

Information, Communication and Technology (ICT) Governance in Public Organizations: A Study of the Nigerian Communications Commission (NCC)

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Abstract

With the growing level of adoption and utilisation of Information and Communication Technology (ICT) in the 21st century, it is cardinal to examine Information Technology Governance (ITG) in relation to approaches utilizable in public sector organizations for efficiency and effectiveness. Therefore, this work examines information, communication, and technology governance in public organizations with a focus on the Nigerian Communications Commission (NCC). The specific objective covers the level of involvement of Information Technology Governance (ITG) and the Information Technology Governance (ITG) mechanism used by the Nigerian Communications Commission (NCC) as a public sector organization. Objectives also focus on the benefits of Information Technology Governance (ITG) and the challenges involved with Information Technology Governance (ITG) in the Nigerian Communications Commission (NCC). The study adopted the Technological Determinism Theory. With the adoption of the survey method through the instrumentation of a self-designed questionnaire administered to two hundred and nine (209) respondents, the study revealed that the involvement of Control Objective for Information and Technology (COBIT) as ITG mechanism in the Nigerian Communications Commission (NCC) is to a great extent. The benefits of ITG include the creation of values, improved effectiveness and efficiency of service delivery, and improvement of service quality. However, these benefits are hindered by some challenges ranging from poor infrastructures, inadequate expertise, poor resource management, culture, and bureaucracy to leadership style. The study recommends that government commitment and provision of adequate IT infrastructures to various public service agencies in Nigeria will enhance the successful implementation of ITG applications and efficiency in public service delivery.

Keywords: *Information Technology Public Organisation, Information Technology Governance, Nigerian Communications Commission, Standard Framework.*

Introduction

According to [1], information and technology governance (ITG) covers the institutional and strategic incorporation of Information Technology (IT) into the organizational process by stakeholders. [2] assert that ITG comprises of mechanisms for understanding the actions, artifacts, and procedures in cooperate governance. They add that ITG aims to ensure that achievement and expectations from IT weigh against the risk involved to enable

adequate control. To [3], IT Governance consists of mechanisms that are arranged in three major stakes/pillars, i.e., structure, processes, and relationships. The structure, the process, and the related mechanisms are considered as fundamental in ideal conduct identified within the IT field.

According to [4], the variables impacting the IT Governance systems are related to shared knowledge and understanding the link between the organization and IT, the dynamic

contribution of IT in administration, and dynamic, procedures and approaches shared and conveyed among business and IT. To [3], in a review of two hundred and fifty (250) organizations from various nations, exhibited that the reception of IT Governance instruments, particularly the components of dynamic and relationship structure, could be a beneficial venture.

In the view of [5], it utilized primary conditional investigation and analyzed one hundred and ten (110) responses by individuals from the Information System and Control Association (ISACA) in Australia. Their results show the positive critical connection between the general degree of viability of IT Governance and the relationship mechanism, particularly the systems of top administration in IT, culture, or ethic of consistency with approaches, rules and strategies that guide formal or informal information and communication practices. Lately, there has been a rise in security infringement (for example, a break of privacy of saved information) has been noticed all through worldwide organizations and regularly brought about significant expense impacts. ITG is one of the most significant heights of governance. It is significant in terms of structuring, processing, and linking mechanisms.

Recently, Information Technology Governance (ITG) has drawn significant attention to meet the dynamic needs of governance in the 21st century. ITG has become the primary system by which authorities assess, monitor, and govern IT implementation in the public sector. ITG ensures and guarantees transparency and interactivity in fostering the decision-making process with respect to the demands and needs of delivering values [5]. It is needful in structuring the process through relational mechanisms operates. This put forth demands for an understanding of the principles, strategies, and methods of adopting and utilizing Information and Communication Technologies (ICTs) for public administrative purposes.

In public organizations, ITG incorporates approaches, policies, culture, preparation, and changes that are brought into the management process. According to [6], poor ITG is the reason for the inability to adopt efficient and effective IT in public organizations. Thus, poor ITG results in a lack of trust and understanding of public organization systems by the general populace. It is, therefore, pertinent to examine the information, communication, and technology governance in the Nigerian Communications Commission (NCC), a public organization.

