The Relationship between the IT Governance Maturity and the Business Performance for the Banking Industry in Kenya

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Abstract: *- IT governance is a process used to monitor and control key information technology capability decisions to ensure the delivery of value to key stakeholders in an organization. IT Governance is a process. It is not a point in time event. It is not a committee. It is not a department. The objective of IT governance is to ensure the delivery of business results neither "IT systems performance" nor "IT risk management". IT Governance is about IT decisions that have an impact on the business value. The business performance is measured using ratios includingthe profit after tax (PAT) and the return on assets (ROA). There are 39 commercial banks in Kenya. The six Tier-one banks make up approximately 54% of the Kenyan banking industry market size.*
Keywords: *BITA, COBIT, ITIL, CMMI, IT Governance, Maturity Model.*

I. Introduction

IT Governance is a process used to monitor and control key information technology capability decisions to ensure the delivery of value to key stakeholders in an organization. It is not a department. The process, therefore, monitors and control key IT decisions that might have an impact on business results. The concept of governance is meaningless without the recognition of both ownership and responsibility. The key stakeholders in an organization have an "ownership" stake in the organization. The management is accountable to these stakeholders. We must recognize the ownership stake of not just shareholders but also of the other stakeholders such as customers, vendors, employees etc. The "management," i.e. the people entrusted with making key decisions, is responsible to these stakeholders. Therefore, the objective of IT Governance is not just the delivery of risk optimized business value but also to engender the trust of the key stakeholders in the people who they have entrusted their money and livelihood! One can argue that this trust results in more business value. In a sense, IT Governance acts upon the adage of "trust but verify" (CioIndex, 2018a).

II. Problem Statement

The lack of IT governance undermines the delivery of business results. This reinforces the notion of investments in IT for technology's sake (TechTarget, 2018a). The lack of IT governance can lead to the IT decisions that have a negative impact on business value and performance. The key stakeholders in an organization have an ownership stake in the organization. The management is responsible to these stakeholders and should adopt best practices in IT governance to drive the business performance. The general business problem is that business managers lack the strategies to achieve business-IT alignment. The specific business problem is that the business managers in the Kenyan Banking industry lack a model to predict the relationship between the IT governance maturity and the business performance.

III. IT Governance

According to the IT Governance Institute (ITGI), IT governance encompasses:
- Business-IT alignment (BITA)
- Measuring IT performance
- Establishing IT-related risk management strategies
- Optimizing business IT investment
- Using IT to deliver business value

IT governance is a broad concept that is centered on the IT department or environment delivering business value to the enterprise. It is a set of rules, regulations, and policies that define and ensure the effective, controlled and valuable operation of an IT department. It also provides methods to identify and evaluate the performance of IT and how it relates to business growth. Moreover, by following and implementing an IT Governance

Framework such as Control Objectives for Information and Related Technology (COBIT), an organization can comply with regulatory requirements and reduce IT business while attaining measurable business benefits.IT governance uses, manages and optimizes IT in such a way that it supports, complements or enables an organization to achieve its goals and objectives(CioIndex, 2018a).

IV.   Definitions of IT Governance

- Weill and Ross (2004) defined IT governance as the decision rights and accountability framework to encourage desirable behavior in the use of IT. They identify three components of governance:
  - IT Decisions Domains: What are the key IT decision areas?
  - IT Governance Archetypes: Who governs the decision domains and how is it organized? Who decides or has input, and how?
  - Implementation Mechanisms: How are the decision and input structures formed and put in place?
- The IT Governance Institute (ISACA) defines IT Governance as follows: The leadership, organizational structures and processes to ensure that the organization's IT sustains and extends the organization's strategies and objectives.
- According to Gartner IT governance (ITG) is defined as the processes that ensure the effective and efficient use of IT in enabling an organization to achieve its goals. IT demand governance (ITDG) is the process by which organizations ensure the effective evaluation, selection, prioritization, and funding of competing IT investments; oversee their implementation, and extract (measurable) business benefits. ITDG is a business investment decision-making and oversight process, and it is a business management responsibility. IT supply-side governance (ITSG—how IT should do what it does) is concerned with ensuring that the IT organization operates in an effective, efficient and compliant fashion, and it is primarily a CIO responsibility (Gartner, 2018).
- CIO Magazine defines IT Governance as Simply put, it's putting structure around how organizations align IT Strategy (Information Technology Strategy) with business strategy, ensuring that companies stay on track to achieve their strategies and goals, and implementing good ways to measure the IT performance. It makes sure that all stakeholders' interests are considered and that processes provide measurable results (CIO, 2018). An IT governance framework should answer some key questions, such as how the IT department is functioning overall, what key metrics management needs and what return IT is giving back to the business from the investment it's making (CioIndex, 2018a).

V.   Different names of IT Governance

IT Governance is also known as:

- Information technology governance
- Information and communications technology governance (ICT Governance)
- Corporate governance of information technology
- Corporate governance of information and communications technology

VI.   The emergence of IT Governance

The discipline of information technology governance first emerged in 1993 as a derivative of corporate governance and deals primarily with the connection between an organization's strategic objectives, business goals, and IT management within an organization. It highlights the importance of value creation and accountability for the use of information and related technology and establishes the responsibility of the governing body, rather than the chief information officer or business management. The primary goals for information and technology (IT) governance are to (1) assure that the use of information and technology generate business value, (2) oversee management's performance and (3) mitigate the risks associated with using information and technology. This can be done through board-level direction, implementing an organizational structure with well-defined accountability for decisions that impact on the successful achievement of strategic objectives and institutionalize good practices through organizing activities in processes with clearly defined process outcomes that can be linked to the organization's strategic objectives. Following corporate governance failures in the 1980s, several countries established codes of corporate governance in the early 1990s:

- Committee of Sponsoring Organizations of the Treadway Commission (USA)
- Cadbury Report (UK)
- King Report (South Africa).

