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Public Boards' Impact on Effectiveness of Nigeria's Research and Technology Organizations

Olayinka Adunni Komolafe
Walden University

Walden University

College of Social and Behavioral Sciences

This is to certify that the doctoral dissertation by

Olayinka A. Komolafe

has been found to be complete and satisfactory in all respects,
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Review Committee
Dr. Mark Gordon, Committee Chairperson,
Public Policy and Administration Faculty

Dr. Gary Kelsey, Committee Member,
Public Policy and Administration Faculty

Dr. Victoria Landu-Adams, University Reviewer,
Public Policy and Administration Faculty

Chief Academic Officer and Provost
Sue Subocz, Ph.D.

Walden University
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Abstract

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by

Olayinka A. Komolafe

MPA, University of Ado-Ekiti, 2002

MIR, Obafemi Awolowo University, 1999

BA (ED), University of Ilorin, 1989

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Abstract

Many public research and technology organizations (RTOs) in Nigeria have been considered ineffective in improving the socioeconomic status of their citizens. Effective management of RTOs will improve research activities, such as development of new technologies and processes, which are crucial for national development and wealth creation. Since boards are the organ of governance in public RTOs in Nigeria, their impact should be enhanced. Several studies have examined the role of public governing boards, but the perceptions of stakeholders regarding their impact on RTOs in Nigeria has yet to be studied. The agency and stewardship theories served as frameworks to examine effect of boards on public RTOs' outcomes in Nigeria. Data were obtained from semi structured interviews with 16 respondents from 6 public RTOs in the Federal Ministry of Science and Technology in Nigeria. Secondary data were obtained from public documents. Findings revealed that the impact of public RTO boards in Nigeria was not recognized and not deemed important for Nigeria's welfare. Although professional and empowered boards were found to be beneficial to public RTOs in Nigeria, the RTO boards' disregard for best governance practices diminished their impact and relevance. A recommendation from the study is for a governance structure suitable for RTOs and an international monitoring and evaluation process to enhance good governance practices in RTOs. It is hoped that the outcome of this research will be used by leaders and policymakers to create governance reforms in Nigerian RTOs, improve public RTO outcomes, promote infrastructural and economic development in Nigeria, and wellness of Nigerian citizens.

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Dedication

I dedicate this study to God Almighty who saved my soul and bestowed upon me the grace and strength to start and complete this work despite all challenges. I also dedicate this work to my parents, Samuel and Eunice Aribisala for sowing the initial seed in me and for their invaluable encouragement and support all through the process. Finally, I dedicate this work to my dear husband, Brigadier (Rtd) Joe Komolafe for his unflinching support and determination to see me complete this program. You stood by me all through. I am grateful always for you all.

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Chapter 1: Introduction to the Study

Introduction

Nigeria has been struggling to attain global relevance in technological development since its independence in 1960, and despite its obvious large status in Africa, the country is still far behind in terms of economic development. The country has dropped from being the third fastest growing world economy in 2014/2015 after China and Qatar (Elias, 2016) to 15th with a real GDP of -1.7 in 2016 and projected gross domestic product (GDP) growth of 0.6% in 2017 (International Monetary Fund [IMF], 2016), its worst since democracy stabilized in 1999 (Jerven, 2015). Despite many government-owned organizations which were established purposely to help Nigeria overcome its many developmental problems through research and development activities, the nation is fraught with decaying public infrastructure and low capital growth. Nigeria is ranked 152 out of 188 and has a Human Development Index (HDI) of 0.514 (United Nations Development Programme [UNDP], 2016). Nigeria also ranked 36 out of 54 African countries assessed for good governance, according to the Ibrahim Index of African Governance (IIAG) ranking.

The nation's earnings are gradually reducing because of the last global recession which ended in 2009 (Fapohunda, 2013) and the Nigerian recession which began in 2016 and lasted for a year. Public funds are being channeled towards developing research and technological organizations (RTOs) in Nigeria as a means of stimulating economic growth. The Nigerian government is thus focusing on other factors that could make Nigeria's public RTOs more profitable and advantageous to economic growth, apart from employee competences and expertise. One such determinant of performance is the way these organizations are being administered. Following the near-collapse of the global banking sector with financial scandals of entities like Enron and Worldcom in the US and Parmalat in Europe, strict and uniform regulation of corporate practices has become necessary. As a consequence, nations have responded by passing regulatory laws and developing governance principles to guide public governance.

Good governance principles are designed primarily to support boards and assist them with isolating and establishing best practices for organizational effectiveness. According to the International Federation of Accountants (IFAC, 2013), good governance is premised on adherence to principles of integrity, openness and stakeholder engagement, transparent reporting processes, effective risk management, and capacity development. These principles stand as terms of reference for governing entities and are similar to one another when compared across organizations in the public sector.

Since the Enron scandal in 2001, some major Nigerian public corporations have also suffered major setbacks which resulted in collapses of their organizations as a consequence of agency issues and poor governance structures. Banks were the worst hit and the banking sector suffered a massive restructuring (Chinaedu, 2011). The restructuring was aimed at repositioning the banking sector (Ezeoha, 2011). The necessity for more effective boards has become more apparent so that value delivery can be guaranteed for stakeholders (Pradhan, Afshan, & Chhetri, 2011). Nigerian public RTO boards need reliable information that will enable them to understand factors preventing the effectiveness of their organizations and therefore prevent the collapse of the sector.

This study therefore focused on discovering the perceptions of chief executives and public board members about good governance practices in public RTOs in Nigeria so that good and ethical practices could be suggested for improving the performance of those organizations and achieving goals set for them.

Statement of the Problem

Science and technology (S&T) drives socioeconomic development (Bamiro, Mikailu, Obiaga, & Nyagba, 2008; Cavdar & Aydin, 2015) and are applied by most governments to promote economic and infrastructural development, especially when combined with research and development (Wu & Zou, 2012). Despite having embraced research and development (R&D) in its quest for economic and infrastructural development, Nigeria was still ranked 127 out of 144 competitive economies in the world (Schwab, 2014). This poor ranking may have been due to lack of key R&D inputs and weak institutions which resulted in Nigeria's low GDP (Siyanbola et al., 2011, p. 3). According to Wu and Zou (2012), R&D activities can influence economic development, when researchers combine innovative and managerial skills with technical expertise. This feat was accomplished in China (Wu & Zou, 2012). Berle and Means (1932) said that an effective governing board guarantees the effectiveness of public organizations and protection of stakeholders' interests. Effective boards have been proven to have a significant impact on organizational performance and are thus able to enhance promotion of R&D investments. No study has been able to link effective boards with the performance and development of a solid institutional framework involving public RTOs in a developing economy like Nigeria. This gap has limited the understanding of policy makers about how to build solid governance structures in order to make public RTOs more functional. This study, therefore, intends to fill this gap in understanding by focusing specifically on the perceptions of stakeholders in the R&D sector in Nigeria regarding the role of governing boards in terms of improving the performance of public organizations in this sector and setting priorities for the nation's future.

Research Questions

This study seeks to answer the following questions:

RQ1: What governance problems exist in public organizations in Nigeria's R&D sector?

RQ2: What do board members and managing directors of public organizations in Nigeria's R&D sector believe is the impact of boards on organizational effectiveness?

RQ3: How do these perceptions of board members and executive directors regarding the impact of boards on Nigeria's R&D sector affect the performance of these organizations?

Conceptual Framework

Since the intent of this study was to discover how governing boards could improve the management of organizations to enable them to respond to increasing societal demands, the conceptual framework used for this study was the agency theory. This theory came into public and academic awareness in the 1930s through the ideas shared by Berle & Means (1932), where they analyzed that separation of ownership from control in public organizations would result in governance problems. The principle in the agency theory involves the relationship between the principal, in this case the boards which represent the stakeholders, and the agents, who are the who are the executives tasked with running the organizations. tasked with running the organizations. This principal-agent structure sometimes results in disputes because the interest of the principal, who often delegates decision making powers to the agent, may not be captured in the activities of the agent. According to Eisenhardt (1989), the agency theory perspective is useful in understanding such issues that are associated with the principal-agent structure. Fama and Jensen (1983) suggested that the agency theory could be applied to eliminate opportunistic behaviors which arise from conflicts of interest in the governance of public organizations. Raelin and Bondy (2013) recommended that boards should be appointed to manage governance conflicts and serve the interest of the principal (stakeholder). Sharpe (2012) asserted that the theory had exerted great influence in regulating board-organizations relationships thereby reducing principal-agent issues in organizations. Therefore, no study on corporate governance (CG) is complete without reference to the agency approach because the theory increases understanding of the principal-agent relationship. The agency theory has been widely used in such studies to understand the behavior of governing boards and how these have aided the development of board practices in organizations. It also helped to determine the method of inquiry for this study.

Research Design

This study is qualitative by design because it sought an understanding of a case being studied based on the perceptions of participants. Creswell (2007) recommended the qualitative design for studies that required in-depth exploration in order to better understand the lived experiences of the participants. The data for this study were obtained from personal semi-structured interviews with 16 respondents from six public RTOs. The respondents were comprised of seven former chief executive officers (FCEOs) of public RTOs in Nigeria, four present chief executive officers (PCEOs), and five former board members (FBMs). All respondents were purposively selected. Secondary data were obtained from existing official documents and mandates using the qualitative data collection approach. The data were analyzed to determine themes that emerged, and these were used to address the research questions. The themes that emerged were compared with existing data and records and triangulated for validity. An appropriate evidence-based conclusion was drawn from the findings to address the research problem.

Purpose of the Study

The purpose of this qualitative case study was to explore the governance role played by successive board members in determining the effectiveness of public RTOs in Nigeria. This role was understood from the perspective of CEOs and FBMs. This study also sought to describe exceptional CG practices of public RTO boards in Nigeria that would be appropriate for public RTOs in Nigeria. This study explored the importance of good governance practices in terms of RTOs' effectiveness in the Nigerian public sector by interviewing CEOs of selected public RTOs as well as past and present board members. The purpose of this was to gain in-depth knowledge about the importance of public RTO boards and the effects of decisions, risks, policies, and activities of those boards before 2016. Highly effective RTOs are required in Nigeria to develop the infrastructure of the country. Therefore, the intent of this study was to offer reliable information to researchers and practitioners regarding governance behaviors that enhanced organizational performance of public RTOs. Through this study, valuable recommendations which will enhance governance of public RTOs and lead to technological advancement of Nigeria will be made available. When boards are performing well, their organizations will be effective and their immediate society will feel their impact. This study will inspire discussions amongst policymakers and researchers regarding improving governing boards' performance in Nigeria's public organizations.

Nature of the Study

The nature of this study is qualitative using an interpretive case-study approach. This approach was selected because it relies on the experiences of participants within their social contexts and since this dissertation had to do with the perceptions of governance issues in public RTOs, it was an appropriate research paradigm to use. With the application of the qualitative approach, therefore, I strove to understand the governance behaviors of public RTOs through the perceptions of governing bodies. The qualitative approach was more appropriate in this study compared to a quantitative or mixed methods approach because a quantitative approach would involve establishing a link between effective boards and performance of public RTOs in Nigeria and could not have probed deeper into meanings given to phenomena according to participants. Quantitative methods often involve establishing cause and effect relationships among variables using empirical data, while the mixed methods approach combines both qualitative and quantitative approaches and still involves statistical deduction of the phenomenon rather than induction (Creswell, 2012, 2009). This allowed an in-depth analysis of data collected from methods such as interviews, observations, and secondary sources to gain a deeper understanding of the case.

Background of the Study

Governments establish public organizations purposely to offer public services (Bowman, 2016). Public RTOs in Nigeria should strengthen the rapid industrialization of the country and increase the social satisfaction of the citizens through their activities. However, these realities are not visible (Siyanbola et al., 2011) because these organizations are performing below expectations (Muanya, 2019). Despite the apparent failures of these public RTOs to deliver expected outcomes, the Nigerian government has yet to initiate intuitive and decisive strategies to tackle emerging challenges in the sector. Unless more attention is paid to governance of these organizations, they will continue to waste public funds, and this will further impoverish the nation. CG has thus become imperative to ensure that organizations achieve the mandates which were designed for them by the government. Good governance also creates an enabling environment for foreign investment, thereby promoting economic growth (Aina, 2013). The role and importance of public governing boards was thus one of the important considerations in this study.

The agency theory was selected as the foundation for this study. The agency theory involves the separation of ownership from direct control and running of organizations in order to enhance efficiency (Berle & Means, 1932; Raelin & Bondy, 2013). This recommendation was, however, discovered to have led to the pursuit of self-interests by executives, especially in Nigeria where corruption is endemic in public service (Okeahalam & Akinboade, 2003). Agency problems must be eliminated before they waste the efforts and investments of shareholders.

Achebe (1998) said leaders must be more ethical for the economy of Nigeria to grow. Many corporate failures experienced in Nigeria have been attributed to poor institutional frameworks and governance behavior of leaders (Aina & Adejugbe, 2015). This underscored the importance of adherence to the principles of good governance as a panacea for agency issues and ineffectiveness in organizations. Siyanbola et al. (2011) encouraged improved funding of RTOs in order to improve performance, but Kaplan, Samuels, and Cohen (2015) said that if public boards supervised CEOs more, organizations would become more effective. Palmberg (2015) focused on Swedish firms' performance under independent boards and concluded that independent boards were able to positively influence the financial performance of Swedish organizations by monitoring the activities of executives.

Additionally, many studies have been conducted regarding CG issues in developing countries involving annual reports of organizations, information about popular standards of governance principles such as board composition, qualification, separation of ownership, and risk management posture of boards. However, this study involved perceptions of respondents concerning the impact of public boards, and these were obtained through personal interviews and questionnaires. Other secondary data were only used to corroborate the primary data. The findings are expected to improve public board effectiveness, thereby resulting in high-performing organizations and infrastructural development in Nigeria. More details about these issues appear in Chapter 2.

Assumptions, Limitations, Scope, and Delimitations

Assumptions

According to Rouleau-Carroll (2014), assumptions are things believed to be certain based on speculations by the researcher, but have not been sufficiently proven. There were several assumptions in this study. One assumption was that there would be no objections from the Ministry of Science and Technology about interviewing participants or accessing existing documents in the RTOs. The second assumption was that the criteria for including participants in this study were appropriate for the sample such that all participants have had the same experience with boards. My third assumption was the participants in this study would be honest and offer valid information needed to answer the research questions. My fourth and last assumption in this study was that the participants would consent to participate in this research because of their interest in improving the effectiveness of public organizations in Nigeria rather than their personal motives and interests.

Limitations

The main limitation of this study was the absence of prior studies on governance in public RTOs in Nigeria. This limited the study because there was little foundation upon which an understanding of my research could be based except for the studies on governance that involved organizations in other sectors in the country, like the banking sector. A major limitation of this study was the fact that the data obtained from the interviews and questionnaires could not be verified since they were opinions and perceptions of participants. There was, therefore, the possibility of respondents' bias. I, however, overcame this limitation by independently triangulating the data in order to ascertain the validity of the data obtained from the respondents. By triangulating data, the information obtained can be compared and verified for consistency.

Scope and Delimitations

This study was limited to RTOs in the Nigerian Federal Ministry of Science and Technology. In addition, participants were limited to serving managing directors (MDs)/ CEOs of selected parastatals and agencies in the RTO sector, former chief executives of these parastatals, as well as former members of public governing boards in the parastatals. Samples were drawn from board members who had served before public boards were dissolved in Nigeria in 2015 by the president.

Since one study cannot adequately cover every aspect of governance, this study was restricted to governance in Nigerian public organizations (with emphasis on RTOs) from the perspective of those involved or who have been involved in governance. The study included participants' perceptions through interviews to gain rich information from their experiences.

Delimitations are those issues that can be manipulated by the researcher in the study (Rouleau-Carroll, 2014). The choice of only MDs and board members as participants in this study rather than including directors and other government officials was deliberate. The choice was informed by my belief that the selected participants were directly involved in the governance of these organizations. I also deliberately restricted the search area to Nigeria because ethical practices in governance were still in the infancy stage in the country. Governance in Nigeria thus needed reliable studies that could assist practices to thrive and achieve desired impacts.

Definitions of Terms

Uncommon terms used in a study should be defined to give readers an understanding of their meanings. Uncommon terms used in this study include:

Agency problems: These are problems associated with incompatibilities in management and shareholders' interests which lead to conflicts (Boshkoska, 2015).

Asian Tigers: This refers to the four Asian countries (Hong Kong, Singapore, South Korea & Taiwan) which, though lacking in natural resources, transformed their economies between the mid-60s and 1990s through growth and development strategies that made them international trading hubs (Hai, Tsui, & Zhang, 2013).

Code of Ethics: This is a spelled-out statement detailing expected behavior of employees in an organization or profession.

Conflict of Interest: This is a crisis situation that arises when the separate goals and needs of owners of organizations and managers are at variance with one another (Tafel-Viia & Alas, 2015).

Corporate Governance: This refers to the measures put in place by organizations to eliminate agency problems and guarantee returns on shareholders' investments (Akbar, 2015).

Ethical behavior: These are desirable and right actions or decisions that are required of individuals in conformity with organizational values and beliefs and in demonstration of commitment to moral rules.

Organizational Effectiveness: This refers to the ability of an organization to efficiently achieve planned outcomes that lead to competitive advantage (Zoogah, Peng, & Woldu, 2015).

Oversight functions: These are governance functions that include the review and monitoring of federal organizations, their activities, and the implementation of strategic policies (Kaplan, Samuels, & Cohen, 2015).

Ownership dispersal: This involves the separation of ownership from organizational control (Berle & Means, 2012).

Parastatals: These are autonomous public organizations or agencies that are owned by government and were established to serve some specific and specialized purposes.

Public boards: These are the governing boards of public and not for profit organizations.

Public sector: These are government-owned organizations, institutions, or industries set up to provide services specific to the public (United Nations [UN], 2007).

Risk management: This is the series of actions employed to minimize potential threats to organizational goals by identifying and maximizing opportunities (Drennan, McConnell, & Stark, 2014).

Shareholders: These are the persons categorized as owners of an organization either through investment of stocks in the company or family inheritance (Sur, Lvina, & Magnan, 2013).

Stakeholders: These are persons who have stake in the performance or output of an organization and whom the organization is obligated to satisfy or serve (Harrison & Wicks, 2013; Phillips, 2003).

Triangulation: This is a research method which aims at ensuring data validity by gathering data from multiple sources in a single study (Creswell, 2009).

Value delivery: This means making products or services available to clients at minimum cost and maximum quality such that reliable performance is guaranteed (Lindgreen, Hingley, Grant, & Morgan, 2012).

Possible Types and Sources of Data

Data for this study were obtained from multiple existing sources. These sources include surveys on boards' activities in public organizations in Nigeria, and secondary sources such as government records that explain the characteristics and performance of public organizations in Nigeria. This enabled the triangulation of data and enhanced the quality of the study. Other sources of data include documentary review of laws that spelt out the mandates of governing boards and public organizations, internet sources (for data on public organizations involved in R&D in Nigeria), and annual reports of such public organizations. The third source of data for this study were the interviews with MDs, former CEOs, and board members of public RTOs.

The three data sources were combined as a means of gaining different perspectives from participants, official records, personal interpretations, and direct experiences with the research institutions.

Significance of the Study

Research organizations in Nigeria are increasingly faced with the need to develop financial capabilities. This would enable them to run independent of government and would be a great relief to these organizations, given Nigeria's present economic downturn. Government grants to these R&D organizations were not sufficiently meaningful or regular enough to sustain their growth, development, and activities, so knowledge gained from this research will be valuable to local and international researchers in the field of governance, managers of RTOs, policymakers, and practitioners who are interested in learning how to improve issues associated with boards and organizational performance. Through this study, they will have access to data that will reveal how corporate boards in the research sector can influence organizational performance.

Since one of the aims of CG is to pursue shareholders' value, this research provides a framework for the development of management strategies and a performance assessment chart to ensure these boards behave in ways that ensure their organizations will satisfy stakeholders' needs and conform to global governance practices. Thus, with the knowledge obtained from this study, boards in the research sector will be able to improve their worth to their organizations. Efficient boards will influence their organizations to be effective. The economy and personal worth of individuals in Nigeria will thus be improved because the efficiency of the research sector will proliferate technology in the country.

Summary

Studies are often conducted to confirm existing theories or affect changes and improvement. Chapter 1 discussed the background and problem statement of this study. The role to be played by me was also clearly stated so that actions to be taken were clearly defined from the beginning of the study. This chapter also explained the extent of the inquiry in this research. Because governance is a broad topic, the inquiry was limited to public RTOs in Nigeria and their boards. Research questions were formulated to assist me in proffering recommendations to eliminate or reduce the identified problem of organizational performance.

Some of the limitations to this study included absence of prior studies on governance in public RTOs in Nigeria and the possibility of respondents' bias. I employed the use of triangulation to mitigate some of these perceived limitations. My major assumption in this study was that the inclusion criteria for my samples were adequate enough to select the appropriate participants.

The literature that is pertinent to this study is reviewed in Chapter 2. Various concepts that are related to governance, governance principles, the Nigerian public sector, and public boards are objectively and extensively examined. The intent of the study was to determine the importance of good governance in attaining organizational effectiveness and national development. Chapter 2 concludes with a review of literature on research methods.

Chapter 2: Literature Review

Introduction

The appointment of public governing boards is backed by acts of legislation in most countries (Leisner, 2005). Public board members are appointed through political selection and their activities are determined by the mandates specified in their bylaws (Osamwonyi & Tafamel, 2013). These boards are sometimes called boards of trustees, governing boards, or boards of governors, and they can perform executive or supervisory functions.

Boards have been receiving attention since the global financial crises in Asia and Europe. It is common knowledge that these financial crises were exacerbated by the poor quality of corporate management practices, which resulted in bad investment decisions and caused the near-collapse of the world's finances. This suggested that boards were essential to the financial survival of organizations. CG thus involves more than daily routine decision-making in organizations, but also involves developing strategic plans that will enhance organizations' value and stimulate and sustain growth. According to Aina (2013), investors are more attracted to countries that are guided by strategic governance practices, because they are assured that efforts are in place by governments of such countries, to prevent corporate failures.

With growing concerns by governments regarding how organizations could be more effective and considering the widespread clamor by practitioners and scholars for more understanding of the role of boards beyond their legalistic functions, this research is timely in providing possible solutions. This study, therefore, tracked the approaches of boards of public RTOs towards addressing the development needs of Nigeria and also focused on the increasingly vital roles of these public RTOs towards achieving lasting economic stability for Nigeria.

This chapter discusses previous research that addressed the effectiveness of corporate boards' activities in organizations. This helped to identify gaps between the theories on management of public RTOs and actual practice. This literature review involves an overview of global governance practices and theories, the governing board of public organizations, trends in the development of technological RTOs, measurement of boards' impact on organizational effectiveness, conceptual framework and methods, gap in literature, and a conclusion.

A review of the literature regarding corporate boards of RTO public organizations was done with a critical evaluation of the management of the technological R&D industry in Nigeria. This included an analysis of the impact of R&D and technological development on the Nigerian economy as well as the role of effective organizational leadership on RTO effectiveness in Nigeria. This is followed by literature on methods which previous research employed to measure the impact of boards on the effectiveness of public organizations, with particular emphasis on public RTOs.

Overview of Global Governance Practices and Theories

Governance

Cornforth (2003) said governance was "the systems by which organizations are directed, controlled and accountable" (p. 17). Huther and Shah (2005) said that governance was an attempt by governments to effectively manage their resources through defined institutions, while Aina (2013) viewed governance as the activities of boards that prevent collapse of organizations. Fukuyuma (2013) suggested that the quality of governance in states should be measured by the output, procedures, and capacities of such governing entities. Governance can be explained as governments' efforts to manage public organizations through appointed actors to ensure organizational and ultimately state wellbeing. CG is therefore not about the day-to-day operational management of the company for managers and executives but involves the overall strategic plan to move both the organization and country forward. Governance involves the execution of deliberate and defined actions which are intended to guarantee that stakeholders' expectations are met. According to the OECD (2015), CG is also not an end but a means to achieve "economic efficiency, sustainable growth, and financial stability" (p. 9), which will promote improved financial investments and economic growth.

There is growing interest in governance practices by governments who are interested in gaining economic competitive advantage. In order to boost efficiency of public organizations, owners require a dependable monitoring framework such as boards to ensure that their businesses are run transparently and efficiently.

According to Akingunola et al. (2013), globalization and its attendant innovations, especially in information and communication technologies (ICT), ensure that businesses can be transacted beyond geographical boundaries. For such businesses to survive in an increasingly changing global economic terrain, they must engage in internationally acceptable best practices. Governments have, therefore, remained committed to creating work environment that would encourage governance best practices

(Tagotra, 2016). According to Abor (2007), effective governance structures positively influence firm performance and growth. Abor arrived at this conclusion from studying how having effective capital structures positively influenced decisions of listed firms in Ghana. Olubukunola (2013) asserted that good governance drastically reduces conflicts of interests in public organization.

Another reason why democratic governments have growing interest in governance is because of the global financial crisis which resulted in the collapse of giant corporations in Europe and Asia such as Johnson Matheys Bank (JMB), Bank of Credit and Commerce International, Enron Incorporation, as well as Ahold and Parmalat in Europe (Akingunola, Adekunle, & Adedipe, 2013; Nadler & Nadler, 2006; Yip, 2015). These business failures resulted in the lack of faith in boards (Elias, 2016; Yip, 2015) and prompted the formulation of laws to regulate CG. The Sarbanes-Oxley (SOX) Law of 2002, an act which protects consumers by eliminating conflict of interests and ensuring accounting reforms in public organizations was one of such laws. These laws guided CG and stressed the importance of transparent systems of operation.

Governance of public organizations is important to Nigeria’s wellbeing. This informed the many steps taken to develop codes of governance practices in the country so that organizations could be responsibly and transparently administered and corporate failures could be prevented. Aina and Adejugbe (2015) said that a review and update of existing governance codes would be beneficial to public organizatons because it would ensure that the best practices in governance are applied to Nigeria’s public sector.

Governance Best Practices

Larcker and Tayan (2011) said that it was difficult to identify business practices that produced good governance in public organizations. The need to regulate increasing trade partnerships between multinationals and conglomerates in developed and developing economies has increased the clamor for a global standard for good governance in the corporate world (Robertson, Diyab, & Al-Kahtani, 2013). According to Cooper and Edgett (2012), the reason for pursuing best practices is to improve organizational performance and effectiveness because it stimulates innovation. Researchers and practitioners differ on what governance best practices are. Most researchers believe that when practitioners use common, good, and appropriate management practices to improve quality and efficiency of organizations, such constitutes best practices (Bardach, 2012).

Keehley, Medlin, Longmire, and MacBride (1997) observed that governance is said to have conformed to best practices when it (a) is effective for an extended period (b) possesses measurable impact (c) is result oriented (d) is replicable in different organizations (e) is widely applicable, and (f) is generalizable. These good governance criteria have however not been fully met by any particular governance strategy (Herman & Renz, 2008).

Cooper and Edgett (2012) believed that what constitutes best practices were subject to change once these practices became the acceptable norm in most organizations. According to Cooper and Edgett, these supposed best practices will eventually be jettisoned over time by organizations which desire to gain competitive advantage over others. Besides, a governance practice that worked in one organization may fail woefully in another. Governance in countries with emerging markets may be fraught with cultural-related challenges and this will influence the governance outcome (Robertson, Diyab, & Al-Kahtani, 2013). As such, governance structures that are widely used in developed nations may not be applicable in such circumstances.

The IFAC (2013) said that standard governance practices were not static but dynamic because organizations metamorphosed periodically. Metamorphosis, such as these, would necessarily require major changes in and renewal of their structures to conform to current realities. This assertion was further corroborated at the meeting of G20 Leaders' Summit when they observed the fact that though governance best practices in most countries had significantly become more widespread, many were still contending with various challenges hindering global acceptance of governance practices. Some of these challenges were identified as the changes in stock investments and trading rules, as well as entrance of new players into the corporate world, which altered previous assumptions and necessitated a need to review present practices (OECD, 2015). Herman and Renz (2008) therefore recommended that rather than obsess about adhering to common governance practices and procedures to achieve effectiveness, serious organizations should instead search for those values and goals that defined their organizations. Herman and Renz further advised these organizations to develop practices and procedures which were consistent with these values, as well as the expectation of its operating environment, and shareholders' interests.

According to Akingunola et al. (2013), the attitudes and values of people should determine their governance principle. Zoogah, Peng, and Woldu (2015) confirmed that African values and traditions influence the effectiveness of organizations in Africa. Consequently, their ideologies may differ from that of the western world. These ideological differences may, however, hinder successful market entry and growth of developed economies. Strange et al. (2009) therefore suggested that these ideologies on CG must become standardized to prevent global conflicts in strategic, operational decisions and activities. Having good governance practices in place in the public sector is therefore essential because it reduces hindrances to market expansion and growth (Deininger & Feder, 1998; Ozen & Kusku, 2008), promotes accountability and equity, and also assists developing economies to grow (Kodila-Tedika, Rindermann, & Christainsen, 2014). In general, organizations that are openly and honestly administered have incorporated good governance (Sanusi, 2003). Some of the hallmarks of good CG include honest and transparent transactions, adherence to extant rules and regulations, and existence of a detailed, precise, and effective reporting system (Larker & Tayan, 2015).

Principles of Good Corporate Governance

Following financial scandals in the US and Europe, the imperative of strict and uniform regulation of corporate practices has become glaring. As a consequence, nations responded to this by passing regulatory laws and developing governance principles to guide public governance. These regulatory laws clearly state rules of governance and consequences to be faced by organizations that violated those rules.

Good governance principles were designed primarily to support boards and assist them with identifying and establishing best practices for organizational effectiveness. According to the IFAC (2013), good governance is premised on adherence to certain principles, which more or less stand as terms of reference for governing entities and are similar to one another when compared across organizations in the public sector.

Good governance can be determined by how reliable, accountable, and predictable a management process is (Jorgensen & Sorensen, 2012; World Bank, 1992). The more reliable an organizational process, the more trust and business it attracts and the more prosperous that organization will become. Organizations are well-governed when their performance yields predictably positive results over time and when they are found accountable and reliable enough to safeguard the economies of their countries from instability and failure (Asongu & Kodila-Tedika, 2016; Tricker, 2015). These performance indices often result in the growth and development of the home countries of such organizations. In other words, when public organizations are effective, reliable and accountable, they contribute to the wealth of their countries (Kodila-Tedika et al., 2014). Ott (2010) proved a strong correlation between the happiness of an average citizen in 130 nations and the quality of governance practices in those nations. Ott thereafter concluded that the happiness of nations is dependent upon good governance. He also suggested that good governance was one of the conditions that must be met by developing countries to grow (Ott, 2010). Rindermann, Kodila-Tedika, and Christainsen (2015) supported this suggestion so long as these governance principles occasioned changes in economic structures and performances.