This study examined information, communication, and technology governance in a public organization, the Nigerian Communications Commission (NCC). The specific objectives are to ascertain the level of involvement of Information Technology Governance ITG in the Nigerian Communications Commission (NCC) and identify the most adopted Information Technology Governance (ITG) mechanism by the Nigerian Communications Commission (NCC). Furthermore, to identify the benefits of Information Technology Governance (ITG) of Nigerian Communications Commission (NCC) and the challenges involved with Information Technology Governance (ITG) in Nigerian Communications Commission (NCC). By location, it focused on the Nigerian Communications Commission, Plot 423 Aguiyi Ironsi Street, Maitama, Abuja. By the time, the study covers September 2021 to November 2021.

The purpose of the study is to examine information, communication, and technology governance in the Nigerian Communications Commission, a public sector organization. Furthermore, the study sought to understand the level of involvement of ITG at NCC, the benefits of ITG, and the challenges of ITG at NCC. The research will benefit the executive management team at NCC in broadening understanding of the value of ITG and key issues which need to be addressed to optimize ITG at NCC. In addition,

the research will contribute on an empirical level and benefit other public sector organizations by providing information on understanding information, communications, and technology governance in Nigeria.

Theoretical Framework

This study hinges on Technological determinism theory as postulated by the American sociologist Thorsten Veblen. This theory is based on the assumption that technology is the sole driver of social change. As submitted by [7], technological determinism theory lies on technology as being essential to humanity in that technology dictates the system or framework of operations. Its emphasis is on the socio-technical aspect of developments, seeing technology to be a cardinal aspect of historical and sociological changes [8]. According to the Technological Determinists, Technology changes how individuals, organizations, and the public relate, operate, and interact with one another, especially those from different ethnic, cultural, regional, or political variations. Another tenet of Technological determinism is based on the submission of the cause-and-effect relationship between society and technology. This posits that society adapts to technological changes, while technology is also framed to suit to fit into society.

Methodology

A descriptive survey methodology was done. This survey methodology is deemed significantly suitable for the study since the respondents' view and experiences on the subject matter is elicited for the study. The study comprised of a staff of the Nigerian Communications Commission with a population figure of 439. The study adopted the Taro Yamane sample determination formula, which is given as follows.

$$n = N / (1 + N (e^2))$$

Where:

“n” = represents the Sample size,

“N” = represents Total Population under study.

“e²” = represents the level of significance (0.05).

$$n = 439 / (1 + 439(0.0025))$$

$$n = 439 / (1 + 1.0975)$$

$$n = 439 / 2.0975$$

$$n = 209.$$

Therefore, the sample size for the study is therefore two hundred and nine (209) respondents. Only 180 questionnaires were filled and returned, which translated to an 86% response rate.

The researcher administered the self-designed questionnaire after establishing soliciting the permission of the organizational leaders. Descriptive analysis using excel was done for the collected data through the instrumentation of a distribution table, frequency count, simple percentages, and mean score analysis. The data analysis is divided into two parts, with the first part focusing on the socio-demographics and the second attending to the research questions. Using the four-point scale, the following limits of numbers were used for analyzing the research questions; 4.00-2.50 for “Accepted” and 2.49 – 1.0 for “Rejected”.

Results

To achieve the objectives of this study, 209 copies of questionnaires were distributed in accordance with the sample size. However, thirteen (13) copies were not returned, while sixteen (16) other copies were not properly filled out, which makes them invalid. Therefore, the findings are according to the 180 respondents.

Sixty (60) of the respondents were male, while 40% of the respondents were female. Fifty-five percent (55%) of the respondents were within the 25–35-year age group, while 30 percent were within the 45–55-year age group. Fifteen percent of the respondents were above 55 years.

Table 1 shows the responses from the sampled respondents on the level of ITG in NCC.

Table 1. The Level of Involvement of Information Technology Governance (ITG) in NCC

Level of Engagement	Frequency	Percentage
To a Very Great Extent	71	39%
To a Great Extent	34	19%
To an Average Extent	28	16%
To a Low Extent	21	12%
To a Very Low Extent	26	14%
Total	180	100%

Source: Field survey, 2021

Table 1 shows that 71 respondents representing 39%, submit that the level of involvement of Information Technology Governance ITG in the Nigerian Communications Commission (NCC) is to a very great extent, 34 (19%) submit that to a great extent, 28 (16 %) said to an average extent, 21

(12%) agreed to a low extent while 26 (14%) agreed to a very low extent. From the table, it can be submitted that the level of involvement of Information Technology Governance ITG in the Nigerian Communications Commission (NCC) as a public sector organization is to a very great extent.