Because of these corporate governance efforts to better govern the leverage of corporate resources, specific attention was given to the role of information and the underpinning technology to support good corporate governance. It was soon recognized that information technology was not only an enabler of corporate governance but as a resource, it was also a value creator that needed better governance. In Australia, the AS8015 Corporate Governance of ICT was published in January 2005. It was adopted as ISO/IEC 38500 in May 2008. IT governance process enforces a direct link of IT resources and process to enterprise goals in line of strategy. There is a strong correlation between the maturity curve of IT governance and the overall effectiveness of IT(CioIndex, 2018a).

VII.   The IT Governance Landscape

IT governance should not be considered a company initiative. It is not a project that begins and ends, but rather is the fabric of the business and transcends time, leadership, and initiatives. And whether managers have organic (grown unintentionally) or deliberate (grown intentionally) IT governance, the questions managers should ask include: "How good are my IT governance processes at effectively delivering strategic business value year after year?" "Are my processes repeatable, predictable, and scalable; are they truly meeting the needs of my business (outside of IT) and my customers?" It is no more likely that a single IT governance process will work for all IT business processes than it is for every one of the customers to be satisfied with the exact same product orservice configuration for any given product or service that the company produces. Therefore, several IT governance-related processes must be considered. The integrated collection of available IT governance processes is referred to as the IT governance landscape. IT governance is a subset of enterprise governance, which at the highest-level drives and sets what needs to be accomplished by IT governance. IT governance itself encompasses systems, infrastructure, and communication. Product development governance, like IT governance, is a subset of enterprise governance and overlaps with IT governance. Product development governance is targeted for enterprises that develop products (as opposed to service delivery, for example). Development governance is governance applied to development organizations and programs and is a subset of IT and product development governance. Development governance encompasses the software development lifecycle (IBM, 2018). Figure 1. illustrates these relationships, highlighting development governance.
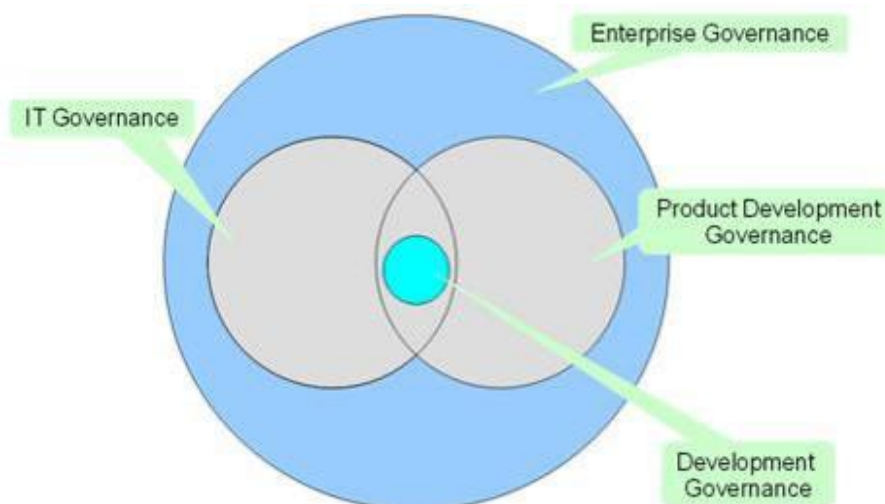

Figure 1. Source: (IBM, 2018)

VIII.   Domains of IT Governance

Ask a room of IT governance professionals and business executives this question and chances are each one would provide a different answer. Fortunately, the ISACA organization, a leading global provider of certifications, knowledge, advocacy and education of information systems, assurance and security has developed some useful guidance which separates IT Governance into 5 separate domains, each of which are briefly described below:

1. **Framework for the Governance of Enterprise IT**

- Organizations need to implement an IT Governance framework which stays in continuous alignment with enterprise governance and the key drivers (both internal and external) directing the company's strategic planning, goals, and objectives.

  - This framework should wherever possible attempt to utilize industry standards and best practices (COBIT, ITIL, ISO, etc.) in accordance with the explicit needs and requirements of the business.
  - The IT Governance model should be driven at the top level of the organization with roles, responsibilities and accountabilities fully defined and enforced across the organization.

2. **Strategic Management**

- To be effective in enabling and supporting the achievement of business objectives, the business strategy must drive IT strategy. As such, the strategy of the business and IT are intrinsically linked, and efficient and effective business operations and growth relies on the proper alignment of the two.
  - Some of the most effective methods for achieving this alignment are the proper implementation of an enterprise architecture methodology, portfolio management, and balanced scorecards.

3. **Benefits Realization**

- IT Governance helps the business realize optimized business benefits through the effective management of IT-enabled investments. Often there is a considerable concern at a board or senior management level that IT initiatives are not translating into business benefits.
  - IT Governance aims to ensure IT benefits through the implementation of value management practices, benefits realization planning and performance monitoring and response.
  - Key to benefits realization is the establishment of effective portfolio management to govern IT-enabled investments as well as the design and utilization of appropriate performance metrics and reporting methods which are managed and responded to accordingly. The realization of a culture focused on continuous improvement can further help ensure benefits realization is achieved through a constant focus on improving business performance.

4. **Risk Optimization**

- In an increasingly interconnected digital world, the identification, assessment, mitigation, management, communication and monitoring of IT-related business risk is an integral component of an enterprises governance activities.
  - While activities and capabilities for risk optimization of IT will differ widely based on the size and maturity of the organization and the industry vertical in which they operate, of most importance is the development of a risk framework which can demonstrate good governance to shareholders and customers in a repeatable and effective manner.- Some important components of this dimension include business continuity planning, alignment to relevant legal and regulatory requirements and the development of a risk appetite and tolerance methodology used to assist with risk-based decisions.