The earliest forms of governance principles were the UK Cadbury Report of 1992, which introduced independent non-executive directors and shaped CG practice globally, as well as the principles of CG developed in 1997 by the US Business Roundtable (Tricker, 2015). According to Haxhi and Aguilera (2015), the Cadbury Code has been replicated in several countries and more than ninety nations have also developed governance codes for listed companies in line with the recommendations of the Cadbury Report.

Globalization opened up new markets, and the need to expand trade into these emerging markets prompted developed economies to seek the development of global governance best practices to regulate the conduct of international business. This spurred the transnational OECD to develop a set of working principles on CG in 1999. This document was revised and ratified in 2004 and all members of the OECD adopted the policies as acceptable governance guidelines in their nations. These principles were eventually updated and endorsed in 2015.

The OECD governance principles are six in number with sub-principles. They were initially developed as a means of creating a global platform for equitable and fair treatment of investors and stakeholders (OECD, 2015). The six OECD governance principles stated: (a) The rights of shareholders, (b) The equitable treatment of shareholders, (c) The role of stakeholders, (d) Disclosure and transparency, and (e) The responsibilities of the board (OECD, 2004).

However, non-OECD members’ countries, especially developing countries, may not have existing OECD governance policies and strategies in place (Young et al., 2006) especially because these principles were primarily designed for the economies of developed countries (Robertson, Diyab, & Al-Kahtani, 2013) and may not be culturally sensitive to the needs of emerging economies. Therefore, their perception of truly acceptable governance practices may not be consistent with that of their counterparts in the western world. Peng (2003) asserted that though developing economies may seem to share and establish standard governance attributes in their organizations, they still grappled with cultural governance challenges and ownership ideologies. These challenges and ideologies greatly influenced their strategies and decisions.

Regulatory frameworks have been instituted in nations to ensure market and trade efficiency and also enforce adherence to governance codes. Robertson et al. (2013) observed that when nations enact regulatory governance laws that conform to global principles, the way organizations conduct their business activities will improve. The US, for instance, has a Securities and Exchange Commission (SEC) to regulate the governance of listed companies while its Nigerian counterpart does the same. In 2003, following some unethical activities of some unscrupulous CEOs, the Nigerian SEC authorized a Committee; led by Atedo Peterside, to develop codes that would reform governance practice in Nigeria. Thus, the 2003 SEC Code on CG came into existence in Nigeria and was subsequently revised in 2011 to conform to international best practices. Only 40% of publicly quoted firms on the Nigeria Stock Exchange (NSE) were found to have developed governance codes ethics for their business practice (Wilson, 2006). Another regulatory framework in Nigeria is the Companies and Allied Matters Act (CAMA) of 1990, which provides legal guidelines for monitoring compliance, disclosures, and penalties and financial report processes in organizations (ROSC, 2004). Other codes in Nigeria include the 2006 Central Bank of Nigeria (CBN) Code to regulate financial institutions and systems, the 2008 Nigerian Pension Commission (PENCOM) Code, and the 2009 National Insurance Commission (NAICOM) Code. With these codes, institutions such as the SEC, CBN, and Corporate Affairs Commission (CAC) were empowered as regulatory bodies to ensure and enforce adherence to these governance codes. Many of these codes were fashioned after the OECD governance principles (Wilson, 2006).

Developing codes or principles of governance is however not the ultimate; efforts must be in place to ensure compliance with governance best practices. Sometimes also, adherence to identified governance standards does not necessarily result in good governance. According to Larcker and Tayan (2011), Enron complied with governance structures prescribed by the New York Stock Exchange (NYSE) yet the organization still collapsed because of other issues bordering on ethics and misrepresentation of accounts. These sabotaged Enron’s wellbeing. If leaders ignore governance practices, laws and regulations, they should be penalized for non-conformity so that they will learn to behave responsibly and ethically. Only then can projected outcomes be guaranteed. Haxhi and Aguilera (2015) observed that though the SOX Act of 2002 was a response to correct governance failures such as that of Enron, it has not achieved desirable levels of effectiveness in the governance of organizations. However, it has made corporate leaders less reckless because of the penalties approved by the law against errant leaders.

Theories of Governance

The conceptual foundations upon which this study was based were the agency and stewardship theories. The agency theory is commonly used to explain modern governance practices and according to Sharpe (2012), it has helped to define, determine, and regulate boards' best practices in organizations. According to Eisenhardt (1989), the agency theory offers " a unique, realistic, and empirically testable perspective on problems of cooperative efforts" (p. 72) that arise between the principal and an agent, both of whom need to work together for the good of the organization but who also have to contend with their different interests and opinions on how to accomplish tasks. Accordingly, Jensen (1983) suggested that the elimination of opportunistic behaviors, engendered by conflicts of interest in the governance of organizations, was possible through the application of the agency theory.

While Raelin and Bondy (2013) reconsidered the usefulness of the agency theory to determination of good governance, Adegbite (2015) proposed consideration of an African context to global theories of good CG because of certain peculiarities of developed countries, which may not be present in developing countries such as Nigeria and may thus make application of institutionalized global theories ineffective in such developing countries. To corroborate this, Minichilli et al. (2012) submitted that boards performed and operated differently in different contexts while Okeahalam and Akinboade (2003) offered proof by analyzing CG in Africa through the lens of separation of ownership from management. The authors provided useful suggestions on methodologies that could be used to assess the challenges and peculiarities of governance in Africa.

The agency theory assumes that shareholders are the principal in an organization while the CEO and management are agents who expectedly pursue self-centered goals that will guarantee their job security and entitlements. It is assumed that these agents may not necessarily be routing for the shareholders' interests (Van Puyvelde, Caers, Du Bois & Jegers, 2016). According to Eisenhardt (1989), this attitude of agents may render them uncontrollable. As a consequence, proponents of the agency theory recommended that shareholders must take responsible actions that would ensure that managers only pursued actions that could be verified and which would yield maximum profit to shareholders. The principals, therefore, require an entity, such as boards, to monitor and control the activities of these agents so that their excesses and opportunistic behaviors are curbed and shareholders' satisfaction is guaranteed (Cornforth, 2003). With boards of directors acting in the interest of shareholders, the organization's responsibility to the society and individuals would be limited to that which is required for long-term growth of the organization, managers would be forced to comply with organization's goals and procedures, and shareholders' profit-making agenda would be assured (Hung, 1998; Waldman & Siegel, 2008). This implies that management is fiducially accountable to maximize profit for the principal (Scherer & Palazzo, 2011).

The principals' need to control agents' activities is one of the points of divergence between the agency and stewardship theories. For instance, while the agency theorists assumed that managers were not committed to organizational goals or owners' interests but would always act subversively to achieve their personal goals, the stewardship theory believed that both the owners and managers were stakeholders in the organization (Davis, Schoorman, & Donaldson, 1997; Muth & Donaldson, 1998). The stewardship theorists thus believed that both principals and agents had the interest of the organization at heart (Muth & Donaldson, 1998). They also believe that boards should not be used as monitoring or controlling agents in organizations but should rather collaborate with managers within the organization (Cornforth, 2003).

According to the stewardship theory of governance, the issue of trust is sacrosanct and if managers are well motivated, they would identify with the organization's goals and effectively respond to opportunities that would advance these goals and yield enough profit to satisfy the needs of the owners (Davis et al., 1997; Deci, 1972). To the stewardship researcher, the negative portrayal of the manager as a self-seeking opportunist in the agency's theory of governance is impractical. Studies on governance therefore need to consider and respect the managers' need for self-actualization. These studies should also understand that managers are committed to considering other groups of external stakeholders because they could be affected by the actions of the manager (Scherer, Palazzo, & Seidl, 2013; Waldman & Galvin, 2008). Besides, according to Van Puyvelde et al. (2016), it is irrational to blank out the reasons behind the behavior of managers as this action could demotivate and reduce their performance and consequently that of the organization. These researchers were able to prove that unless managerial objectives were understood and aligned with the organizational goals set by owners or shareholders, the desired performance might be elusive. Whereas Perrow (1986) observed that agency theory could not be used to analyze governance in organizations, Eisenhardt (1989) believed that agency theory contributed greatly to the development of perspectives in organizations because it related to relationships and management of self-interests in the workplace. Though the agency theory has valid views on organizational structure and control, its partial view could be complimented by other equally relevant theories and perspectives that will give a broader overview of organizational complexities. Hirsch, Michaels, and Friedman (1987) said that research into organizations would yield more realistic views when multiple theories are combined, as this will strengthen organizational research.

The agency theory has also failed to account for institutional differences in countries that are less developed. So, the issues of ownership dispersal and competition amongst businesses may not be operable in a country like Nigeria, which has an indigenous market set-up (Adegbite, 2015). These criticisms of the agency theory have led to divergent opinions on its importance to the study of governance. Perrow (1986), for instance, viewed the scope of the agency theory as being too narrow to interpret human behavior in organizations because it was more concerned with profit maximization than responsible leadership. Davidson (1990) condemned its negative portrayal of CEOs and management as corrupt and self-centered in organizational economics. The sharp criticisms have thus reduced the importance placed on the agency theory as a traditional basis for the study of boards' dynamics. These criticisms also suggest the need for a new perspective to explain the many roles of boards in organizations aside acting as controlling agents. In response, Pless, Maak, and Waldman (2012) recommended the integrator leadership model which advocated that managers could be more accountable by "actively integrating, goals across constituent or stakeholder groups" (p. 58).

Donaldson and Preston (1995); Freeman, Wicks, and Parmar (2004); and Scherer et al. (2013) believed that the narrow scope of the agency theory could be widened with an increase in stakeholder groups as this would guarantee the survival of the organization on the long run.

Other theorists (Barney, 1990; Jones, 1995) have suggested that rather than enforce economic control over agents as proposed by the agency theorists, a more cooperative model of interaction would engender more trust and ensure a mutually beneficial relationship within the organization. This implies that the agency theory would be more efficient when combined with other theories to bring completeness to the study of governance. This view was supported by Van Puyvelde et al. (2016), who observed after their study of the managerial choices of executives of public and nonprofit nursing homes in Belgium, that certain situations may warrant that boards would both control and collaborate with managers in their organizations. Hyndman and McDonnell (2009) however cautioned against leaning towards either end of the two extremes because it would either reduce motivation of managers or increase their opportunistic behaviors. Van Puyvelde et al. (2016) conducted a Discrete Choice Experiment (DCE) to determine whether managers preferred using control or collaboration tools to administer selected nursing homes in Belgium. They discovered that board members sometimes combined the controlling and collaborative methods in their relationship with managers of the homes.

Other scholarly studies have also recommended combining both agency and stewardship theories in analyzing governance in organizations. For instance, Jobome

(2006) discovered that internal controls did not threaten managers in non-profit organizations because they received adequate remuneration and incentives. Van Puyvelde et al. (2016) found that the agency and stewardship theories could be combined to develop a governance framework for Not-for-Profit schools. Marvel and Marvel (2009) also corroborated this position when they successfully examined local governments' reward and management practices from the agency and stewardship angle. These experiments and conclusions lend credence to the possibility of a successful combination of the agency and stewardship theories to investigate governance issues.

The Public Sector

The public sector refers to the arm of a nation's business which is charged with the provision of essential goods and services for the general public which the private sector may not easily provide at a reasonable and affordable cost (Broadbent & Guthrie, 1992). The public sector comprises companies, organizations, higher institutions, and RTOs established by federal, state, and local governments for the sole purpose of ensuring that these goods and services are provided and equitably distributed efficiently and effectively (Anyim, Elegbede, & Gbajumo-Sheriff, 2011; Ball, Grubnic, & Birchall, 2014; Karazijiene, 2015). This means that the services provided by these organizations are expected to be accessible to all members of the society, irrespective of status or income. Public organizations are thus created to meet public needs through the provision and proliferation of these goods and services (Baruch & Ramalho, 2006). Public sector companies can be monetary, educational, welfare, health, or security organizations, which provide basic public services on behalf of governments.

The act of providing services for the public began in the 19th Century when municipal governments in developed countries like Britain provided good road, water, healthcare, and electricity services for their citizens (Ashton & Young, 2013). This was mainly a political agenda because leaders secure their people's interests and votes when they engage in sustainable welfare practices and institutionalize these practices through acts of legislation. Masses often assess the quality of political decisions made by their leaders through the public services that are provided (Rothstein, 2010). Given the increasing quantum of services being provided therefore, governments have become the largest employer of labor in most countries, especially the US and Nigeria (Anyim et al., 2011; Naff, Riccucci, & Freyss, 2013). Thus, the language of most governments has changed from "government" to "governance" (Naff, et al., 2013, p. xv). These facts underscore the importance of the public sector to society and explain the increased attention being paid to it.

Characteristics of the Public Sector

The major goal of the public sector is to achieve public wellness so that political and economic objectives may be fulfilled (Laegreid & Christensen, 2013). To fit into this role, the public sector has typical features that distinguish it from other entities. It must be noted however that public organizations differ one from another in terms of their roles and structure but they nevertheless all share similar features.

In the first instance, the public sector is not profit-oriented but is more focused on outcomes. IFAC (2013) posited that this was the reason more attention was paid to equity and fairness in the provision of social services rather than profit generation. Raelin and

Bondy (2013) mentioned that owners of organizations ought to “be given the duty to seek out societal expectations and protect societal rights actively. . . before striving to maximize their firm’s value” (p. 427). Consequently, public organizations are more responsive to political rather than economic pressures. Public services can either be jointly or directly provided by governments or private investors and such public services include electricity, education, healthcare, peacekeeping and law enforcement, housing, transportation, and other social services (Christensen, Olesen, & Kjaer, 2005).

In general, the services provided by the public sector are usually specialized in nature, and so public sector organizations operate in environments almost devoid of competition (Choi & Chandler, 2015). Because public sector organizations have a monopoly over the services they provide, private players are rarely involved. Where such players are found, their services are expensive. This is simply because while the costs of production by public organizations are borne by the government, private investors have to spread their cost unto consumers to bear. Citizens, therefore, have no other option but to depend on these public services.

Because most of their services are highly subsidized, public organizations are thus not under pressure to make profit or generate funds (Quah, 2010). The funds being released by the government to fund these organizations may thus be insufficient to sustain them, and this could, in one way or the other, affect value. Appropriate performance evaluation is therefore difficult to undertake because of the lack of competition. Therefore, it is imperative for stakeholders to monitor, through CG, the effective delivery of these outcomes. Public organizations lack a competitive pressure, which prevents them from appropriately evaluating their current performance, and this can lead to their underestimating the need for, impact, and value of innovating. Inappropriately evaluating performance and insufficiently assessing the value and costs of a change can lead to both excessive exploration and exploitation.

A wide range of economic, cultural, and political considerations also influence the public sector, and these factors combine to place demands on organizations in these sectors. These factors eventually affect the governance, performance, and outcomes of the public organizations. This is largely because they are creations of government, and they are required to implement policies of the government.

National, state, local governments, and agencies often partially fund public organizations through the taxes paid by citizens and from other earnings of government (Rainey, 2009). Because organizations depend on governments for survival, they are sometimes used to achieve political goals (Cordella & Willcocks, 2010). Choi and Chandler (2015), however, posited that public organizations could be pressured to perform if enough political, rather than economic, pressure was exerted. Governments, therefore, have the administrative and legal powers to determine the operational procedures and expected output of public entities. This they exercised through their insistence on adherence to formal rules, regulations, and constitutional provisions. Public organizations are thus accountable to the people through their elected leaders.

Governance in the Public Sector

All organizations, whether public or private, need to be administered to achieve projected outcomes. CG came into the business subconscious in the 80s as a control measure to mitigate agency costs and achieve economic efficiency (Aziri, 2014; Larcker & Tayan, 2011; Tricker, 2015). According to Bolton, Becht, and Roell (2002), the clamor for CG practices began, following the emergence of privatization of companies in some nations like the UK, so that "shareholder democracy" could be offered to shareholders. The introduction of the European integrated world market through the European Union (EU) has further fueled the agitation for common governance practices (Aziri, 2014).

Although there is no specific definition of public sector governance, its application varies according to nations, values, and goals. However, since governance has been universally agreed to be the execution of a set of principles targeted at achieving stakeholders' defined outcomes, public sector governance can, therefore, be understood as the application of power and governance practices in the public sector, albeit with adherence to international or local frameworks. It refers to the relationship and interactions between boards, managers, and stakeholders and is not another term for the management of public organizations.

The ultimate aim of good governance in the public sector can be viewed from both the shareholders and stakeholders' expectations. While shareholders expect to maximize gains and values, stakeholders believe in the obligation of public organizations to deliver improved services that would reduce unemployment and increase the standard of living for the masses (Larcker & Tayan, 2011). Because of these two points of view, CG can, therefore, be said to be effective when the decision-making process of managers goes beyond ensuring shareholders' gains to improving community gains. Public entities are consequently said to practice good governance that would serve all interests when they exhibit a commitment to integrity, act in the interest of the public and within the rule of law, and fulfill stakeholders defined and established goals (IFAC, 2013).

The Governing Board of Public Organizations

Governments thrive and grow when their public sector is reliable (Public Sector Commission, 2017) and this reliability is developed over time from the consistently credible and reliable structures that have been put in place to safeguard the economy and promote investments in the economy (Bartels, Napolitano, & Tissi, 2014). Viable and dependable public boards are an integral part of such reliable structures (Adams et al., 2010). This enabling environment attracts investments and, consequently, development. Public boards are, therefore, the eyes and ears of government in public organizations and their positions in public organizations are often held in trust.

It has been established that the provision of public services is unreliable in developing nations and it is safe to assume that this situation could be linked to governance failures in these countries (Collier & Venables, 2016; Hove, Ngwerume & Muchemwa, 2013; Kwon & Kim, 2014; World Bank, 1992). Effective governing boards are therefore critical to the survival of public organizations. This explains the reason they are more preferred in most public quoted or government-owned companies and in most developed and developing economies. Empirical research has confirmed that effective boards are commonly known to have a significant impact on the performance of their organizations (Brown, 2005; Herman & Renz, 2008; Mwenja, 2009; Okike, 2007) and they equally make R&D investments of RTOs more rewarding (Hillier et al., 2011). As such, Aina (2013) concluded that for organizations to be continually successful, they need to be managed by boards that are effective and who do not shy away from taking strategic decisions. The quality of boards will determine their effectiveness and the ensuing success of their organizations.

Certain conditions determine the impact of boards. According to Oxelheim, Gregorič, Randøy, and Thomsen (2013), the efficient constitution of boards enables them to perform their oversight functions effectively. The leadership structure of public boards is critical to organizational performance (Brickley, Coles, & Jarrell, 1997; Dalton & Dalton, 2010; Dalton & Dalton, 2011; Ujunwa, 2012). Krause and Semadeni (2013) recommended that separating board chair and CEO roles can stimulate organizational performance while Monks and Minow (2008) considered the separation of offices as a governance best practice.

Board structure has implications on outcomes and particular attention should be paid to determining which structure would be appropriate for organizations so that stakeholders' expectations can be met (Pindado et al., 2015). Although IFAC (2013) insisted that there was no generic board structure which, when applied at all times, guaranteed organizational success, it has been discovered that specific board compositions are more viable in comparison with others. For instance, it is proven, from the agency point of view, that monitoring and controlling of management activities is more effective with independent boards because they will be more objective in their assessment of executives' performance since they are not financially dependent upon the organizations or CEOs (Cheng & Courtenay 2006). This enhances the separation of powers between the executive and non-executive members, minimizes conflicts of interests, and promotes good governance (IFAC, 2013). Miletkov, Poulsen, and Wintoki (2014) thus advocated board independence because they discovered through their study that independent boards practiced good governance and attracted more foreign investors thereby leading to economic development. According to Jizi, Salama, Dixon, and Stratling (2014), shareholders' and stakeholders' needs are easily met when boards are independent. The SOX legislation of 2002 offered legal backing to board independence and other studies, such as those conducted by Dahya and McConnell (2007) and Hermalin and Weisbach (1991), advocated independence for outside board members to guarantee performance. Adams and Ferreira (2009), Ahern and Dittmar (2012), and Liu et al. (2014) suggested that gender diversity of boards enhanced board and organizational performance and growth. Joseph, Ocasio, and Mcdonnell (2014) said that the CEO-only board structure (where the CEO is the only representative of the organization on the board) enhanced CEO performance because it gave them job security that was immune to threats from internal contenders' who were eyeing their positions. This inadvertently encouraged commitment.

If public boards are to perform their oversight functions effectively, they must be well constituted. According to Ujunwa (2012), the educational and professional qualifications of board members and CEOs indicate the quality of such boards and their adherence to good governance principles. In essence, a responsible board should have respectable qualifications and competences, else, effective governance and positive outcomes will be unrealistic (Carpenter & Westphal, 2001; Zahra & Pearce, 1989). When board members lack this important basic quality, they easily exhibit poor governance behaviors that could increase the cost of operation and ultimately reduce performance (Sanda et al., 2011).

Boards leadership structure can be unitary or two-tiered (Belot, Ginglinger, Slovin, & Sushka, 2014;). The choice of board structure is dependent upon the level of government that exercises control over the entity (Boone et al., 2007) and the operational mandate of the organization (Pindado et al., 2015). While some boards are comprised of a mix of independent and non-independent directors who oversee managers, other boards solely consist of independent and non-executive members and their roles are thus separated from that of the executive (Khan & Awan, 2012; Palmberg, 2015). Fama and Jensen (1983) openly opposed CEO duality because they believed it would erode the powers of the board to monitor the activities of management effectively and will consequently escalate agency cost. But Sridharam and Marsinko (1997), from their study, focused on the Paper and Forest Resources Industry, discovered that CEO duality might not be averse to organizational performance if the leader is dynamic and strong and this may actually reduce agency and administrative costs.

Khan and Awan (2012) however recommended that boards be composed of dependent and independent directors to have a mix of skills and improve their performance. He assumed that the autonomous structure of the board would encourage boards to exert control, as needed, thereby encouraging board independence and eliminating performance issues. Board independence alone does not, however, guarantee organizational effectiveness (Dalton & Dalton, 2011). The 1992 Cadbury Report also supported the separation of powers in governance such that one person does not occupy the office of CEO and board chair at the same time. Charan (1998) however believed that the separation of powers would critically worsen conflict of interest issues in governance.

According to Aina (2013), a good board must be diverse in composition in terms of the skills and experience needed to function and take unbiased decisions. Aina also said that the size of a good board must be manageable. Leisner (2005) and Jhunjhunwala (2012) observed that members of public boards were notable for the diversity in their composition because they often represented different constituencies. As a consequence, they face pressures from these constituencies. Public governing boards thus have to be innovative to surmount these pressures and strategically project their organizations' goals. Aina (2013) confirmed this feature of board diversity by citing Principle A3 of the Combined Code states in England. This Principle insists that executive directors and non-executive directors must be equally represented on boards so that minorities or single individuals would not easily hijack board decision.

Therefore, a balance of experience, skill, and knowledge is needed to keep board decisions professional and in the interest of all stakeholders. A typical public board is made up of a board chair that oversees the board affairs and takes responsibilities for boards' decisions, and board members whose responsibilities include supporting the board chair to chart strategic policies, paths, and priorities for the organization. Membership of boards in Nigeria cannot be less than five and they are mainly composed of executive and non-executive directors following the provisions of the SEC code (Aina, 2013).

Board size also matters in achieving organizational goals. Boards that are smaller in size enjoy excellent communication among each other and are thus able to communicate efficiently with CEOs and effectively coordinate their activities (Dey, 2008). Also, small boards can leverage their skills and expertise to make informed decisions effortlessly (Guest, 2008). The monitoring abilities of small boards could, however, be hindered if the organization is large and the tasks to be accomplished are much (John & Senbet, 1998). Ch`en and Al-Najjar (2012) however, concluded, from their study of Chinese firms, that the size of an organization informed the structure of its board while the regulations in nations mostly informed board independence. Ujunwa (2012) also discovered that in Nigeria, board gender increased only as board size increased. Another board feature that influences board performance is the incentives that members and employees have access to (Fapohunda, 2013; Hillman & Dalziel, 2003).

Role of Boards of Public Organizations

Boards do not perform the same function as managers or CEOs in organizations. The business of CEOs is to run the organization and pursue its strategic goals and policies while boards are responsible for giving CEOs focus and as well as monitor them to be able to achieve those goals efficiently and effectively (Tricker, 2015). In the opinion of Charan (1998), boards are monitoring bodies who “help management prevent problems, seize opportunities, and make the corporation perform better than it otherwise would” (p. 5). According to Tihanyi, Graffin, and George (2014), boards’ activities and values definition explain CG in detail. According to Van Essen, Van Oosterhout, and Carney (2012) also, boards are important CG tools needed to overcome agency issues in listed companies. A more efficient management system is required for organizations to be more profitably administered and responsive to societal needs. One determinant of such an efficient management system in organizations is an effective board and most nations of the world have adopted them as an instrument of CG. Boards are good governance determinants in organizations.

Board functions are basic in principle, across organizations. The effective execution of these functions is however determined by some factors which boards have to contend with, such as board members' age, organizational dynamics, CEO duality, gender, and educational qualifications of members (Adams & Ferreira, 2009; Berger, Kick, & Schaeck, 2014; Carter et al., 2003; Dalton, Daily, Ellstrand, & Johnson, 1998; Sanda, Garba, & Mikailu, 2011; Sridharan & Marsinko, 1997; Ujunwa, 2012). Larcker and Tayan (2011) suggested that irrespective of the uncontrollable factors of market efficiency and society's values, which could affect governance structures, boards can develop additional methods to enforce control in organizations. Charan (1998) suggested that boards could add value to shareholders through the creation of competitive advantage, rather than just protect existing shareholder value.

Berle and Means (1932) said that the role of governing boards includes ensuring that public organizations are accountable, effective, and operate in ways that would protect the interest of stakeholders. The Nigerian Securities and Exchange Commission (SEC) code of CG concurred with this opinion by stating that boards were supposed to assume responsibility for the efficient and effective management of their organizations in accordance with best governance practices and organizational goals (SEC, 2016). This makes them vital organizational monitors. Aina (2013) remarked that boards were important management organs that were responsible for adopting good governance policies and practices in organizations. Because boards are responsible for strategic decision making in public organizations, Hung (1998) viewed them as the connector between the organization and its operating environment.

Board roles vary and are dependent on national perception (Li, 1994; Ujunwa, 2012). However, generally speaking, boards are expected to set the organization's strategic goals, ensure that management activities are geared in pursuit of those goals to ensure long-term relevance of organizations (Cornforth, 2003). Boards' roles can also be divided into making policies, formation of strategies to actualize the policies, and oversight functions. One of their important responsibilities is also that they must be able to give periodic performance reports to shareholders to account for their activities and the performance of their organizations (The Cadbury Report, 1992). This is an important responsibility because it serves to check board excesses and prevent unnecessary risks that could endanger the organization.

Public boards can provide strategic direction, oversee, and guarantee effective service delivery in their organizations through the quality of financial and other decisions they make. These decisions, Nadler (2006) identified as corporate strategies, which were essential to board engagement. Through their activities, public boards champion the organization's goals and protect investors' interests by strengthening relationships and building on the strengths of the organizations. Generally, public boards must guarantee good governance by taking adequate steps to establish correct structures and processes and ensuring the reliability of such structures in the public sector (PSC, 2014).

Apart from risk management, other governance responsibilities of public boards include monitoring of CEOs and their compliance with regulatory provisions, provision of information that is necessary for organizational operations, and establishment of external linkages for operational efficiency (Monks & Minow, 2004). Optimal board performance is however only obtainable through diligent pursuit of clearly defined and mutually acceptable strategic goals rather than personal policies (Ujunwa, 2012). Boards also need access to and diffusion of trustworthy information, without which they may be unable to meaningfully give strategic direction to organizations (IFAC, 2013; Ujunwa, 2012).

Role of Public Board Chair and Members

The board chair coordinates the activities of the board and keeps it focused on its strategic goals so that the board could be adjudged as trustworthy and reliable (PSC, 2014). The chair, therefore, needs to be conversant with public business activities and stakeholders' interests.

Other roles of the board chair include serving as intermediary between the CEO and the relevant government stakeholders (in this case, the owners) in the delivery of corporate plans and goals (Tricker, 2015; Withers & Fitza, 2017), demonstrating exemplary leadership in the decision-making process (van Essen, van Oosterhout, & Carney, 2012), ensuring cordiality with CEOs (Adegbite, 2015), risk management

(Abdul-Aziz, 2013; Tricker, 2015) and, preparation of firm's annual reports in conjunction with CEOs.

Public board members are expected to be conversant with their oversight responsibilities and conform to their legal authorities. They ought to have more than a passing knowledge of the dynamics of the public sector and the imperative of accountability and public interest. Members are also expected to offer necessary support to the chair, pursue the achievement of the firm's strategic goals, and maintain civility and cordiality with other members and CEOs (PSC, 2014). They are expected to refrain from disloyalty, self-interest, and financial recklessness, which are behaviors linked to bad governance (Sanda et al., 2011; Ujunwa, 2012).

Competing Priorities of Public Boards

Governments throughout the world have multiple priorities and they depend on public boards to effectively manage competing organizational priorities. The dynamic nature of organizations and their external environment often necessitates a periodic review of operating strategies and organizational priorities so that the long-term goals of these organizations can be attainable.

Organizations often contend with external issues such as the dynamism of market trends, conformity with operational regulations, adherence to legal prescriptions, as well as ever-evolving technologies. If these issues are not well balanced and countered with effective strategies, they could affect sustenance of the organizations in the long-run. Owing to these unpredictable factors in the operational environment of organizations, boards also have to prioritize their functions and activities. This must be done within the limits of limited resources, in accordance with governments' and stakeholders' expectations, and the quest for value delivery. These prioritizations require thorough assessments of the environment to determine the positive risks that could be taken in the interest of the organizations (Lam, 2014). According to IFAC (2013), risk-taking opens up opportunities and good governance must necessarily involve risk management so that expected outcomes can be achieved in a legal, ethical, and effective manner.