Table 2. The Information Technology Governance (ITG) Mechanism Used in NCC

Option	Frequency	Percentage
The King III Code	0	0%
ISO/IEC 385007	75	42%
COBIT:	105	58%
Total	180	100%

Source: Field survey, 2021

From Table 2 above, it is observed that the most adopted Information Technology Governance (ITG) approach or mechanism by

the Nigerian Communications Commission (NCC) is COBIT.

Table 3. The Benefits of Information Technology Governance (ITG) of NCC

Option	Frequency	Percentage
Improved achievement of Public Service-wide and departmental strategic goals and stakeholder communication	48	27%
Improved effective public service delivery through ICT-enabled access to government information and services	40	22%
Improved trust between ICT, the business, and citizens	2	1%
Improved management of information and resources such as people, finance and material in the Public Service	40	22%
The execution of ICT related policies, projects, and operations in alignment with legislative and regulatory requirements.	50	28%
Total	180	100%

Source: Field survey, 2021

Table 3 shows the benefits of Information Technology Governance (ITG) of the Nigerian Communications Commission (NCC). Results

show that execution of ICT-related policies, projects, and operations in alignment with legislative and regulatory requirements is the

greatest benefit of ITG in NCC with 28%, followed by Improved achievement of Public Service-wide and departmental strategic goals and stakeholder communication with 27%. Likewise, improved effective public service delivery through ICT-enabled access to

government information and services and Improved management of information and resources such as people, finance, and material in the Public Service are acknowledged with 22%, respectively. However, there is a lack of trust between ICT, business, and its citizens.

Table 4. Perceived Challenges Involved with Information Technology Governance (ITG) in NCC

Challenges	SA	A	D	SD	Mean Score	Inference/ Decision
Poor infrastructures affect the usage of ITG in public service delivery	86 (48.1)	102 (28.3)	44 (12.2)	41 (11.4)	3.13	Accepted
Inadequate expertise affects the usage of ITG in public service delivery	58 (32.2)	67 (37.2)	2 (12.2)	33 (18.3)	2.55	Accepted
Poor resource management culture	94 (52.2)	47 (26.1)	16 (8.9)	42 (11.7)	3.34	Accepted
Culture and Bureaucracy affects the usage of ITG in public service delivery	102 (56.7)	40 (22.2)	27 (15)	11 (6.1)	3.55	Accepted
Leadership style affects ITG in public service delivery	74 (41.1)	63 (35)	7.2 (30)	13 (7.2)	3.01	Accepted
Sectional Mean = 3.12 Accepted						

Source: Field survey, 2021

With a sectional mean score of 3.12, Table 5 shows through item 1 that poor infrastructures affect the usage of ITG in public service delivery alignment is one of the challenges involved with Information Technology Governance (ITG) in Nigerian Communications Commission (NCC) with a mean score of 3.13 which is above the average means score of 2.50. Secondly, item 2 shows that inadequate expertise affects the usage of ITG in public service delivery and is also a challenge, with a mean score of 2.55. In addition, item 3 shows poor resource management culture with a mean score of 3.34 which is above 2.50. It also shows, according to item 4 that culture and bureaucracy affects the usage of ITG in public service delivery with a means score of 3.55, and Item 5 shows that leadership style affects ITG in public service delivery is also a challenge with a mean score of 3.01 which is above 2.50. The results show that poor

infrastructures, inadequate expertise, poor resource management, culture and bureaucracy, and leadership style are the challenges involved with Information Technology Governance (ITG) in Nigerian Communications Commission (NCC).

Discussion of Findings

The purpose of this study is to examine information, communication, and technology governance in the Nigerian Communications Commission (NCC). Findings show that the level of involvement of ITG in the Nigerian Communications Commission (NCC) is to a very great extent. It was gathered that IT governance involved a system of creating value for the various stakeholders in NCC. Value creation here means realizing benefits while optimizing resources and risks. This value creation takes place within a system that is

established by a policy framework. It also serves as a framework for the relationships between stakeholders and the strategic goals of the Public Service.