5. **Resource Optimization**

- To be effective, IT requires sufficient, competent and capable resources (people, information, infrastructure, and applications) in order to meet business demands and execute on the activities required to meet current and future strategic objectives.- This requires the focus on identifying the most appropriate methods for resource procurement and management, monitoring of external suppliers, service level management, knowledge management, and staff training and development programs (CioIndex, 2018a).
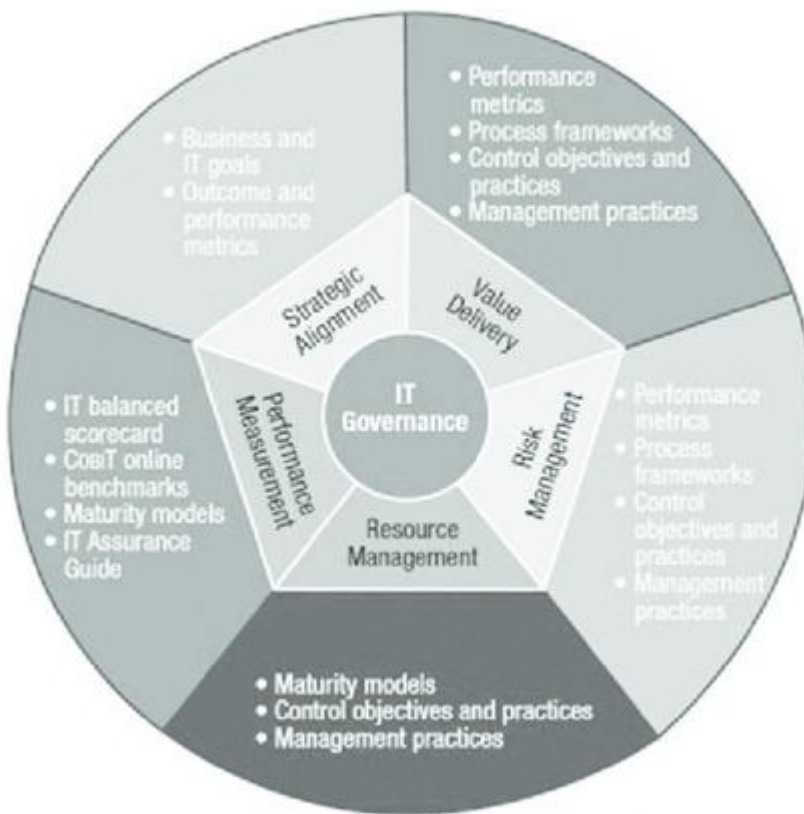
Figure 2. Source: (Researchgate, 2018).

What is perhaps most important here, however, is not that all 5 IT governance domains are fully inserted into the enterprise, but that the recommendations, standards and best practices contained in the domains are considered and applied in accordance with the needs, requirements, and capabilities of the business. As such the ISACA model is arguably most useful when it is considered as a basic guideline for injecting IT governance best practices into the business when and where they are specifically needed. It is, however, advisable that no matter the size and maturity level of the business at least some elements from each domain should be present to ensure effective IT governance! (CioIndex, 2018a).

IX.   IT Governance Frameworks

There are three widely recognized, vendor-neutral, third-party frameworks that are often described as IT governance frameworks. While on their own they are not completely adequate to that task, each has significant IT governance strengths:

▪ **ITIL**
    ITIL, or IT Infrastructure Library®, was developed by the UK's Cabinet Office as a library of best-practice processes for IT service management. Widely adopted around the world, ITIL is supported by ISO/IEC 20000:2011, against which independent certification can be achieved.

▪ **COBIT**
    Control Objectives for Information and Related Technology (COBIT) is an IT governance control framework that helps organizations meet today's business challenges in the areas of regulatory compliance, risk management and aligning IT strategy with organizational goals. COBIT is an internationally recognized framework. COBIT's Management Guidelines component contains a framework for the control and measurability of IT by providing tools to assess and measure the enterprise's IT capability for the 37 identified COBIT processes.

▪ **ISO 27002**

ISO 27002 (supported by ISO 27001), is the global best-practice standard for information security management in organizations. The challenge, for many organizations, is to establish a coordinated, integrated framework that draws on all three of these standards.

The Importance of IT Governance

▪ Compliance with regulations
▪ Competitive Advantage
▪ Support of Enterprise Goals
▪ Growth and Innovation
▪ Increase in Tangible Assets
▪ Reduction of Risk

IT Governance Implementation IT Governance implementation initiatives must be properly and adequately managed. Support and direction from key leadership executives can ensure that improvements are adopted and sustained. Requirements based on current challenges should be identified by management as areas that need to be addressed, supported by early commitment and buy-in of relevant key leadership executive and enabled objectives and benefits that are clearly expressed in a business case. Successful implementation depends on implementing the appropriate change in the appropriate way. The implementation lifecycle provides a way for enterprises to address the complexity and challenges typically encountered during implementations. The three interrelated components of the life cycle are:

1. Core continual improvement life cycle—as opposed to a one-off project
2. Change enablement—addressing the behavioral and cultural aspects
3. Program management—following generally accepted project management principles
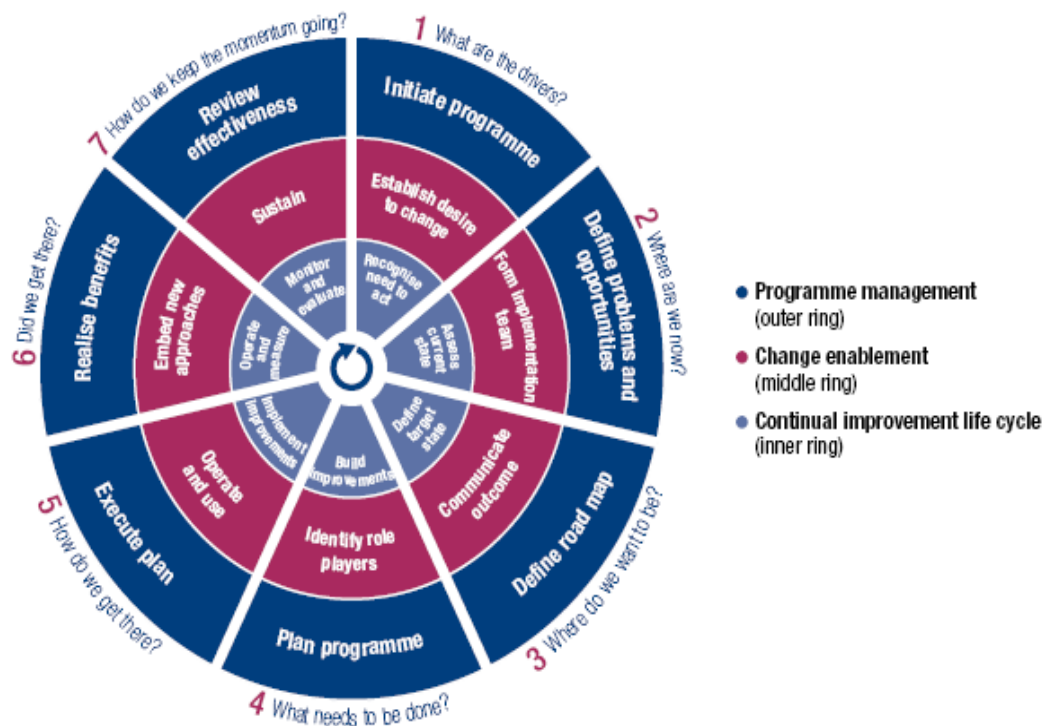

Figure 3. Source: (ISACA, 2012).

The implementation life cycle and its seven phases are illustrated above:

- Phase 1: recognition and agreement on the need for an implementation or improvement initiative. It identifies the current pain points and creates a desire to change at executive management levels.
- Phase 2: focus on defining the scope of the implementation or improvement initiative, considering how risk scenarios could also highlight key processes on which to focus. An assessment of the current state will need to be performed to identify issues or deficiencies by carrying out a process capability assessment. (Large-scale initiatives should be structured as multiple iterations of the life cycle to achieve visible successes and keep key leadership interest.)
- Phase 3: improvement target set, including a more detailed analysis to identify gaps and potential solutions. (Some solutions may be quick wins and others more challenging and longer-term activities – priority should be given to initiatives that are easier to achieve and those likely to yield the greatest benefits.)
- Phase 4: practical solutions with defined projects supported by justifiable business cases and a change plan for implementation is developed. (Well-developed business cases help to ensure that project benefits are identified and monitored.)
- Phase 5: proposed solutions implemented into day-to-day practices, measurements are defined and monitoring established, ensuring that business alignment is measured, achieved and maintained.
- Phase 6: sustainable operation of the new or improved IT Governance initiatives and the monitoring of the achievement of expected benefits.
- Phase 7: overall success of the initiative reviewed, further requirements for IT Governance are identified, and the need for continual improvement is reinforced.

Over time, the life cycle should be followed iteratively while building a sustainable approach to the IT Governance of the enterprise.

To ensure the success of the IT Governance implementation initiative, a sponsor should take ownership, involve all key leadership executives, and provide for a business case. Initially, the business case can be at a high level from a strategic perspective. This is from the top down, starting with a clear understanding of the desired business outcomes and progressing to a detailed description of critical tasks and milestones as well as key roles and responsibilities; the business case is a valuable tool available to management in guiding the creation of business value. At a minimum, the business case should include the following:

- Business benefits, their alignment with business strategy and the associated benefit owners.
- Business changes needed to create the envisioned value. This could be based on health checks and capability gap analyses and should clearly state both what is in scope and what is out of scope.
- Investments needed to make the IT Governance changes (based on estimates of projects required)
- Ongoing IT and business costs.
- Expected benefits of operating in a changed way.
- Roles, responsibilities, and accountabilities related to the initiative.
- How the investment and value creation will be monitored throughout the economic life cycle, and the metrics to be used (based on goals and results).
- The risk inherent in the change, including any constraints or dependencies (based on challenges and success factors).

X.   Achieving Effective IT Governance Implementation

There are seven critical success factors for achieving effective IT governance implementations. These are widely accepted as important by companies that have had successful IT governance implementation (Mercury, 2018).

- **Get executive sponsorship**.

  - The higher in the organization the better. If IT governance is seen as "optional," it won't work.
  - The CIO should be a visible, vocal champion.
  - On the business side, it would be ideal to have a C-level executive. CFOs are powerful persuaders because it's clear they're speaking on behalf of the company's bottom line.

- **Put client resources on the team**.

  - This is spoken from a consultant's point of view, but the concept is equally valid for internal implementations.
  - Success depends on strong teamwork and alliances across IT and the business side.
  - By exposing both key business-side and IT users to the system early, taking the time to acquaint them to it, and explaining its benefits, managers create champions who carry the story across the company.

- **Understand the problem**.

  - Aim before the fire. Take the time to determine where management is starting from in the Capability Maturity Model. If the organization is at level one, managers have basic process work to do before managers are ready to implement a transformational solution.
  - Pick an attainable target to start with, ideally a pain point that is costing managers time and money. It might be poor project performance resulting from a lack of visibility and control; slow, labor-intensive handling of routine business requests of IT; mistake-prone application change management that endangers the all-important business systems; a lack of standards for comparing the potential value of various projects in the IT portfolio; or a combination of these. Start with one and work from there.

- **Envision the solution**.