Board priorities include risk mitigation, identification of opportunities for improving organizational performance, achieving a strong financial base, and ensuring compliance with acceptable standards. According to Mador, Kornas, Simard, and Haroun (2016), priority setting requires strategic considerations and the process ought to follow certain guidelines. Carter et al. (2014) also remarked that priorities could only be effectively determined after due consideration of the cost, impact, equity, and importance of the activity had been carried out and weighed alongside other competing priorities. Conflicts on the fair placement of priorities may also arise due to competing public needs and political influence (Hunter et al., 2016; Weale et al. 2016). Boards, therefore, have to determine which activity will do the most common good when balanced side by side with other activities. These considerations must also be weighed against available resources and political acceptance. Decisions on priorities are therefore dependent on the choices, which board members consider as critical to their organization's success.

According to Nuhu (2014), good leadership is important to set priorities in organizations. He also said that the quality of board composition will determine the quality of decisions that emanate from the boards rather than their size or structure. It is thus important for public boards to leverage on personal and group competencies to set priorities in the right order so that their activities can be fully optimized and better aligned to current realities (Ujunwa, 2012).

Determinants of Boards' Impact on Organizational Effectiveness

According to Morck and Steier (2005), CG influences the financial growth of organizations and with growing demands for accountability in public organizations, stakeholders have beamed their searchlight on the management strategies employed by these organizations. The general assumption, therefore, is that boards cause organizations to be effective (Jackson & Holland, 2008).

However, Adams et al. (2010) and Veronesi and Keasey (2012) observed that the actual activity of boards that determine the effectiveness of their organizations has yet been unconfirmed. According to Aina (2013), an organization's effectiveness reflects the quality of the board. A combination of board structure, expertise, and size can determine performance of organizations. Sanda et al. (2011) discovered that boards that were small in size were relatively more effective while Morck and Steier (2005) demonstrated that boards, whose shareholders did not exert ubiquitous influence over them, outperformed others significantly. Preston and Brown (2004) also linked the emotional dedication and time put in by board members to their effectiveness in organizations while Brown (2007) asserted that the competence of board members would determine their performance. All these differing opinions about board impact led Adams et al. (2010) and Veronesi and Keasey (2012) to conclude that the definite activity or function of boards that actually determined the effectiveness of their organization was yet to be detected. Determining board impact on organizational effectiveness has been most challenging because according to Herman and Renz (2008), board effectiveness is a social construct and the opinion of stakeholders determines what constitutes effectiveness in their organizations. The writers, therefore, recommended the need to assess non-profits' effectiveness according to their type so that the results obtained could be credible.

Findings by Herman, Renz, and Heimovics (1997) suggested that boards that assigned roles to themselves through the use of committees and boards, which had a thorough process of self-evaluation often performed above average. Recent studies such as that of Filatotchev and Nakajima (2014) suggested that globalization forced organizations to be more accountable in their strategies and this drove them to acquire more skills and competences. These new skills undoubtedly influence the quality and quantity of their decisions. The effectiveness of RTOs, as summed up by Siyanbola et al. (2011), is also determined by effective management practices.

Trends in the Management of RTOs in Nigeria

The level of technology that a nation possesses determines the quality and quantity of its products and consequently, its power and development as a nation (Siyanbola et al., 2011). The economic growth experienced by the Asian Tigers has been attributed to the innovations in R&D that resulted in rapid industrialization in these nations (Igietseme, 2015). Technology, which is an important driver of a nation’s economy, is borne out of successful research activities carried out by RTOs (Odia & Omofonmwan, 2013).

RTOs are often empowered by the governments to engage in R&D activities that would result in innovations and stimulate future growth. Being that we live in a dynamic world however, technology undergoes rapid change and innovation. RTOs that desire to remain competitively relevant must therefore be able to manage these processes of change (Onuoha, 2012). Ukwuoma, Amade, and Moghalu (2013) confirmed that there were problems with the diffusion of R&D outcomes. Siyanbola et al. (2011) emphasized that these problems may not be due to the process of conducting scientific R&D but rather, ineffective management practices. The scholars observed that effective management of S&T indicators enhances wealth creation and according to the National Innovation System (NIS), there must be effective research, development of research findings, and diffusion of the products before R&D can yield any benefit. To ensure that S&T achieved this developmental goal for the nation, Siyanbola et al. (2016) recommended a synergy between policies made and national interest such that policymakers would develop strategic S&T indicators that could be linked to developmental priorities of the nation.

In Nigeria, the federal government made efforts to commence economic activities, which could improve the living standard of the people by initiating R&D activities formally. This began with the establishment of the National Council for Science and Technology (NCST) in 1970 for the coordination of activities in basic and applied research. Other research councils such as the Agricultural Research Council, the Industrial Research Council, the Medical Research Council, and the Natural Science Research Council; followed in quick succession. The NCST later metamorphosed into the Federal Ministry of Science and Technology (FMST) in 1993 and was saddled with the responsibility of, among others, translating scientific research into economic development in Nigeria. The FMST consists of seventeen agencies, fourteen (14) of which are charged with R&D functions and the remaining three were established to manage growth and manpower training needs for Nigerian technology. Bamiro et al. (2008) categorized technological RTOs in Nigeria into research institutes (private and government agencies) and higher institutions with the capacity to conduct research and develop products. The activities of these RTOs are expected to result in the development of new products and further development of existing ones through applied research as is obtainable in advanced countries, where RTOs midwife governmental innovations through activities that are adequately funded.

The Nigerian technological R&D sector is however not experiencing much growth and the dream of the country to attain the status of being one of the foremost twenty developed nations of the world is gradually becoming a mirage unless very drastic measures and sound strategic steps are taken so that the results of research activities can be transformed into economic gains (Siyanbola et al., 2011). According to Onuoha (2012), the economic development of Nigeria is being threatened by the stifling environment in which RTOs operate such as inconsistent and unfavorable government policies on importation, which results in a high cost of production and low patronage of local products (Abe, 2016). Other challenges faced by public RTOs include poor funding, a dearth of modern equipment for production, and deterioration of existing ones and these have rendered the operational environment unsuitable for research (Odia & Omofonmwan, 2013). The economic recession that was faced by the country between

2016 and 2018 also paralyzed activities in the RTOs because these challenges became exacerbated.

Although the crisis and constant instability being experienced in the financial sector in Nigeria is majorly attributable to poor CG (Akingunola, 2013), performance in other sectors, such as RTOs, could also be affected by poor governance behaviors.

Challenges of Corporate Governance in Nigeria

According to Creed, Dejordy, & Lok (2011), institutional and cultural issues influence the practice of good CG in developing countries. These issues then determine the national perception of the role of public organizations and public boards (Davies, 2005) and may weaken the governance institutions in these countries. This gives rise to questions on how public organizations can successfully perform under such hostile and unwholesome conditions (Adegbite, 2015). This situation also discourages the ideals of self-regulation, market pressures, and legal frameworks for good governance (Yakassai, 2001).

Since Nigeria’s independence, the business practice has been influenced by the federalist system where governments are in the majority as owners of businesses more than individuals in an indigenized governance structure, and where ownership dispersal is just an ideal to be desired (Adegbite, 2015; Nmehielle & Nwauche, 2004). Business was basically centered on oil and the federal government was the main actor in the state-controlled economy. As a consequence of the immature state of the business sector in the early years after independence and the obvious absence of governance standards, Adegbite et al. (2012) observed that corruption grew and later became endemic in most public organizations. Corporate failures have been prevalent in the country since then because Nigeria has been unable to stem the rising tide of corruption and the enforcement institutions have been considerably weakened (Kaufmann et al., 2008). Wilson (2006) attributes these rising spate of failures to poor governance. The banking sector has witnessed more of these corporate failures in the country. In 2009 alone, eight bank CEOs were sacked for bad governance behavior (Oghojafor, Olayemi, Okonji, & Okolie, 2010). All the board members and management of another bank, SKYE, were summarily dismissed and replaced in June 2016 because of poor risk and assets management abilities and because they approved unsecured loans for themselves (Egwuatu, 2016). Other public corporations that have collapsed include the Nigerian Railways Corporation (NRC), established in 1955 through a parliamentary act, but collapsed irrevocably in 2002 although operations on some of the routes have resumed; the Nigerian Airways, established in 1958 but collapsed and ceased to operate in 2003 (Echenim, 2015). NITEL (made up of Department of Posts and Telecommunications [P&T] and the Nigerian External Communication Limited [NET]) was birthed in 1985 and commercialized in 1992 (Chidozie, Odunayo, & Olutosin, 2015). All these corporations were owned by the federal government, which served as the major shareholder. Many of these corporate failures were ascribed to constant government interference and poor governance behaviors (Echenim, 2015).

According to Kaufmann et al. (2008), the ability to overcome corruption is one of the parameters used by the World Bank to determine good governance. But unfortunately, the Transparency International’s ranking of corruption in 2013 placed

Nigeria in the 144th position out 177 countries thereby confirming Nigeria as one of the foremost corrupt nations of the world (Adegbite, 2015). This ranking implied that Nigeria lacked good governance. Ujunwa (2012) confirmed that “business culture in Nigeria is among the worst in the world” (p. 656). According to Ujunwa, this observation was largely due to political interference, inconsistent government policies, corruption, and lack of legal frameworks to enforce good governance principles.

According to the World Bank's Report on the Observance of Standards and Codes (ROSC), effective CG is assessed by the ability of institutions to self-regulate, comply with, and enforce acceptable governance standards (Okike, 2007). The absence of this capability has been confirmed by Adegbite (2012) since the Nigerian corporate world is noted for corruption in its governance mechanisms, which proves the institutional deficiencies in Nigeria. According to Sanda et al. (2011), countries with weak business cultures, such as Nigeria, often found such weaknesses an encouragement to appoint public boards for reasons other than good governance of government-controlled organizations. This situation, according to Sanda et al., gave leverage to such boards to act with impunity and in pursuit of self-interests. As a consequence of these poor governance behaviors, governance structures are destroyed and organizational effectiveness, as well as shareholders’ interests, is compromised (Ponnu, 2008).

According to Larcker and Tayan (2011), governance structures are often influenced by cultures and values. Because Nigeria cherishes the family values and traditions, it is not unusual for private owners and family members to retain control over boards and also manage the companies (Adegbite et al., 2013; Lin, 2004). CEO duality is thus prevalent in Nigeria's private governance structure because most thriving private organizations are family-owned, except for companies owned by foreigners. However, the board structure of most public organizations in Nigeria is patterned after the British-American system but with local outlook. While attempts are being made to incorporate global governance principles such as were prescribed by the Cadbury Report and OECD by appointing governing boards over public entities to standardized governance, the impact of boards are yet to be fully recognized and appreciated. Reasons adduced to this conclusion included continual evidences of corporate failure in the country.

Measuring Board Effectiveness

Most public organizations are continually employing measures that can help evaluate their performance. The simple reason for this is to determine their effectiveness and prove the same to the stakeholders (Light, 2002). Although Gordon (2000) posited that there were no standard performance measuring designs for nonprofits, up until the era of corporate failure, there have been acceptable measurement for determining board performance. But with the devastating collapse of business and financial empires, these governance measures have become grossly inadequate because of their perceived shortcomings such as source bias which distorted the research (Meier & O'Toole, 2013). Anderson (2012) therefore recommended that more attention be paid to outcomes rather than performance. Performance measurement is dynamic and changes constantly as a result of advances in technology and globalization and these changes influence governance structures and practices (Bititci et al., 2011).

Models for Measuring Board Effectiveness

Several factors have inhibited the successful measurement of board impact on organizational effectiveness. These factors include the perception of organizations and owners on what effectiveness means for their respective organizations (Chen & Al-Najjar, 2012). The successful measurement of board impact is often impaired by board diversity, unnecessary board interference, and the absence of a consistent standard best practice, which could stand as a yardstick for determining performance (Gordon, 2000). Most studies employed the quantitative methods of inquiry, such as surveys and questionnaires to assess boards (Gordon, 2000) while some relied on less reliable tools like self-assessment and program evaluation (Babbie, 2004; McNamara, 2003). One of the ways by which managers could be measured; according to Coetzee, Viviers, & Visser (2006), is by using scales such as the Sense of Coherence Scale (SOC) developed by Antonovsky (1987) to measure certain traits in an individual that can contribute to his performance. Some other governance measurement tools include the Policy Governance Model (PGM), the Cooperative Board Model, and the Advisory Board Model (Gordon, 2000).

The qualitative research design was used to conduct inquiries in this study. A few researches have adopted the qualitative approach, such as narrative inquiry, to measure board impact on organizational performance. For instance, LeBlanc and Gillies (2010) combined the interview approach with the observation of board members at meetings and compared their findings with their perceptions drawn from observing board members at meetings. This is termed categorizing and labeling. Through this approach, it is possible to determine effective board members by their behaviors (Jauncey & Moseley-Greatwich, 2000). According to Leisner (2005), qualitative data collection methods, such as face-to-face interviews or focus group interview, enable the researcher gather authentic information. Leisner further explained that through this means, the interviewer would be able to explain the purpose and nature of the study. According to him, the interviewer would also be able to obtain more information from participants' tones and expression better than when the questions are written and impersonally administered. Creswell (2013) further corroborated this position.

The Gap in Literature

Public boards are very important to the strategic planning and growth of their organizations. These roles are becoming increasingly important given the importance of public organizations to societal and economic growth and boards. Consequently, boards are required to be more dynamic and strategic in their activities to improve their organization's effectiveness and relevance.

In spite of the consensus by most researchers on the importance of boards, little research exists to connect specific board roles to effectiveness of public RTOs. It is necessary to isolate board characteristics that are responsible for decisions in public organizations so that it would be easier to determine RTO boards' effectiveness. This study, therefore, sought to understand board perceptions, through the use of qualitative methods, to elicit information that would improve understanding of board effectiveness.

Summary

In this chapter, the importance of good governance to organizational performance and national development was examined. The effectiveness of organizations can be measured, and this can help reveal governance effectiveness. Although there seems to be a consensus on the influence of boards on organizational effectiveness, there is a divergence of opinions on the actual role of public boards, which determine this impact. Board size, diversity, and commitments have been considered as central to public board effectiveness though these have been proven to have little effect on their own. It was assumed that public boards that engaged in best CG practices and openly complied with governance norms performed better than most organizations in other categories. Boards of RTOs are no exception as the organizations are expected to be at the forefront of technological development. Engaging in governance best practices is therefore critical for their performance and organizational competitiveness.

In the face of global competition amongst organizations, the success and effectiveness of organizations depend largely on the performance of boards. There is thus a need to develop a measurement model that would advance knowledge about RTO boards' impact and also offer performance improvement strategies for these boards. The perceptions of participants served as this model. In Chapter 3, the methods that were employed to explore the connection between good governance and Nigerian public RTOs' performance were discussed.

Chapter 3: Research Method

Introduction

The impact of public boards on organizational performance is not a new phenomenon. Board characteristics obviously determine their performance. The practice of good governance has also been shown to be influenced by culture and values, thereby determining the impact of governance on nations. The perceptions of public boards and MDs in Nigerian RTOs regarding what they believe to be their impact on these organizations is, however, necessary for information regarding the performance of public organizations in the Nigerian technological sector. This chapter outlines the qualitative method and design used to assist in understanding their experiences. It also provides profiles of participants and how they were recruited for this study. Additionally, a review of how ethical protection was ensured, procedures for collecting data, data analysis, and verification of findings is detailed.

Population samples, research design, sampling processes, unit of analysis, data collection and analysis procedures, and data sources to measure the perceptions of board members in determining the impact of governing boards on public entities in Nigeria shall be discussed in this chapter. The rationale for the choice of these designs and methods, roles to be played by me, and ethical issues associated with this research are discussed here. This chapter concludes with credibility and trustworthiness of the study.

Description of the Research Design

The research questions in a study should influence the design. The interpretive qualitative case study method was used for this research. According to Merriam (2009), research that is qualitative in nature is more likely to influence public policies or assist managers in making informed decisions about social phenomena that occur naturally than quantitative studies. The qualitative research method is often adopted to make inquiries, using techniques such as observation and interviews, which do not involve measurements, frequencies, and experiments. Qualitative research aids the development of new organizational theories and concepts and the assists with making inferences from participants' stories, views, and perceptions.

I used the qualitative approach because this approach is excellent in discovering new or relatively unknown phenomena. Qualitative research methods are most suitable for eliciting information and meanings, especially when the exploration of the phenomena is carried out in the natural environment of respondents (Patton, 2002). This method provides insight into the world of the participant as they live in it. In addition to this, qualitative approaches are easier to use in real-life situations. The qualitative approach is easier because it grants researchers access to complex but pertinent information which will enhance broader understanding of the researchers and practitioners about a phenomenon without necessarily going through the process of quantitative measurements which produce data-driven facts.

Qualitative designs include ethnography, phenomenology, case study, and grounded theory approaches. These approaches should be selected based on what the researcher intends to achieve. While ethnographic studies focus on behaviors of groups in a cultural setting, both grounded theory and case study approaches are best suited to inquiring into processes and structures. The reason for this suitability is because both case study and ethnography approaches are concerned with processes, activities, and natural environment. While the ethnography method involves studying groups with the intent to understand their behavior and values and how these evolve or change over a given period, a case study involves interpreting actions and behaviors of individuals or groups in a given social context to understand a case or event.

The case study approach is often used for research in social sciences because it is flexible and offers administrators practical insights into organizational and managerial behaviors. Its flexibility derives from its ability to explain single or multiple cases using data obtained from varied sources, thereby making available rich and vast information for the researcher to describe the phenomenon (Berg, 2009; Trochim & Donnelly, 2008). Yin (1994) explained that case studies help the researcher answer how and why questions and manage situations beyond the control of the researcher. Case studies also assist the researcher to obtain enough data.

The interpretive design was employed to understand the perceptions of respondents because the interpretive approach is more suited to analyzing small organizations than the positivist paradigm. The interpretive research design assists researchers to interpret social realities within their social settings. With this approach, the meanings that participants ascribe to phenomena are easy to understand. The interpretive-case study approach enabled me to access enough data from the interviews and to conduct an in-depth analysis of the data that I obtained.

Population and Sample

The FMST in Nigeria was the target population for this study. A population is a complete element or group which can be used to generalize research findings. The target population is expected to be made up of individuals who possess common characteristics and these common characteristics must be reflected in the sample. The FMST consists of RTOs with similar characteristics and mandates geared towards R&D and this made it a suitable population for this study. Because of the unlikelihood of accessing and investigating an entire target population, a sample is necessary to simplify the inquiry while still offering sufficient data needed to make inferences about a phenomenon and generalize its findings to a population. FMST was selected as the population on the assumption that the sampling criteria would be met in all organizations that make up the Ministry and this would thus make the sample representative of the total population.

Patton (2002) observed that there were no stringent rules to be obeyed in determining sample size. Britten (1995) however argued that the determinants of sample size should be the depth to be covered and the time available for the researcher while Murphy, Dingwall, Greatbatch, Parker, and Watson (1998) said that sample size is determined by the number of a sample that a single person can successfully cope with within the available time frame and the resources available. As such, most qualitative studies have small sample sizes. Dworkin (2012) said that data saturation could be obtained in qualitative research with a sample size not lower than five or exceeding 50.

Six public RTOs were selected for this study, and these RTOs were selected from the FMST in Nigeria. There are 17 parastatals under the FMST, and all of them are involved in research and development activities and have the same employer (FMST, 2016). This implies that they share similar characteristics and have common interests. The population sampled included six FBMs, and serving or former MDs (if the selected organization does not have a sitting MD at the time of data collection). These informants were selected based on the fact that they had served or are serving in these organizations before and have been involved in shaping policies and making strategic decisions for the organizations since their establishment. To further assure the quality of the data to be obtained, respondents that may not ordinarily have been included in the interview were considered.

Consequently, I employed this strategy in purposefully selecting the participants in this study. In all, 16 participants were interviewed and this was intended to ensure that I reached data saturation in this study. According to O'Reilly and Parker (2012), adequate information must be obtained to make it easy to replicate a study. So, with this proposed sample, this study progressed until there was no new information to be obtained.

Sampling Process

This sample was selected through a purposive (purposeful) sampling method. According to Patton (2002), non-probability sampling techniques, such as purposive sampling, are ideal for qualitative case study research. Yin (2014) observed that the non-probability sampling method yields rich data that will provide in-depth information on the phenomenon being studied. Patton (2002) said that in purposeful sampling, the researcher purposely selects a population that has the most adequate information for a detailed study of the central phenomenon. Through purposeful sampling, common patterns are easily identified and serve as a lead-in understanding of meanings ascribed to the phenomenon being investigated (Suri, 2011). I selected participants who knew the area of my inquiry since this research was designed for trustworthiness.

If the goal is to get in-depth knowledge from the sample, the number of respondents has to be restricted so that the researcher will not be hindered. According to Iszatt-White (2011), 10 respondents are an adequate sample size in case studies. I conducted face-to-face interviews with six MDs and the number of MDs was restricted to six to represent the RTOs selected for this study. Appointments were booked to ensure that I had access to interview the FBMs and MDs to adequately explore their opinions and the meanings they ascribed to the phenomenon under inquiry.

The selection of the six organizations that made up the sample was done in line with the specific elements that I desired to explore. For instance, some of the RTOs are into production; some are into R&D while some are purely research-oriented. The focus of this study was on those RTOs who were involved in R&D. Special attention was thus paid to ensure inclusion of RTOs, which specialized in R&D and shared common governance and administrative structures, irrespective of size, location, specializations and other important considerations. Those who were readily accessible to the researcher were also included. This is important to credibility and validity. It will also improve data quality if the sample is representative of the general population.

Since I intended using the purposive sampling approach, I used a survey instrument before the interviews so that I would be certain to include the appropriate board members who would be able to provide the needed information from their diverse experiences or those who are willing to participate in the interview. A letter of introduction was sent to the MDs and FBMs to introduce the study and seek audience with them (See Appendices A and B). Once consent was obtained, I took steps to book appointments and set up the interviews. Because of the busy schedule of some members, the electronic media was considered in contacting respondents and confirming the appointments. I vigorously pursued the option of conducting the face-to-face interview outside of busy days to guarantee a high concentration of participants.

Role of the Researcher

The researcher is fully involved in collecting data in a qualitative study. To be able to build the idea needed to understand the impact of governing boards in Nigerian RTOs, I needed to be able to leverage the rich information made available through the data collection process. The qualitative research process involves designing the data collection instrument, data gathering, transcribing data, data analysis, verifying, and making of inferences (Kvale & Brinkmann, 2009; Kvale, 2006) and I was fully involved in all these stages. There was, therefore, a tendency for researcher bias to taint the outcome of these stages.

To be able to draw useful conclusions from the study, I was objective in analyzing the data that was collected through the various sources earlier identified, such as interviews and other secondary data. Gathering the data for this study posed a problem for the objectivity and trustworthiness of the research findings because I am an employee of one of the public RTOs and could thus be considered an insider researcher. There was, therefore, the possibility of researcher bias owing to familiarity with the research environment and drawing conclusions based on my previous knowledge. But, I specifically refrained from interfering with the data right from the point of constructing interview questions. I was also very committed to keeping records and journals so that the data collection and analysis process could be very transparent. My being an insider researcher was an advantage to this research. According to Holliday (2007), interpretivism recognized that researchers' involvement in data collection enhanced data quality because the researcher would be able to probe deep into meanings that participants ascribe to the phenomenon being studied. Being an insider researcher assisted me in gaining access to the study environment in a way that outsiders could not have. This status also assured me of the cooperation of participants, especially when they understood the benefits of the study to the wellbeing of the organization. I, however, recognized the possibility of ethical considerations that had to do with anonymity and sensitive information and I countered this by promising anonymity and just listening instead of agreeing with or proffering solutions to identified issues.

According to Babbie (2010), researchers must avoid leading questions because the response of respondents would be influenced by the way the questions were posed. Therefore, from the point of drafting the questions, I eliminated the tendency to guide respondents' responses towards the desired outcome. I also took a dispassionate stance while conducting the interview. I filtered the view of respondents through mine in order to understand meanings brought into the research environment and interpret these meanings as objectively as possible. According to Smyth and Holian (2008), researcher bias could be eliminated with evidence and themes in the data collected. Thus, I explored multiple data sources, maintained a journal, sought respondents' validation of the study's initial results, and was dispassionate about the outcome of the survey. These hopefully eliminated some of the biases and ethical dilemmas.

Data Collection Procedures

According to Merriam (1998), case studies require vigorous data collection processes to get in-depth information from participants. I obtained data for this research from multiple sources such as personal interviews, government gazettes, annual reports, and other records such as my journal notes obtained from observations and interviews. Using multiple sources enhance the credibility of qualitative data (Yin, 2003). Board members were chosen using the Homogeneous Sampling method (a type of purposeful sampling technique) to ensure similarity in most of the situations faced by the sample. Other records, such as the gazettes, were obtained from the Office of the Head of Service of the Federation in Nigeria after due authorization was obtained. Annual reports were accessed from the library and websites of the RTOs that made up the sample. These are legal documents that were digitized at the time of the occurrence of the event they described. They are thus verifiable and dependable sources of data.

Interview Technique

According to Punch and Oancea (2014), interviewing participants enables the researcher more access to data than using any other tool. Creswell (2007) and Petty, Thomson, and Stew (2012) considered interviews as being most effective in qualitative research. To secure consent for the interview, I sent letters to the MDs and the board members to be interviewed. This was a follow up to the letter of approval obtained from the Minister (FMST), giving background information about the research.

To ensure that the techniques used for the interviews achieved their purpose, a mock interview schedule was conducted. This eliminated any possible extraneous factor that could have hindered the clarity of the interview and also ensured that the interview adequately answered the research questions. An interview guide, which was developed by the researcher, was used in the collection of data for this study. According to Patton (2002), an interview guide comprises possible questions and focal points that could be asked participants and which will ensure the interviewer stayed within the limit of the research. With this interview guide, I maintained control of the interview process (See Appendix C: Interview Guide). I, however, refrained from consulting this guide obtrusively during the interviews so that the session could flow naturally and not follow a preconceived order.

The actual personal interviews of the six MDs selected were held in their offices while the interview of the board members was at a convenient time determined by the participants so that they would not be in haste to leave or be too tired to give valuable information. This timing made the respondents relaxed, being in their natural environment, and the office was free from unnecessary distractions. They were thus more responsive. An audio recorder, as well as the recording software on my phones, laptop, and iPad were used to record the interview sessions. These measures were taken to obtain verbatim report of the actual words used by participants, thereby aiding the development of themes needed for the data analysis. My journal was used to identify subtle nuances in the tone or mood of the participants as well as my observations of the interview process, environment, attitude, posture, and answers of participants.

The interviews lasted for an hour per participant and there was no repeat of the interview sessions for any MD. Given the cost implication and the time available to gather the needed data since the organizations were not located in the same area, the participants were well briefed about what to expect in the course of the interview. I explained to the participants the possibility of their remaining anonymous if they so desired, and that their information and participation would be held in strict confidence. As recommended by Corbin and Strauss (2008), I also assured participants of the replacement of their actual names with pseudonyms if their data were to be published so that their anonymity would be assured. The signed informed consent form was obtained from participants to seal this agreement.

I commenced the interview sessions with questions, which put the participants in relaxed states before questions requiring confidentiality were asked. A qualitative researcher must be endowed with good skills that will elicit trust from the participants and make them more willing to part with information (Qu & Dumay, 2011). Therefore, I established a link with the MDs and board members interviewed and kept up with them through text messages, calls, and emails such that they were more relaxed and familiar with me by the time the interview commenced. Another skill that I employed was the art of listening and avoiding the use of leading questions. This enriched my journal entries and helped to achieve data saturation. A follow-up interview was required to enable data saturation, and one of the participants was contacted on the telephone to clarify some points earlier raised. I used member checks by allowing participants to read the scripts of my interviews with them and the conclusions reached from my interview session with them.

Interview Questions

Interview questions must be well structured to obtain the appropriate responses, which would effectively answer the research questions. I used semi-structured, open-ended questions for the interview so that respondents would be free with their opinions and comments and I was thus able to obtain rich data for my study. The semi-structured nature of the questions enabled me to design questions that were tailored towards the research questions and the ultimate goal of the study. The semi-structured questions also guided the interviews towards a consistent structure for uniformity purposes. However, in the course of the interview, some unplanned points cropped up which needed to be further explored because they were considered important to the participant and the study. Probing and follow-up questions were employed in this instance.

Gaining the Confidence of the Participants

Some participants were worried about remaining anonymous so that their participation and opinions would not count against them while some felt the interview may not be worth their time since similar studies had not had any impact on the observed phenomenon. A lot of effort and patience were employed to gain the trust of participants because the absence of trust and confidence from participants could have marred the data quality as some people could have deliberately withheld vital information. I assured the participants of the confidentiality of their contributions and their anonymity as well as their right to withdraw their participation whenever they ceased to feel comfortable with the proceeding, as prescribed by Qu and Dumay (2011). Additionally, the interviews were held in the participants' offices, an environment over which they exercised absolute control. They were also allowed to determine the time and date for the interviews.

Document Examination

Documents are important evidence for inquiry in a case study (Yin, 2003). I examined some documents as a secondary data source to confirm or complement the data obtained from the interviews. I also reviewed the mandates of the RTOs as presented by the acts that established them, as well as annual reports that revealed their strategic goals, decisions and accomplishments. These documents were obtained from the organizations since they were public documents. A formal request was however made for them.

Data Security and Storage

Participants sometimes need assurance of anonymity. Apart from this, data obtained from interviews need to be well stored so that they would not be damaged, lost, or fall into the wrong hands. To assure the anonymity of participants, I assigned numeric numbers or pseudonyms to them. To secure the data, I paid serious attention to its storage and back up. I saved the raw data in my computer and external hard drive and I pass-worded the files. These documents were also kept in my iCloud account in the event of a problem with the computer's hard drive. The external drive was put away until and would be kept for at least five years after the study has been published. The copy with the researcher was stored away in a safe and these would be destroyed after a minimum of five years, in conformity with Walden University policy. In the unlikely event that a participant reports a case of abuse or infringement of rights during the interview however, the researcher is obligated by law to release the interview data and transcripts to the necessary authorities for verification of claims.

The same procedure was followed after the data had been transcribed. My journal was securely locked away in my bedroom safe and would be consulted as needed. Since I do not intend to discuss my personal views and opinions on the interview with anyone, except if required by my chair and advisors, safety of the contents is assured.

