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Towards the Development of a Framework for Assessing Organizational Governance Maturity for Technical Audit of Public Works

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ABSTRACT

The quality of the audit work and its products is often associated with the organizational maturity of the audit function. The absence of a well-defined organizational maturity for an audit function leads to poor quality of audit work or products and ineffective audit function. The lack of a framework for measuring governance maturity was identified as a major deterrent factor to the attainment of quality audit work. Measuring the governance maturity of the technical audit of public works is challenging due to the absence of a maturity framework that fits its needs. The noted shortcomings include: (a) existing maturity frameworks used to assess organizational maturity have not been developed based on standards and requirements governing technical auditing; (b) defined technical competency for technical auditors, work methods and processes have not been covered in those frameworks rather focused on other types of audits than technical audits; and (c) the institutional framework considered in those frameworks are not applicable in technical auditing. The challenges impede the ability of the technical audit function to establish relevant and reliable criteria to measure governance, and it largely affects the growth of the technical audit functions and the quality of audit works. This paper provides a theoretical overview of what, why and how a framework can be developed for assessing the level of organizational governance maturity for technical audits of public works.

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INTRODUCTION

The concept of organizational governance has been researched and debated by many. However, the concept of organizational governance maturity and what it exactly covers have received insignificant to no attention (Gomes, 2018; Wilkinson et al., 2012). It is advantageous for an organization to understand to what extent it has made progress in implementing key elements of governance (Gomes, 2018). This will allow the organization to devote time and resources to take corrective measures in its quest to become a more mature organization with respect to organizational governance (Wilkinson et al., 2012; Kerzner, 2005). One of the audit disciplines that lacks a framework for organizational governance maturity is the technical audit of public works. Therefore, the organizational governance maturity

framework for Technical Audit will furthermore aid the technical audit function to provide more effective technical audit services, as knowledge of the level of organizational governance maturity will enable them to more accurately provide technical audit services such as consultation and assurance services (Sichombo et al., 2009).

This paper provides an overview of what, why and how a framework can be developed for assessing the level of organizational governance maturity for technical audits of public works. The intention is to address the existing gaps by discussing major approaches to developing a framework.

LITERATURE REVIEW

Organizational Governance

The concept of organizational governance and underlining contents and principles need to be understood to support and facilitate the development of an adequate organizational governance maturity framework (Gomes, 2018; Al-Ruithe, 2018; Wilkinson et al., 2012).

Organizational governance can be defined as the system by which entities are bound and organized, but precisely covering four main principles of good governance comprising responsibility, accountability, fairness and transparency in dealing with all stakeholders (Solomon, 2007; IoD, 2009).

Over the past three decades, organizational governance has significantly developed and received huge attention along the way, which to a large extent, intensified in the mid-2000s (Wilkinson, 2012). As a result of the steady and continuous development of the concept of governance, there is a need for more structure supporting adequate and effective implementation of the governance concept within organizations emerged. As a response to this emerging trend, the development of the framework for assessing organizational governance maturity could contribute greatly to these advances.

Sound and well-functioning organizational governance principles can help organizations achieve their objectives in a manner that would ensure sustainability and continuous improvements (Al-Ruithe, 2018; Kerzner, 2005). A measurable level of organizational governance can help in determining the degree of implementation and extent of adherence to organizational governance requirements (Gomes, 2018). Since the organizational governance maturity framework can help to establish the implementation status of organizational governance within the organization, it can provide a good indicator for determining the extent of compliance with legal and organisational requirements (Wilkinson et al., 2012; Kerzner, 2005).

Maturity Framework

The increased interest in what exactly organizational governance contains and how organizations can implement it to adhere to sound governance principles led to organizations establishing their governance structures, systems and processes to assist them in attaining higher levels of organizational maturity (Wilkinson, 2014). Even though some maturity frameworks exist that could be used by different organizations in determining their level of organizational governance maturity; it was noted that those frameworks address only certain aspects of governance maturity (IIA, 2009; NAO, 2002). The lack of a framework for measuring governance maturity comprehensively was identified as a major deterrent factor to the development of governance (Wilkinson, 2014; Al-Ruithe, 2018). However, the ranking would be enormously difficult to execute without a well-developed measuring tool, such as an organizational governance maturity framework. Such a framework will be used to determine an organisation's current level of governance maturity (Wilkinson, 2014; White et al., 2016).

According to National Audit Office - NAO (2002), Solomon (2007), Kontogeorga

(2013), Institute of Internal Auditors - IIA (2014) and Controller and Auditor General - C&AG (2018), maturity frameworks and models can be used to (a) establish relevant and reliable criteria to measure governance effectiveness, (b) evaluate governance effectiveness, and (c) put in place plans that can guide the process of improving the governance processes, arrangements and structures of the organizations. The developed plans will be helpful when different maturity levels exist or are required at different processes, (d) track improvement progress, (e) benchmark governance best practices, and (f) map governance activities to those responsible for their design and operating effectiveness. Another important aspect to note when dealing with organizational governance maturity is the organization's assessment of its maturity (Wilkinson, 2014; Smits et al., 2015).