  - Think hard about what managers want to accomplish initially. Set goals high, but don't make them unattainable—it demoralizes people.
  - Make sure managers' requirements are clearly defined and universally understood among all the stakeholders.
  - Stick to the original plan once management has adopted it. Keep the vision firmly fixed in the managers' minds. Do notallow scope creep. Achieve the mission first, and then build on success.
  - Focus on process improvement areas. Look for every opportunity to streamline workflow and remove steps. If managers are not already using a standard framework such as ITIL, managers should seriously consider embracing it. It will help managers employ processes in a proven and effective way.

- **Pick the right software solutions for the right reasons**.

  - Recognize that successful IT governance requires clear, enforceable processes and standards. The software should provide real-time visibility of projects and activities in easy-to-use desktop dashboards. It should also include built-in enforcement mechanisms.
  - Think beyond the initial implementation. Make sure the software is built to be an enterprise-level solution—scalable, in other words. Check to see that it is easily configurable and flexible in its use.
  - Also be sure the software is compatible with, and leverages, best practice frameworks such as ITIL and CMMi, and supports such quality issues as Six Sigma.

- **Take small steps**.

  - Be focused. Start with a pilot project or group, ideally one where the new system will show clear value to users and gain support.
  - Training is extremely important. Don't expect people to move to the new system seamlessly. If managers throw them in over their heads, managers risk drowning the initiative.
  - At some point, the management will find the new IT governance system positioned to replace some standalone existing application that has a following in the company. Some amount of resistance at this point is natural. Take it slow, and at these critical junctures, take the time to win recalcitrant users over through collaborative engagement.
  - Still, managersmust keep moving forward once theyhave started. Small steps will get managers there, but not if managers let pockets of resistance stall the effort for extended periods.

Include post-implementation activities.

- This is one of the most overlooked parts of the process, though it is potentially the most important.
- Make sure managers have developed clear plans for the transition to the new system and that managers implement them methodically as soon as implementation is complete.

- This is a critical time to assess the effectiveness of the training. Make the investment in one-on-one customized training with end users as a reality check on the usability of the system and the level of engagement it elicits in users.

- This is also the time to evangelize the system on the business side. Set up customized C-level and executive dashboards and deploy them to users, being sure to acculturate the executives to the new system and emphasizing the real-time visibility and control it provides them to "twist the dials" and extract more business value from IT.

- Actively ask for feedback. In effect, immediately transfer ownership of the system to the end users by requesting and documenting user comments and suggestions for enhancements. Implement the best suggestions right away, so front-line users see that they're being listened to. They'll embrace the system faster (**CioIndex, 2018a**).

Benefits of Implementing IT Governance

The key benefits of implementing an IT governance model include:

• Strategic alignment, resulting in increased business partner satisfaction
  • Enhanced value delivery, driven by improved project prioritization, leading to the reduction of IT budget
    • Improved performance and resource management, lowering the total cost of IT ownership
      • Better quality of IT output, resulting in a reduction in IT control issues (Mercury, 2018).

Figure 4 illustrates the typical benefits and impacts seen when implementing IT governance for clients across various industry sectors.

	IT Governance Discipline	Typical Benefits and Impacts
1	**IT Strategy Governance:** Ensure alignment of IT investments with business priorities, and tracking, monitoring and improvement of business-IT engagement.	• **Strategic Alignment:** 10% to 15% improvement based on enhanced perception of value from IT. • **Value Delivery:** Enhancement in overall value from IT through better management of IT investments.
2	**Architecture Governance:** Promote standardization in the application and technology portfolio and drive alignment of solution architecture to overall technology and reference architecture.	• **Performance Management and Resource Management:** 15% to 20% increase in level of architecture reuse. • **Risk Management:** 5% to 10% fewer risks through reuse of time-tested architectural components.
3	**Project & Portfolio Governance:** Govern sequencing of the project portfolio to maximize operating efficiency, and enable identification and mitigation of project portfolio risks.	• **Strategic Alignment:** 10% to 15% improvement based on enhanced value from the project portfolio. • **Performance Management and Resource Management:** » 10% to 15% improvement in project quality through peer reviews, phase reviews and project review board governance. » 15% to 20% improvement in on-budget delivery of projects.
4	**Application Lifecycle Governance:** Control key facets of introduction, management and sunsetting of applications.	• **Performance Management and Resource Management:** 10% to 15% cost avoidance through maintenance of an optimal application portfolio.
5	**Infrastructure and Data Governance:** Optimize technology infrastructure costs and establish controls over organizational information assets.	• **Performance Management and Resource Management:** Reduction in overall infrastructure costs and data/information security costs through improved controls. • **Risk Management:** 5% to 10% fewer risks through leverage of standardized infrastructure components.
6	**Vendor and Sourcing Governance:** Ensure services provided by vendors deliver adequate business value, and reduce the business risk associated with nonperforming vendors.	• **Performance Management:** Improvement in quality of vendor services through better measurement, tracking and driving uplift of vendor performance. • **Resource Management:** 20% to 25% reduction in average vendor onboarding time and effort. • **Risk Management:** 10% to 20% reduction in vendor-related risks.
7	**Service Lifecycle Governance:** Minimize or eliminate unauthorized changes into production environments, and maintain service and operational levels that promote business-IT alignment.	• **Performance Management:** 20% to 35% reduction in number of unauthorized changes in the production environment.
8	**New Age Technology Governance:** Improve IT operating efficiency by adopting new age technologies, and minimize any risks associated with the same.	• **Performance Management and Resource Management:** 20% to 25% improvement in operating efficiency post steady state.

Figure 4. Source: (Cognizant, 2018).

Significance and Justification

IT governance and business-IT alignment (BITA) has been an issue for researchers and managers of Information and Systems Technology (IST) area for the last three or four decades. Many authors refer to BITA as a concern subject of IT managers. Enterprise Architecture (EA) construction, to BITA, especially when a Business Process Management (BPM) approach is used, a list of best practices should be obtained (Malta & Sousa, 2016).