Strategy for Data Analysis and Interpretation

The essence of gathering data is to obtain needed information that would shed light on current inquiries, and multiple data sources strengthen qualitative studies (Corbin & Strauss, 2008). However, the best use of the data can only be obtained when the data is analyzed correctly. Data analysis, when it is properly done, makes data to be orderly and easier to interpret, thereby enhancing the meaning derivable from the data (Fossey, Harvey, McDermott, & Davidson, 2002; McNabb, 2008). I first transcribed the interviews from the recorder and sorted them into some form of meaningful order. Yin (2003) recommended searching for patterns in qualitative data so I looked out for emerging trends that could suggest links to the research questions in the participants' responses. According to Yin (2003), when similar patterns emerge in case studies, they confirm or refute researchers' propositions. Once discovered, these patterns were categorized and compared to one another for deeper insight and to search for themes and important meanings. The identified themes were grouped and coded with nodes. Thereby, the data was reduced to a more manageable framework that answered the research questions. Yin (2011) said that the five stages of data analysis should include compilation, dissection, reassembly, interpretation of data, and the drawing of conclusions.

In view of the large volume of information available through multiple qualitative data, different techniques and software are available to sort, reduce, and group data (Hanson, Balmer, & Giardino, 2011). The NVivo 10 software is often used to analyze themes and patterns because the software makes the qualitative analysis more thorough and rewarding (Leech & Onwuegbuzie, 2011). I could not however access the software. After transcribing the interview into the Microsoft word format, I manually coded it as appropriate under the nodes to analyze the interview extracts. The other process outlined by Yin (2011) was followed until the data interpretation was done. The constant comparative method (Merriam, 2009) was used to analyze the government gazettes and annual records of the RTOs. All data were triangulated at every point, as recommended by Yin (2009) and Yin (2011), in order to assure data validity. According to Patton (2002), when data is triangulated, it affords researchers the opportunity to confirm that the data used corroborates well and this validates research findings thereby making them trustworthy (Creswell, 2007). The method of triangulation, I used, was to compare the data obtained from interviewing the MDs with written documents and annual reports and also compare these with the perception of board members. Adegbite (2012) said that the use of triangulation of multiple data enhances the validity of studies on CG

Researchers must be wary of using secondary data because they may be too many to sort and may not be relevant to the questions in focus by the study. Trochim and

Donnelly (2008) therefore recommended that these data may be broken into units and coded into themes that would make usable patterns recognizable. Leveraging on my position as an insider in the RTO sector, I only analyzed records that were of relevance to the inquiry, so that time wasted on sorting irrelevant data was minimized.

Coding Strategy

Coding helps to group data into meaningful patterns (McNabb, 2008), which can then be categorized into themes according to their similarities and characteristics. The coding strategy which I used in this study was the thematic analysis strategy. This strategy is useful in analyzing qualitative data by grouping and categorizing them (Creswell, 2007). I listened to the audio recording of the interview repeatedly to confirm that I have the right and accurate themes needed for the development of initial codes, especially when they relate to the research questions, which I answered in this study. According to Creswell (2007), codes that occurred frequently indicated strong participants' opinions. These commonly occurring ideas, words, or elements were organized according to their characteristics and were assigned codes for easy identification. These initial codes were then compared for similarities, merged or separated as main categories, and developed into themes that metamorphosed into coherent meanings. Discrepant cases are those elements, which seem to contradict emerging patterns during data analysis. I analyzed these discrepant cases thoroughly until I obtained an explanation for their emergence. This strengthened the trustworthiness of the study because it could either confirm or alter the patterns that emerged from the data.

Data Interpretation

Qualitative data are often induced rather than deduced. The intent is to explore patterns that are predominant in the data, which can enhance understanding of the studied phenomenon. As soon as data is collected, Patton (2002) suggested that it should be grouped into storytelling, case study, or analytical framework. For this study, the case study framework was used to interpret the qualitative data obtained.

The answers obtained from the interviews were different from one another in construction but usually, similar ideas and observations could be detected with diligent scrutiny. To achieve this, the content or thematic analysis approach was used to analyze the qualitative data obtained in this study. According to Patton (2002), the data content analysis enables access to speech and written content and also reduces data to sizable parts that make analysis easier. The texts used in the data were sorted and analyzed according to their syntax and semantic meanings but more attention was paid to the semantic expressions used by participants because these would show the realities and meanings that participants ascribed to public board impacts in Nigeria. Thereafter, codes were apportioned to the data as themes were identified. The *a priori* coding approach was applied to the emerging themes in the data.

Quality Issue

According to Christensen and Carlile (2009), qualitative case study data are mostly subjective. Their relevance and quality could however be determined by how well they brought meaning to our search and assisted in categorizing issues, thereby simplifying predictions and the building of theories. Research studies are adjudged to have quality when they have internal validity and when their data and their findings are also reliable (Creswell, 2007). Interviews provide reliable information and when they are obtained and analyzed through rigorous and strategic procedures, they add to a study's credibility (Patton, 2002). I listened to the interview over and over before transcribing the responses. After that, I listened again to the recorded audio, while checking my transcriptions to assure that the transcribed notes are consistent with what was heard in the audio recording. These steps enhanced the accuracy and dependability of the data.

Leedy and Ormrod (2005) recommended the use of triangulation, feedback from colleagues, and validation by participants in qualitative studies to enhance its quality. According to Yin (2011), triangulation eliminates the tendency of qualitative researchers to use inaccurate data thereby reducing the inaccuracy of findings. I thus obtained data from multiple sources so that I could triangulate the data and enhance validity. The multiple sources also assisted me to develop rich and thick descriptions of the perception of respondents on public board impact. Rich data makes it easy to confirm similar perceptions (Lincoln & Guba, 1985) and guarantees transferability. I also checked back with interviewees to validate my findings and confirm that they adequately represent the perceptions of participants (Fossey et al., 2002; Tracy 2010). I presented the transcribed notes of interviews held to interviewees to obtain this validation and confirm the report's accuracy (Creswell, 2009). Tong, Chapman, Israni, Gordon, and Craig (2013) called this member checking. Member checking will serve as a means of verifying the accuracy of data used, anonymity of participants, and according to Petty, Thomson, and Stew (2012), it helps to identify researcher bias. Yin (2003), recommended peer debriefing to strengthen data quality. I, therefore, sought the input of colleagues and few notable scholars in the field of public governance in Nigeria to assess the data collected and their opinions were noted in the final analysis.

IRB Approval

Walden university has a board that must be convinced that the researcher is taking the ethical and globally acceptable steps in research that concern human subjects. This must be done so that the rights and wellbeing of these human projects are guaranteed in any study. According to Szanron, Taylor, and Terhaar (2013), IRB guarantees the protection of human participants from unethical practices. They thus needed to certify the data collection processes and give necessary approval before data collection could commence. I was patient to obtain IRB approval, which certified my proposed methods and protocol as safe for human participants before starting data collection and analysis. Obtaining this approval required convincing the IRB that the appropriate ethical practices, such as the principles of anonymity and benevolence, would be incorporated into the process of obtaining and reporting data. I adhered strictly to these ethical guidelines and ensured that participants were aware of the process, as well as their role and rights, throughout the data collection period.

Ethical Issues

In qualitative research, it is assumed that the researcher may have some biases, which could taint the outcome of the study. In order to obtain participants' trust and assure of researchers' integrity, ethical issues must be dealt with decisively before undertaking any research (Kisely & Kendall, 2011). This opinion informed the suggestion by Lincoln and Guba (1985) that the researcher must openly discuss these "biases, motivations, interests or perspectives" (p. 290). Once these are discussed openly, they will assist the researcher in minimizing their effects at every level of the study, particularly during data collection and analysis. According to Babbie (2010), researchers must understand proper and improper conducts while researching. Ethical issues that were expected to be raised in the course of this study included (a) not respecting the space, rights, anonymity, and expectations of participants (b) withholding vital information from participants on what to expect from the study and the risks they may be exposed to, before contact, and (c) culture clashes.

To ensure that I acted within strict ethical guidelines, I ensured that I signed informed consent forms with the participants. According to Cook and Hoas (2011), this step will simplify the interview process. Qu and Dumay (2011) said that such forms will contain information that explained the purpose for the interview, the expected role to be played by participants, and their right to withdraw anytime they felt at risk in the course of the interview, since participation was voluntary. I also assured participants that no information given by them could be traced to or used against them because all characteristics or names that could reveal their identity would be removed before the study was published. The recorded audio would also be well kept from the public. These steps eliminated the fear of harm or risk of life/job by the participants. It also gave them ample time to decide whether to participate in the study or not. The informed consent form was left with the respondents to study and sign before the interview date was set.

Cultural consideration was not an issue with this research because I am an insider researcher and I am thus familiar with the culture and values of the RTO environment.

Summary

This chapter established the research design for this study and the rationale for its choice. The qualitative case study design enabled me to gain deeper insight into the impact of public boards in Nigerian RTOs by exploring the perceptions of board members and MDs of RTOs. My role in eliciting this information was also discussed here as well as the population and sampling techniques and size.

The purposeful sampling method was used to select participants from Nigerian public RTOs. The data collection and analysis methods were highlighted in this section. Data were collected after obtaining IRB approval using the interview method and other sources such as questionnaires, public records, and my personal notes. Interviews were semi-structured with open-ended questions to allow for richer information from participants. The data were then analyzed and categorized into patterns. Issues involving data quality, data protection, and general strategy for conducting the investigation into the phenomenon in focus in this study were extensively discussed in this chapter. The data collection and analysis processes were discussed in this chapter. Particular attention was paid to my role as a researcher, research ethics that pertained to participants, and the use of computer software in the analysis of data.

In Chapter 4, findings of this research were logically outlined. The chapter was concluded with an analysis of themes that were obtained from the interview data. This will lead to conclusions regarding what MDs and public boards perceive to be the actual impact of boards on RTO development and performance in Nigeria.

Chapter 4: Results

Introduction

This qualitative interpretive case study was carried out to explore CG practices that will be best for public RTOs in Nigeria so that they can be more effective. This study became necessary due to the need of the Nigerian government to make public organizations more effective in the face of dwindling economic fortunes in the country. I tried to understand governance practices of FBMs and CEOs in terms of promoting the effectiveness of their organizations by interviewing relevant persons who had been involved in the governance of public RTOs. The conceptual framework was the agency theory and was appropriately selected to suit the governance practices of Nigerian public RTOs.

This research answered the following questions:

RQ1: What governance problems exist in public organizations in Nigeria's R&D sector?

RQ2: What do board members and managing directors of public organizations in Nigeria's R&D sector believe is the impact of boards on organizational effectiveness?

RQ3: How do these perceptions of board members and executive directors regarding the impact of boards on Nigeria's R&D sector affect the performance of these organizations?

This chapter discusses how data for the study were obtained and the process to generate themes and meanings from the data. Information was obtained from participants to support emerging themes and results. The chapter concludes with a summary of emerging themes obtained from responses of participants. These themes will be further discussed and interpreted in specific terms in Chapter 5.

Research Setting

Participants were selected purposively because they were authorities in their fields of specialization. The research setting was free from government influence and interference because participants were contacted personally and not through organizations or political leaders. There were therefore no personal or organizational changes that could have affected the study's results. Participants were not paid and most were not working for the government at the time of interviews.

Ten open-ended questions were designed for the semistructured interviews. Consent for participation was obtained from eligible participants through phone calls and mails. Participants in this study were contacted personally so that they would not be under any influence that could distort their responses. I had the option of getting approval from FMST to contact the participants but this action could have compromised the anonymity of the participants. Contact with participants was established after the approval of the IRB of Walden University. The common characteristic shared by participants in this study was their experience in governing public RTOs in Nigeria. I determined the sample that shared this characteristic by grouping the 17 parastatals in the FMST according to their functions. Six parastatals which engaged in core R&D activities were identified from this population. Participants in this study were selected from these six parastatals so that it would be easy to determine their governance strategies and the effect of these on the performance of their organizations. Each of the six parastatals had at least one participant and none had more than three. The research questions were designed to elicit adequate information regarding the governance practices of boards in public RTOs, and what these practices should be. Adequate care was thus taken to formulate questions that would probe the intellect and experiences of the participants. All participants understood that they were under no obligation to participate in the study.

I expected that all eligible participants that were to be contacted would be willing to participate in the interview but a few eligible participants, who were mostly PCEOs opted not to participate after the purpose of the study was revealed. This refusal could have been out of fear of job loss. The decisions were respected. One of the FBMs and an FCEO had to be interviewed on the phone. Participants who were willing to contribute to the study were too busy to be confined to one location.

The interview duration varied as some participants had more to say than others. The two interview methods employed were conducted face to face and on phone. These methods were determined by necessity because of the schedule of two of the participants. All interviews were recorded. Time spent on interviews was between 35 and 88 minutes.

Demographics

This study was conducted to explore the impact of good governance practices on RTOs' effectiveness in the Nigerian public sector, and this information was obtained from interviews conducted with PCEOs/FCEOs of selected public RTOs as well as FBMs. The interviews were intended to help understand the motivations for board activities such as decision making and strategic planning, as well as perceptions of CEOs regarding board performance and impact. Participants in this study were purposively selected from the FMST and were contacted based on their positions as PCEOs/ FCEOs or FBMs of RTOs involved purely in R&D to ensure data quality and generalizability of findings. As outlined in Table 1, 16 participants were interviewed from six RTOs in the FMST. This sample was made up of seven former CEOs who had worked with boards in their organizations, four present CEOs who had also worked with boards, and five FBMs. The FCEOs constituted 43.7% of the total participants, PCEOs represented 25%, and FBMs were 31.3%.

Table 1

Summary of Participants' Demographic Characteristics

	Frequency (%)			
Age Group of Participants	PCEOs	FCEOs	FBMs	Total
46-50	2 (50)	1 (14.3)	2 (40)	5 (31.2)
51 & above	2 (50)	6 (85.7)	3 (60)	11 (68.8)
Total	4 (100)	7 (100)	5 (100)	16 (100)

Note. PCEOs - Present CEOs, FCEOs - Former CEOs, FBMs - Former Board Members

Participants in this study were 46 and above. While 68.8% of respondents were 51 years and above, 31.2% were between 46 and 50 years. This result implies that there are more FCEOs, PCEOs, and FBMs in their late forties and fifties than in their early forties. This may have been due to the selection criteria for appointment into such positions. The average Nigerian obtains the first degree at 25 years of age and it may take another 15 years to get a PhD. According to the selection process, all intending CEOs of public RTOs in Nigeria must have PhDs, be registered with appropriate professional bodies, have published papers in peer-reviewed journals, and also have work experience at management levels. It was difficult getting any board chairman to participate in this study probably because of busy schedules. All participants had at least 2 years of working experience with or as board members and could thus securely comment on board activities.

I had to traverse the northern and southwestern parts of the country to obtain data. Most of the prospective participants were living in various states across the country and this increased the period for data collection. Only 16 of the 22 persons that I contacted for the interview, were actually interviewed.

Table 2

Summary of Respondents' Ethnic Characteristics

	Frequency (%)						
Participants	N.E.Z	N.W.Z	N.C.Z	S.E.Z	S.S.Z	S.W.Z	Total
PCEOs	(0)	1 (25)	1 (25)	(0)	(0)	2 (50)	4 (100)
FCEOs	(0)	1 (14.3)	1 (14.3)	2 (28.5)	(0)	3 (42.9)	7 (100)
FBMs	1 (20)	(0)	1 (20)	1 (20)	1 (20)	1 (20)	5 (100)
Total	1 (6.25)	2 (12.5)	3 (18.75)	3 (18.75)	1(6.25)	6 (37.5)	16 (100)

Note. PCEOs - Present CEOs, FCEOs - Former CEOs, FBMs - Former Board Members, N.E. Z - North-East Zone, N.W. Z - North-West Zone, N.C. Z - North-Central Zone, S.E.Z - South-East Zone, S.S.Z - South-South Zone, S.W.Z - South-West Zone.

Table 2 indicates that the South West Zone had the highest number of respondents and this zone had representatives in all the three categories of respondents. Additionally, the North Central and the South West had representatives in all three categories while the North East Zone only had one participant each in the FBM category. Figure 1 shows the bar chart indicating the spread of respondents. Of the 16 respondents who participated in this study, 75% were Christians, 25% were Muslims, and there were no traditionalists represented.

Table 3

Summary of Respondents' Religious Characteristics

Participants	Christianity (%)	Islam (%)	Total (%)
PCEOs	3 (75)	1 (25)	4 (100)
FCEOs	6 (85.7)	1 (14.3)	7 (100)
FBMs	3 (60)	2 (40)	5 (100)
Total	12 (75)	4 (25)	16 (100)

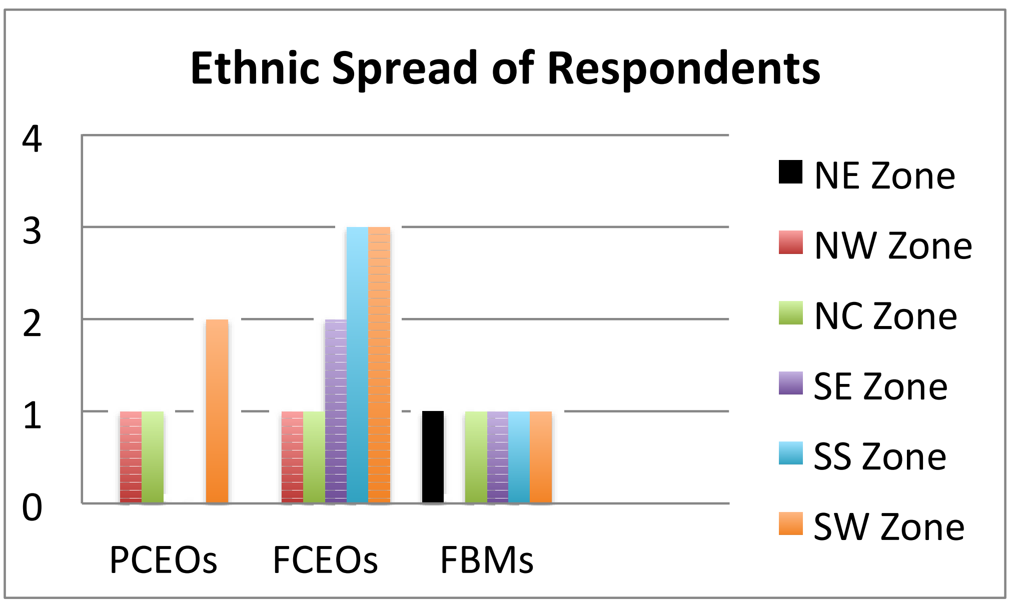


Figure 1. Ethnic spread of respondents.

Table 4 shows disparities in gender distribution amongst the participants. While 87.5% of respondents were male, 12.5% were female. The two female respondents fell into the FBM and PCEOs categories.

Table 4

Summary of Participants' Gender Distribution

Participants	Male (%)	Female (%)
PCEOs	3 (18.75)	1 (6.25)
FCEOs	7 (43.75)	-
FBMs	4 (25)	1 (6.25)
Total	14 (87.5)	2 (12.5)

The incidence of occurrence of fewer females in the distribution may have been attributable to the fact that in the whole of the 19 RTOs in FMST which formed the population from which samples were selected, there have been only 3 female CEOs since in the history of the FMST, and the females that were appointed into RTO boards were privileged to be there because of the political positions they occupied such as ministers of finance and other positions. Based on this gender disparity, it is presumed that there are fewer female CEOS in the RTOs of the FMST in Nigeria than males.

Data Collection

The data collection process commenced after obtaining approval from Walden's IRB to commence data collection (see Appendix C). I then contacted all the participants by phone and also through the booking of appointments to determine the convenient time for the participants. I obtained the phone numbers of these contacted through phones from contacts (mostly present CEOs) who had already spoken to them and obtained their verbal consent to be interviewed. The participants were selected based on their positions or former positions as CEOs or board members in RTOs under the FMST. The participants contacted were 22 in number but 16 showed interest in participating by actually giving the researcher appointments. Individual interviews were collected from seven former CEOs, four serving CEOs, and five former board members to obtain deeper insight into what motivated board governance policies and activities in Nigerian public RTOs.

The respondents were located in Abuja, Lagos, Ile-Ife, and Akure, which are major cities in Nigeria, and they were all interviewed in their offices, except for one former board member and one former CEO who could not be reached because of their busy schedule but the questions were sent to their email addresses and the interviews were conducted on the phone. Other interviews were contacted face to face. Before conducting the interviews, all participants were informed of the purpose of the study and they were also informed of their rights as participants, which included the right to withdraw their participation any time they wanted to. Thereafter, the participants signed the informed consent forms. Two of the participants wanted to know if it was necessary to put their names on the informed consent form, given the earlier assurance that their responses would be treated with the utmost confidentiality. I responded that they could choose not to write their names and these two participants just signed the form. I was quick to reassure the participant again of the confidentiality of the forms and other data obtained in the course of the study. Once the informed consent forms had been signed, the respondents all decided for privacy with their secretaries, since the interviews were held in the offices of 14 respondents, so that there would be no undue interruptions during the interviews. I then confirmed that none of the participants were under any influence or condition, such as the presence of other people, lack of time or interest, or noise from the interview environment, which could have influenced their responses during the interview and interfered with the findings of this study. I thereafter sought and obtained permission to commence the interview and record the process with my mobile phone recording software, my MacBook Voice Recorder, and also my Apple iPad.

Having obtained this permission, I began the interview by following the prepared questions in the interview protocol list. I personally conducted the interviews face-to-face in the offices of the participants to guarantee confidentiality and reduce unnecessary distractions and interruptions. Notes were taken as supporting documents during the interview, with the permission of the participants. Since there was no replacement of participants during the data collection process, there was no need to repeat any interview session for any respondent, although some of them offered to be available for any clarification or additional information, which may be needed. I, however, encountered some difficulties with the phone interviews because the calls kept dropping as a result of the poor network from the mobile service providers. This elongated the time spent on the interviews conducted by telephone by a few minutes. I was able to complete the interview after about three attempts per participant and there was no loss of data or information because of the truncated calls as we picked up from where we left off as soon as the connections were reestablished.

The interviews conducted through the phone were also recorded on my phone and iPad. This was made possible because the participants were put on speaker and the recording software was able to record their voices with much clarity. During the breaks, I paused the recorder and continued as soon as connections were restored. After the data had been analyzed, the voice data, transcripts, and other notes were taken during the interview were locked in a secure locker in my bedroom while a password known only by me protects the other documents on my personal computer. Table 5 and Figure 2 summarizes the link between research questions and the interview questions.

Table 5

Summary of Research Questions and Associated Interview Questions

Research Questions (RQ)	Relevant Interview Questions (IQ)
RQ1: What governance problems exist in public organizations in Nigeria's Research and Development Sector?	IQ 1: What do you understand by Research and Technology Organization and do you think they are meeting up with the purpose for which they were set up in Nigeria? IQ 2: Are there structures in place to determine the effectiveness of public organizations in Nigeria? IQ 5: What, in your opinion, can hinder the effectiveness of public RTO boards? IQ 6: Was there a governance framework or corporate governance code that regulated the activities of your board or monitored their performance like we have the Companies Act 2006 in UK and the Sarbanes-Oxley Act 2002 in the USA?
RQ2: What do Board members and Managing Directors of public organizations in Nigeria's Research and Development Sector believe are the impact of boards on organizational effectiveness?	IQ 3: Do you subscribe to the claim that public governing boards are important in enhancing RTO performance in Nigeria? IQ 4: What do you believe are the impact of public boards on RTO effectiveness in Nigeria? IQ 5: What, in your opinion, can hinder the effectiveness of public RTO boards? IQ 6: Was there a governance framework or corporate governance code that regulated the activities of your board or monitored their performance like we have the Companies Act 2006 in UK and the Sarbanes-Oxley Act 2002 in the USA? IQ 7: What do you need from government to be effective as CEO in Nigerian RTO?
RQ3: How do these perceptions of Board members and Executive Directors about impact of boards	IQ 1: What do you understand by Research and Technology Organization and do you think they are meeting up with the purpose for which they were set up in

of Nigeria's Research and Development Sector affect the performance of these organizations?	Nigeria? IQ 2: Are there structures in place to determine the effectiveness of public organizations in Nigeria? IQ 3: Do you subscribe to the claim that public governing boards are important in enhancing RTO performance in Nigeria? IQ 8: What, in your own opinion, can make public RTO boards in Nigeria more effective?

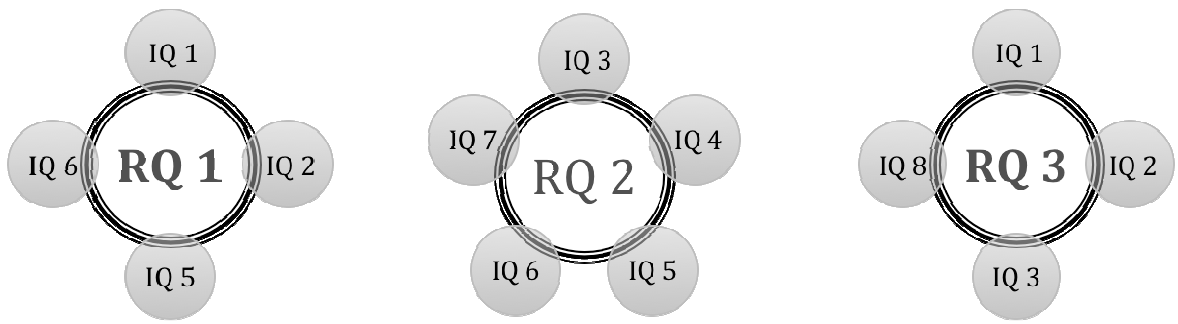


Figure 2. Distribution of study's research questions and associated interview questions

Data Analysis

I commenced the analysis of data obtained from the interviews after personally transcribing the interviews. This enabled me to know the data intimately and helped during the process of coding. According to Roulston and Choi (2018), when the qualitative researcher is conducting exploratory research, it is best to examine, transcribe, and code the data personally. By doing this, I become more familiar with the data and the viewpoints of participants and this helped the analysis process. I manually transcribed the data using the audio recording modifier on my phone, which slowed the voices and made it easier to follow the voices and pronunciations. After the initial transcriptions, I read through the transcripts while listening to the recording again to be sure that I did not omit anything. In view of the difficulty I encountered in accessing the QRS NVivo 10 software, which I had earlier proposed to use for the management, sorting, and analysis of my interview data, I had to resort to manual analysis. These data software only assists with sorting and categorization of data but the task of coding and identifying patterns and meanings from the data still rests with the researcher.

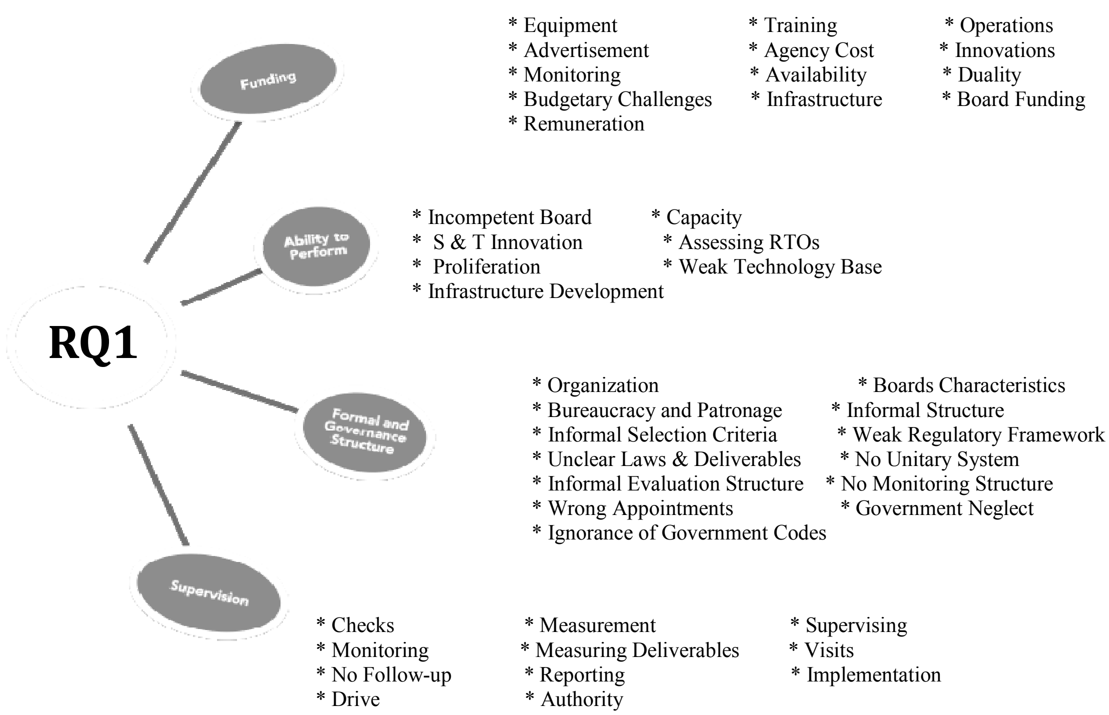
Data analysis is a means of sorting through the information in the unstructured data obtained, with the view of reducing it into usable units by thoroughly examining the data and categorizing it into themes and patterns (Beaudry & Miller, 2016). I continued the data analysis process by grouping the respondents into three natural categories and assigning pseudonyms to the groups and respondents. The Former Board Members were identified as FBMs, Present CEOs as PCEOs and Former CEOs as FCEOs. All the five FBMs were thus identified as FBM 1, FBM 2, FBM 3 and so on as well as other categories. Having immersed myself in the data, I thereafter began searching for commonalities, relationships, and differences in the responses of participants and categorized them under codes, which were eventually grouped as themes.

The most critical stage of qualitative data analysis is the coding stage and it is advisable to keep the research question in mind while coding (Stuckey, 2015). I employed the deductive coding style which involves having preset codes a priori and also adopted the thematic content analysis method in analyzing this data (Miles & Huberman, 1994; Stuckey, 2015). Having gone through the data several times, I was able to intuitively understand the relationship between the interview questions and the three research questions, which I initially set out to answer through the study. This step provided a direction for my data analysis. I had three sets of data obtained from former

CEOs, present CEOs, and former board members. I read through all the answers and highlighted relevant and striking comments with the use of my computer's highlight pen, using the same highlight pen color for similar answers. I thereafter sorted the answers according to color and categorized them into themes that emerged as a central idea from the grouped codes.