Findings also show that the Control Objective for Information and Technology (COBIT), which is a significant IT governance system or framework that links IT operation and organizational goals through the creation of significant value for the business, is the most adopted mechanism. COBIT is dependable, reliable and the commonly accepted systemic approach to Information Technology Governance. The COBIT system or framework was developed by the Information Systems Audit and Control Association (ISACA) and the Institute of Technology Governance (ITGI) and was published in 1996. This was followed by the update of 1988, 2000, 2007, and the latest in 2012 [9].

The COBIT system provides the procedure for describing and presenting the activities in a clear and manageable form. Its goal includes researching, developing, publicizing, and promoting the internationally recognized and accepted, authoritative, and updated IT governance control system for the adoption and utilization by business and daily users, and IT professionals. According to [10], the increasing and growing public interest in COBIT is in its ability to bridge the gap between the ITs and organizational goal and objectives. COBIT is highly effective in resource management which is an integral part of value creation and development as of public services.

On the benefit of ITG, effective and improved service delivery, improved trust, improved management system and more efficient policies, projects, and operations in alignment with legislative and regulatory requirements are the benefits of ITG. This finding agrees with the submission of [11] that IT governance adds to further developed IT execution that, in turn, adds to the work of the organisation's execution and implementation of plans [11]. The creation of value can likewise be seen as the

accomplishment of specific IT goals and objectives identified with specific conventional corporate objectives appropriate to all organizations [9]. To [12], a far-reaching set of advantages is focused on by organizations regarding various aspects of IT investment or ventures. As a more significant level of achievement of set targets prompts the creation of more prominent value – this causal relationship justifies the use of the aspects addressed by the objectives mentioned in the questions of the study that evaluated the effectiveness of IT governance.

In line with the last finding of the study, there are also inherited limitations or challenges in the operationalization and implementation of IT Governance [13]. Such challenges include poor infrastructures, inadequate expertise, poor resource management, culture and bureaucracy, and leadership style [14]. This submission is in consonance with [15], who found out that both broadband access and lack of IT expertise affect the efficient in-service delivery of public organizations.

This is seen in the hindrances to the achievement of ITG goals, achieving the benefits, and affecting the effectiveness and efficacy of the public sector in the adoption and utilization of IT as well as the management of the risk involved in such action [16]. This is equally put forth by [17, 18] as strategic challenges concerning the alignment between IT and organizational goals. This finding equally agrees with the submission of [19, 20] that the hindrance to the effective implementation of ITG projects in public services includes financing, structural facilities, poor data system, incompatibility, unskilled personnel, and poor leadership quality.

Conclusion and Recommendations

Results from the study show that there is a significant relationship between ITG and the efficiency of public service delivery of NCC. ITG enables public sector stakeholders to not only have access to timely information, but

manage, control, and regulate the information and information technology and align them to the organizational goals and objectives to create values. The principles and development of IT governance is indeed essential and intellectual practice for the central management to avert slippage.

Despite the scarcity of empirical works in this area, some studies have crystallized the fact that the need to advance ITG approaches in the public sector depends on the understanding and appreciation of the IT governance approach. There is a need to further investigate organizational operations and the appropriate mechanisms needed for efficiency and effectiveness in the implementation of IT governance in public institutions.

Further inquiries should address the various issues raised in this work with the goal of providing workable recommendations and motivation for IT governance. There should equally be regular training of public service personnel at ITG to keep them abreast with trends and development in information technology. There should be continuous sensitization for both public personnel and the general populace to equip and enlighten them on the principles, operations, and benefits of ITG to public service delivery.

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I, Priscilla Kusena hereby declare that this research work titled “Information, communication, and technology (ICT) governance in public organizations: a study of the Nigerian Communications Commission (NCC)” submitted is my original work. The results in this project have not been submitted to any other university. Materials consulted in the process of developing and writing this study have been referenced to the best of my knowledge and ability. I would like to thank my family and academic colleagues, and researchers who contributed to fruitful discussions.

Conflict of Interest

I hereby certify that I am not involved or affiliated in any organization with any financial interest (such as honoraria; educational grants; participation in speakers’ bureaus; consultancies, or other equity interest; and expert testimony or patent-licensing arrangements), or non-financial interest (such as professional relationships, affiliations, knowledge, or beliefs) in the subject matter or materials discussed in this manuscript.

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