Managers ranked the IT governance and business-IT alignment (BITA) among the top-ten management issues for more than a decade. Many organizations value the advantages obtained when they can align their business and IT strategies. IT and business practitioners need to elaborate organizational skills training programs necessary for banks to improve their personnel's performance throughout their journey towards BITA (Gbangou&Rusu, 2016).

Managers should address the strategic use of IT and the alignment of IT with business needs if optimal organizational performance is to be achieved. The Strategic Alignment Model (SAM) is the most well-known and widely used of these models. Managers can adopt this model to improve business performance (Renaud, Walsh, &Kalika, 2016).

XI. The Impact of IT Governance to the General Society and the Community

According to the World Economic Forum, the Information and communications technologies (ICT) have driven the fourth industrial revolution. As new technologies continue to be realized, it is important to recognize that ICT creates technostress. There is evidence that technostress activates a stress response, which often has long-term health implications (Atanasoff & Venable, 2017).

According to the Information Systems Audit and Controls Association (ISACA), the effective use of information technology is now an accepted organizational imperative for all businesses, across all sectors. The primary motivations are the improved communications and commercial effectiveness (ISACA, 2018a). IT governance (ITG) is defined as the processes that ensure the effective and efficient use of IT in enabling an organization to achieve its goals. IT demand governance (ITDG) is the process by which organizations ensure the effective evaluation, selection, prioritization, and funding of competing IT investments; oversee their implementation, and extract (measurable) business benefits. ITDG is a business investment decision-making and oversight process, and it is a business management responsibility. IT supply-side governance is concerned with ensuring that the IT organization operates in an effective, efficient and compliant fashion, and it is primarily a chief information officer (CIO) responsibility (Gartner, 2018).

Park, Lee, Koo, and Lee (2017) observed that only a few firms possess all the information technology (IT) resources required to compete effectively in today's dynamic business environment. The firms face critical challenges in developing their IT governance by integrating, building, and reconfiguring IT resources available internally and externally to achieve a competitive advantage. However, prior studies have mostly examined IT governance only from an internal (e.g., IT organization design) or external (e.g., IT outsourcing) perspective. Therefore, how the internal and external IT governance of firms simultaneously lead to firm performance remains unclear.

Information Technology (IT) within Secretariat General of The Indonesian House of Representatives has the important role to support the Member of Parliaments (MPs) duties and functions and therefore needs to be well managed to become the enabler in achieving organization goals ("Information Technology", 2016).

Ali,Green and Robb (2015) observed that while the growth in the number of IT investments remains strong, research in the IT investment field is limited, resulting in suboptimal practical guidance on effectively governing IT investments. Based on resource-based theory, the authors developed a construct named IT investment governance (ITIG), because it can be used to measure organizations' capability to govern their IT investments.

Researchers conducted a theoretical-empirical study of Information Technology Governance (ITG) within Brazilian Federal Universities. The authors provided an overview of the ITG focusing on the governance strategic alignment and institutional development actions aimed at the effectiveness and efficiency of the public services provided by these institutions ("Brazilian federal", 2017).

Sirisomboonsuk, Gu, Cao, and Burns(2018) examined how to enhance project performance through exploring the relationships among information technology (IT) governance, project governance and project performance.

Cervone(2017) explored the relevance of information technology (IT) governance to informaticians. In most organizations, informatics is part of the IT function. The understanding of the larger picture of IT governance can be useful to informaticians, as it provides a solid context and many models that can be used or adapted for data governance efforts

De Haes,Huygh, and Joshi(2017) explored the insights in the contemporary state of IT governance transparency in Belgian firms. The authors found that Belgian firms exhibit low IT governance disclosure rates in general.

Alreemy, Chang,Walters, and Wills(2016) observed that with the rapid evolution of Information Technology (IT) applications and practices across the organization, appropriate IT Governance (ITG) has become essential to an organization's success. As IT is associated with risk and value opportunities, a comprehensive, high-level system is required in each organization to minimize the associated risks and optimize value.

There is the need for the board of directors (BoD) to translate the information technology governance into the organizational performance. The strategic alignment partially mediates the effect of board-level informationtechnology governance on performance. The authoritarian governance style negatively moderates the effect of board-level information technology governance on performance. The black box between board-level information technology governance and organizational performance need to be opened (Turel,Liu,& Bart,2017).

Business owners and managers should adopt an Information Technology Governance (ITG) perspective to manage the critical success factors (CSFs) for the life cycle of their IT systems. This approach will not only enforce and drive ITG but will also mitigate IT risks in enterprise systems. Entrepreneurs and managers should also establish a performance measurement index for enterprise resource planning systems to deliver value within organizations (Li,Chang,& Yen,2017).

XII.   OtherIT Governance Frameworks

Val IT Framework 2.0

VAL IT (value from IT investments) is a framework for the governance of information technology enabled business investments. The Val IT framework is supported by publications and operational tools and provides guidance to:

- Define the relationship between IT and the business and those functions in the organization with governance responsibilities;
- Manage an organization's portfolio of IT-enabled business investments;
- Maximize the quality of business cases for IT-enabled business investments with emphasis on the definition of key financial indicators, the quantification of "soft" benefits and the comprehensive appraisal of the downside risk