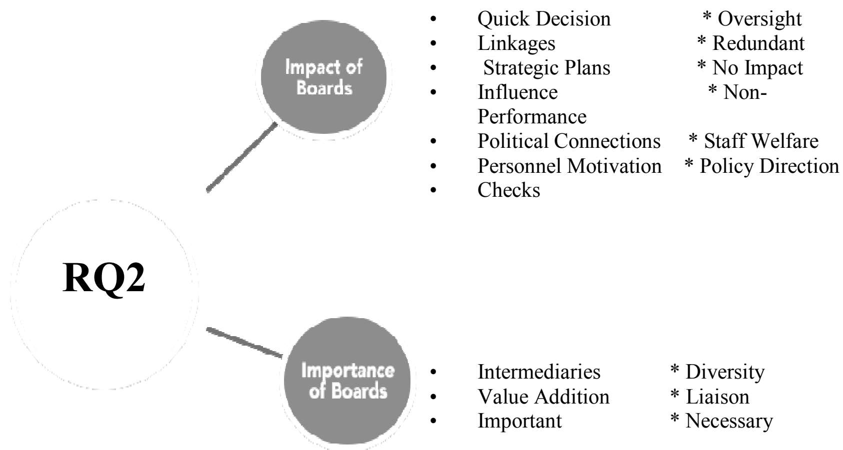
After the important responses had been categorized under themes, I commenced the next stage of the analysis by looking for relationships and similarities among the themes. The earlier classification simplified the process of comparing opinions and perceptions of participants about the theme and through the similarities in the responses, conceptual relationships were established, duplications were removed, and similar categories were merged in order to connect interrelated theoretical data and this led to the development of further themes. The next stage involved grouping the thematic categories according to colors. Since each category had color allocated to it, I went through the transcribed interviews again and extracted more data that fit the identified categories and they were colored accordingly. This helped me to organize the data for interpretation and ensured consistency in the coding process. The emergent themes were then grouped along with thematic constructions that answered the three research questions and addressed the framework for the study (Callary, Rathwell, & Young, 2015).

The PCEOs' interviews revealed 54 issues; the FCEOs' interviews yielded 126 issues, and the FBMs' interviews revealed 73 issues. From these opinions, related and divergent themes were identified and this led to the formation of 81 categories. Because these categories were too many and too broad, I immersed myself in the data again to understand what these data were saying and I discovered that some of the codes were related to one another and they were thus further reduced to nine. The nine categories were: Funding, Ability to Perform, Formal and Governance Structure, Supervision, Impact of Boards, Importance of Boards, RTO Boards' Structure, Developing RTOs, and Monitoring RTOs. The categories were thereafter linked to the three research questions developed in this study. Figures 3, 4, and 5 are a spider representation of the nine categories and codes developed.



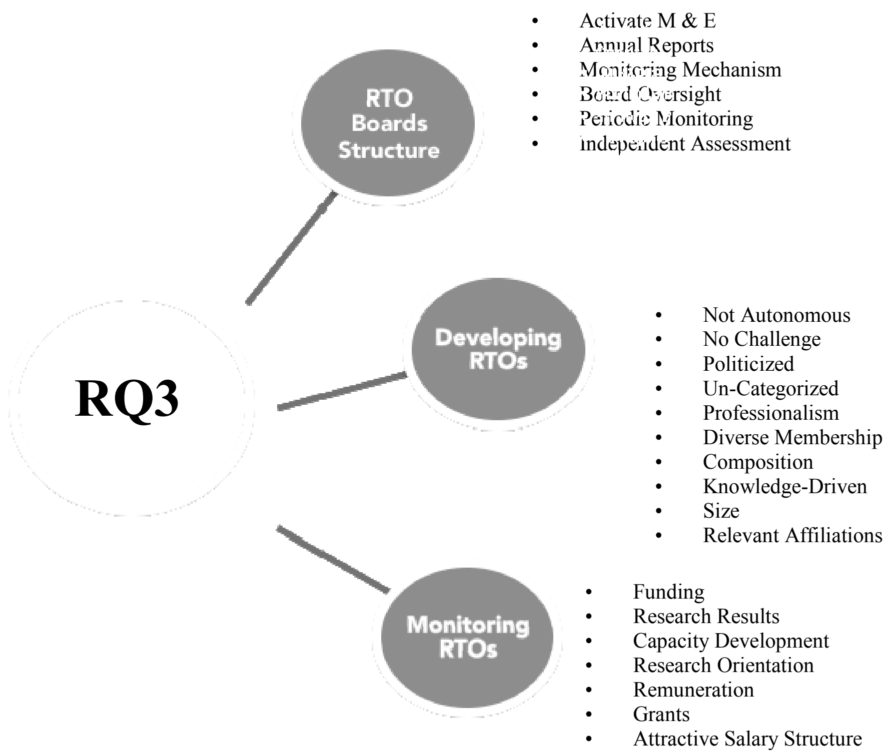
RQ1: What governance problems exist in public organizations in Nigeria's Research and Development Sector?

Figure 3. Summary of linkage of RQ1 to coding categories.



RQ2: What do board members and managing directors of public organizations in Nigeria's R&D sector believe are the impact of boards on organizational effectiveness?

Figure 4. Summary of linkage of RQ2 to coding categories.



RQ3: How do these perceptions of Board members and Executive Directors about the impact of boards of Nigeria's Research and Development Sector affect the performance of these organizations?

Figure 5. Summary of linkage of RQ3 3 to coding categories.

After a further perusal of the categories, I established some additional links and the nine themes were finally condensed to six with new headings to capture the contents. The final six themes were: Working relationship with board, Importance, and Functions of boards, Arguments against boards, Hindrances of Public RTO effectiveness, Improving Board Performance, Improving RTO Effectiveness. Table 6 shows how the research questions produced the themes that were used to answer the three research questions in this study.

Table 6

Summary of Research Movement to Final Coding Categories

Research Question (RQ)	Final Coding Categories	Initial Coding Categories
RQ1 What governance problems exist in public organizations in Nigeria's Research and Development Sector?	1. Working relationship with Public RTO Boards in Nigeria	*FCEO2 - Not particularly cordial. *FCEO 3 **-** Immediate hostility *FCEO5- I reported to the board on all activities *FCEO 7- the political powers are more concerned about constituency projects *PCEO1- Respect authority; attitude and approach matter. ***FBM 5-** Intuitively the CEO utilizes them
	2. Arguments against Boards' Performance	*FCEO 1- Lack of monitoring mechanisms; agency issues; self-interest *FCEO 2- no enabling law; no formal selection criteria; political interference; lack of accountability *FCEO 3- faulty composition; political interference; unwieldy board size. *FCEO4- bureaucracy, political interference. *FCEO5- political interference; lopsided composition; absence of regulatory body. *FCEO6- inadequate monitoring of RTOs *FCEO 7- boards not empowered; political interference; unclear terms of reference; undefined reporting lines; unclear role; non-existent measurement of impact; absence of a formal code for

(table continues)

		public boards. *PCEO 1- board size; unethical practices; bureaucracy. *PCEO 3- political interference; absence of board evaluation processes. *PCEO 4- political interference; improper composition; bureaucracy; absence of unified code of governance; *FBM 1- board composition; political interference; self- interests; unclear role; lack of proper monitoring system for RTOs; inappropriate board evaluation mechanisms; funding for board activities; bureaucracy. *FBM 3- incongruous composition; chairmanship position; inadequate funding. *FBM 4- improper board composition; unstructured monitoring process; political interference; vacuum in board leadership where President is chairman; bureaucracy. *FBM 5- compromises in evaluating CEOs; absence of code of governance for public boards; unclear role; lack of board evaluation.
RQ 2 What do Board members and Managing Directors of public organizations in Nigeria's Research and Development Sector believe are the impact of boards on organizational effectiveness?	3. Importance and functions of boards	*FCEO1- policy direction, strategic plans *FCEO2- administration and governance; influence *FCEO3- monitor CEOs; influence *FCEO4- add value; administer and form policies *FCEO5- monitor CEOs and usage of funds *FCEO6- Monitor CEOs; enhance performance *FCEO 7- policy direction *PCEO1- help take quick decisions, monitor activities, advocacy *PCEO 2- composition; monitor CEOs; intermediary; reduce bureaucracy of the Civil service; attract funding; advocacy; *PCEO 3- influence management; provide linkages; attract funding and goodwill; push proposals. *PCEO 4 - remove autocracy; composition *FBM 1- influence; promote partnership with private sector; policy direction; monitor policies *FBM 2- capital development; attract funds, advocacy *FBM 3- political influence; monitors CEO. *FBM 4- The bridge. *FBM 5- selecting CEOs; composition; policy making
	4. Hindrances of Public RTO effectiveness	*FCEO 1- bureaucracy of the public service system. *FCEO2- improper oversight functions by relevant agencies; absence of board evaluation

(table continues)

		*FCEO3- absence of strong framework; there is no continuity in government; inconsistent government policies; personalization of projects. *FCEO4- absence of standard governance codes *FCEO5- political focus not social outcomes; haphazard funding of RTOs; inadequate funding; *FCEO6- lack of focus of government on outcomes; absence of assessment of RTOs technical performance. *FCEO 7- poor funding; absence of CEO evaluation; inconsistent policies. *PCEO 1- inadequate fund release and funds management. *PCEO 3- political interference; bureaucratic bottlenecks; lack of funds for operational matters. *PCEO 4- inadequate RTO advertisement; political interference; poor funding. *FBM 1- unfriendly government policies. *FBM 2- funding *FBM 3- poor funding; bureaucracy *FBM 4- political interference; absence of patronage of products; poor funding.
RQ 3 How do these perceptions of Board members and Executive Directors about impact of boards of Nigeria's Research and Development Sector affect the performance of these organizations?	5. Improving Board Performance	*FCEO 1- monitor; diversify composition; right appointments; good funding; improved Boards' remuneration; establish formal structures and regulatory codes of conduct; establish performance-based remuneration system *FCEO 2- right appointments; reduce political appointments; encourage oversight and evaluation of board members; give boards guidelines; organize retreats *FCEO 3- have clear separation of powers; appoint influential and brilliant board chairmen; *FCEO4- good remuneration; training; private sector partnership; use Technical Advisory Committees; give targets; demand for annual and aggregate reports; peer-review RTO boards; boards should review one another; standardize board practices across RTOs; enact specific guiding laws; RTOs shouldn't have the same omnibus boards. *FCEO5- external oversight body; boards to set targets for themselves; develop scorecard for boards to monitor their own performance. *FCEO6- monitor process of delivering the outcome; develop an Act for board activities; use boards to monitor effective budgeting by the CEO and his management team; have many professionals on the

(table continues)

		board. *FCEO 7- monitor boards; appropriate composition; appoint influential Chairmen; develop governance impact assessments for all public boards in Nigeria; standardize board-monitoring mechanisms; standardize realistic codes of governance and operations for boards; set up regulatory committees in Ministries; give incentives to boards; appoint regulatory committees with professional members; empower the boards. *PCEO1- Appoint professionals; give boards power; don’t make one omnibus rule for all boards; boards should be professional in composition; don’t appoint on the basis of political affiliation; avoid lopsided composition. *PCEO 2- Have diverse boards; empower them; follow global standards; challenge boards and fund organizations; *PCEO 3- properly constitute boards; evaluate them; train boards; *PCEO 4- National assembly oversight functions; reduce bureaucracy; fund RTOs; remove political patronage; *FBM 1- well-composed boards; establish strict selection process for RTO boards; monitor and measure performance of boards; train boards; offer good remuneration; fund RTOs with clear-cut budgets for board operations; establish reporting mechanisms; *FBM 2- have diverse board; appoint influential chairmen; establish monitoring frameworks; funding; make government policies favorable; use committees; assess boards; spell out role of boards; train board members. *FBM 3- composition; use committees; train boards; assess boards’ performance and activities; remove bureaucracy in the governance system; fund RTOs for board functions. *FBM 4- right composition; train board members; supervise boards. *FBM 5- standard remuneration for boards; right composition; avoid political patronage; fund RTOs; train boards; develop a unified governance code for public boards; develop a formal structure of reporting and evaluation.
	6. Improving RTO Effectiveness	*FCEO1- categorize RTOs; review public service bureaucracy for RTOs *FCEO2- group RTOs; develop impact assessment

(table continues)

	indicators; have M&E which would streamline governance practices; improve oversight function; make boards accountable; rank public RTOs; *FCEO3- training and retraining *FCEO4- have a National Perspective Plan**;** there should be orientation for all CEOs *FCEO5- fund the RTOs; boards should advocate acceptance and commercialization of RTO products. *FCEO6- monitor financial and technical outcomes; the CEO should be appointed on merit *FCEO 7- fund RTOs reasonably and consistently; appoint understanding and knowledgeable board; deploy monitoring mechanisms; ensure stability of the political structure; guarantee continuity of projects; have more flexible budgets and stable strategic plans. *PCEO 1- develop evaluation standards and enforce compliance with governance codes. *PCEO 2- remove bureaucracy; challenge CEOs; fund RTOs; develop technology foresight programme for the country. *PCEO 3- improve funding of RTOs; approve percentage of the earnings of government for RTOs as a statutory rule. *PCEO 4- patronize and advertise RTO products; reduce political interference; remove *FBM 1- enact laws meant for RTOs *FBM 2- combine RTOs efforts with institutions which have complementary competences, resources, and skills such as private sector actors and the universities *FBM 3- shorten bureaucracy *FBM 4- improve funding; improve stakeholder participation; improve interaction between the R&D institutes and the tertiary institutions.

The six main thematic categories, which emerged in the analysis were applied to the established research questions to enable an understanding of the influence of public boards on RTO effectiveness in Nigeria. Table 7 summarizes the overview of how the themes were linked to the three research questions in this study. The research process was completely unaffected by discrepant cases but one event worthy of note is that in the process of analyzing the data obtained in this study, the government of Nigeria inaugurated new public boards for RTOs and they have since resumed duties. This incident does not affect this research because the purpose of the study was to discover, from the opinion of leaders who have administered the RTOs at one point or the other, how public boards could be used to advantage in Nigerian RTOs. Therefore, the new boards are coming in at the right time as they will benefit from the findings of this research.

Table 7

Overview of Themes and their Links to the Study's Research Questions

Research Questions (RQ)	Themes
RQ 1 What governance problems exist in public organizations in Nigeria's Research and Development Sector?	Arguments against Boards, Hindrances of Public RTO effectiveness
RQ 2 What do Board members and Managing Directors of public organizations in Nigeria's Research and Development Sector believe are the impact of boards on organizational effectiveness?	Working relationship with board, Importance and functions of boards
RQ 3 How do these perceptions of Board members and Executive Directors about impact of boards of Nigeria's Research and Development Sector affect the performance of these organizations?	Improving Board Performance, Improving RTO Effectiveness

Evidence of Trustworthiness

According to Kornbluh (2015), having adequate knowledge of the population and utilizing appropriate procedures to guarantee that the research findings can be trusted assures the trustworthiness of a study. I carefully and rigorously applied the qualitative elements of trustworthiness such as credibility, transferability, dependability, and confirmability to enhance the neutrality and reliability of the study (Cope, 2014). According to Lincoln and Guba (2007), these trustworthiness criteria guarantee rigor of studies that adopt the qualitative method.

Credibility

Though it is difficult to ascertain trustworthiness in a qualitative study because of researcher and other biases, internal validity can make such qualitative studies trustworthy. When the meanings supplied by participants are authentically engaged in the description of the research findings, such studies are adjudged trustworthy and credible (Morse, 2015). Based on this premise, I set about ensuring the trustworthiness of this study's findings by employing member checks to guarantee that the data analyzed was free from researcher bias and were indeed the views and opinions of the participants. The words of some participants were sometimes unclear and I contacted the persons concerned to authenticate that what I had interpreted or transcribed was accurate. Besides this, member checking afforded me the opportunity of getting answers to some questions that arose from my transcriptions and those which I omitted to ask during the interview. Data saturation was thus satisfactorily reached. To further enhance the credibility of the data gathered in this study, I also conferred with peers in the governance field in Nigeria who went through the findings critically to ensure that my interpretations were free from biases. Despite the relatively small sample size, which ordinarily may hinder the generalization of the findings, the study's strength and credibility lay in the rich and unhindered accounts of participants with multiple and diverse experiences and perceptions about board impact. The use of triangulation of data further strengthened the validity of the data analyzed because of the multiple sources from which data were obtained (Yin, 2011).

Transferability

Transferability is achieved in a qualitative study if the findings and contexts of a particular study can fit into similar contexts using other participants (Morse, 2015). I ensured the transferability of this study's findings by first selecting my participants purposively to guarantee that the key persons with needed data were reached, and I set out to obtain deep and thick descriptions from them. Through these thick descriptions, Guba (1981) opines that it is possible to compare the current research context to similar ones to which the findings could be transferred. Although the small sample size may limit the generalization of the findings of this research, the knowledge demonstrated by the participants was borne out of their experience while they served as CEOs or board members and this will remain unchanged even if they were questioned about it repeatedly.

Dependability

A dependable study assures that nothing is missed in the research conducted, which could compromise the accuracy of the findings. Achieving dependability requires guaranteeing that the data obtained from participants is consistent with the findings and recommendations given by a qualitative study such that time does not erode the truths in the results (Kornbluh, 2015). I set about establishing the dependability of this study by hiring a fellow researcher to trail and audit the data collection and analysis process to assure that both processes were valid and consistent with laid-down procedures (De Massis & Kotlar, 2014). This was done by assessing the raw interview data, the coding process, my interview notes, and a few of the documents used to triangulate the data. Two researchers independently assessed these documents and their comments showed their satisfaction with the procedure employed. I equally engaged one of the researchers to recode the data I obtained and I discovered that the themes and codes generated agreed with my earlier codes. This discovery suggested that my earlier codes were supported by the data I collected. According to Ary et al. (2010), if the separate analysis of two or more researchers is consistent with one another, such a study is dependable.

Confirmability

Researcher bias is often one of the things that researchers have to address to convince and generate confidence in the study's findings. I, therefore, set out to establish that my personal biases or interests did not influence this study's results. I also sought to establish that I arrived at the conclusions reached, in this study, from the information supplied by the participants during the interviews. This I did by declaring and isolating, from the onset, my biases which could raise neutrality concerns from the data or results (Pannucci & Wilkins, 2010). I equally employed the audit trail recommended by Guba and Lincoln (1982). The researchers, who conducted the audit, carefully analyzed the transcriptions and voice recordings. The researchers confirmed that the themes, which were generated, came from the data obtained. They also confirmed that the interpretations were not the fabrications of the researcher. According to Onwuegbuzie and Leech (2007), the researcher's prolonged engagement in the research sites will elicit trust from the participants and they would be more trusting enough to release deep and sensitive information to the researcher. Being a participant researcher, I was able to enjoy rapport with the participants and thus had access to enough quality data to guarantee the trustworthiness of the findings.

Study Results

This interpretive case study set out to explore board activities and governance practices in Nigerian public RTOs, with a view to determining best practices for public RTO boards in Nigeria. The study, therefore, explored the opinion of relevant persons who had been involved in decision-making in public RTOs as CEOs or board members, in order to understand how good CG can promote effectiveness in these organizations. I purposively selected 20 participants who had served or were still serving in the six parastatals that had core R&D functions in the Nigerian FMST, for this study. Only16 respondents participated in this study and data saturation was reached from the participants. There were three research questions for this study and the ten interview questions were tailored towards answering the research questions. I analyzed and coded the interview scripts according to the conceptual framework and other patterns that emerged from data and in all, six main themes emerged in the analysis of my interview data.

Thematic Categories

Thematic Category 1: Working Relationship with Public RTO Boards in Nigeria

The respondents were able to describe their working relationship with the boards they served, through their responses, although no specific interview question addressed this. However, in response to questions 2, 3, 4, and 5, respondents hinted at the importance of good working relationship and synergy between the board and the CEO as this could influence organizational effectiveness. While PCEO 2 observed that “if the boards do their jobs very well, and they monitor the RTOs very well, we should expect good results from RTOs,” FBM 5 said, “I reported to the board on all activities.” FBM 3 mentioned that “The members were always willing to assist the agency in any way they could,” but according to PCEO 1, this willingness is dependent upon the disposition of CEOs. According to her, the attitude of the CEOs and how they treat board members will determine the support which they would receive from these boards. This seems to corroborate the importance of mindfulness to a good and positive working relationship which, according to Hyland, Lee, and Mills (2015), aids the effective performance of organizations.

FCEO 3 hinted that the frosty relationship between some boards and CEOs could be because of the lack of understanding of each other’s roles and competences. According to FCO 3, these roles were often mixed up because most boards chairs either did not understand their boundaries or they failed to respect them. FCEO 2 also observed that his relationship with the board he worked with was not cordial because he often refused to yield to their demands. To PCEO 1 however, her good name and integrity were important to her and as such, she was always careful about dealing with these boards, who were mostly politicians. She however cautioned that CEOs would enjoy better working relationship with boards if they considered the criticisms of board members as being necessary for improved performance. FCEO 7 however felt that most of the criticisms and pressure received from board members were borne out of their concern for their personal and constituency projects.

According to Goodman (2017), positive workplace culture will enhance the effectiveness of organizations. Out of the seven FCEOs interviewed in this study, three revealed tenseness in their relationships with their boards, while one saw the board's activities as being complementary to the CEO's efforts. Other FCEOs were silent on the working relationship. However, of the four PCEOs interviewed, the two who hinted at the relationship they had with boards revealed that it was cordial. These responses are significant in that 43% of FCEOs in this study believed that their working relationship with their boards was not smooth enough and this may have had some consequences on their performance while 50% of PCEOs in this study acknowledged that their working relationship with their boards was okay and rewarding.

A good working relationship between the boards and CEOs is a critical factor in considering the effectiveness of public RTOs. According to Okiro et al. (2015), there is a significant interaction between good CG and organizational performance because the internal structures of organizations are enhanced through good CG. Considerable empirical studies have also proven that agency conflicts between CEO's and owners or shareholders have a direct influence on governance and organizational effectiveness. For instance, Odainkey and Simpson (2012) argued that agency issues are rare in organizations which are high performing while Tidor, Gelmereanu, Baru, and Morar (2012) said that a properly-structured governance system is very effective in eliminating agency problems in public organizations. Agency costs often increase in organizations as a consequence of accumulated monitoring expenses and other residual costs, which arise from trying to resolve agency problems. But a well-formulated governance structure will eliminate or reduce agency issues and costs to the barest minimum. These suggest that a good working relationship between boards and managers will result in good CG decisions thereby making such organizations effective.

Thematic Category 2: Importance of Public RTO Boards in Nigeria

CG is the strategy employed by governments to guarantee the stability and profitability of their businesses (Sheifer & Vishny, 1997). The organ of governance of these government enterprises is the board (Harris et al., 2010) and they are often appointed to represent the interests of the owners (Bain & Band, 2016). Boards are important to firm performance (Okiro, 2015) and this may be the reason many owners favor their use as they are considered a vital part of organizational success. I designed interview questions three, four, and eight to discover the impression of FBMs, PCEOs and FCEOs about the role of public boards and also their importance to public organizations. This answers RQ2 which states: What do board members and managing directors of public organizations in Nigeria's R&D sector believe is the impact of boards on organizational effectiveness? From their responses, all participants perceived that boards are necessary to Public RTO effectiveness in Nigeria, although they differed on the extent of their impact.

Except for FCEO4, who had what was called an advisory committee instead of a board, and was thus only able to speak from the perspective of what he had observed about board activities, all but one of the FCEOs and PCEOs agreed that public boards are important to RTOs. This represents 68.75% of the respondents. The rest are FBMs, and they all supported the need for RTO boards. From the responses of participants, four codes were generated to answer research question two namely: board role, board impact, board influence, board composition and size, and these codes reveal more information about the perceived importance of public RTO boards in Nigeria.

Board role. The role that boards play will determine their effectiveness (Nordberg & Booth, 2017). According to PCEO 1, boards make the decision making-making process quicker and more effective because they understand the needs of organizations and help to reduce official bottlenecks that could hinder the implementation of those decisions. PEO 1 further explained that boards can give certain approvals pending the final approval so that the intended projects would not suffer costly delays.

FCEO 2 said that board role is in administration and governance and unless they understood this role, it may be difficult to attain organizational effectiveness. FBM 5 also mentioned that boards ought to guide organizations towards mandate achievement. According to him, this role should help check the excesses of some CEOs. PCEO 4 equally expressed his belief that boards were necessary to keep ambitious CEOs from taking decisions that could harm the organization. PCEO 4's opinion corroborated the position of Jensen and Meckling (1976) that managers' interests may not always be aligned with that of owners and they thus needed to be monitored. FCEO 3 stated that because some CEOs tended to ignore the core mandates of their organizations and rather pursued personal goals, boards were needed to call them to order. These comments indicated the belief of participants that RTO boards are expected to oversee the activities of the organization by monitoring the CEOs. According to Williamson (1988), a good and effective governance structure will prevent managers from pursuing their selfish agenda and interests. Boateng (2016) said that when good governance structures are in place in organizations, shareholders are assured that their interests and the objectives of the organizations would be protected. FCEO 5 commented that boards monitor execution of funded projects on behalf of government and if this was properly done, CEOs should have no excuse for sub-standard performance.

PCEO 2 established another role of RTO boards as intermediaries working to eliminate the bureaucracy of the Civil service. FCEO 2, FBM 4, and FBM 5 also agreed that boards should serve as intermediaries because they will be able to help organizations overcome the cumbersome governance structure in place in Nigeria. According to FBM 4, "The management cannot be running to the presidency and the minister always. The board is the bridge." FBM 5 also believed that public boards act as middlemen between organizations and the legislature.

FCEO 1 further explained that public RTO boards ought to provide policy direction and also oversight functions in those organizations. According to him, when public governing boards are empowered, they will be able to develop and execute strategic plans which will ultimately lead to RTO effectiveness. FCEO 5 concurred by asserting that effective governing boards could be identified by their commitment to pursuing the delivery of government's policies. Effective boards do this, according to FCEO 5, by monitoring the activities of organizations and ensuring that they are geared towards national goals. FCEO 7, agreed with this assertion and commented that the effectiveness of any board would be determined by how effectively their organizations are able to deliver the promises of government to the citizenry.

Board influence. The influence of boards can determine their impact. Influential boards get results. This code is explained in two parts.

RTO Boards' operational influence. Most public RTO boards in Nigeria are independent and even though they perform management duties, in the opinion of some of the participants, they are not expected to be involved in the day-to-day administration of their organizations. According to FCEO 3, boards must understand that their role is complementary to the efforts of the CEO and there should be separation of powers in order to avoid conflict. He further explained, "… if you go to one federal university of Petroleum Resources, the Pro Chancellor of that university has an office that is bigger than that of the Vice Chancellor and he is there on a daily basis."

In the opinion of other participants, RTO boards' usefulness lies in their influence with external parties, and their ability to get things done for their organizations. A former board member, FBM 1, agreed that positive board influence was important to the operations of RTOs because they could liaise with higher authorities. FBM 3 equally observed that the political influence of some board members can give their organizations the financial boost required, thereby stimulating more inventions and competences., FCEO 3 said, "after the budgeting is the beginning of the real work. If we had had a properly constituted board, this would have been easier for me because there would have been some influential persons on board."

PCEO3 submitted that if the board were active and well-constituted, they would move round to source for needed assistance for the organizations. This suggested that board members' influence can affect organizational effectiveness. According to PCEO 1, boards can also influence their organizations through advocacy. Another important area of influence identified was through the personality of the Chairmen of RTO boards. PCEO1 confirmed that the chairman of the board he worked with greatly assisted to publicize the organization's activities. PCEO 3 believed that advocacy was easier for board chairmen who had political and international connections. According to FBM 1, when board members belonged to the ruling party, they could easily influence budgetary appropriations so that their institutions could operate better.

RTO Boards' managerial influence. Another area of board influence, touched by participants, was their belief that boards influence management by monitoring their performance. According to the Public Sector Commission (2017), boards are expected to represent their owners by performing oversight functions on their behalf. With the exception of a few participants, most believed that by monitoring CEOs, boards can exercise influence. FCEO 6 said that "Government actually needs to monitor through the boards" while PCEO 1 confirmed that: "Boards are there to check you and if they try to do this, you should not feel threatened when they do because outsiders cannot check you. Every criticism should be taken as guidance towards better performance." According to FBM 5, RTO boards should guide these organizations towards mandate achievement so that the excesses and personal interests of CEOs are not allowed to override national interests.

FCEO 6 commented that, “RTOs are on technology research and the boards are supposed to monitor what the outcome of the operations are and how they have transferred these results to private sector or public manufacturing sector.” FCEO 5 said that RTO boards can ensure delivery of demand-driven products to target communities if they are committed to their supervisory functions and are also periodically assessed.

The monitoring function of RTO boards was established by PCEO 3 who confirmed that the board supervised his organization’s activities. However, Rowley, Shipilov, & Greve (2017) suggested that although boards are supposed to manage performance in organizations, their impact is, at times, remote. This was further corroborated by some of the participants. FCEO 2 said that, “Within the period that I interfaced with the boards; I really didn’t see any productive impact they had on the system while I was still on that seat.” and PCEO 4 said that, “Some go there just to sleep; they don’t even contribute meaningfully to the running of the board. So, the impact of boards is not as it should be in RTOs”.

According to FCEO 6, instead of monitoring performance, the boards only monitored financial operations and performed staff review. Some FCEOs also proffered reasons for the inability of RTO boards to perform their oversight functions. While FCEO 4 identified bureaucracy and political considerations for the slow response of RTO boards to organizational needs, FCEO 5 believed that personal interests of political leaders, rather than the needs of the people, made public RTO boards unresponsive to the general goals of the organizations.

CG is a tool for monitoring RTO performance outcomes but it has been challenging to establish solid governance structures in RTOs (European Commission, 2005). FCEO 7 confirmed that there was no formal code for public governing boards in Nigeria. Wilson (2006) concluded that organizational failures are an indication of poor governance structures. As a consequence, it may be challenging for ill-equipped boards to successfully monitor public RTOs, especially in view of the specialized nature of RTO functions. This is further exacerbated by the unstable nature of the Nigerian economy, which has worsened business culture in the country (Ujunwa, 2012).

