, regulations, guidelines and best practices;</p>	<p>1. There is awareness of the relevant globally acceptable standards and best practices from ISO, IEEE among others, for IT/ICT management, governance, and Business-IT alignment by the Public Institutions but inadequate/poor compliance;</p> <p>2. There is awareness of the objectives of relevant national IT regulatory instruments (such as NGEA, Ne-GIF, NDPR, NCCP, Guidelines for Nigerian Content Development in ICT among others) but inadequate/poor compliance.</p>	<p>1. The Public Institutions is aware of the relevant globally acceptable standards and best practices from ISO, IEEE among others, for IT/ICT management, governance and Business-IT alignment with appropriate governance structure and mechanism for compliance;</p> <p>2. The Public Institutions is aware of relevant national IT regulatory instruments (such as NGEA, Ne-GIF, NDPR, NCCP, Guidelines for Nigerian Content Development in ICT) and has put in place mechanisms and governance appropriate for compliance;</p> <p>3. The Public Institutions has fully established mechanisms to ensure full compliance with globally acceptable and national regulations and/or best practices;</p> <p>4. About 80% of IT/ICT deployment by the Public Institutions complies with globally acceptable IT/ICT regulations and/or best practices; and</p> <p>5. About 60% of IT/ICT deployment by the Public Institutions complies with national IT/ICT regulations and/or best practices</p> <p>6. The Public Institutions has established monitoring and assessment mechanisms to report level of progress and challenges on compliance</p>	<p>1. The Public Institutions has fully complied with relevant globally acceptable standards and best practices from ISO, IEEE among others, for IT/ICT management;</p> <p>2. The Public Institutions has fully complied with relevant national IT regulatory instruments (such as NGEA, Ne-GIF, NDPR, NCCP, Guidelines for Nigerian Content Development in ICT);</p> <p>3. The Public Institutions has fully complied with national and globally acceptable IT/ICT regulations and/or best practices;</p> <p>4. The Public Institutions prioritizes and conducts regular monitoring and assessment of compliance requirements;</p> <p>5. The report of full compliance is available</p>
7	Data Infrastructure and strategies	<p>1. The Public Institutions has no idea about the power and possibilities of data as an enabler of digital economy</p> <p>2. The Public Institutions has no data infrastructure, strategy and governance required for digital innovation and economy</p> <p>3. The Public Institutions has not digitized its data and data assets have not been classified as critical infrastructure</p> <p>4. The data/information management is not based on any standard?</p>	<p>1. Data has been recognized as critical infrastructure and great enabler of digital innovation and entrepreneurship;</p> <p>2. The Public Institutions has initiated processes for having data management and governance strategy to enable service delivery and digital innovation;</p> <p>3. Data is being digitized and managed based on global and national regulations, standards, and best practices</p>	<p>1. There exists data strategy guiding data management and governance for the Public Institutions;</p> <p>2. The Public Institutions is leveraging the data strategy to source/ acquire, process and analyze data;</p> <p>3. There are applications, solutions and services that are leveraging the processed and analyzed data for innovations and efficient service delivery.</p>	<p>1. Data has become a critical driver of the Public Institutions's services and innovations;</p> <p>2. There is exploration of how IoT, AI, ML, blockchain among other emerging technologies will drive future of data for the Public Institutions</p>
8	Government Digital Service and Online Presence	<p>1. The Public Institutions has online presence but online service is still at the Informational stage as defined in the United Nation's e-Government Development Index (EGDI);</p> <p>2. The e-channel for service delivery is just basic website offering basic information online;</p> <p>3. Silo-based service delivery with paper-based information exchange with other Public Institutionss and stakeholders.</p>	<p>1. The Public Institutions's online service has reached the interactive stage as defined in the United Nation's e-Government Development Index (EGDI);</p> <p>2. There are multiple e-channels for service delivery which are web portal, SMS, USSD, social media, Mobile app;</p> <p>3. The Public Institutions is building standardized online service delivery systems that would support fast exchange of data and service delivery with other Public Institutionss and stakeholders.</p>	<p>1. The Public Institutions's online service has reached the transactional stage as defined in the United Nation's e-Government Development Index (EGDI);</p> <p>2. There are multiple e-channels for service delivery which are web portal, SMS, USSD, social media, Mobile app;</p> <p>3. The Public Institutions has optimized its online service delivery to support single window or One Stop Shop service delivery.</p>	<p>1.The Public Institutions's online service has reached the connected/ transformational stage as defined in the United Nation's e-Government Development Index (EGDI);</p> <p>2.The Public Institutions e-channels are integrated;</p> <p>3.The Public Institutions's online service delivery system has capability to deliver one stop shop/single window, no stop shop and service platform;</p> <p>4.The delivery of public service is digital-end-to-end except where physical presence is absolutely necessary.</p>

9	Information Security and Data Privacy	<p>1. The Public Institutions has not be adhering to any extant laws, regulations, guidelines best practices among others, on cyber security and privacy;</p> <p>2. The Public Institutions does not have cyber security policy/strategy to protect itself in the cyber space;</p> <p>3. The Public Institutions has no capability and tools for managing cyber security incidence and issues of data privacy.</p>	<p>1. The Public Institutions has initiated actions and put measures in place to adhere to extant laws, regulations, guidelines best practices among others, on cyber security and privacy;</p> <p>2. The Public Institutions drafted a cyber security policy/strategy as a guide against cyber security threats and incidences;</p> <p>3. The Public Institutions is building required capability for and providing tools/infrastructure to manage issues of cyber security and data privacy;</p> <p>4. The Public Institutions has introduced few digital solutions/systems that are secure and are data privacy compliant.</p>	<p>1. The Public Institutions has established processes and governance that ensure adherence with extant laws, regulations, guidelines best practices among others, on cyber security and privacy;</p> <p>2. The Public Institutions's cyber security policy/strategy is being operationalized and has been institutionalized;</p> <p>3. There is awareness, enough capabilities, tools, and infrastructure to manage cyber security and data privacy issues;</p> <p>4. There have been incremental layers of added security in all digital applications, solutions, services that are being deployed.</p>	<p>1. The policy/strategy, infrastructure, governance, tools, capabilities partnerships have institutionalized and operational efficiently;</p> <p>2.All digital systems, solutions and services are cyber security enabled in design and implementation.</p>
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ACKNOWLEDGMENTS

The authors would like to acknowledge the efforts of Digital Transformation Technical Working Group (DTTWGs) for their excellent contributions and licensing & Registration committee of NITDA. Their contributions added a lot of value to the work.

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