Val IT addresses assumptions, costs, risks and outcomes related to a balanced portfolio of IT-enabled business investments. It also provides benchmarking capability and allows enterprises to exchange experiences on best practices for value management (ISACA, 2018).
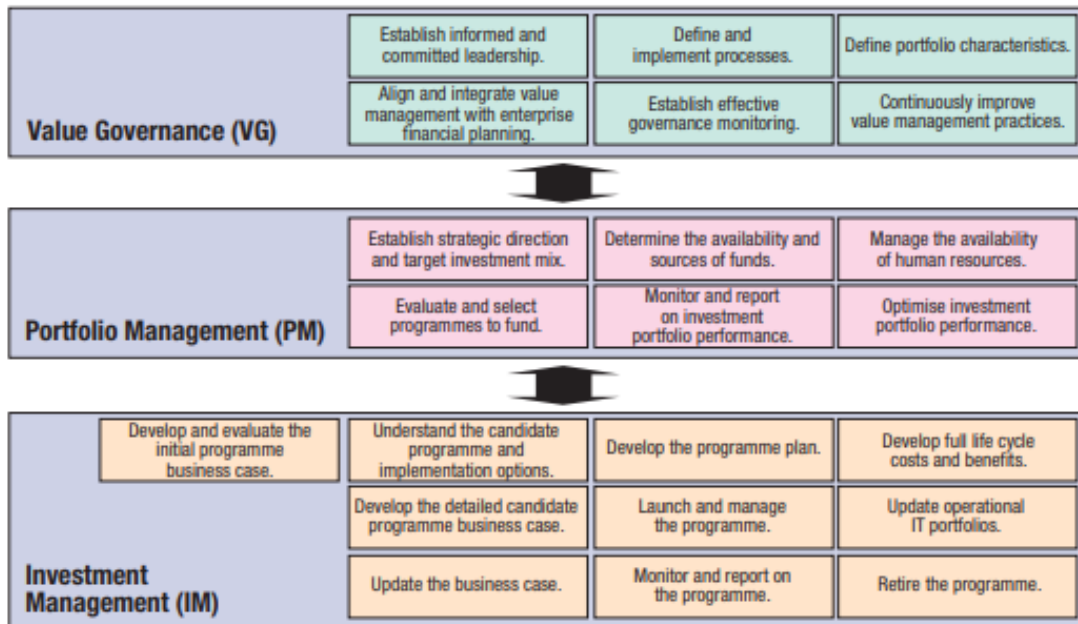
Figure 5. Source: (ISACA, 2018)

The objective of Val IT Framework is to maximize the business value created from IT investments in an enterprise using governance best practices. Toward that end, it defines three major domains, seven guiding principles, a set of processes, and management practices to support and help executive management and boards at an enterprise level in making better decisions about IT investments (CioIndex, 2018b).

XIII.   Conceptual Framework

The relationship is assessed between the dependent and the independent variables. The independent variable is the IT Governance maturity level. The two dependent variables are the profit after tax (PAT) and the return on assets (ROA).
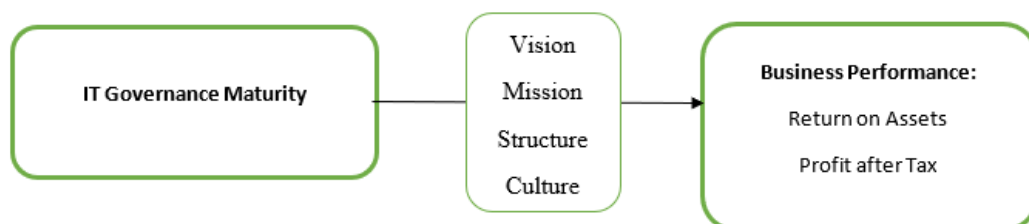

Figure 6. Source (Chege, Nyamboga, &Wanyembi, 2018).

XIV.   Business Performance

The business performance measures from the balanced scorecard assess financial or non-financial performance in the four primary areas of financial, learning/growth, internal processes and the customer. Business performance measures may also be known as organizational performance, results or key success indicators and are closely related to an organization's key performance indicators (KPI). The financial performance measures, in this case, are the return on assets and the profit after tax.

XV.   Kenyan Banking Industry

In Kenya there are a total of 40 commercial banks, with Imperial Bank under receivership, 1 mortgage finance company, 12 microfinance banks, 8 representative offices of foreign banks, 86 foreign exchange bureaus, 14 money remittance providers and 3 credit reference bureaus

Financial inclusion in Kenya has continued to rise, with the percentage of the population living within 3 kilometers of afinancial services access point rising to 77.0% in 2016 from 59.0% in 2013. The digital

business transformation drove this growth, withMobile Financial Services (MFS), like the Safaricom M-Pesa, rising to be the preferred method to access financial services in 2016.

Kenya's listed banks recorded a negative Earnings Per Share (EPS) growth of 0.8% in 2017, compared to an average positive growth of 4.4% in 2016. The poor performance was on the back of a decline in Net Interest Income (NII) following the capping of interest rates. The Net Interest Margin (NIM) declined to 8.4% in 2017 from 9.2% in 2016

Listed banks recorded net loans and advances growth of 5.6% to Kshs 1.9 trillion in 2017 from Kshs 1.8 trillion in 2016, slowing down from the 5-year compounded annual growth rate of 13.2%. On the other hand, deposits grew 11.6% to Kshs 2.4 trillion in 2017 from Kshs 2.1 trillion in 2016, also a decline from the 5-year CAGR of 12.5% (Cytonn, 2018).

XVI.   Drivers for growth

Diversification to different revenue streams: Banks are exploring different avenues of revenue generation such asBancassurance, in a bid to increase non-funded income and further diversify their revenue sources, given theintroduction of the interest rate cap which has negatively impacted funded income for banks

2) Increased adoption of technology to improve efficiency: In a bid to minimize costs, banks have embracedtechnology to reduce operational costs and hence drive efficiency. Some of these measures include integration withmobile application platforms and internet banking to facilitate the increased collection of deposits and disbursement ofloans with fewer operating costs

3) Innovation: In a bid to reduce operating expenses and improve efficiency, banks are putting an emphasis oninnovation, and agency and digital banking are proving to be key drivers of diversification for banks and distributionchannels of banking products (Cytonn, 2018).

