УДК 35.076.1

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CORPORATE GOVERNANCE TOOLS THAT INFLUENCE THE GOVERNMENT INFORMATION TECHNOLOGY OFFICERS (GITOs) IN SOUTH AFRICA'S PUBLIC SECTOR

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Abstract. *There is a need for legislation, guidelines, and organizational structures in the management of Information Systems (IS) in South Africa's public sector to ensure that technological solutions support strategic direction. This study synthesizes feedback received from 55 GITOs (Government IT Officers) to understand tools that shape IS operations and corporate governance. The findings provide a complex picture of governance and can be regarded as follows: There are acts such as the Financial Management Acts and ICT laws, which set standards dealing in accountability and security other frameworks include the DPSA's: Corporate Governance of ICT Policy Framework (CGICTPF), the King IV, COBIT, and ITIL. These principles are given effect through internal governance instruments such as the ICT steering committees and the audit committees. The findings are presented using bar graphs, which indicate that more than half the identified GITOs consider essential tools such as the CGICTPF, PFMA, and audit committees. These findings of the study are connected to the previous literature with considerations of comparability with international standards and areas of concern, including resource limitation as well as the trade-off between conformity and creativity. Finally, it outlines recommendations for improving the IS governance in the context of the South African public sector, including the need for constant improvement of frameworks and the improvement of IS leadership competencies for public sector IT professionals.*

Keywords: *ICT Governance, Public Sector, South Africa, GITO, Digital Transformation*

Introduction

The governance of Information Systems (IS) in the public sector is more important today than ever, as governments around the globe are more committed to embracing digital transformation [22, 4]. Around the world, from the EU's GDPR to Singapore's "Smart Nation" plan, it is now widely accepted that good IT governance underpins protection of data, public confidence, and efficient, effective service delivery. These efforts indicate that enhanced governance mechanisms can develop simultaneously to address the risks and ensure that IT initiatives are in harmony with the organisation's goals [14, 12]. In this context, South Africa has perhaps the most to lose therefore, effective IS governance remains a fundamental process that can foster accountability and enhance the delivery of citizen services in an environment of limited resources and increased oversight. The government structure – composed of national departments, provincial parastatals, as well as municipal governments – requires an integrated approach toward the legal requirements, standards, and business processes of corporate governance of IT [33, 25, 37].

This paper aims to explore the mechanisms that South African GITOs use to steer, and guide IS in their organisations. GITOs, being as key IT officials in governments, are positioned to implement ICT projects that meet departmental and policy requirements at the country level. It is helpful to understand which of the governance mechanisms GITOs report as most influential in order to see the real-life interactions between mandated compliance and IT value. The subsequent sections include a description of the study's methodology, major results, and findings in the context of prior research on IT governance in the public sector. In conclusion, this article sought to understand which of the corporate governance tools are relevant for IS operations in the public sector in South Africa and the implication for enhanced governance practice.

Literature Review

The South African public sector has put in place several corporate governance tools in a bid to enhance accountability and efficiency of managing Information Systems (IS). Such instruments are legislation instruments, internal policies, and compliance instruments that define the working context of Government Information Technology Officers (GITOs) with the responsibility of managing IS governance. While the law in South African is constituted in a way that would enhance cooperation between levels of government, [27] notes that these laws tend to result in confusion as to who is responsible for what (especially at the local level). This is a type of structural overlap that hinders effective GITO performance. This section aims to compare and analyse the important external and internal governance tools affecting the performance of IS.

External Corporate Governance Instruments

The **Public Finance Management Act (PFMA)** is a pivotal piece of legislation in processes of accountability in South Africa and is regarded as the epitome of financial accountability in the public sector. It prescribes the budgeting, reporting, and use of resources that may affect the ICT investment and IS performance directly [18, 38]. However, there is evidence of implementation challenges like poor internal controls and irregular expenditure Such

like challenges impacts adversely on the integration of IS into the delivery of services hence a compromise on the public entities' effectiveness [2, 10].

In the same regard, the **Municipal Finance Management Act (MFMA)** applies PFMA principles on local government. However, local entities remain lacking adequate IS planning and possess siloed systems because of insufficient ICT-related guidelines and legislation enforcement [23, 36].