The concept of maturity frameworks is well known and accepted within the business environment as organizations realize that maturity frameworks can be of great value, especially when benchmarking the organisation's performance (Gomes, 2018; Kerzner, 2005). One of the main reasons for the development of maturity frameworks has been the fact that these frameworks are used by organizations to provide road-maps for performance improvements. Preliminary research conducted by Wilkinson (2012) revealed that maturity frameworks are usually presented in a matrix and contain the following elements: attributes or characteristics of the business area covered in the framework; different stages or levels of maturity, and criteria stating the desired capabilities, and links between levels of maturity development and the attributes.

Therefore, according to Knap (2018), factors influencing how success is defined, measured and managed are: (a) having processes in place which define what success is and how it will be measured; (b) senior management and other key stakeholders have an understanding of success and how such understandings will be realized; (c) the organization knows how to measure success; and (d) those metrics which enable the measurement of success are clearly defined, captured and analyzed. Consequently, it is possible to apply the concept of a maturity framework to the governance environment by identifying specific attributes that are relevant and applicable to the organizational governance, developing a hierarchy of maturity stages or levels, and developing the criteria to be met at each level of each attribute.

Furthermore, Knap (2018), Al-Ruithe (2018) and IDI (2016) pointed out that the commonly used criteria for assessing the effectiveness of organizational governance framework include: comprehensiveness, objectivity, subjectivity, internationally agreed, relevance, performance improvement, progress, consistency, compliance, quality assurance, brevity, and user friendly.

Technical Audit

A Technical Audit is the kind of audit whereby facts about the level of implementation of engineering-related projects are searched, studied, indicated and suggested (Sichombo et al., 2009; RFB, 2008). It is not geared towards looking for faults, but it is aimed at making further improvements. Every work is followed by certain technicalities which, if deviated, the outcome will affect performance (Hudson et al., 2010 & Srivastava, 2012). Technical audit is a tool to create awareness, develop skills, integrate knowledge, upgrade technicality, increase profitability and productivity: and improve working conditions and quality of life (Srivastava, 2012).

According to Sichombo et al. (2009), technical auditing is an independent objective assurance and consulting activity designed to assess the effectiveness and efficiency of an organization's operations. A Technical Audit is the kind of audit that is often carried out by a professional engineer in a specific area with the intention of evaluating deficiencies or areas

that need further improvements in public work projects (Road Fund Board - RFB, 2008; Basondole, 2019). The technical auditor looks at the processes, systems, and technical aspects of the projects during the project's design, implementation and commissioning (Basondole, 2019). Technical audit is the examination of a project (in progress or completed) to determine whether: the planned scope of work delivered, the quality of work (deliverables) complies with project specifications, timelines were met, and value-for-money was obtained or will be obtained (Srivastva et al., 2009, Hudson et al., 2010; Agrawal, 2012).

The main objective of conducting a Technical audit is to verify that works are, or have been, executed per the technical standards agreed upon between the client and the implementing agency (RFB, 2008). The objectives of the technical audit include conformance to technical operations, the robust framework of control, suitability of procured resources against the intended purpose, proper allocation of authorities' responsibilities, and adequate quality assurance systems (RFB 2008; Giove, 1998).

Technical audit includes planning and design of the project; procurement which involves procurement of consultants, contractors and sub-contractors; project implementation, whereby aspects of time, cost and quality of the projects are looked at; and the impact of the project on the society and the country at large (Sichombo et al. 2009; and RFB 2008). The iterative process of key aspects of major capital projects covered during the technical audits is described in Figure 1.

Audits are classified according to methodology, reporting relationship, and relationship. The definition and features of the different types of audits are available in the literature (AFROSAI-E, 2013; INTOSAI, 2017; AFROSAI-E, 2019; Giove, 1998; MacRae, 2010; IIA, 2004; MacRae, 2010; INTOSAI, 2017) and summarized in Figure 2.