Board composition and size. Aina (2013) suggested that a diverse board would possess different skills and varying levels of experience, which Jhunjhunwala (2012) observed could be a consequence of their being drawn from different walks of life. FCEO 4 concurred that public board diversity added value to their organizations and improved the quality of governance. According to PCEO 3, a diverse public board will be difficult for the CEO to manipulate. FBM 2 also believed that the right mix of professionals on public boards would promote free flow of relevant information. This, according to FBM 2, would make it easy to reach consensus in real time, thereby reducing the time it would take to deliver organizational outcomes. Hermalin and Weisbach (2001) found that there was no relationship between organizational performance and board composition or board size. However, Lasisi (2017) commented that even though board size and composition may not have a direct influence on organizational effectiveness, large board sizes have their advantages, such as high skills and competencies that are needed for strategic decisions in organizations.

FBM 1 observed that if RTO boards are not well composed or in the right size, the organization would likely be negatively affected. FBM 1 further revealed that except public boards were well composed, lack of control over board members and power-play among powerful board members could make consensus difficult to attain during board meetings. FCEO 5, defined wrong composition in terms of having more of politicians than professionals on RTO boards. According to him, a public board that is composed of more politicians than technocrats would not be effective because the politicians would have pressure from their constituencies and parties. This could constitute serious challenges to good governance.

Board impact. Participants in this study believed that the importance of public boards could be deciphered from the impact which these boards had on their organizations. According to PCEO 3, the impact of the boards assigned to his organization was measurable in terms of the linkages they provided for the organization. The PCEO 3 confirmed that the board secured approval for better conditions of service for staff and also successfully pushed their funding proposals through the National House of Assembly. According to FBM 2, the board's impact was felt in their approval of a new management structure for his agency and its institutes, which made them more focused and autonomous. FBM 3, while speaking from the point of view of board members, believed that board impact could be measured by the influence they exert in getting things done for their organizations. PCEO 2 corroborated this point, saying that boards could obtain approvals faster than CEOs due to the influence they wield in government circles. FBM 5 however perceived that the impact of public RTO boards could best be felt during the selection of candidates for the position of CEO. According to FBM 5, selection of the wrong candidates as CEOs could hinder the effectiveness of their organizations.

Table 8

Summary of Categorical Data on Respondents' Responses Regarding the Importance of Public RTO Boards in Nigeria

	Participants who commented			
Codes	PCEOs N = 4	FCEOs N = 7	FBMs N = 5	Total N = 16
Boards Supervise and Assist CEOs	3 (75%)	2 (28.5%)	2(40%)	7(43.7%)
Boards Provide Policy Direction	2 (50%)	3 (42.8%)	2(40%)	7 (43.7%)
Boards Influence Organization's Effectiveness	3 (75%)	2 (28.5%)	4 (80%)	9 (56.2%)
Boards Serve as Intermediary/Advocates	4 (100%)	3 (42.8%)	3 (60%)	10 (62.5%)

As can be deduced from Table 8, seven out of 16 respondents believe that RTO boards are supposed to supervise CEOs and assist them to be more effective. Out of these seven, there are three PCEOs, two FCEOs, and two FBMs. One of the duties that respondents identified that makes boards important to public RTOs in Nigeria is that they provide policy direction. The word, policy, was used by 7 out of 16 respondents, which translated to 43.7% of the total respondents. 56.2% of the respondents also believe that public RTO boards do exercise some influence upon their organizations' effectiveness. Perhaps the most significant opinion of respondents on the importance of public RTO boards is what they perceive as a major role of boards, which is serving as advocates for the organizations by using their political and professional influence. 62.5% of the total respondents recognized the role of their boards in attracting funds, better working conditions, and patronage for the organizations. This overwhelming percentage indicates that this is one of the most important roles of public RTO boards in Nigeria. There were however respondents who did not agree that RTO boards were important or necessary but rather retrogressive. PCEO 4 said that boards are mere appendages and are used as compensation schemes for political loyalists in Nigeria. FCEO 2 added that over time, their role and relevance were becoming more retrogressive rather than progressive. FCEO 6 also observed that public RTOs could fare better without boards.

Table 9

Summary of Categorical Data on Respondents' Response Regarding the Importance of Public RTO Boards in Nigeria

Participants	Public Boards are Necessary for RTOs (%)	Public Boards are Necessary for RTOs (%)	Total (%)
FCEOs	5 (38.5)	2 (66.7)	7(43.8)
PCEOs	3 (23)	1 (33.3)	4 (25)
FBMs	5 (38.5)	(0)	5(31.2)
Total	13 (100)	3 (100)	16 (100)

Thematic Category 3: Criticisms Against Boards' Performance

One of the purposes of boards is to monitor adherence to organizational objectives and ensure improved performance of organizations through the building of tested performance-enabling structures such as CG (OECD, 2015). There should thus be codes and procedures that govern corporate decisions. The focus of this study was on RTO boards in Nigeria and it is imperative to understand the activities of these public boards and which aspects of their structures posed threats to RTO effectiveness. There are distinct expectations about how boards should act, but opinions about how they act in reality differ from the theories. I, therefore, designed interview questions two, five, six, and seven to elicit the opinions of FBMs, PCEOs and FCEOs about the activities of RTO boards in Nigeria and how they perceive their structures and performance. The responses obtained answered t RQ1. Four natural codes emerged from the responses of participants and these provided answers to RQ1. The codes that emerged include the absence of evaluation structures for boards, political interference, board composition, board performance, operational hindrances, and executive compensation.

Absence of evaluation structures for boards. CG assists policymakers in guaranteeing accountability by focusing on organizational goals and objectives so that conflicts of interest could be reduced amongst the principals and agents and organizations could be made to be more accountable to shareholders and stakeholders (Keasey & Wright, 1993; Keay & Loughrey, 2015). Following the global financial crisis of 2002, which resulted in numerous collapse of corporate companies, boards are being constantly monitored and most governments make it a priority to make them more accountable by insisting on the entrenchment of CG systems (Keay & Loughrey, 2015). According to Herman (2010), when boards are accountable, abuse of office is prevented, optimal performance is encouraged in organizations, and the organizations are healthy and efficient.

In spite of the critical importance placed on CG and accountability (Keay & Loughrey, 2015; Moore, 2015); the majority of the participants in this study found the public boards in Nigeria to be lacking in accountability and ethical practices, and engaging in practices which promote agency issues. According to the agency theory, managers have their personal interests, which are often separate from the objectives of the organizations, and the pursuit of these often result in agency issues. Participants observed these incidences in the governance structure of Nigerian public RTOs. According to FCEO1, political appointees on boards come there to make money for themselves and CEOs find it difficult to keep them in check. FBM1 supported this claim by citing an example of how politicians on the board he served were always more inclined to push for constituency projects rather than pursuit of the organization's mandate. According to FBM 1, CEOs who tried to resist such requests often suffered backlash from the politicians. PCEO1 remarked that the pursuit of personal interests was not limited to politicians alone but some professionals on the board sometimes acted unethically.

Most of these issues of self-interests were traced to a lack of proper evaluation procedures. According to FCEO 2, boards do not seem to be accountable to anyone. FCEO 7 alluded to the fact that there did not seem to be any code of governance for public boards and that this seemed to suggest that the Nigerian government did not expect any serious impact from the boards. PCEO 3 corroborated this assertion by indicating that the activities of public boards were never monitored and as such, they could do whatever they liked. FBM 4 also confirmed that there was no monitoring system for boards. FBM 5 stated that though boards monitored CEOs perfectly, their activities were not monitored.

According to Koenig-Archibugi (2004), boards' powers are derived from shareholders and the boards should be held accountable for how they deploy these powers. Accountability in CG is a requirement for accessing grants (Keay & Loughrey, 2015). Some participants also observed that some of the RTO boards do not really have terms of reference or centralized governance codes and as such, they give personal interpretation to their roles. FCEO 4 said that "their deliverables are also not clearly spelt out and there are too many extant laws that public boards must adhere to." FCEO 5, added that though there ought to be a regulatory body for public boards, nothing as such existed in Nigeria. FCEO 7 mentioned that board members often relied on the information obtained during their induction to guide them during their tenure. FBM 5 confirmed that the board he served on relied on the manuals developed by the organization, and their interactions with the CEOs, to form governance codes for their activities.

Political interference. According to the Cadbury report, the best practices of CG are hinged on the principles of openness, integrity, and accountability (Cadbury, 1992). This suggests a measure of independence and flexibility for public boards. Beqiraj and Bregasi (2015) said that board activities were characterized by nonspecific governance structures and constant state interference. Boards that were not composed of professionals are often susceptible to political interference and this affects their impact in their organizations. While not suggesting that boards should be left to themselves without supervision such that they would be encouraged to pursue self-interests instead of shareholders' interests, Keay and Loughrey (2015) suggested that the power and discretion given to boards should be balanced so that they are liable to account for the way they exercise the authority given them. This would encourage accountability, corporate stability, and innovation as well as give them some form of leverage and flexibility to perform their duties.

At the core of this study's participants' concerns were their observations of the high degree of political interference in board activities and decisions, which, to them, made the role of boards unclear and unstable. This often resulted in conflicts of interest and setting aside of the principles of good governance. FCEO 5 stated that public boards in Nigeria are under 'political control' because their activities are being determined by the people in government with a political agenda. According to FCEO 2, boards were appointed for his organization despite the fact that the organization's establishment was not enabled by any act of government. FCEO 2 further commented that this proved his observation that board appointments were just "job for the boys". PCEO 4 added that boards were not intended as serious appointments but compensations for political allies. This, according to FCEO 3, accounted for the reason public board activities are not being monitored in Nigeria. FBM 5 also decried the fact that the board system was not a performance-based system.

Board composition. Effective CG in public organizations is often determined by the composition of the boards of these organizations (Beqiraj & Bregasi, 2015). Beqiraj and Bregasi (2015) said that where political interference is high, the incidences of having inexperienced and unqualified members of political groups on the boards would be high and this would weaken CG in public organizations. Some participants in this study queried the contributions of individuals on the boards, suggesting that the type of people offered appointments on RTO boards in the past had hindered their performance and effectiveness.

According to FCEO 5 and PCEO 1, boards that are not well composed will be unethical and unappreciative of the needs of the organization. FBM 1 confirmed that public RTO boards that were chaired by politicians found it difficult to exert control over other members while FBM 3 observed that such boards were mostly ignorant of the operations of their organizations and needed to be enlightened about technical proposals. Often, according to FCEO 1, such situations increased agency costs. FBM 3 remarked from his experience that politicians had no business being on RTO boards because they often did not understand the direction the organizations should face and they were thus bound to make many mistakes. Although public boards are often made up of representatives from various constituencies of the ruling parties (Jhunjhunwala, 2012; Leisner, 2005), Aina (2013) suggested that a good board must embrace diversity in its composition. If such is done, Aina believed that the right skills, experience, and connections, which are needed to perform, would be available in the right mix and the pressures from those who appointed them would be minimized.

Board performance. Public boards are expected to apply good CG in achieving organizational objectives (Aina, 2013). According to the SEC Code (SEC, 2016), public boards in Nigeria are also responsible for the performance of their organizations and monitoring of the management of the organizations. To effectively play these roles, boards are supposed to fully understand their oversight responsibilities and adhere strictly to best governance practices.

Public boards in Nigeria gained prominence with the transition into democratic governance in the country in 1999 (Adegbite, 2015). For 20 years, therefore, Nigeria has been experimenting with boards in its public organizations. According to Okiro et al. (2015), performance indicators are necessary to determine performance and they must meet certain criteria such as measurability, relevance, and contributions to the organization. Some of the participants were able to measure the contributions of RTO boards in their organizations. PCEO 3 mentioned that the board of his organization attracted more funding for his organization and this empowered the organization to do more research and make more impact. FBM 2 added that the intervention of boards facilitated infrastructural development in RTOs.

Critical assessments of RTO boards performance were also obtained. FCEO 6 said that boards were more interested in the financial performance of their organizations than they were in their achievement of set goals and mandates. This observation, according to FCEO 6, was further strengthened by the fact that measurement of organizational impact on the citizenry was not covered by the Nigerian Companies Act (CAMA). This seemed to him like government was not really committed to meeting her citizens' needs. The assessment of FCEO2 was also that boards had repeatedly failed to properly conduct oversight functions on RTOs. FCEO 2 specifically observed that his performance was only assessed once in the almost 9 years he spent as a CEO. FCEO 6 also said that the structure of public RTO boards in Nigeria did not encourage effectiveness. However, FBM 4 observed that the impact of public boards was not being felt because the government, which set them up, did not encourage their growth and survival. According to FBM 4, the government of Nigeria did not fund the RTOs or patronize their products and this led FCEO 7 to conclude that these public boards were not designed to have any significant impact.

Operational hindrances. The most identified hindrance in this study was inadequate funding. PCEO 3 observed that operational matters hindered the performance of the board appointed for his organization. FBM 1 corroborated this and stated that despite the budgetary allocations to RTOs, the funds are rarely released and in the required amount. Consequently, FBM 1 observed that this situation often stalled innovation and board members could not hold CEOs responsible in such instances. The funding challenge also hindered remuneration for board members, servicing of board meetings, accommodating members and paying transportation costs (FBM 3). According to FCEO 1, an outstanding board could influence the performance of their organizations but their impact could also be hindered by unfavorable working conditions and lack of adequate funds to deliver expected results. FBM 1 shared the same opinion, and also noted that public boards did not administer the funds that were allocated to their organizations. FBM 1 further clarified the operational bottlenecks faced by public RTO boards. According to him, public boards could not take certain risks to assist their organizations, like their counterparts in the private sector, without obtaining approval from authorities. Most often, FBM 1 observed, these approvals may be delayed or denied.

The federal government funds R&D activities in the FMST through yearly budgetary allocations to the public institutions and because these funds have not been regular and sufficient, most Nigerian RTOs are limited in their activities (Onuoha, 2012). According to Porter (2009), the limited funding of the FMST reflects the lack of priority placed by government on R&D and the perceived lack of importance of RTOs to national development. This study's participants expressed their concerns about the inadequate funding of the RTOs. Other codes generated included board size, bureaucracy, and executive compensation.

Board size. According to PCEO 1, large boards are problematic and they increase agency issues. He recommended an average size of seven to nine members in a public RTO board. FBM 1 commented that over-sized boards were often out of control while PCEO 3 argued that large boards were usually too expensive to maintain in terms of remuneration, coverage of meetings, and gathering of board members from different parts of the country.

Bureaucracy. According to PCEO 4, board impact is hindered by bureaucracy which elongates the process of decision making and implementation. Similarly, FMB 1 observed that public sector rules made it impossible for public boards to act fast and take some urgent decisions because the laws did not permit them to operate beyond what it allowed. FCEO 4 believed that this situation slowed down board activities. This led FBM 4 to conclude that placing public RTOs, and their boards, under the supervision of federal ministries limited their impact because the RTOs had specialized operations and would not benefit from an omnibus administrative structure.

Some participants also observed that the type of board leadership in place could constitute a hindrance to board performance. For example, FBM 3 mentioned that the Chairman of his board was the President of the Federal Republic of Nigeria and that this posed some very fundamental challenges. For instance, FBM 4 noted that the President hardly had time to chair board meetings and the supervising ministries did not really understand the needs of the RTOs. FBM 4 further mentioned that the President's performance could also not be monitored and thus, the boards he chaired were not really effective especially since FCEO 1 confirmed that the Vice Chairman of his board could not take decisions without recourse to the president.

Not only are board chair roles very critical to success, leadership gaps could result in lackluster performance of RTO boards in Nigeria. Some other boards devised administrative solutions to the problems of bureaucracy and leadership which hinders board performance. For instance, FBM 3 noted that the board which he served on would break out into committees to increase response time and also reduce cost of calling for board meetings too frequently. FBM 2 confirmed that the strategy devised by his board then, in a similar situation, was to reach a consensus informally, when a matter was urgent, and then the Vice Chairman would present this to the President for ratification.

Some other participants however believed that the personal abilities of board members could limit board impact. According to FCEO 2, his board was composed of persons without any tangible record of achievements and fields of specialization. This limitation, according to FCEO 2, limited the profiling and technical engagement of the board members that were assigned to his organization. FCEO 3 however asserted that the dynamism or weaknesses of the CEOs determined the performance of board members. FBM 4 thus advised on the selection of professionals who would be technically at par with the CEO.

Lack of governance structures. Major Nigerian public corporations have suffered significant setbacks, which resulted in the collapse of their structures or organizations as a consequence of agency issues and poor governance structures (Ogujiuba & Obiechina, 2011). As a consequence of this, the mandate for good governance is increasing in importance as the media, the public, local and state governments, the business community, consumers, and the federal government are closely scrutinizing boards across the country. The obvious place to focus on would obviously be the governance structures in place because without this, it would be difficult to determine how boards have fared.

The participants in this study complained about structural defects in the governance of public RTOs in Nigeria. FBM 1 and FCEO 5 claimed ignorance of the existence of a code of governance for public boards while PCEO 3 confirmed that though there were some service codes, no specific codes guided public board operations in Nigeria. FCEO 6 however observed that the Acts of every RTO encapsulated the expected role of their boards although he also suggested that a separate Act should be enacted for public board activities. FCEO 7 added that most public RTO boards developed their own governance procedures. This remark was corroborated by PCEO 4 who observed that though not codified, the board he worked with was guided by some principles such as tenure, and functions, in line with the Act establishing the organization. FBM 3 observed that the governance practices in his organization had become so entrenched in the system that it had taken care of potential administrative bottlenecks. FCEO 4 therefore advised RTO boards to search for these codes, work with them, and also learn to govern from experience. Public boards must therefore clearly understand and embrace their vital governance responsibilities in order to avoid the type of high-profile governance failures that have occurred in some R&D organizations.

Executive compensation. Aduda and Musyoka (2011) said that the relationship between executive compensation and board performance was negative because the influence of principals reduced as the banks' sizes increased. He arrived at this conclusion after examining the impact of executive compensation on the effectiveness of Kenyan banks between 2004 and 2008. This suggests that executive compensation has little or no effect on their performance. Eluyela et al. (2018) discovered a positive relationship between the frequent meetings of boards and improved performance of organizations because there was improved communication between boards and management and this eliminated agency issues. Creed et al. (2011) argued that institutional and cultural issues can influence the practice of good CG in developing countries.

The immature state of the Nigerian public sector has been attributed to an obvious absence of governance standards and this has promoted corruption in most public organizations (Adegbite et al. (2012), weakened governance institutions, thereby resulting in corporate failures (Kaufmann et al., 2008 in Adegbite, 2015). Participants in this study believe that executive compensation is necessary in the governance of Nigerian RTOs, to prevent failure. According to FBM 5, there are divergent views about serving on public boards. While government viewed appointment on boards as public service, most board members believed it was a means of being enriched and once the needs of board members were not met, their commitment to service would wane or they would begin to seek satisfaction through unethical means. FBM 1, FBM 3, and FCEO 6 also implied that board members viewed their appointments as a means to an end and did not really offer value to their organizations. Another participant, FCEO 5 observed that public board remuneration was very poor and the costs which government was trying to cur would on the long run be unnoticeable because of rise in agency costs. FBM 5 then cautioned that poor remuneration could influence the effectiveness of public RTO boards. Another consequence of poor public board remuneration, according to FBM 5, was that sometimes, CEO evaluation was seldomly objective because the boards were oftentimes receiving unapproved favors from such CEOs.

FBM 1 corroborated the point:

> Sometimes also, there have been situations where some board members mount pressures on the CEO on issues of employment of staff and even award of contracts, and where the CEO tries to resist, it causes some kind of conflicts between the CEOs and some board members.

FCEO 2 also complained:

> For all I know, these people are talking about appointments they have to make, how much money they want to be receiving per sitting, contracts to be awarded, and never talk about anything having to do with mandate of the Institute. Though they didn't have powers to fix their remuneration, they want to do it anyway and they came up with a fake memo. I could not authenticate the document and so didn't pay what they were requesting because we even didn't have the money to pay.

The implication, therefore, is that if the remuneration of board members were not met, this could affect their performance and prompt them to take bad risks (Cybinski & Windsor, 2013). Based on the responses, the challenges that hinder the effectiveness of public RTO boards are not imaginary and they could hinder their impact in RTO organizations. FBM 1 thus advised that the remuneration of public boards should be more attractive so that its members would not be tempted to continually seek unorthodox and unethical means of extracting money out of the system.

Thematic Category 4: Improving Board Performance

Governance is a means of controlling organizational output, and good governance is the strategy governments use to ensure the stability and profitability of their businesses (Bardach, 2012; Cooper & Edgett, 2012). Boards are assumed to be determinants of good governance in organizations (Tricker, 2015; Van Essen, Van Oosterhout, & Carney, 2012). Many owners thus favor their use as they are considered a vital part of the good governance strategy which is needed to overcome agency issues. According to Okiro (2015), in order for governments to obtain the best results from organizations, boards processes and governance practices must be improved. This prompted me to design interview questions 5, 7, and 8 to answer RQ3 and also enable respondents offer suggestions on how public RTO boards in Nigeria could be more effective.

This thematic category answered RQ3. All the participants believed that Nigerian RTO boards could perform better than they presently did. The number of codes derived from this category was seven, and they included adherence to governance standards, goal-orientation, monitoring and evaluation, funding, training, composition, autonomy, and improved remuneration.

Adherence to governance standards. PCEO 2 noted that since the world had now become linked through technology, public RTO boards must adhere to global governance standards in order to remain relevant. PCEO 2 however acknowledged that cultural differences could necessitate the modification of global governance best practices to suit Nigeria's culture. In order to be more efficient and accountable, FBM 5 suggested a unified governance code for public boards with room for adjustment to suit individual sectors. FCEO 4 however suggested that training would solve governance problems in public RTOs in Nigeria.

The principle of accountability is one of the globally-acceptable governance standards (Bovens, Schillemans & Goodin, 2014; Keay, 2015; OECD, 2001). FBM 1 therefore suggested that the Nigerian government could make boards accountable by creating a feedback structure which managements could fall back on to report intimidation or infringements by board members without backlash. This step, according to FBM 1, would help keep public boards on track instead of dissolving the boards whenever problems arose.

Goal orientation. According to Bernstein et al. (2016), the governance perceptions of CEOs and boards (chairs) must overlap with that of the organization to achieve effectiveness. FCEO 5 said that public RTO boards ought to adequately monitor that their organizations are developing demand-driven products aimed at positively influencing their communities. PCEO 1 suggested that boards should conduct periodic needs assessment for the society and focus on what the society needed rather than what the boards thinks they need. The same opinion was echoed by PCEO 2 who observed that boards should drive organizations towards the eradication of national challenges instead of trying to solve every problem in the society. In order to achieve this, PCEO 3 suggested that board members should have a change in their orientation and see their time on the boards as opportunities to serve their country. FCEO 3 recommended that public boards be indoctrinated into this mindset right from the time of their inauguration and induction. These perceptions indicate that good governance is achieved when board members pay due diligence to their processes and activities.

Monitoring and evaluation. Since boards are the tools of good governance, and since good governance is the desired state at all levels of public business management systems, efforts should be made to increase the effectiveness of boards. Evaluation of boards is a critical public policy tool aimed at improving the performance of boards (Nordberg & Booth, 2017). This is ultimately geared towards overall improvement in the provision of government services. It would also encourage board accountability and eliminate incidences of preventable failures (Bain & Band, 2017; Nordberg & Booth, 2017).

Boards in the Nigerian public sector do not undergo vigorous evaluation (Adegbite, 2015). The opinion of some of the respondents also corroborated the fact that boards in Nigerian RTOs had not been properly monitored. Participants also averred that evaluation of their activities and practices was almost non-existent. For instance, FCEO 2 said that the National Assembly had failed in its oversight duties over public RTOs and their boards in Nigeria thus encouraging complacency. FCEO 7 also remarked that the interest being paid by government to board activities should be increased as this would challenge public boards to pay more attention to their assignments. FBM 1 thus suggested a form of standardized evaluation system to improve board impact. According to FBM 1, reinforcement of board supervision will restore ethical practices and help organizational growth. PCEO 3 suggested that board members should be made to fill APER like other public employees and this should be used to determine their re-appointment. PCEO 3 remarked that boards would be more effective if they understood that they would be evaluated. FCEO 2 recommended that standardized measurement and evaluation processes should be activated for public RTO boards and it should be continuous in order to have the desired impact.

According to Bain and Band (2017), boards performance evaluation standards should be measurable, achievable, and regular. FCEO 4 said that if boards were given targets for the period they were expected to serve, their impact would be easy to measure. He also suggested that public RTO boards should submit annual reports on their activities and they should be peer-reviewed to evaluate impact made. According to FCEO 4, the peer review will teach other boards what they did not know thereby resulting in the development of governance best practices in public RTOs in Nigeria.

Board evaluations are said to be more thorough when they are conducted using external and professional teams because their feedback would be objective (Bain & Band, 2017). This recommendation was echoed by FCEO 5 who suggested that since there was no monitoring structure in place for public RTOs in Nigeria, boards should be structured to report to an external body of oversight which could hold the boards to account for the delivery of the public service for which they were set up.

Funding. PCEO 3 confirmed that inadequate funding incapacitated the board assigned to his organization. FBM 1 corroborated the impact of dearth of funding on the performance of boards and its effect on the organization. According to him, lack of funds will stall activities in the organization and encourage conflicts between the CEOs and their boards. FCEO 4 also observed that organizations fared better when they could bring boards together but lack of sufficient funds made that impossible. FCEO 2 however suggested that beyond the call for proper funding, the use to which the released funds are put and their impact should be monitored also.

Training. According to Bain and Band (2017), boards are more likely to be more effective when they have formal training to strengthen CG practices. Some of the respondents agreed that board members needed the training in order to be equipped with the knowledge required to develop appropriate policies and processes. FBM 1 confirmed that he had received some form of training before taking up his position as a board member. He then recommended that such trainings should be systematic; as soon as the boards are appointed, midway in their appointments, jointly, or together with the management of the organizations.

PCEO 3 advised that induction training could be arranged for board members after their inauguration so that these codes of governance and their roles would be well spelt out to them. FCEO 2 also noted that the roles of boards should be well spelt out to them during their inauguration. FCEO 7 suggested that the training could be performance-related training to raise the competence of public boards and teach them what they needed to know in order to effectively deploy their knowledge and powers.

Composition. According to FCEO 2, boards must be well composed in order for them to record any meaningful impact. This position was supported by PCEO 1 who said that public boards should be small and professional. PCEO 3 pointed out that large boards consume much funds and hardly achieved anything. FBM 1 therefore pointed out that the selection process for public RTO boards in Nigeria ought to be stricter and based on merit rather than on political patronage. FBM 3 also cautioned on appointing the wrong people into public RTO boards as it could hinder the effectiveness of their organizations. FBM 4 suggested that institutional heads, such as presidents of professional bodies, would offer the best value if appointed on boards.

FBM 1, FBM 5, and FCEO 4 suggested the ideal composition of RTO boards. While FBM 1 and PCEO 1 suggested that public RTO boards be limited to 10 members and should comprise of retired professionals who had either been in government or in the industries, FBM 5 recommended that politicians should not exceed 20% of the board size. FCEO 4 also recommended that professionals from the private sector could be invited to serve on public RTO boards because of their wealth of experience.

Autonomy. According to FBM 3, the lack of full autonomy for public RTOs in Nigeria made their governance behavior unpredictable and unstable thus hindering their performance. PCEO 1 confirmed that public RTO boards did not have sufficient powers to carry out their assignments. According to Haniffa and Hudaib (2006) however, when boards are too independent, it could reduce the performance of the organization.

Improved remuneration. Adegbite (2015) said that Nigeria did not have a well-established compensation culture for executives. According to Adegbite, this could hinder good governance practices because the poor remuneration could prompt executives to engage in sharp practices. Participants commented on the need for improved remuneration for public RTO boards in order to improve their performance. FBM 5 mentioned that improved remuneration for public RTO boards would also reduce conflicts in the work environment. Adegbite (2015) recommended that to achieve good governance in Nigerian public organizations, executives should be well compensated according to their performance. This reward system should be well defined enough to clarify what every board member should expect for their services.

Thematic Category 5: Hindrances of Public RTO Effectiveness

Berle and Means (1991) revealed that public enterprises offer the most plausible avenue to arrange for and distribute goods and services for the populace. According to FCEO 1, "RTOs are organizations of government created specifically for economic and developmental purposes". They are different from the universities because they are involved in research for the transformation of the way of life and infrastructural development of the country. PCEO 3 also observed that RTOs were very important to governments because they delivered governments' promises of social and physical infrastructure to the people. FBM 5 added that the research of Nigerian RTOs were of national importance because they represented government's response mechanism to the failures of the nation in all spheres of life.

Public RTO boards in Nigeria were appointed to increase the efficiency and performance of the organizations. However, responses from the participants in this study indicated that these RTOs were grappling with certain challenges which may be affecting their performance. Some of the identified challenges were discovered to be sometimes beyond the scope or intervention of boards. I designed RQ1 and RQ2 to elicit information on the challenges faced by RTOs, apart those that could be ascribed to boards' activities. Four codes were generated from this category and they included: Lack of State Support for R&D, Weak Operational Framework, Inadequate Infrastructural Facilities, and Inadequate Funding.

The effectiveness of RTOs is a key ingredient for sustainable national growth in developed economies (Giannopoulou, 2016). These advanced economies have placed a high premium upon supporting R&D activities in order to stimulate innovations and infrastructural development (Giannopoulou, 2016; Martínez-Vela, 2016). Some participants, however, asserted that public RTOs in Nigeria did not enjoy such support from their government. FBM 4 stated, for instance, that government did not properly fund the RTOs neither did she patronize their products. FCEO6 mentioned that when the

RTOs were eventually funded, they were given “envelopes”, arbitrarily calculated or estimated budgets, without really considering what the organizations needed.

FCEO 5 and FCEO 6 added that the government was more particular about the revenue generated by the RTOs and how they could execute projects for their constituencies than they were about the impact of the RTOs on the society. These self-interests, according to FCEO 5, caused leaders in government to fund some organizations more than others yet these organizations were not meeting the needs they were set up for. PCEO 4 also observed that the Nigerian government sometimes funded research but refused to acknowledge or advertise the products resulting from the research but rather preferred to import these products. The consequence of this posture by the government of Nigeria, according to PCEO 4, was the killing of innovation and development.

This lack of state support was also responsible for government’s lack of interest in monitoring the performance of CEOs and their impact, as long as budget performance was met. FCEO 7 observed that CEOs were rarely formally evaluated on their performance or achievements until the end of their tenure, and only if they were being considered for reappointments, or if there was a need for an inquiry. FCEO 6 recalled that his organization’s technical performance was only assessed twice while he was a CEO. FCEO 6 therefore hinted that R&D was not really a priority for the Nigerian government based on government’s posture towards R&D outcomes.