The legal framework governing the secure electronic communication and electronic transactions is in the **Electronic Communications and Transactions Act (ECTA)**. However, its efficacy is limited by outdated physical infrastructure and lack of any kind of connectivity between various departments of the public sector. [26] Have also pointed out that the existing fragmented ICT policies and legacy systems negatively affect the implementation of e-government in institutions that do not have a strategic approach in their operations. In the same manner, [30] pointed out that the current regulation like ECTA is irrelevant to current technological advancements such as the cloud and is more of a problem in underfunded departments.

Other current laws include **Promotion of Access to Information Act (PAIA)** which is on access to information; **Protection of Personal Information Act (POPIA)** on protection of privacy of personal information, and the **State Information Technology Agency (SITA Act)** on centralize procurement of ICT. However, the picture that emerges from implementing these acts shows that there are still chasms between observing the acts and effectively delivering functional IS. For instance, POPIA requires entities to protect data, although there is inadequate structure to ensure this requirement is implemented [29, 21, 39].

Internal Governance Frameworks and Guidelines

The **Corporate Governance of ICT Policy Framework (CGICTPF)** is an important internal model employed by the Department of Public Service and Administration (DPSA) to promote ICT governance for the concerned national and provincial departments. It offers guidelines and reporting frameworks to support readiness of IS initiatives in achieving the set objectives [8, 41]. However, the evidence has shown that its implementation is still low, currently constrained by factors such as a lack of capacity, role ambiguities, and support from executives [7].

Besides the CGICTPF, the **DPSA Guidelines** apply as governance enablers that provide procedural guidelines on procurement, human capital, and performance management in ICT settings. Such guidelines ensure standardization and prevent the abuse or lack of responsibility; however, bureaucracy is still a bothersome issue, and the problem of limited resources remains relevant [24].

In South Africa, the role of monitoring and audit of IS functions is provided on the capacity of the **Auditor-General of South Africa (AGSA)** that checks on every department and organization how they are performing in line with the laid down rules and regulations. AGSA papers consistently document weak IS integration, inadequate control environment, and the siloed approach to reporting, especially where GITOs do not have strategic oversight or reporting responsibility to the executive boards [17].

Integration and Institutional Challenges

However, there are still difficulties involved in implementing these instruments in offering the required IS success. This is due to shortcoming in organizational structure coupled with splitting of responsibilities, overlapping authority of almost all the implementing and supervising organizations which hinders the efficiency of IS in the health sector. Similar sorts of issues have cropped up in other areas of the public sector where bad governance and no real accountability make it difficult to provide services in an appropriate fashion [28]. For instance, while the PFMA has laid so much stress on expenditure control, it fails to prescribe ICT performance and standards for information systems delivery in a coherent manner whereby, therefore, financial compliance does not neatly dovetail into IS delivery outcomes [2]. Likewise, while the centralization of ICT procurement by the SITA Act, based on the rationale of standardization, has yielded similar effects of delays, inefficiencies, and constraints on the customization of IS solutions in line with the particular needs of departments [31, 15]. These structural barriers push GITOs into compliance constrains and reduced strategic discretion in the operation of IS.

Summary

The South African public sector has also adopted many corporate governance tools that assist in enhancing IS governance and accountability. However, some of these instruments have received varying results that can be deemed effective when it comes to operations. The PFMA and other laws such as the SITA Act and POPIA offer frameworks on accountability and transparency while other policies like the CGICTPF try to support implementation of governance at department level. However, these tools will only be effective when there is proper implementation, sufficient capacity, and enabling of GITOs as agents of strategies.

Methodology

Thus, the study adopted a qualitative research method of data collection to yield an in-depth insight from the participants who were IT professionals working in the public sector organizations. The interviews conducted with 55 GITOs were semi-structured, and respondents were from various government sectors, national departments, provincial, and local government organisations. The main research question of each participant was: "What specific corporate governance instruments affect IS operation in the South African context?" There was purposive sampling with respondents from GITOs to ensure coverage of diverse areas of operation such as health, education, finance, and

security to sample views of governance practices widely. By the interviews they were free to bring up any governance mechanisms in terms of laws, regulations, internal policies, committees, etc., which they felt impacted their IT operations. To enhance the grammar quality of this article during their last steps of the manuscript submission, the authors used the QuillBot tool. This tool rewrote the sentences without changing any of the research analysis or outcome.