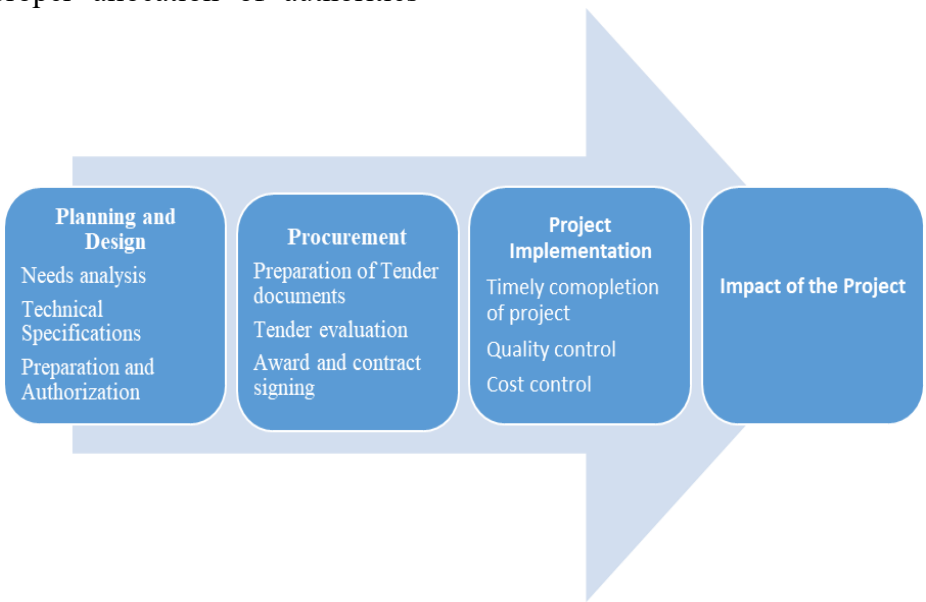

Figure 1: Key aspects covered in the Technical Audit (Tanzania Road Fund Board, 2008; Botswana Transport and Communications, 2001).

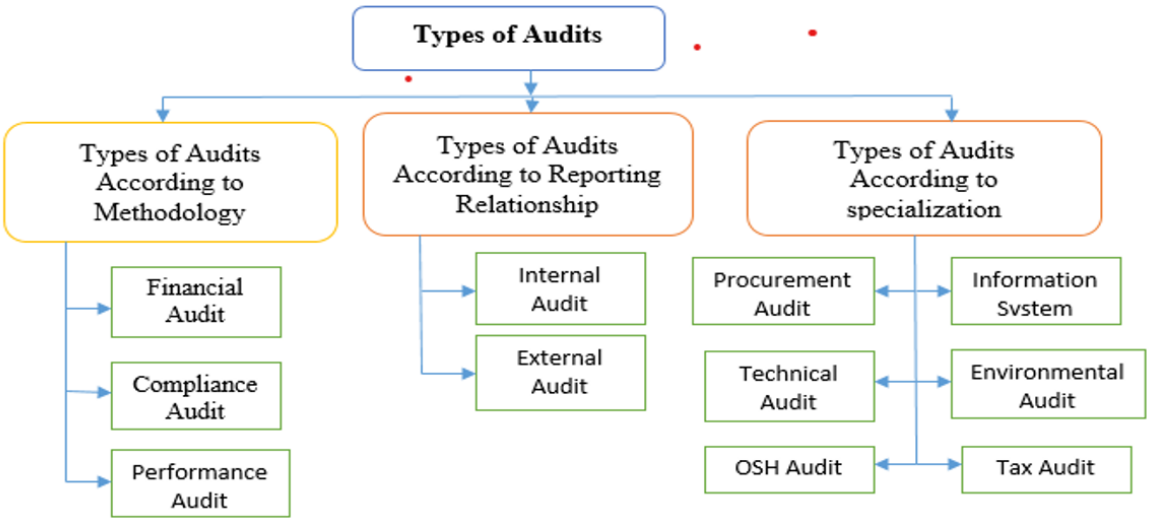

Figure 2: Comparison between technical and other types of audits.

Public Works

The American Association of Public Works (2018) defined Public works as the combination of various activities covering policies, management practices, physical assets and personnel required for the government to provide the required services that are essential for guaranteeing good quality of life to the people. These projects may be funded by Local Government Authorities (LGAs) or the central government through its Ministries, Departments and Agencies (MDAs). Similarly, Benmaamar (2006) defined public works as engineering projects and other constructions financed and undertaken by a government for the community. These are projects such as school and hospital buildings, bridges, highways, and dams. Public capital works projects generally fall into two sectoral classifications (Benmaamar, 2006): (a) Civil Engineering Works and (b) Building Works. This division reflects some fundamental differences between the civil engineering and building sectors. Civil engineering works such as roads, tunnels, bridges etc. are designed by Civil Engineers acting under the supervision of the Contracting Authority and are carried out by civil engineering contractors. Building works including office buildings, schools and hospitals are designed by Architects (with other consultants) under the direction of the Contracting Authority and they are constructed by building contractors (AAPW, 2018).

Basis, Common Attributes and Benefits of Maturity Models or Frameworks

Most maturity models are influenced strongly by the principles supporting the CMMI and PMI's BoK (Jugdev and Thomas 2002), so maturity can be associated with management practices assessment. However, there are published models which do not refer to either the CMMI or PMI's BoK, such as the (Andersen and Jessen 2003) model, which sees maturity as being the integration of attitude, knowledge and action.

There are some attributes which the project management or organizational maturity models universally share. According to Gomes (2018), Al-Ruithe (2018) and Kerzner (2005), these include:

1) There is a finite number of stages into which an organization broadly fits. Most models have adopted the CMMI stages in terms of the number (6 stages, ranging from Level 0 to Level 5) and the names of each stage.
2) Reflecting the continuous improvement principle of quality management, those

models closely tied to TQM or some other quality management framework will expect the organization to target ever-increasing maturity levels.

3) By applying the model, an organization's maturity may be assessed. Typically, some measurement instrument is employed, often a combination of quantitative and qualitative analyses.