Weak operational framework. In the opinion of FCEO 3, public RTOs in Nigeria lacked a strong operational framework. According to FCEO 4, many CEOs behaved as they deemed fit, especially since no one was really asking them questions.

The absence of a strong operational framework in Nigerian RTOs is possibly responsible for the lack of continuity of projects and processes, as observed by some participants. FCEO 7 stated that, “We have seen instances where all the achievements made during a certain tenure will be stalled because the present leader is more interested in agriculture and thus, we have a lot of abandoned projects and massive wastage of funds.” FCEO 3 confirmed the lack of continuity in governance in Nigeria. He lamented the loss of a promising international partnership for his organization because of the issue of personalization of projects which made all his efforts to go to waste as soon as he left the seat.

Bureaucracy was also identified as a major weakening force against the successful implementation of R& D activities in Nigeria. PCEO 1, FBM 3, and FBM 4 condemned the fact that government continues to foist the public service mentality on public RTOs. This, in the opinion of participants, was responsible for the non-performance and slow response of these organizations.

Inadequate infrastructural facilities. Inadequate and obsolete infrastructure in Nigeria has escalated the cost of the transaction of businesses thereby weakening the competitiveness of the nation’s economy. According to Akintoye et al. (2015), the economic efficiency of any nation is boosted by the presence of some basic infrastructural facilities, which enhances their access and dominance in local, regional and foreign markets. Some of the participants however observed that RTOs in Nigeria were under-utilized and under-producing because of the myriad of infrastructural problems hindering research activities in the country. According to FBM 2, infrastructural development for RTOs was costly to attain, but they were needed for the development and promotion of basic infrastructures, such as energy, water, good road network and technical and financial support services to industries and wider communities of users. FCEO 5 also observed that the cost of acquiring these infrastructural facilities were responsible for their limited number in Nigerian RTOs. This, according to FCEO 5, was one of the performance-related challenges being faced by public RTOs in Nigeria.

Inadequate funding. FCEO 5 revealed that most public RTOs in Nigeria were underfunded and this situation hindered innovation, research, and developmental activities. According to PCEO 3, the release of funds to many public RTOs was haphazard and biased because the releases were dependent upon the whims and interests of the persons at the helms of affairs. According to FBM 2 noted that funding of public RTOs was largely dependent upon the decisions of relevant committees at the National Assembly and that most often, the approvals were unfavorable. FBM 3 added that past trends had revealed that government did not really understand the need to fund public RTOs and they thus allocated what was deemed fit for their operations. According to FBM 3, this was the major challenge confronting public RTOs in Nigeria.

Thematic Category 6: Improving RTO Effectiveness

RTOs are important to national development and this is the reason European nations and regions invest much in their development and sustenance (Giannopoulou, 2016). From the earlier identified codes, we understood that though RTOs were very important to nations, they were not well developed in Nigeria. The global environment where RTOs operate today is rapidly changing and competitive, and to ensure that these organizations effectively play their assigned role, careful thought must be given to positioning them well. Without this, boards may be unable to achieve much result. Four codes were generated from the responses of participants to interview question 7, which helped to explain their opinions on how public RTOs in Nigeria could be improved. The codes included Funding, Structural Re-alignment of RTOs, Enabling Environment, Periodic Monitoring and Evaluation, Strategic Plan and Government Patronage, Management of RTOs, and Stakeholder Engagement.

Funding. FCEO 5 advised that public RTOs should be well funded in order to increase their efficiency and impact. According to PCEO 3, CEOs were well-equipped with sufficient knowledge and competences to achieve their organizations' goals. Government must however demonstrate its sincerity to support the efforts of these CEOs by providing all that public RTOs required and also removing all bureaucratic structures that hindered public RTOs.

Structural realignment of RTOs. According to FCEO 1, the operations of RTOs demands that they be treated different from other public organizations in the public service. FCEO 1 also suggested the categorization of RTOs according to their functions. FCEO 2 aligned with this suggestion and recommended that if public RTOs in Nigeria were grouped according to their mandates, it would be easier to determine their impact. FCEO 2 further suggested that the existing public RTOs in Nigeria could be grouped into three categories: Institutes which provided consumer goods, feeder research Institutes, and research regulatory/training Institutes.

Enabling environment. According to PCEO 3, the creation of an enabling operating environment would transform public RTOs in Nigeria. PCEO 4 expatiated on the right environment for public RTOs in Nigeria. According to PCEO 4, these organizations would thrive in an environment devoid of politicking scarcity of funds to carry out research. FCEO 7 submitted that the budgets for RTOs should be different from that of the typical Ministries, Departments, and Agencies (MDAs) while PCEO 4 called for a shortening of the bureaucracies that hindered RTO operations. FBM 1 recommended a review of the laws that established RTOs so that the challenges being currently faced could be taken care of.

Periodic monitoring and evaluation. The opinion of FCEO 2 was that regular monitoring and evaluation of RTOs would make them more accountable. FCEO 6 insisted that the monitoring plan should be extended to technical performance of these organizations so that the funds being released annually would not be wasted.

Strategic plan and government patronage. PCEO 2 demanded that the federal government should give challenges to MDAs and back these up with the resources needed to deliver as expected. He further recommended the establishment of a technology foresight programme that would encapsulate and codify the priorities and needs of everyone in the society, for successive governments to pursue.

Management of RTOs. FBM 4 reiterated the importance of effective management strategies for public RTOs. According to FBM 4, the effectiveness of public RTOs could be determined by how outgoing the management of such organizations were.

Stakeholder engagement. FBM 4 recommended stakeholder engagement to garner information and establish the collaborations that were needed to improve organizational outcomes. FBM 4 further identified the stakeholders to the RTO sector to include other R&D institutes, relevant private sector industries, and tertiary institutions. He recommended the need to create public awareness of the services and activities of the RTOs through participation in fairs and exhibitions. and organize regular exhibitions and trade fairs.

Summary of Findings

With the aid of data obtained from semi-structured interviews, the journal entries, which were kept by me during the interviews, as well as public documents obtained from the organizations sampled, I was able to enact the governance process in Nigerian RTOs and the effect of RTO boards on the performance of public RTOs in Nigeria. The interview questions were focused on the perception of FBMs, PCEOs, and FCEOs about the relevance and performance of RTO boards in Nigeria. The questions were designed to focus on: (a) the structure of RTOs in Nigeria, (b) the nature of governance of RTO Boards in Nigeria, and (c) impact of boards on the effectiveness of RTOs. The data obtained from the interviews reached saturation point and this simplified the process as enough data was made available to enable the presentation of different views and opinions about board impact and these ideas were grouped under six major themes, namely: Working relationship with Public RTO Boards in Nigeria, Importance of Public RTO Boards in Nigeria, Criticisms against Boards' Performance, Improving Board Performance, Hindrances of Public RTO Effectiveness, and Improving RTO Effectiveness. The findings obtained from the answers provided by participants to the research questions revealed an overarching overview of multiple opinions and perceptions about the phenomenon under inquiry. The many perspectives, obtained from the rich data, highlighted the importance of good governance structures and enabling the environment for boards and RTOs to achieve set goals.

Summary

The purpose of this research was to understand the impact of governance practices of FBMs and CEOs on the effectiveness of public RTOs, leaning upon the perceptions of interviewed participants who had experience governance of public RTOs. The interview questions were developed along with the conceptual framework of the agency theory. The insights provided by participants revealed the state of governance practices in Nigerian public RTOs. The findings of the research questions for this study are presented:

RQ1: What governance problems exist in public organizations in Nigeria's R&D sector?

I designed interview questions 1, 2, 5, and 6 to answer this research question. Two main themes were constructed from the participants' responses namely working relationships and criticisms against board performance. Participants largely acknowledged that the effectiveness of boards would be largely dependent upon the cordiality between them and CEOs. Secondly, participants observed that bureaucracy, political intrusions, and unclear governance structures and systems hinder board performance and these essentially place effective governance beyond the reach of RTO boards. Specifically, participants established that conflicts of interest and systemic failures, which have economic and political causes, have exacerbated governance of public RTOs in Nigeria.

RQ2: What do board members and managing directors of public organizations in Nigeria's R&D sector believe is the impact of boards on organizational effectiveness?

I designed interview questions 3, 4, 5, 6, and 7 to answer this research question. The data obtained from participants revealed their concerns about what the role of public RTO boards should be and what they are in reality. Of great concern were (a) the lopsided composition of RTO boards (b) the apparent lack of interest of government on board outcomes, and (c) inadequate funding; all of which, the data suggests, have greatly and negatively affected the impact of governing boards on Nigerian public RTOs.

RQ3: How do these perceptions of board members and executive directors regarding the impact of boards on Nigeria's R&D sector affect the performance of these organizations?

I designed interview questions 1, 2, 3, and 8 to answer this research question. From the data, participants acknowledged that when deliberate actions that can improve RTO performance, such as (a) effective board selection and engagement (b) categorization and ranking of RTOs (c) adequate funding; and (d) unified governance codes; are pursued, RTO effectiveness would be achieved and become sustainable. Secondly, participants believed that RTO performance could be improved if CEOs and boards were sufficiently monitored and evaluated.

In this chapter, I described the interview process, demographics of the participants involved in the study, how they were selected, and my role in the process. This chapter also described the data analysis process and how codes and patterns emerged. I discussed how I used codes and patterns which emerged from the data to generate themes that were used to answer the research questions. I presented the evidence of research rigor to guarantee the trustworthiness of this study's results and a summary of the findings. In Chapter 5, I discussed the research results, limitations of the study, recommendations that arise from the findings, as well as implications for social change.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

This study was conducted with the purpose of establishing the impact of good CG on RTOs in Nigeria. This study also sought to discover suitable governance codes and structures for public RTOs in Nigeria. Additionally, the study considered the ancillary impact of RTO structures on their performance and attainment of competitive edge in the economy. According to Díaz and Garrigós (2017), growth and economic advantage can be obtained by adhering to international best practices in CG.

The study was conducted using the qualitative interpretive case study approach while the qualitative approach informed the interview procedure. The qualitative method of inquiry enables researchers to gain deep insight into the human experience (Erlingsson & Brysiewicz, 2017). Data for this study were obtained from interviews, government records, and my journal notes. Participants were made up of former and present MDs and FBMs of these public RTOs. Participants were purposively selected from different research organs of the FMST to access their diverse experiences. The documents used for this study included annual reports of three RTOs and other secondary documents such as relevant web pages of organizations. This study adds to the body of knowledge regarding the governance of public RTOs, with special emphasis on Nigeria. In this chapter, I discuss the research findings, limitations of the study, recommendations, implications for social change, and conclusion.

Interpretation of Findings

This study was focused on how to make public RTO boards in Nigeria more effective. Effective boards will produce effective organizations which will make goods and services available and accessible to citizens in the country. The findings were interpreted using data obtained from the interviews. Additional information was obtained from the mandates of these RTOs, as specified in the enabling laws that established the organizations.

Findings from Data Obtained for RQ1

RQ1: What governance problems exist in public organizations in Nigeria's R&D sector?

Findings from the data gathered in this study revealed that governance in public RTOs in Nigeria was uncoordinated, lacked consistent patterns, and was decentralized in most organizations. It is thus safe to conclude that governance in public RTOs in Nigeria does not have a particular structure. According to Fudin and Rahayu (2019), CG is effective in balancing the interests of stakeholders in a corporation because it provides the platform for effective utilization of resources in the organization thereby promoting good outcomes. Any developing country which desires to attract foreign investments and achieve global relevance must create good governance structures (Robertson et al. 2013). Such developing countries also need to promote policies and practices that would enhance their global acceptance as competitive economies. This acceptance will help the countries to grow their economy. This understanding of the strategic importance of R&D to economic development and national growth, coupled with the acceptance of the need to practice good CG, prompted the Nigerian government to establish the NCST in 1970. The NCST was specifically established to promote S&T and coordinate basic and applied research in the country. The NCST was further decentralized into manageable units with the establishment of the Agricultural Research Council (ARC) and the Industrial Research Council (IRC) in 1971 and between 1972 and 1973, the Medical Research Council and Natural Science Research Council. The NCST was later changed to the National Science and Technology Development Agency (NSTDA) in 1977 and given a specific mandate to initiate S&T policies and promote its development. However, in 1980, the NSTDA transformed into the FMST and was rebranded in 1993 to promote science, research, and technology and develop policies to guide the activities of all RTOs in Nigeria. Over the period between 1970 and 1993, the regulatory body was changed three times and merged with other agencies twice before it finally achieved autonomous status in 1993. This inconsistency in operations of the main ministry charged with the coordination of RTOs in Nigeria may have partly contributed to perceptions of participants that not enough attention is being paid to the activities of RTOs.

The FMST deployed boards to the public RTOs to supervise them, in line with extant acts and decrees of the federal government such as Decree 33. Decree 33 approved the establishment of the National Agency for Science and Engineering Infrastructure (NASENI) and also a governing board to conduct the agency's business. Participants, however, identified some defects in the current governance structure of Nigeria's public RTOs, and these included lack of formal codes of conduct and standardized best practices to regulate board activities, absence of constitutionally-entrenched evaluation processes for boards, weak oversight functions, undue political interference, inadequate funding to support board activities and processes, and nonprofessional boards.

Lack of Formal and Distinct Governance Codes for RTOs

Public services are often inaccessible in developing countries (Hove, Ngwerume, & Muchemwa, 2013) and this situation could be linked to poor governance behaviors (Kwon & Kim, 2014). Participants in this study believed that a customized governance system, which would be suitable for the RTO environment in Nigeria, is required for RTOs for them to achieve desired results. Abor (2007) said that the performance and growth of firms are relative to the existence of governance structures in those organizations. According to PCEO1, you have to find out some things for yourself". The consequence of this type of situation is that board members in these RTOs act according to their personal interpretation of what CG should be.

Responses to RQ1 helped to identify restrictions faced by public RTOs in Nigeria as a result of bureaucracy in the public sector. Bureaucracy often slowed down operations. These restrictions also limited boards while performing their supervisory functions. The opinion of participants in this study was that since RTOs are parastatals of government, they should not be treated like ministries, which have to operate under the ambit of public service rules because this ranking hindered their effectiveness. The consensus was that CG structures should be different in public RTOs because of the nonstatic and unpredictable nature of their operations. According to Choi and Chandler (2015), public organizations undertake specialized activities. The structure of RTOs is different from other organizations in Nigeria. While other public organizations provide services to the public as a means of delivering public programs and generating income for government, public RTOs undertake basic research which should result in products, processes, and systems. Consequently, participants believe there should not be one omnibus governance code for public organizations, but RTOs should have distinct governance codes that would aid their operations. Findings from this study revealed that such governance codes did not exist. The main regulatory act which governs corporate behavior in Nigeria is the CAMA of 1990. This act was directly formulated from the 1948 UK Companies Act and covered public quoted firms and financial institutions (Guobadia, 2000). It is therefore limited in its ability to address and moderate issues that arise in the S&T sector. Other CG acts in Nigeria include the Banks and Other Financial Institutions Act of 1991, the Investment and Securities Act of 2007, and the Financial Reporting Council of Nigeria Act of 2011. According to Okike (2007), these CG structures, such as the CAC and the FRC are not empowered to monitor CG compliance. Other available CG codes include the Code of Best Practices for Public Companies in Nigeria, which was developed in 2003 by the SEC and was reviewed in 2011 to become the Code of Corporate Governance for Public Companies in Nigeria; the Code of Corporate Governance for Other Financial Institutions in Nigeria which regulates CG of banks, microfinance institutions and bureau de changes, Codes of Business Ethics and Principles of Corporate Governance of 2019 for the Insurance Industry (NAICOM code), as well as the PENCOM Code of 2008 for licensed pensions operators. Other attempts at regulating governance in Nigeria include the establishment of the Center for Good Governance, which was championed by the Institute of Directors in Nigeria to improve

CG practices, and 2006 CG guidelines which were developed by the Central Bank of Nigeria for best practices in the banking sector. According to Ogbechie and Adeleye (2015), some other public agencies and ministries in Nigeria, like the Ministry of Trade and Investment, have developed codes to regulate CG practice in the sector. These codes were specifically designed to regulate public quoted companies. The public RTOs do not have regulatory codes specifically tailored towards CG in the sector.

Lack of Standardized Best Practices to Regulate Board Activities

Findings from this study revealed that no specified guidelines were regulating the activities of RTO boards in Nigeria. This was except one of the organizations sampled, which personally drafted a pamphlet to guide board-CEO interactions within its agency. As a consequence of this loophole, most RTOs pursued their mandates and operations as they interpreted it, and this action polarized operations of RTOs within the FMST as there were no standard best practices to which boards and CEOs could be pinned. Additionally, participants identified the fact that though boards monitored RTOs, there are no clear monitoring procedures in place for RTO boards in Nigeria. There are also no laws to guide the functions of RTO boards and review their performance after the expiration of their tenure. Findings revealed the belief of participants that the lack of defined reporting lines and impact assessment have negatively affected board effectiveness. Larker and Tayan (2015) said that clear and reliable reporting systems were important to good governance in corporations. CG principles are relatively new to Nigeria (Afolabi, 2015). There is, however, considerable pressure on developing economies by entities such as the IMF and OECD, to embrace internationally-acceptable governance principles to attract the much-needed foreign investments for economic growth (Adegbite et al., 2013).

The OECD governance codes state that compliance is required in six distinct areas (OECD, 2015). It is expected that full compliance by developing nations will attract much-needed foreign investments for their economic growth (Adegbite et al., 2013; Okike, 2007). Larcker and Tayan (2011) said that having regulatory governance codes in place does not translate to good governance, especially if leaders fail to adhere to them. Larcker and Tayan attributed the collapse of Enron to unethical handling of the organization's accounts rather than the absence of governance codes. My findings in this study reveal that although public RTOs in Nigeria do not have standardized best governance practices, the problem of governance in Nigerian RTOs may not be the lack of the best governance strategy but the lack of will to adhere to best governance strategies. Despite the many codes of CG available for public and private companies in Nigeria, many of the codes only exist in theory and not in practice (Ogbechie & Adeleye, 2015). The revised Code of Corporate Governance for Nigeria 2018, made a passing provision on board self-evaluation but was silent on external evaluation (FGN, 2018, p.20). This study found out that RTOs and boards were rarely evaluated. As the boards completed their tenures, they were thanked for their services or re-appointed, depending on their political connections. This structure was not designed for boards to have an impact and this situation makes organizational impact challenging to measure (Ford & Ihrke, 2016; Hassain & Abdo, 2016).

The role of monitoring board performance rests on the legislative arm of government in Nigeria (Arowolo, 2010). This function is, however, neglected. This neglected role has encouraged agency issues in many of the organizations sampled. My findings revealed that CEOs in Nigerian public RTOs desire a standardized board monitoring process which would be continuous and measurable. According to Keehley, Medlin, Longmire, and MacBride (1997) and Bardach (2012), good governance best practices are achieved when the practice is effective over time and is measurable.

Although Olubukunola (2013) posited that governance structures would reduce agency issues, Larcker and Tayan (2011) observed that having regulatory governance codes in place does not translate to good governance, especially if leaders failed to adhere to them. Larcker and Tayan (2011) further attributed the collapse of Enron to unethical handling of the organization's accounts rather than the absence of governance codes. Findings from this study revealed the agitation of participants for regulatory bodies to monitor boards to prevent corporate recklessness and lukewarm performance. This finding corroborates Haxhi and Aguilera's (2015) observation that although the SOX Act of 2002 did not totally avoid failures of governance, it checked the excesses of corporate leaders, through the imposition of penalties on unethical corporate leaders.

Political Interference

Findings from this research revealed that government policies are inconsistent and unfavorable to RTOs in Nigeria. I discovered from participants' responses that there is a lack of continuity in government and this negatively affected governance and RTO effectiveness. Findings from this study has revealed that the principals in Nigerian RTOs sometimes pursued opportunistic paths by taking steps which would yield maximum benefits to a few elites, rather than the common good or stakeholders' satisfaction. Participating CEOs confirmed that politicians are often more interested in their constituency projects than the performance of these RTOs. FCEO 3 explained this trend as "personalization of projects". This study also confirmed that often, these self-interests affect innovation and performance because RTOs are funded according to the interests of the political class. Adegbite (2015) said that international governance best practices may not be applicable to the African context.

Inadequate Funding to Support Board Activities and Processes

The annual reports of the public RTOs in Nigeria that were sampled in this study revealed that they are funded from public resources to provide public services. This study also discovered that there was a form of operational autonomy in the Nigerian public RTOs. My findings in this study showed that despite their semi-autonomous positions, these public RTOs lacked the financial strength to execute their projects and adapt to the constantly-changing research environment. Because they were not governed as profit-oriented businesses, they thus rely on the funds released from the federal government to operate. This study also discovered that these funds were often grossly inadequate for the operations of the RTOs and this affected their effectiveness and boards' operations. FBM5 said government should fund these organizations adequately in order to be able to monitor and evaluate their activities. I discovered that some boards could not hold their statutory meetings because the government did not make financial provisions for such meetings and CEOs often covered the meeting expenses from their meager overhead grants. When boards eventually met, they were poorly remunerated to an extent that some board members had to personally cater for their lodging expenses. As a consequence, board meetings were irregular. This study therefore discovered that effective governance of public RTO boards in Nigeria was greatly influenced by the ability of boards to meet regularly and take necessary decisions that affect their organizations. This finding aligns with the observations of Alves, Couto, and Francisco (2016) that board powers are exercised through board meetings. Eluyela et al. (2018) discovered a positive link between frequent board meetings and organizational effectiveness while Mishra and Mohanty (2014) discovered that the frequency of board meetings, though positive, did not significantly influence organizational performance. My findings aligned with the positions of Alves, Couto, and Francisco (2016), Jermias and Gani (2014), and Eluyela et al. (2018) regarding the fact that the inability of boards to meet frequently posed a threat to effective governance. This study discovered that the poor treatment of board members eventually reduced the commitment of some of them. This may have been because many board members in Nigerian public RTOs had viewed their appointments as a means to affluence and their experiences were far below expectations. Basory, Gleason and Kannan (2014) discovered that executive compensation affects board performance but the study conducted by Alves et al. (2016) revealed a negative relationship between executive compensation and governance effectiveness. I thus concluded that inadequate funding of Nigerian public RTOs affects effective governance and organizational performance.

Nonprofessional Boards

Though the impact of board size on performance emerged in the responses of participants, the findings from this research revealed that the size of the organization determines the size of a public board. Ch`en and Al-Najjar (2012) corroborated this finding in a study they conducted on Chinese firms between 1999 and 2003. They discovered that board size is determined by governance and organizational structure. Dabor et al. (2015) also discovered, through their study of the governance practice of 248 companies quoted in the Nigerian stock exchange, that board size does not have any significant impact on organizational performance. The present study discovered that irrespective of size, board quality is desirable for high performance in public RTOs. This finding is consistent with the position of Aina (2013) that the diversity of boards should add value to their organizations. Oxelheim et al. (2013) said that well-constituted boards will be effective. I discovered from this study, however, that though the boards of some RTOs in Nigeria, during the period covered by this study, were professional and diverse in composition, many of them were not effective. PCEO4 said that "some go there to sleep; they don't even contribute meaningfully to the running of the board. So, the impact of boards is not as it should be in RTOs. This finding suggests that factors, other than diverse composition, may be responsible for public board effectiveness. My results aligned with the conclusions of Aduda and Musyoka (2011) in a study which they conducted on the impact of executive compensation on the effectiveness of Kenyan banks between 2004 and 2008. They discovered that bank size determined the influence of principals because as the banks became bigger, principals' influence diminished. The diminishing influence of principals could often be ascribed to the skills and strong personalities of some CEOs (Busenbark et al., 2016). Intelligent CEOs greatly influence organizational effectiveness (Hermann & Nadkarni, 2014; Quigley & Hambrick, 2015). My findings in this research revealed that some of the RTOs were practically positioned by the CEOs to run by themselves either because there were no boards in place or they were not professional enough to make a difference.

Findings from Data Obtained for RQ2

RQ2: What do board members and managing directors of public organizations in Nigeria's R&D sector believe is the impact of boards on organizational effectiveness? Agency board models are the most suitable governance model for RTOs (European Commission, 2005). Public RTO boards ensure that their organizations are responsible to the public when they adhere to governance best practices (Larker & Tayan, 2015). Since CG is relatively new to Nigeria, it is the responsibility of the government to strengthen the quality of good governance in Nigeria. Participants in this study identified some importance of boards and their impact. Some of the identified board roles included policy formulation and strategic planning, influence, monitoring and evaluation.

Policy Formulation and Strategic Planning

This study discovered that the appointment of RTO boards is necessary and should be continued. Participants in this study confirmed that public RTO boards are necessary to provide policy directions and develop strategic plans that would enable RTOs focus on their mandates and increase their effectiveness. This position aligns with the conclusion of Aina (2013) that effective boards can be identified by their strategic way of thinking and their deliberate actions. The agency theory also supports that principals should take responsible actions that would result in long-term organizational progress and survival. When governing boards act in the interest of shareholders, the organization's responsibility to the society and individuals would be limited to that which is required for the long-term growth of the organization. Participants in this study did not believe that boards should be involved in the day-to-day administration of RTOs. Instances of board chairs who decidedly undertook such responsibilities, and the hostilities which resulted from these, were cited by participants. According to the Public Sector Commission (2014), boards should govern organizations and not run them. Unless boards understand their roles, they will continue to exhibit poor governance behaviors. The consequence of this is that agency issues will be unavoidable in public RTOs and the effectiveness of these organizations will be compromised.

Influence

Participants in this study acknowledged the importance of boards because of their capacity to influence favors for their organizations. Participants also revealed their perception that the educational and professional diversity of boards can add value to organizations. This position aligns with the conclusion of Oxelheim et al. (2013), who discovered from their study of 346 non-financial listed Nordic firms in 2001-2008, that boards that are composed of experts are generally effective. Ujunwa (2012) said that board quality is determined by the knowledge which members possess and how they employ these competencies in the discharge of their duties. Participants in this study agreed that influential board chairs are very important to RTOs because their political weights and connections could attract funding to their organizations and encourage patronage of their services. This finding corroborates the assertion of Withers and Fitza (2017), who sampled 1,828 board chairs from 308 industries in the U.S. and discovered that the influential board chair can contribute to organizational effectiveness. This study also revealed that there is a separation of powers on RTOs boards and CEOs only represent their organizations on the boards and this arrangement has been working for RTOs. According to Krause and Semadeni (2013), the separation of the position of board chairs from that of CEOs will encourage effectiveness. Mishra and Mohanty (2014) examined the relationship between CG and financial performance in 141companies listed in the Mumbai stock exchange in India and discovered that separation of the powers of boards from the CEO will make CEOs more committed to outcomes since their priorities will be solely on implementation of policies.

Monitoring and Evaluation

Boards are the representatives of their principals in organizations. According to Verhoest et al. (2012), the role of the principals is performed by the parent ministries of such organizations. The oversight functions of the board include monitoring of the activities of their organizations and conducting periodic evaluations of their performances (Conyon & He, 2016). Participants acknowledged that the presence of boards in RTOs would push CEOs to pursue courses of action that will aid the delivery of the policies of the Nigerian government. Participants also believed that boards act as middle-men between organizations and the government and that this structure eliminates bureaucracy, thereby enabling organizations to respond in real-time to issues. Findings from this study revealed that although boards ought to monitor the use of deployed resources in organizations to determine mandate achievement, this responsibility of boards sometimes resulted in controlling behaviors that stifled initiatives and encouraged agency issues. This study discovered that in instances where CEOs had governing boards, there was mistrust and frosty relationships between the boards and their CEOs. The consequence was that much time was spent on managing relationships than in pursuing organizational outcomes. This study, therefore, discovered that if boards performed their oversight functions properly without being controlling, the performance of organizations would be ultimately enhanced. This finding agrees with the position of the stewardship theory which affirms that managers can be trusted to act responsibly if they are not under control. According to Cornforth (2003), controlling boards will de-motivate CEOs. Cornforth (2003) said that boards should collaborate with CEOs and synergize efforts to achieve organizational goals.

Findings from Data Obtained for RQ3

RQ3: How do these perceptions of board members and executive directors regarding the impact of boards on Nigeria's R&D sector affect the performance of these organizations?

Findings from the data in this study revealed the beliefs of participants that RTOs could have been more effective if the public RTO boards had performed their statutory role. I also discovered from this study that though CEOs (former and present) and board members believed that public RTO boards in Nigeria were necessary and should add value to their organizations, the impact of these boards on organizational effectiveness was not significant enough. This finding is based on issues raised by participants against boards' activities, such as unclear roles, political interference, and lack of accountability.

Unclear Roles of Boards

Although CG involves regulation of the practices and activities of organizations, the organs of CG must also be regulated. Their powers and governing roles need to be well spelt out so that they do not overstep their boundaries and cause conflicts. According to Ogbechie and Adeleye (2015), boards should have governance procedures, backed by law. These rules and procedures should guide their behavior and become standards of operations. My findings from this research revealed that most of the boards developed their procedures because there was no formal code of governance for RTO boards in Nigeria. FBMs who participated in this study confessed that they only picked extant government laws and booklets about governance and thereon fashioned out ground rules for their boards. Some also relied on the expectations communicated to them by the government during their inauguration. Most often, these expectations were not well communicated. According to some of the participants, the retreats organized for some boards after their appointments were like jamborees and vacations. Governance of public RTO Boards, therefore, differed according to the interpretation of boards of the rules and Acts of their organizations. I discovered that there were extreme cases where the CEO was too powerful and the board too ignorant and the CEO ended up taking over the job of the board. That board recorded no meaningful achievement during its tenure. This study also discovered that most RTO boards were more interested in the financial performance of their organizations rather than the fulfillment of their mandates to solve national challenges. This finding was repeatedly evident in the data obtained.

Political Interference

Public organizations were established by governments to deliver outcomes that would serve public interests (Verhoest et al., 2012). They are therefore indirectly accountable to the citizens. To make them more efficient and effective, governments appoint boards to run these public organizations but the boards are accountable to governments and not directly to the citizens. According to Ogbechie and Adeleye (2015), public organizations are only accountable to citizens through the politicians in power. Participants in this study believed that public boards have had an insignificant impact because their appointments were politically motivated and not done in the interest of the public. Many participants believed that many of the RTO boards were not designed to function because of the way they were structured. Oxelheim et al. (2013) said that when public boards are well constituted, they govern well. Participants in this study expressed their opinion that public organizations can not affect the lives of citizens as long as board selection continued to be politically motivated. Cheng and Courtenay (2006) said that independent boards are very effective in their activities. Sanda et al. (2011) said that countries without good business practices encourage their public boards to act with impunity and self-interests. My study discovered that self-interests are difficult to pursue in Nigerian RTOs because the enlightened and professional CEOs who were in charge, were only interested in outcomes. They thus boldly resisted self-seeking boards.