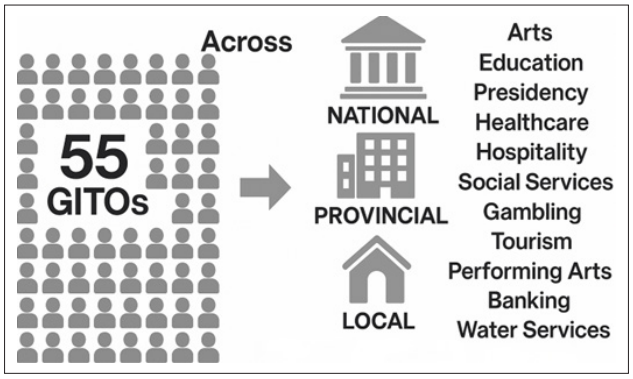

Figure 1. Illustration of sample for this GITO

The collected qualitative data were analysed using Atlas.ti, a computer-assisted qualitative data analysis software. Through iterative coding and thematic analysis, recurring concepts were identified and grouped into categories. Two primary categories emerged: **external governance mechanisms** (legislative acts, regulatory frameworks, and external best-practice guidelines) and **internal governance instruments** (organizational structures like committees, and internal policies/ frameworks). Within these, sub-themes were identified – for example, specific laws (PFMA, MFMA, etc.), specific frameworks (King IV, COBIT, ITIL, etc.), and specific committees (ICT steering committees, audit committees, etc.). The analysis was cross validated by ensuring that multiple researchers reviewed the coding, increasing reliability. Finally, the frequency of mentions for each governance tool or framework was tallied to identify which were most cited by the GITOs. These frequencies are presented in the results below with illustrative bar graphs for key findings. All interpretations of the data were grounded in participants' narratives, and where applicable, triangulated with insights from literature to strengthen validity.

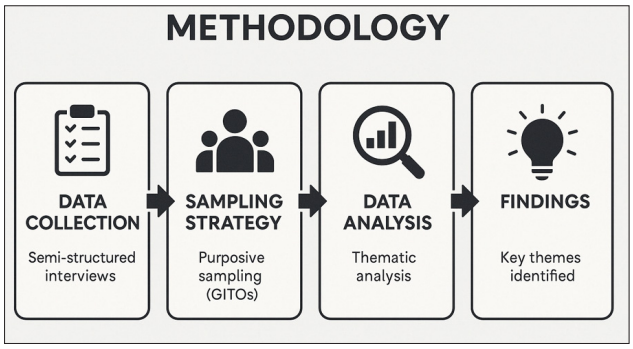

Figure 2. Methodology used in this study

Results

The findings brought out suggests that a plethora of governance instruments are applied by GITOs that the sources of the instruments that work at different levels, ranging from national legislation to internal committees have a pull-off the effect on the operation of IS. Figure 3 represents the ranking of tools mentioned by participants, which also shows the dominance of some of them in terms of frameworks and structures.