Maturity is commonly measured in discrete stages and across several dimensions. Most of these frameworks or models adopt a five-level framework following the original idea developed by Crosby (1979) and extensively published in the Capability Maturity Model for Software (Paulk et al., 1993). The overall maturity models with 5 levels include: initial, repeatable, defined, managed, and optimized (NAO-UK 2009), Table 1.

Table 1: Commonly used measures for the 5-Level Overall Maturity

Overall Maturity Level	Requirements
Level 5 – Optimized	Continuous monitoring and updating for necessary changes and emerging leading practices
Level 4 – Managed	Practices and procedures are communicated to personnel and training occurs as necessary
Level 3 – Defined	Practices and procedures are defined, in place, and documented
Level 2 – Repeatable	Practices and procedures are defined and in place but may not be documented
Level 1 – Initial	Practices and procedures are not defined

Claims have been made regarding the benefits of adopting a maturity model and systematically improving maturity (Crawford 2006; Ibbs and Kwak 2000; Mullaly 2006). The main benefits of adopting maturity models: (a) enable the implementation of necessary action plans to improve governance structures, systems and processes; (b) facilitate the availability of indicators that will guide the organization to reach the desired maturity levels to modernize, and remain up-to-date; (c) enable benchmarking of performance of the organization which will eventually facilitate their improvements; (d) bridge the knowledge gap for assessing organizational governance maturity of its functions.

The use of maturity models provides a framework for continuous improvement in many business areas. They drive strategically linked continuous improvement and require a prior thorough understanding of the organization's current position and an idea of where it aims to be in the future (Brookes and Clark, 2009; Gomes, 2018).

The rationale for developing a Framework for Assessing the Organizational Maturity of Technical Audit of Public Works

The quality of the audit work and its products is often associated with the organizational maturity of the audit function (Wilkinson, 2014; White et al., 2016). The absence of a well-defined organizational maturity for an audit function leads to poor quality of audit work or products and ineffective audit function (Wilkinson, 2014; Smits et al., 2015).

Different authors argue that there are many advantages of having a defined organizational maturity framework for a specific audit discipline. NAO (2002), Solomon (2007), Kontogeorga (2013), IIA (2014) and IDI (2022) argue that establishing relevant and reliable criteria to measure governance effectiveness in auditing is key for improving organizational governance structures, systems and processes. Also, Wilkinson (2014) argues that the absence of a comprehensive framework for measuring governance maturity is a major deterrent factor to the development of audit function, and largely affects its growth and the quality of audit works. From the reviewed 14 different

organizational maturity frameworks, it was noted that three frameworks had no use to Technical Audit. But, to a small extent, 11 frameworks had limited application for Technical Audit.

The following shortcomings regarding technical auditing were noted from the reviewed frameworks:

1) Existing maturity frameworks or models for the audits used to assess organizational maturity have not been developed based on standards and requirements governing technical auditing but rather based on financial, compliance, performance and internal auditing;
2) Defined technical competency for technical auditors, work methods and processes have not been covered in those frameworks but rather focused on other types of audits than technical audit. That contributed to the lack of continual improvement component for assessing organizational maturity of the technical audit function; and
3) The institutional framework (i.e. management systems and structures, quality management systems, organizational and operational strategies) considered in those frameworks used to assess organizational maturity are not applicable in technical auditing.

The analyzed gaps impact the overall quality of technical audits of public works and limit growth and desired improvements of Technical Audit Functions in the country. Therefore, the existing gaps will be addressed by developing a framework to assess the level of organizational governance maturity for technical audits of public works. This is expected to improve the maturity of Technical Audit Functions (Crawford, 2006; Ibbs et al., 2000).

MATERIAL AND METHODS

Design of the Review

The review aimed to address the existing literature gap regarding assessing organizational governance maturity of the technical audit functions in the public sector. The focus is on the public infrastructures implemented by the public sector entities. The main objective of the paper is to review the existing frameworks that can be used to assess the level of organizational governance maturity for technical audits of public works within public sector organizations.

Document Review

Several papers, articles and books on the area of organizational governance maturity of audit function that were published all over the world were reviewed. The Systematic Literature Review (SLR) was used when searching and reviewing papers and articles. The SLR involves the collection, assessment, integration and presentation of the results from the review of a particular research area. The SLR allows to review a large number of papers (quantity) and cover the most critical papers (quality) in a field of research. SLR allows to gather appropriate and sufficient evidence on the area of interest and gain comprehensive knowledge and understanding of the matter. A comprehensive SLR is conducted systematically per a methodological approach which explicitly explains the procedures by which it has been conducted, the scope covered involving all key materials, and it can be traced and reproducible by others and allow them to reach the same conclusion (Okoli & Schabram, 2010).

The preparation of this paper opted to use the systematic literature review as the preferred method for collecting, assessing, integrating and presenting the results from the review of papers and articles on the area of organizational governance maturity of the audit function. Figure 3 provides an iterative process for the systematic literature review whereby eight major steps of the SLR have been presented.