Board Accountability

Asongu and Kodila-Tedika (2016) asserted that accountable boards follow good governance principles. Tricker (2015) said that organizations controlled by boards which adhere to governance principles yield consistently positive outcomes over time. Participants in this study observed that the nonregulation of board activities was one of the problems of RTOs effectiveness in Nigeria. To corroborate this, my findings revealed the absence of clearly defined reporting lines for RTO boards in Nigeria. As a consequence of this, boards acted as determined during their meetings, and some board chairs acted with impunity and overstepped their boundaries.

This study also discovered that the absence of supervision and control of board activities encouraged the emergence of super CEOs who become very powerful. Some of the boards left the whole job to some CEOs and they only reported their activities to the boards. The data obtained in this study also revealed that most boards rarely engaged in advocacy for their organizations. Consequently, CEOs had to lobby for funds for their organizations to operate. Since the funds were not usually adequate, some of the projects embarked upon became abandoned before completion while the completed research suffered from lack of patronage. These consequences are traceable to CG collapse. Poor governance practices have negatively impacted RTO effectiveness in Nigeria. One of the disadvantages of such a situation is that greedy CEOs can capitalize on the loopholes to obtain personal benefits and pursue self- interests (Nkundabanyanga, 2016). Another finding of this study was that lack of RTO board supervision and accountability promoted wastage of resources. Many board meetings were found to be unnecessary and where they were held, participants observed that no concrete decisions were taken. Yet, the board meetings would have cost the organization millions of naira, which could have been put to better use by the organization. Muller (2009), after his investigation of the impact of governance approaches of project managers on project structures, explained that the absence of proper governance structures would promote avoidable mistakes. Muller said that these mistakes have costly consequences on organizational effectiveness.

Limitations of the Study

There are limitations associated with using opinions and perceptions in research studies as in all other studies and as such, I cannot ignore that there are certain issues that limit this study. This study examined the impact of public governing boards on public RTO effectiveness in Nigeria and so the findings in this study cannot be generalized to private RTOs in Nigeria. Some of the other limitations in this study include (a) issues of representativeness (b) use of secondary data, and (c) uncertainty about the genuineness of participants' perceptions and their reasons for participating in the study. The criteria for selection of participants may have limited the data available for the study because the participants were purposefully selected based on their characteristics and availability. As such, the selected participants may not have been fully representative of the population sampled. Secondary data are effective for data triangulation (Rohrbeck & Gemünden, 2011). However, if adequate information had been available to me, I would have been able to personally verify the performance of the sampled RTOs to determine their effectiveness. In the absence of this information, I had to make do with the annual reports of the organizations as presented. This study is also limited by my difficulty in knowing if the positions of participants may have been borne out of their dissatisfaction with the treatment they had or were being given, their disenchantment with the whole system, or even fear of reprisal. Participants in this research may have therefore expressed opinions that were based on assumptions and since these perceptions could not be verified within the timeframe for this study, it may have inadvertently increased the probability of respondents' bias. I addressed some of these concerns of the participants by assuring them of the confidentiality of their data during the interview and taking steps to secure these data. I addressed their fears of reprisals, which could have been felt by some of the participants by eliminating any way that responses could be identified through names and positions. I also explained the importance of the study to them so that they would be committed to saying things as they were.

I was unable to interview serving board members because the present administration of President Muhammadu Buhari sacked former boards of public RTOs during his first term in office and the new boards that have been inaugurated are yet to settle down to their duties fully. The population's characteristics could, therefore, be a limitation since there was no way of balancing the opinions of serving board members with that of FBMs. Although this did not affect the quality of the data obtained since the operating environment of public RTOs has not changed. Further research that considers the opinions of serving RTO boards may be required to understand governance and organizational effectiveness in Nigerian public RTOs fully. The research design and data collection methods are reliable and can be applied to research in the same sector in Nigeria with similar results.

Ethical biases that could have affected this study were personal especially because I work with a public RTO and of course, had some personal opinions about governance in the organizations. This possibility of personal bias however aided my reflexive thinking and extreme carefulness in observing standard and ethical research procedures in the data collection and analysis process. The member checking procedure also aided the validity of the study.

Recommendations

Nigeria has 17 organizations in the FMST, which are tasked with growing wealth for the country. However, good governance has always been an issue with Nigerian public organizations and the evidence is apparent in the decaying infrastructure in Nigeria and the many failed businesses. Although much of the causes are attributable to corruption and political interference (Barton & Wiseman, 2015), public boards also have a share in the blame for governance limitations in Nigeria (Ogbechie, 2016). Public boards, in theory, are expected to reduce incidences of governance failures in organizations but there is a gap between theory and practice in this regard (Verhoest et al., 2012). Boards are an integral part of public organizations in Nigeria, as statutorily required by the Nigerian Constitution and laws that set up the organizations, but their impact does not seem to be so significant. Participants in this study have considered public RTO boards in Nigeria to be unwanted appendages and wasteful ventures. But over the years, successive research studies have recommended what boards should do to remain relevant. Through this study, we have been able to discover that public boards are necessary for RTOs and that if certain solid structures are built, CG can be enhanced in

Nigeria.

Absence of structures weaken any system and if the government of Nigeria desires to meet its goals through public enterprises, good CG structures and codes must be established and sustained, irrespective of the party or individual in government. This study recommends that there should be a benchmark and procedures for measuring adherence to CG standards. There are current structures in public organizations such as the Anti-Corruption and Transparency Units (ACTU) in organizations. But these organs are ineffective to measure the adherence of CEOs and boards because these desks are manned by employees of the organizations who could easily be compromised or subdued for fear of reprisals or loss of their jobs.

This study, therefore, recommends that independent assessors assess governance performance of organizations half yearly with technical bias. Organizations that score above the performance benchmark should be rewarded and promoted while under-performers should be penalized as appropriate. Such assessments will motivate CEOs and boards to establish good CG policies in their organizations. This study also discovered that public RTOs, under the FMST in Nigeria, could be grouped into three; according to their mandates and ease of impact assessment. Some RTOs were established to provide consumer goods like NASENI, Federal Institute of Industrial Research, Oshodi (FIIRO), Project Development Institute (PRODA), Nigerian Building and Road Research Institute (NBBRI), and also the National Research Institute for Chemical Technology (NARICT). The second group includes feeder research institutes that learn to do certain things like RMRDC and NBTI (with about 33 incubators in the country aimed at tapping resources or technology from states). The third category of public RTOs includes knowledge-creating entities such as the National Centre For Technology Management (NACETEM), National Biotechnology Development Agency (NABDA), National Office for Technology Acquisition and Promotion (NOTAP), which exist to regulate the conduct of research in public RTOs. Clearly, within FMST itself, there are diverse operational structures. Adegbite (2015) recommended that developing countries may fashion out a workable governance structure. This study, therefore, recommends that governance codes should be developed by the Nigerian government, specifically for public RTOs. These codes should be adapted to public RTO operations and also address their governance problems. The CAMA should also be revised as it is outdated and irrelevant to public RTO operations. This study recommends the development of a Science, Engineering, and Allied Matters Act (SEAM) which would codify governance in Nigerian public RTOs.

According to Barton and Wiseman (2015), the functions of boards in the management of organizations have not been clearly defined despite their overwhelming presence. Arnwine (2002) explained that boards have three main roles: policy making, decision making, and oversight functions. Boards that understand their roles and are built upon proper governance structures will behave appropriately and strategically. The organizations under the control of such boards will be focused and consistently impact their societies. Effective leaders must necessarily possess governance skills and a sense of direction that will make them focused. Findings from this study revealed that public RTO boards in Nigeria do not possess formal training on governance skills neither were they equipped with information about their employers’ expectations after their tenure.

The consequence of this is that the governance structure of public RTOs in Nigeria is not standardized and it is difficult to pinpoint a standard governance pattern across the organizations. This study, therefore, recommends training for boards of public RTOs as soon as they are inaugurated. During this training, board members should be equipped with measurable skills that would enable the government to regulate board activities. According to Bass (1999), training and educational improvements promote transformational leadership. Training is strategic for leaders. The need for training of boards can therefore not be overemphasized. This will help boards understand and internalize their roles so that they can be well positioned to improve their organizations' effectiveness.

This study recommends that board members should sign commitment letters after the retreat. This letter would contain expectations from them and clarify what boards are to expect from their employers. The letter would also specify the rights and responsibilities of board members, including when the president of the board can remove them from the board for non-compliance and non-performance. As a follow-up, this study recommends that M&E processes should be established to standardize best practices on public boards in Nigeria. M&E will surely stimulate innovation and healthy competition among public boards. This will, in turn, improve productivity and organizational outcomes.

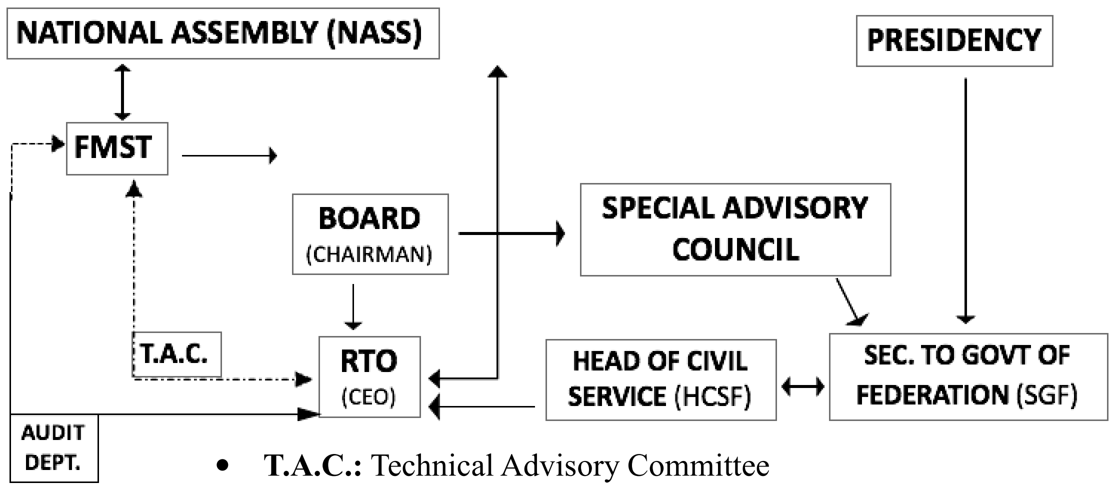


Figure 6. Proposed monitoring and evaluation/oversight structure for public RTOs in Nigeria (Developed from participants' recommendations).

My findings from this research suggest that public RTO boards must be well composed to be effective. Many of the sampled participants confirmed lopsided board appointments which favored politicians and made it difficult for technocrats to operate. This study, therefore, recommends a ratio of 50:30:20; that is, 50% of the board of public RTOs should be made up of persons with technical, academic, and professional qualifications so that they can act as the think-tank for the boards. They will easily understand proposals from CEOs and offer technical support to nurture such ideas to maturity. The other 30% should comprise of industrialists and professionals in private practice, and the remaining 20% should accommodate politicians and persons in positions of authority. These three groups have their roles defined on the board. Group A should bring up proposals and conduct technical foresight; Group B should link up the RTOs with the private sector for needed funds and collaborations, while Group C should be saddled with advocacy for the organization by pushing the proposals and policies of the

RTOs to the government for funding and patronage. Every group should be assessed yearly by the Special Advisory Council (SAC) which should be composed of technocrats and professionals. The role of the SAC would be to determine the progress and achievements of public RTO boards in line with the letter of commitment signed at the beginning of their tenure. Members of different groups should also peer-review their colleagues. These reviews will be part of discussions at board meetings and would push boards to be more committed to their assignments. Regular M&E will stimulate positive governance practices in Nigerian RTOs. The performance of boards should, therefore, be regularly measured against the mandate and vision of their organizations towards meeting national challenges. I recommend that the effectiveness of public RTO boards on their organizations can be determined by a set of logical sequences that are shown in Figure 7.

This study found that funding is critical to RTO and RTO boards' performance. It is recommended that public boards' remuneration be improved so that they would be motivated to serve their organizations. Remuneration should, however, be tied to performance so that appointments onto public boards would no longer be compensations but transactional contracts. The funding of RTOs also needs to be improved for them to have any measurable impact on their society. Low funding is indicative of little attention being paid to R&D in Nigeria. The support needed for R&D in Nigerian RTOs is obtained more from foreign grants, fellowships and investments than from the federal government of Nigeria. The funds allocated to the FMST to support research has dwindled over the years. Between 2007 and 2012, it plummeted from 1.04% of the nation's budget in 2007 to 0.64% of the national budget in 2012. Figure 7 explains the decline.

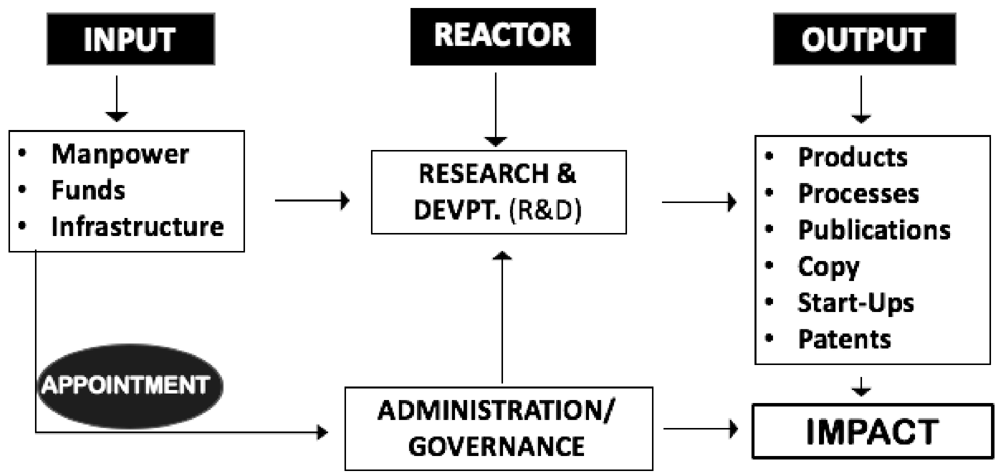


Figure 7. RTO impact assessment chart.

The highest budgetary allocation to FMST since 2012 was in 2017 when the ministry receives 0.97% of the nation's budget. The situation has not improved in 2019 as the FMST received N66,823,303,434 in the appropriated budget for 2019. This is less than 1% (0.757%) of the national budget. This allocation for the FMST is the least given to any ministry in the 2019 national budget. Sadly, the components in the allocation indicate that the funds were mainly distributed to run the organizations, not for basic R&D.

For instance, out of the N66,823,303,434 appropriated budget for 2019, N35, 020,953,172 was allocated for recurrent expenditure and for capital development, N31, 802,350,262 was allocated. This apparent shortage of funds for R&D and deliberate neglect of R&D has hindered Nigeria's Vision 2020 from crystallizing into reality because science and technology are the catalysts for the economic transformation of any country. Although the federal government of Nigeria tried to intervene in the sector by establishing the National Science Foundation (NSF) in 2006 to manage the proposed $5billion endowment fund for R&D, the money was never released to the foundation (Muanya, 2019). Additionally, two other initiatives like the Education Tax Fund (ETF) and the Science and Technology Education Post-Basic (STEP-B) project, targeted at capacity building and infrastructural development in RTOs and higher institutions, made a little impact until declining, and eventual zero allocation of funds sent these initiatives into redundancy.

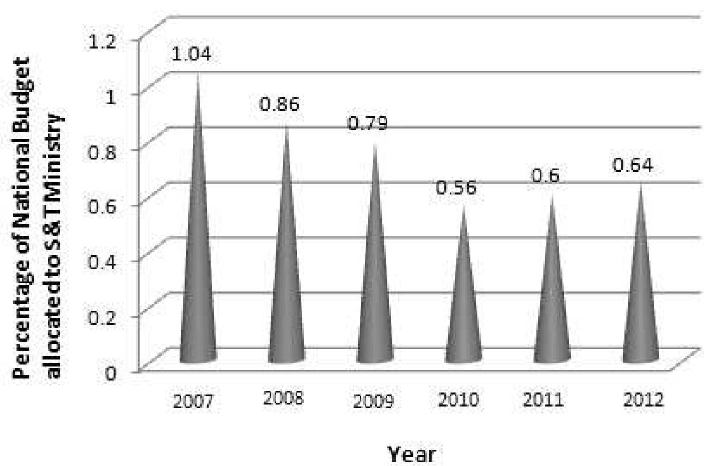


Figure 8. Percentage budgetary allocation for S&T Ministry in Nigeria budget between 2007 and 2012 (Source: Federal Ministry of Finance, Nigeria).

Political interests, as well as mismanagement of resources and projects, further sealed the fate of these initiatives (Muanya, 2019). Another initiative has been developed and is being championed by the FMST - the National Science, Technology Innovation Roadmap 2030 (NASTIR 2030). The goal of this initiative is to increase the competitiveness of Nigeria's economy. This study recommends therefore that public RTO boards in Nigeria should be empowered and tasked to achieve the FMST strategic roadmap plan. When due attention is paid to R&D by any nation, the infrastructural and growth challenges being faced by such nations would easily be overcome. This study also recommends that a minimum of 1% of the overall annual budget of Nigeria should be allocated to support R&D alone in the FMST, aside from allocations for recurrent and capital expenditures. RTOs should then be tasked to guide their organizations towards the eradication of these specific national challenges.

This study also recommends the replication of this research by conducting interviews to elicit perceptions from research officers in the public sector regarding the impact of boards on their effectiveness as researchers. This will give other perspectives instead of relying on the opinion of board members and CEOs alone. Further research can also be conducted using a quantitative approach, to compare the impact of boards of public and private RTOs on the performance of these organizations.

Implications for Positive Social Change

A study that explores the perceptions of participants to discover the impact of good governance on organizational outcomes has potential benefits. These benefits can be felt by political leaders, chief executives of public organizations, the academic community, the nation, and the individual in the country. These benefits have been made possible through the insights obtained in this study.

Nigeria needs an effective research sector to solve its problems with infrastructural development. Until basic and essential infrastructure like power and good roads network are available, Nigeria will continue to remain in the category of developing nations. Findings from this study revealed that the quality of public RTO boards in Nigeria and the adherence of the boards to good governance behaviors will have positive influence on the effectiveness of the RTOs. If the findings of this research are implemented, public RTOs in Nigeria will undergo regulatory reforms which will make them more effective and responsive to the needs of the citizens in the country. This will result in social changes in the RTOs and the lives of the citizens.

The findings of this study will provide useful information to policymakers in Nigeria about the actual operations of public boards. Through these findings, policymakers in the country will understand how some extant laws, financial procedures, and bureaucratic processes hinder good governance in public RTOs. The findings in this study will also assist new public RTO boards in Nigeria to become aware of how they can embrace strong CG cultures and run their organizations more professionally.

Generally speaking, the positive social changes that could arise from this study, if the recommendations are implemented, include reforms of the governance structure and institutional frameworks of all boards in the public sector in Nigeria. It is expected that this will improve good governance practices across all public RTOs in Nigeria and increase confidence in them. When there is a commitment to ethical and strategic behavior in organizations, organizational effectiveness and positive outcomes are to be expected. Such outcomes include cost-effectiveness and lowered risk of collapse.

The importance of good governance is not only felt by the organization that practices it but by the society which that organization serves. When public boards engage in good governance practices, organizational outcomes are easier to predict and sustain (Rowley, Shipilov, & Greve, 2017). With the involvement of participants in this study, the seed of social change has already been sown. For many of the participants, it was the first time they had such a platform to express their opinions on the topic. The fact that searchlight was being beamed on the issue made them hopeful that the government would discover their plights and take necessary actions to address the issue of good governance in Nigerian RTOs.

If the recommendations of this study are imbibed, appropriate good governance principles would be established in public RTOs in Nigeria. This will improve the effectiveness of public organizations. The implication of good governance is a commitment to mandate achievement, and transparency in the conduct of business. This will foster mutual trust and cooperation. Improved governance of public RTOs will exponentially increase the competitiveness of these organizations and their propensity to meet public needs. Public RTOs will thus be positioned to be socially responsible to their communities.

Specifically, if the recommendations of this study are implemented, positive organizational culture in public RTOs will emerge and grow strong. Good corporate culture instills confidence in the minds of potential investors because they assure the investors that their investments are protected from unwholesome practices, such as non-disclosure and arbitrary risk-taking. Since R&D is very costly to implement, public RTOs in Nigeria will benefit from foreign investments, which can only be assured if the sector adheres to international governance best practices. Apart from investments, RTOs can also access grants that would aid their research activities. The RTOs that are almost idle due to lack of funds will be able to return to their research to develop processes and machines that can help Nigeria to eliminate the infrastructural deficits in the country. When the researchers and scientists are fully engaged, the public RTOs will increase in efficiency and effectiveness thus making these organizations more profitable and well-positioned to meet their mandates. Due to the potential profitability of these organizations as a consequence of good governance corporate culture, there will be job satisfaction, job security, and improved remunerations for the employees.

Adherence to good governance practices also has social change implications for public RTO boards. In the first instance, the profitability and effectiveness of their organizations will strengthen the theory of good governance and serve as a reference point for other sectors to emulate. Since it has been established that strong corporate cultures enhance access to funds, public RTO boards will also benefit from the growth and successes of their organizations through improved emoluments. There will thus be less pressure from board members on the CEO. Consequently, the CEO will be able to perform his duties without undue interference and demands from boards.

Another positive social change that can arise from this study is that the government of Nigeria will have less to worry about the survival of public RTOs. This is because the organizations will be self-sustaining and rely less on funding from their government. Findings from this study reveal that over 95% of public RTOs in the FMST currently rely on the government to run their organizations and perform their research activities. This puts a heavy burden upon the government, especially because these organizations are unable to meet their mandates and open up new sources of income for the government. If the recommendations of this study are implemented, most public RTOs in Nigeria will become importers of technology and Nigeria can join the league of nations who earn foreign currencies through their competencies. This will reduce the nations over-dependence on crude oil as a major source of income for the nation.

Another implication for social change that could be obtained from this study is in its addition to the body of knowledge. The approach of the investigation into the issue of governance has primarily been through the use of survey instruments and questionnaires, using a quantitative approach. Through the findings of this research, there is the possibility of adding another perspective through the perception of participants, using the qualitative approach. The findings of this study have implications for further studies. I discovered that some other factors, other than public boards, could influence public RTO performance in Nigeria. The issue of the impact of the use of Advisory Committees in RTOs also came up in the course of my findings. These issues are however questions for further research. More investigations could be carried out on other public organizations in Nigeria to determine the impact of their boards on organizational performance. The perception of participants could also be obtained through another data collection instrument, other than face to face interviews. The results of such studies could reveal further insight into how good governance practices could be diffused to assist public RTOs to achieve positive outcomes.

Conclusion

Legitimacy for public RTO boards in Nigeria was derived from the enabling laws and decrees which established the RTOs. This study relied on the experiences and opinions of participants to determine the impact of good governance on public RTO effectiveness in Nigeria. Major themes were derived from the examination of the problem identified in this study and these themes were analyzed using the research questions generated in the study. Findings from the qualitative data were majorly consistent with the findings of other literature on boards' impact which stress the fundamental importance of good governance. This study found out that even though public RTO boards were necessary and could have a positive impact on their organizations, their influence was not felt. The findings suggest that the Nigerian government needs to reform the governance structure of Nigerian public RTO boards to make it more functional and accountable. This study also recommends that the focus of governance in public RTOs should be on strategic performance to strengthen the future of these RTOs and address critical national issues. Future research could focus on strengthening public board structure to achieve organizational effectiveness, using different research methods.

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Appendix A: Introductory Letter 1

TO: (The Managing Director/CEO)

Dear ________________,

I am a member of staff of the Engineering Materials Development Institute, Akure (a parastatal of NASENI, which is under the supervision of the Federal Ministry of Science and Technology) and I have been an employee of this Institute for the past 16 years. I am now a doctoral candidate in the School of Public Policy and Administration at Walden University and I am researching the role played by public governing boards in the effectiveness of public Research and Technological Organizations (RTOs) in Nigeria. In view of the current economic quagmire being faced by Nigeria, the current interest of most Nigerians is on how government will deliver their promises of infrastructural and economic development. Science and Technology is one of the backbones of any economy and I am thus interested in contributing to knowledge on how the public RTOs can become more efficient and effective, through a more effective governance system, so as to improve the fortunes of the country.

Your organization is well noted for its giant strides in the field of research & technology and in a bid to accomplish the purpose of this research; your organization has been chosen, among others, to participate in this research. I therefore humbly request a private interview with you for 40-60 minutes in order to gain more insight into the governance structure of your organization. Your participation is a very simple process and the opinions you shall offer during this interview shall be confidential and all the measures to be taken to guarantee your privacy are contained in the attached Informed Consent Form as required by Walden University. I request that you kindly fill the form and mail by (date), using the enclosed stamped envelope. A script of the interview shall be made available to you, as well as a copy of the study's findings after the conclusion.

I therefore hope that you will feel comfortable with this request and provide useful and frank information that will be invaluable to this study. I will call to book an appointment for the interview but you can contact me should you be willing to get more clarifications about this study.

Thank you for your cooperation and I look forward to meeting with and learning from you.

Yours Sincerely,

Olayinka Komolafe

Doctoral Candidate

Public Policy and Admin, Walden University

Appendix B: Introductory Letter 2

TO: (Former Board Member's Name)

Dear ________________,

I am a member of staff of the Engineering Materials Development Institute, Akure (a parastatal of NASENI, which is under the supervision of the Federal Ministry of Science and Technology) and I have been an employee of this Institute for the past 16 years. I am now a doctoral candidate in the School of Public Policy and Administration at Walden University and I am researching the role played by public governing boards in the effectiveness of public Research and Technological Organizations (RTOs) in Nigeria. In view of the current economic quagmire being faced by Nigeria, the current interest of most Nigerians is on how government will deliver their promises of infrastructural and economic development. Science and Technology is one of the backbones of any economy and I am thus interested in contributing to knowledge on how the public RTOs can become more efficient and effective, through a more effective governance system, so as to improve the fortunes of the country.

You have been selected, among others, to participate in this research by virtue of the fact that you were the chairman/a member of the governing board of (insert organization here); an organization that is noted for research and technology. In a bid to accomplish the purpose of this research, I therefore humbly request a private interview with you for 40-60 minutes in order to gain more insight into your opinion and experience of the governance structure and performance of the board that could have influenced the effectiveness of your organization. Your participation is a very simple process and the opinions you shall offer during this interview shall be confidential and all the measures to be taken to guarantee your privacy are contained in the attached Informed Consent Form as required by Walden University. I request that you kindly fill the form and mail by (date), using the enclosed stamped envelope if you decide to participate in this research. A script of the interview shall be made available to you, as well as a copy of the study's findings after the conclusion.

I therefore hope that you will feel comfortable with this request and provide useful and frank information that will be invaluable to this study. I will call to book an appointment for the interview but you can contact me should you be willing to get more clarifications about this study.

Thank you for your cooperation and I look forward to meeting with and learning from you.

Yours Sincerely,

Olayinka Komolafe

Doctoral Candidate

Public Policy and Admin, Walden University

Appendix C: Interviewer Guide

A. **Interview Details**

Date: Time: Place:

Interviewee:

Position of interviewee:

B. **Protocol and Opening Statement**

- ***Thank participant***

Thank you for agreeing to participate in this interpretive qualitative study despite your busy schedule. My name is Olayinka Komolafe and I am a doctoral student of Public Policy and administration in the Walden University, Baltimore, USA. I shall be moderating this interview session.

- ***Describe how research will help effective governance of public organizations in Nigeria***

This study is focused on understanding the impact of public boards on the effectiveness of public Research and Technology Organizations (RTOs). The importance of this research can be seen in its contribution to the effectiveness of public organizations, especially in these days of recession where public organizations seem to be the major backbone of government to provide needed infrastructure and basic services, which will alleviate the suffering of the masses. This research is also a partial fulfillment of a doctoral degree (PhD) in Public Policy and Administration (Public Management & Leadership). I will therefore appreciate your candid opinion on what you perceive to be the effect of the presence of public boards in Nigerian RTOs, especially based on your experience as a board member/chair/ CEO.

- ***Explain the Interview Process***

The questions are semi-structured in order to allow you to fully express your opinion on the subject of inquiry and I want you to know, before this interview commences, that whatever you say in the course of this interview shall be held in strict confidence and no one can have any unauthorized access to the scripts of this interview session. The only authorized access is that which is given to my dissertation Committee Chair in the event that he may desire to confirm some of the emerging themes from this interview. At this time, I will like to also inform you that this interview shall be recorded on a midget audio recorder for easy and accurate transcription. I will like to know if you object to this before we proceed further.

- ***Other steps in the Interview Process***
    - Remind participant of their right to withdraw their participation if they feel uncomfortable at any time during the interview.
    - Sign Informed Consent form (if not yet signed)

C. <u>Questions</u>

I will like to begin the interview now. But before then, do you have any questions about this study or interview before we proceed?

1. What governance problems exist in public organizations in Nigeria's Research and Development Sector?

Notes:____

2. What do Board members and Managing Directors of public organizations in Nigeria's Research and Development Sector believe are the impact of boards on organizational effectiveness?

Notes:____

3. What do you believe are the impact of public boards on organizational effectiveness?

Notes:____

4. What governance strategies have worked for you in increasing your organization's performance and why do you think they were that effective?

Notes:

5. How can boards positively influence the effectiveness of their organizations?

Notes:

6. What, in your opinion, can hinder public board effectiveness?

Notes:

7. What other information would you like to add relating to this research?

Notes:____

____

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____

____

D. <u>Closing Remarks</u>

Thank you and please remember the member checking procedures.

I wish to thank you for your participation and unrestrained comments during this interview. Please note that you can have a copy of this study if you so desire. Kindly contact me to state your preference.

Appendix D: Certificate of Completion of NIH Training

Certificate of Completion

The National Institutes of Health (NIH) Office of Extramural Research certifies that **Olayinka Komolafe** successfully completed the NIH Web-based training course "Protecting Human Research Participants".

Date of completion: 02/01/2017.

Certification Number: 2306511.