Metrics
Overall Bank Rankings

Bank	Franchise Value Total Score	Intrinsic Value Score	Weighted Score	H1'2018 Rank	Q1'2018 Rank
KCB Group	47	3	20.6	1	1
Equity Bank	61	5	27.4	2	2
I&M Holdings	73	4	31.6	3	3
Coop Bank	71	6	32.0	4	6
DTBK	80	2	33.2	5	4
Barclays Bank	76	7	34.6	6	5
SCBK	75	8	34.8	7	8
NIC Bank	87	1	35.4	8	8
CFC Stanbic	76	9	35.8	9	7
NBK	103	11	47.8	10	11
HF Group	105	10	48.0	11	10

Figure 6. Overall ranking. Source: (Cytonn, 2018).

Co-operative bank climbed 2 spots to Position 4 from Position 6 in our Q1'2018 Banking Sector Report, owing to its net interest margin, with the bank having the third best NIM at 8.6%, higher than the industry average of 8.1%, the best loan-deposit ratio at 84.6%, above the industry average of 73.8%, and,

Stanbic Holdings dropped 2 spots to Position 9 from Position 7 in our Q1'2018 Banking Sector Report, due to a low franchise value score caused by low Net Interest Margin at 4.9%, against the industry average 8.1%, a low corporate governance score ranking 10th in the Cytonn Corporate Governance Index, and a high Price to Earnings Growth ratio of 0.9x, ranking 9th overall (Cytonn, 2018).

Research Method

We employed the mixed method for the research.

- Analyze qualitative data first
- Then quantitative data
- Employed Stratified Sampling
- The 6 Tier banks are the sample
- The CEO, CFO, and CIO as participants
- The 39 banks are in the population
- Utilizedthe Correlation Design (Multiple Regression)

Data Analysis

The researchers adopted the following multiple linear regression model;

- $Y = \alpha + \beta_1 X_1 + \varepsilon$
- Where$:$ Y = Dependent Variable (Return on Assets and Profit after Tax)
- Independent variables, which include:
- X_1 isIT governance maturity criteria
- $\alpha =$ the constant
- $\beta_1 =$ the regression coefficient or change included in Y by each X
- ϵ = error term
- The closer the p-values of the regression results are closer to +1 the higher the association between the research variables.

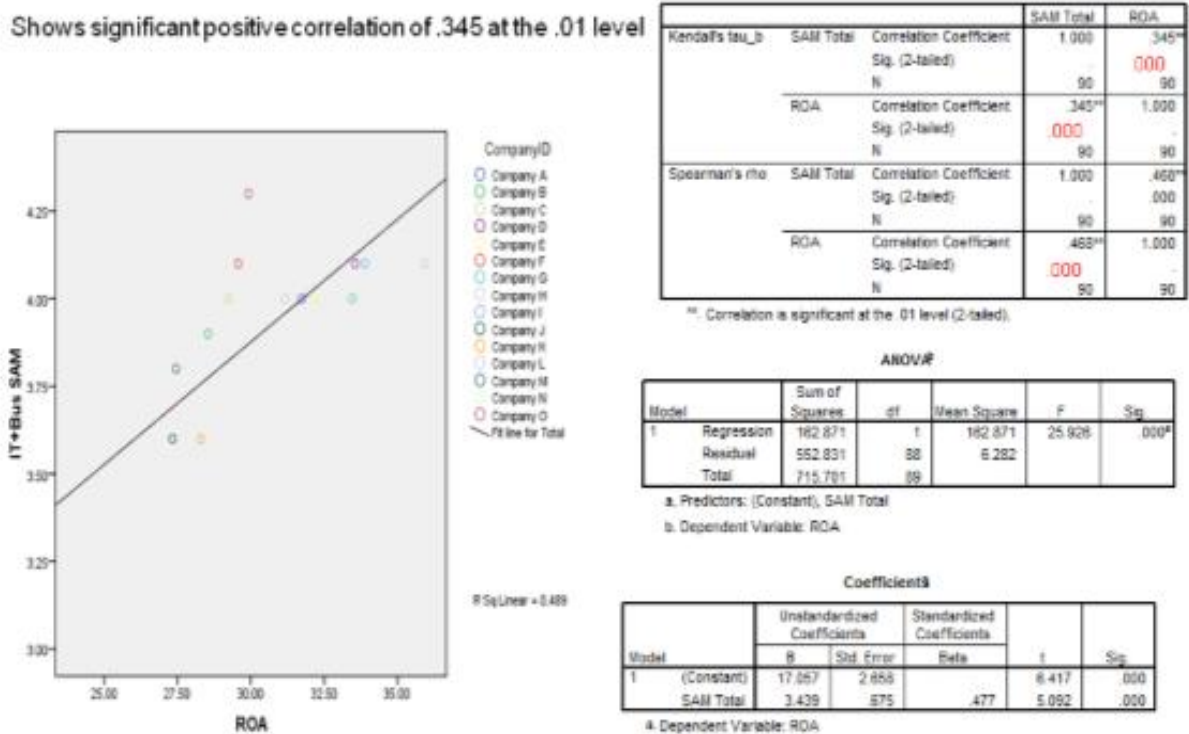**Correlation Analysis of SAM scores and Return on Assets (ROA).**

Figure 7. Correlation Analysis

The Profit after Tax (PAT) and maturity relationship showed a positive correlation.

XVII. Conclusion

The researchers showed that companies are getting better at governing the business enabled information technology investments. There is evidence that higher levels of IT governance have positive effects on company performance regardless of industry type or organization structure. The results from the assessment of the six Tier-one banksshow that some banks clearly do a better job of governing their IT investments than others. The higher IT governance maturity levels are linked with better business performance measuresincluding the ROA and NPM. KCB had the highest level of maturity, followed by Equity bank, Co-operative Bank, Barclays Bank, Standard Chartered Bank, and CFC Stanbic bank in that order.

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