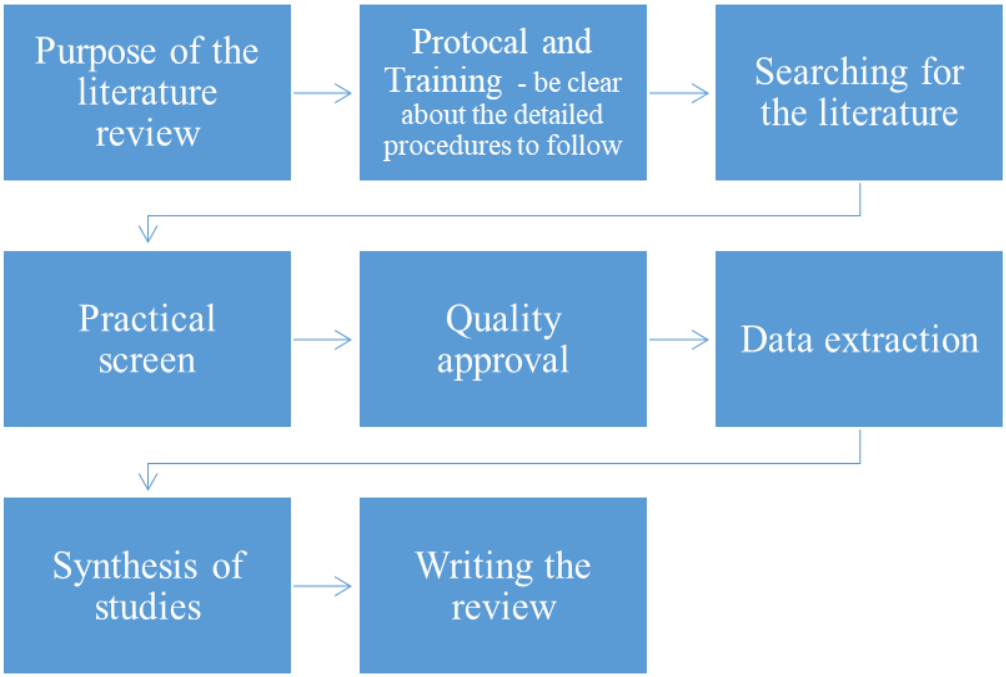

Figure 3: Eight major steps for a systematic literature review (Okoli & Schabram, 2010).

Collection of Literature and Corresponding Sources

Through the online library databases of the University of Dar es Salaam, data and information were searched regarding the organizational governance maturity of audit function. Publications reviewed by different publishers were reviewed as a result of the search. Most of the reviewed publications were the ones published between 2000 and 2022.

The main keywords used to search the online library databases included "Organizational governance", "maturity framework", "technical audit", "public works", and "audit function". The online search provided 216 papers showing a high correlation between paper and keywords used for searching the online library databases. Journals on construction management, project management, auditing (internal and external auditors' related journals), and public works were extracted and reviewed.

Steps and Methodology for Developing a Framework for Assessing the Organizational Maturity of Technical Audit of Public Works

Steps for Developing a Framework

There are different steps for developing a framework for assessing the organizational maturity of the technical audit of public works.

The assessment of the audit function starts typically by gaining an understanding of various contexts of organizational governance. Understanding the context involves identifying key stakeholders and their requirements and establishing how the governance issues are defined within the organization. The management of the Audit function normally is required to work with the various internal stakeholders, including audit committees and staff at all levels, in the course of defining and determining various governance contexts for audit purposes (NAO-UK 2012; IIA 2014). Major steps and phases for developing the organizational governance assessment processes are presented in Figure 4.

Figure 4: Organizational Governance Assessment Process (Institute of Internal Auditors, IIA - Internal Audit Process Maturity Model (2012))

Figure 4 provides a step-wise approach to assessing organizational governance and its development. The figure shows four main stages to be followed while developing a framework for organizational governance maturity for any audit. Each of these steps is detailed below:

(a) *Gather Governance Documents*

Governance should be designed to comply with policy and legal requirements and should fit well with the organization's mission and the nature of risks to which the organization is exposed. Furthermore, according to NAO-UK (2012) and IIA (2014), records that state and document an organization's governance requirements, processes and structures to meet those stated requirements should include (a) laws and regulations: which normally establish minimum governance requirements, (b) organizational policies, operating procedures/agreements and by-laws, (c) approved governance codes and preferred practices issued by the regulatory or governing body. Codes can either be mandatory or optional, depending on the nature of the profession or field.

(b) *Review Governance Processes and Structures*

As part of the assessment process, the governance process and structures are ought to be reviewed regularly. In the course of the review, the auditors are required to understand that there is no one-size-fits-all governance framework or model. By design, the organization's governance processes and structures should respond to the requirements identified in the preceding section (NAO-UK 2012).

As part of the good practices, governance structures and processes need to be scrutinized by the Audit Committee, Board of the Audit and the top management of the audit organisation. The level of the review, to a large extent, depends on the importance and impact the governance structure and processes have on the organization, particularly its maturity (IIA 2014).

(c) *Establish Assessment Criteria and a Governance Maturity Model*

Governance maturity models may be used to identify, define, and evaluate assessment criteria gathered from the review of governance records, processes, and structures. To develop an organization-specific maturity model, the audit management should review available models for the organization's country, sector, and industry and consider the governance documents and issues specific to the organization. A draft maturity model should be discussed and agreed on with senior management and the board, including the audit committee (IIA 2014).
Apart from developing reliable but relevant criteria that can be used to measure the effectiveness of governance, NAO-UK (2012) and IIA (2014)) provided other uses of maturity models: (a) Evaluate governance effectiveness; (b) Develop plans for improving the organization's governance structures, processes, and arrangements, either taken as a whole or by individual governance processes (e.g., enterprise risk management (ERM), compliance, and internal audit). These plans are beneficial when varying maturity levels exist or are desired among different processes. They are helpful when tracking improvement progress, benchmarking

governance best practices, and mapping the related activities to the actors responsible for the design and effectively operationalizing them.

(d) *Testing the Draft Maturity Model*

White & Jordan (2016) stated that once a draft framework or model for organizational governance maturity has been developed, it must be subjected to thorough and critical reviews and testing to establish adequacy, applicability and usefulness to the environment in which the model or framework will be applied. Testing of the model entails conducting pilot analysis and assessment and then comparing the results of piloting and assessment on the one hand, with the actual situation on the ground and/or performance measures conducted using different measurement tools on the other hand. Once, the piloting assessment is completed, the draft model or framework can be completed, finalized and applied by the concerned institution(s).

Moreover, *White & Jordan (2016) highlighted a*reas that need to be considered when reviewing models or frameworks for assessing organizational maturity. Figure 5 provides an iterative process reviewing models and frameworks for assessing organizational maturity.

Variables considered when Developing a Framework for Assessing the Organizational Maturity of Technical Audit of Public Works

Figure 6 provides the conceptual framework for assessing the organizational maturity of the technical audit of public works. It provides details on each of the variables whicha are important when developing a tool to assess the organizational governance maturity of the Technical Audit Function (TAF).

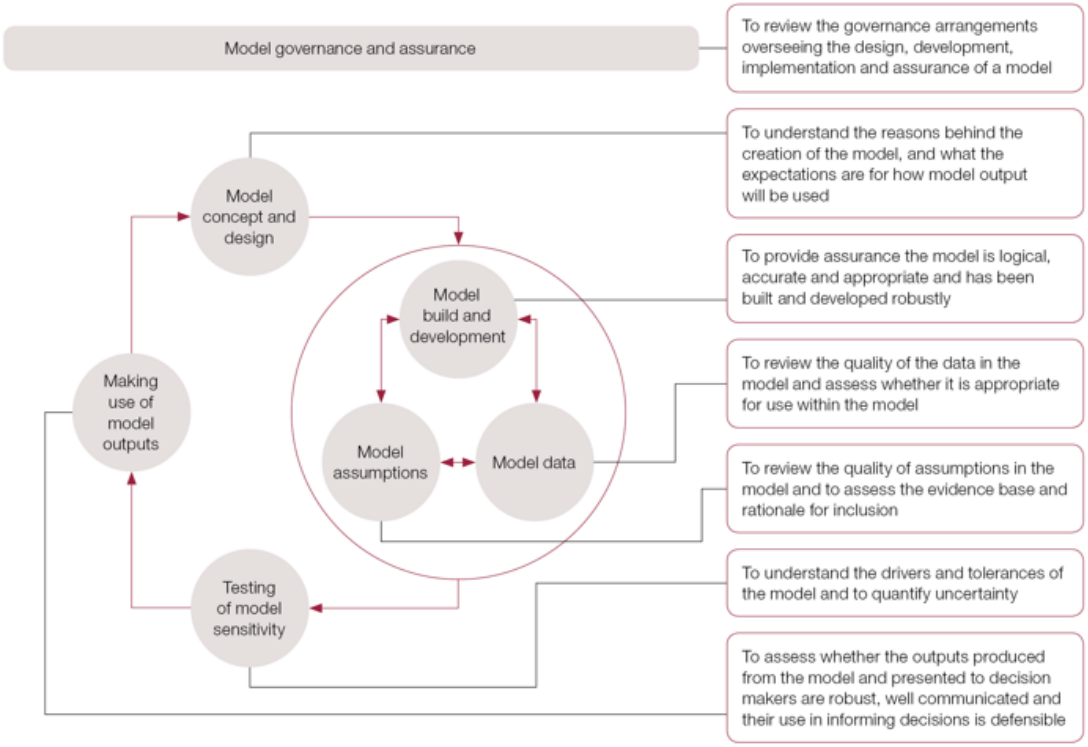

Figure 5: Areas to consider when reviewing models and frameworks (White, E & Jordan, T. (2016) - Framework to Review Models).

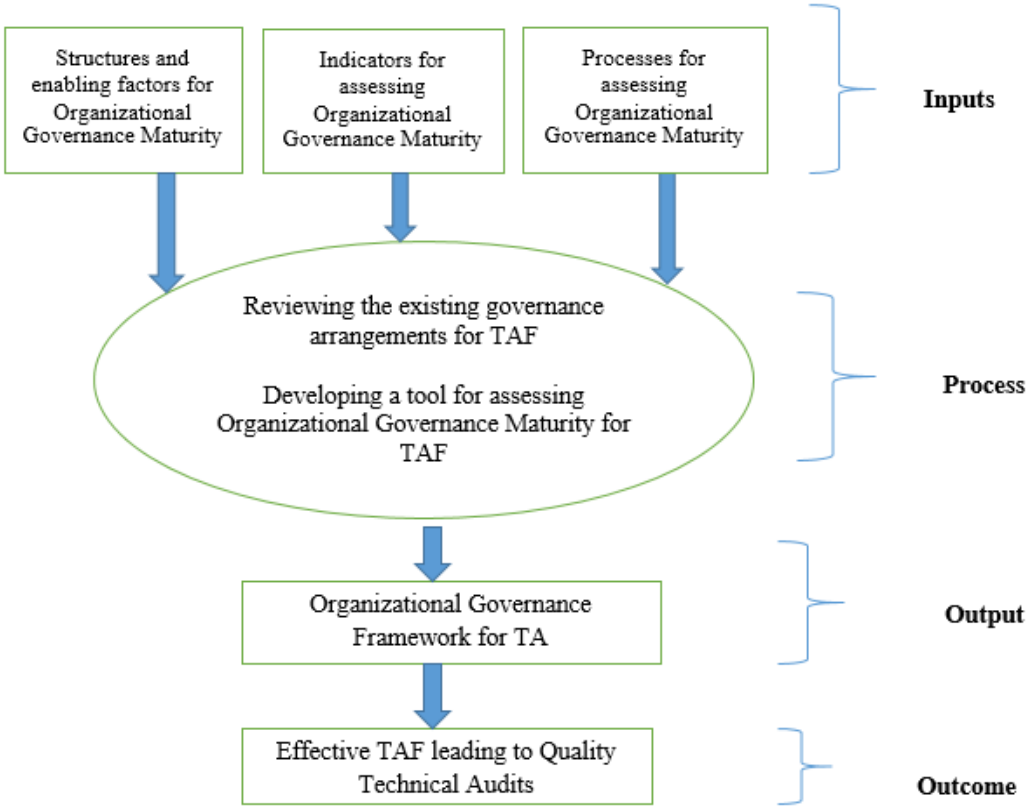

Figure 6: Conceptual framework for developing a tool for assessing organizational governance framework for technical audit function (TAF)

RESULTS AND DISCUSSION

This section presents the results of the literature review and analysis of 14 frameworks currently used globally in the audit arena. It also provides a discussion on the identified research gap.

Analysis of the Existing Frameworks

Fourteen (14) frameworks throughout the globe were assessed, of which 4 were for Supreme Audit Institutions (SAIs) assessments of External Audit function, and 3 were for the assessments of Internal Audit function covering large parts of the Public Financial Management (PFM). They are intended to measure the performance of the whole institution by conducting different kinds of audits. The remaining 7 frameworks were for project management. The tools included in the mapping were identified through a literature review and contact with key stakeholders. The 14 reviewed frameworks and tools are presented in Table 2.

Table 2: Analysis of the Existing Governance-related Maturity Frameworks/Models

Maturity Framework or Model	Area of Specialization	Is the Framework/Model relevant to TA?	Reasons
Internal Audit Capability Model (IA – CM) (IIA Research Foundation 2009)	Internal Auditing	Yes – It has a limited use	The model focuses mainly on the internal audit, and it provides pillars of governance.
Internal Audit Process Maturity (IIA Research	Internal Auditing	No	The model focuses mainly on the internal audit process

Maturity Framework or Model	Area of Specialization	Is the Framework/Model relevant to TA?	Reasons
Foundation 2012)			
Internal Audit Ambition Model (IIA Research Foundation 2016)	Internal Auditing	Yes – limited use	Focus mainly on roles and scope of the Internal Audit Function
CMMI (SEI 2010)	Software processes	No	Focus mainly on software processes
MMM Model (Rossouw & Van Vuuren 2003)	Ethics	Yes – It has a limited use	The model focuses mainly on the ethical issues
Risk Maturity Model (RIMS 2006; Coetzee 2010)	Risk	Yes – Limited use	Risks play an important role in the field of governance
GCM Model (Bahrman 2011)	Governance	Yes – Limited use	Focuses extensively on governance
COBIT Model – Control Objectives for the Information and Related Technology (ISACA 2012)	Information Technology	Yes – limited use	Increased importance of Information Technology (IT) governance worldwide
Supreme Audit Institutions - Performance Measurement Framework (SAI-PMF) (IDI 2016)	External Audit – Performance, Compliance and Financial Audits	Yes – limited use	Focuses on Capacity Building and Performance Measurements within a Supreme Audit Institution
Institutional Capacity Building Framework – ICBF (AFROSAI-E 2010)	External Audit – Performance, Compliance and Financial, Information Systems Audits	Yes – limited use	Focuses on Capacity Building within a Supreme Audit Institution
SAI Maturity Model, UK National Audit Office (NAO-UK 2002)	External Audit – Performance and Financial Audits	Yes – limited use	Emphasizes on development of Performance and Financial Audit Functions within a Supreme Audit Institution
PASAI Capability Model (PASAI 2014)	External Audit – Performance, Compliance and Financial Audits	Yes – limited use	Focuses on Performance measurements specifically for Compliance and Performance Audits
Project Management Process Maturity Model (PM2) – Ibbs Model	Financial Return on Investment	No	The model focuses mainly project management process
Organizational Project Management Process Maturity Model (OPM3 - PMI) (Grant and Pennypacker 2006)	Project Management	Yes – limited use	Emphasizes the organizational capacity to manage projects

The analysis from Table 2 shows that most of the frameworks covered mainly, financial, compliance, performance and internal audits. Few of them covered ethics, governance, risk and information technology. The review of 14 frameworks revealed that 3 frameworks had no use to Technical Audit. But, to a limited extent, 11 frameworks had limited application for Technical Audit. Hence, due to noted limitations, having an exclusive framework that addresses technical audit requirements is of critical necessity.

Identified research gap

The comprehensive search showed that the literature on maturity frameworks or models which explicitly focus on governance as a holistic concept is very limited (Wilkinson, 2014). These include discussions on process maturity, organizational maturity, process capability, project maturity (Crawford, 2002) and maturity of organizational capabilities (Ulrich & Smallwood, 2004).

A number of models linked to either auditing or construction project management were identified from the review of different models and frameworks. Among them, the noticeable models are such as the Project Management Process Maturity (PM2) model, also known as the Ibbs model, which emphasizes the aspect of financial return on investment, the Kerzner model (Kerzner, 2005), the Garies model (Garies, 2003) and Organizational Project Management Maturity Model by PMI. These models view maturity as something that happens in a spiral form instead of being a step-wise process.

Another set of models identified during the review is the models related to auditing, such as the SAI Maturity Model, ICBF Model, PASAI Capability Model, and SAI PMF Model, which emphasizes the aspects of external audits mainly on financial and performance audits. Models such as Internal Audit Process Maturity, Internal Audit Capability Model (IA – CM) and Internal Audit Ambition Model focused mainly on internal audit functions.

From the above-reviewed models, it was noted that, the concept of organizational governance is generally well-researched and known among authors. However, the review has noted that the number of publications and knowledge on the concept of organizational governance maturity in technical auditing is limited to non-existent. As a result, there is (a) no existing comprehensive governance maturity framework/model to assist organizations in improving their organizational governance on technical auditing, and (b) appropriate technical audit services (either consulting or assurance services) cannot be rendered unless there is a well-defined framework or model that can be used to benchmark the organization's level of governance maturity.

The question now arises: how does an organization, and the technical audit function, in particular, determine the level of organizational governance maturity without a benchmark that specifies the structures, systems and processes required to support governance at different levels of maturity? (IDI 2022; Sichombo et al., 2009; Kerzner, 2005). Published maturity frameworks or models in the areas of auditing (financial and performance auditing) and project management will be used in this case; however, there is very little that pertains specifically, comprehensively and holistically to organizational governance for technical auditing (IDI 2022; NAO, 2002). This has created an opportunity for the development of an organizational governance maturity framework for Technical Audit (OECD, 2016).

CONCLUSION AND RECOMMENDATION

The potential benefits of developing a framework for assessing organizational governance maturity for a technical audit function have been described. The key features of existing organizational governance maturity frameworks/models have been discussed, and their weaknesses in relation to the technical audit have been highlighted.

The paper showed a need to specify attributes applicable to organizational governance, develop a hierarchy of maturity levels, and develop criteria desired at each attribute. The involvement of the auditees in the service innovation process also needs to be addressed during the research. Conclusively, the framework should address the integration of governance structures, systems and processes to assist the Technical Audit Function in reaching higher levels of organizational governance maturity.

Moreover, assessing the organizational governance maturity for the technical audit is a new phenomenon. Therefore, it provides opportunities and areas that are worth studying in future. These areas include: (a) investigating the organizational governance maturity for the technical audit for different entities conducting technical audits in different countries. That will allow opportunities for drawing the comparison between different countries and finally allow for the adoption of the best practices, (b) other research could also focus on the private sector since no study is addressing the issue of organizational governance maturity for the technical audit conducted by the private engineering or audit firms, (c) analyse the effect of each of the domain or attribute of the organizational governance maturity using other maturity frameworks or models on the improvement of the performance of technical audit functions.

This paper has identified the potential benefits of developing a framework for assessing organizational governance maturity for a technical audit function. Therefore, it is recommended that this situation be improved and a framework that can be used to assess the level of organizational governance maturity for technical audits of public works within public sector organizations be developed. It is recommended that the framework covers key factors enabling organizational governance maturity at various levels of growth of technical audit functions.

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