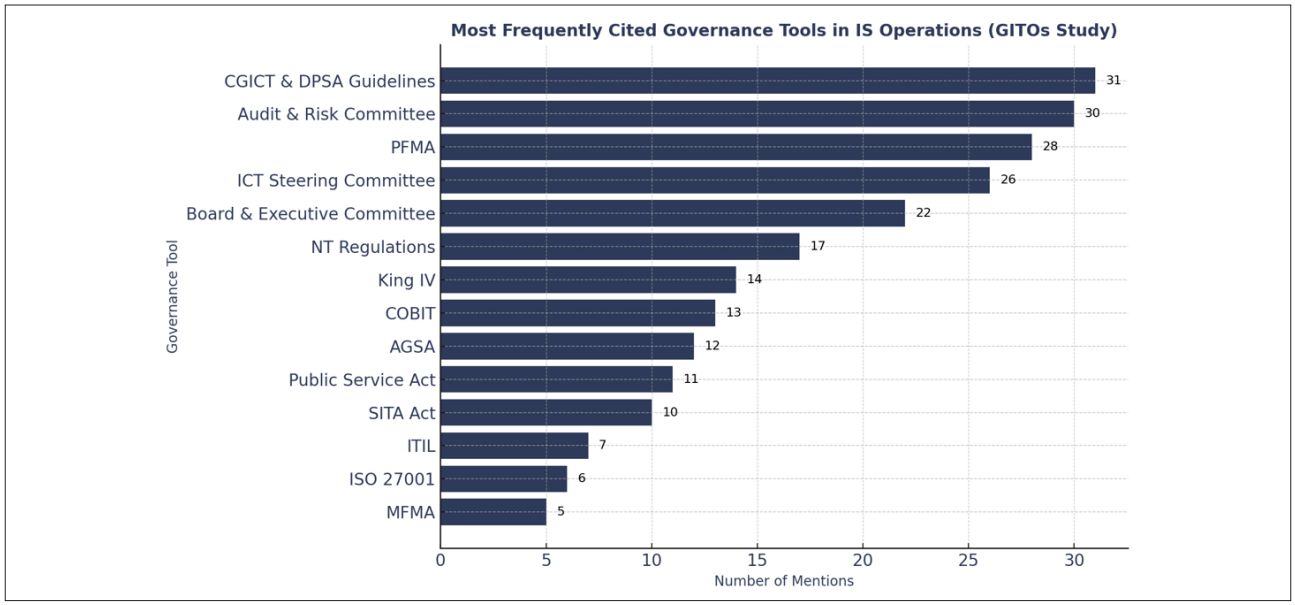

Figure 3. Governance tools utilized by GITOs

More broadly, it is possible to make the following set of conclusions. (1) External regulation (a set of external regulations or legislations that give an outside direction or benchmark to IT governance such as best practice frameworks and standards industries or cross industries adopt for the purpose of implementing IT governance). (2) Internal governance tools (processes, and committees). In Figure 4 indicating the frequently used External Governance Mechanisms and Internal Governance Instruments with Sub themes. This visual representation gives a clear differentiation of how each sub-theme relate to IS governance. Each group is described in detail in the following sections with reference to its elements and their perceived effects on IS governance.

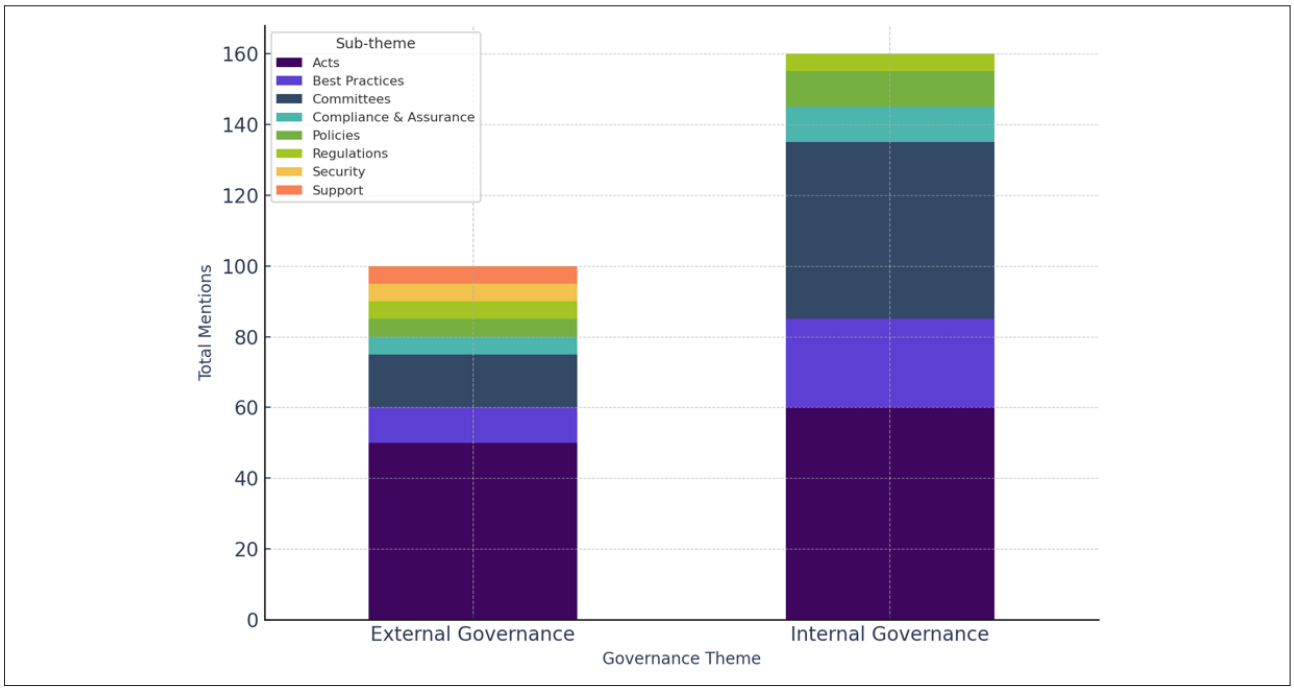

Figure 4. Governance tools by theme and sub-theme: external and internal governance

External Governance Mechanisms: Acts

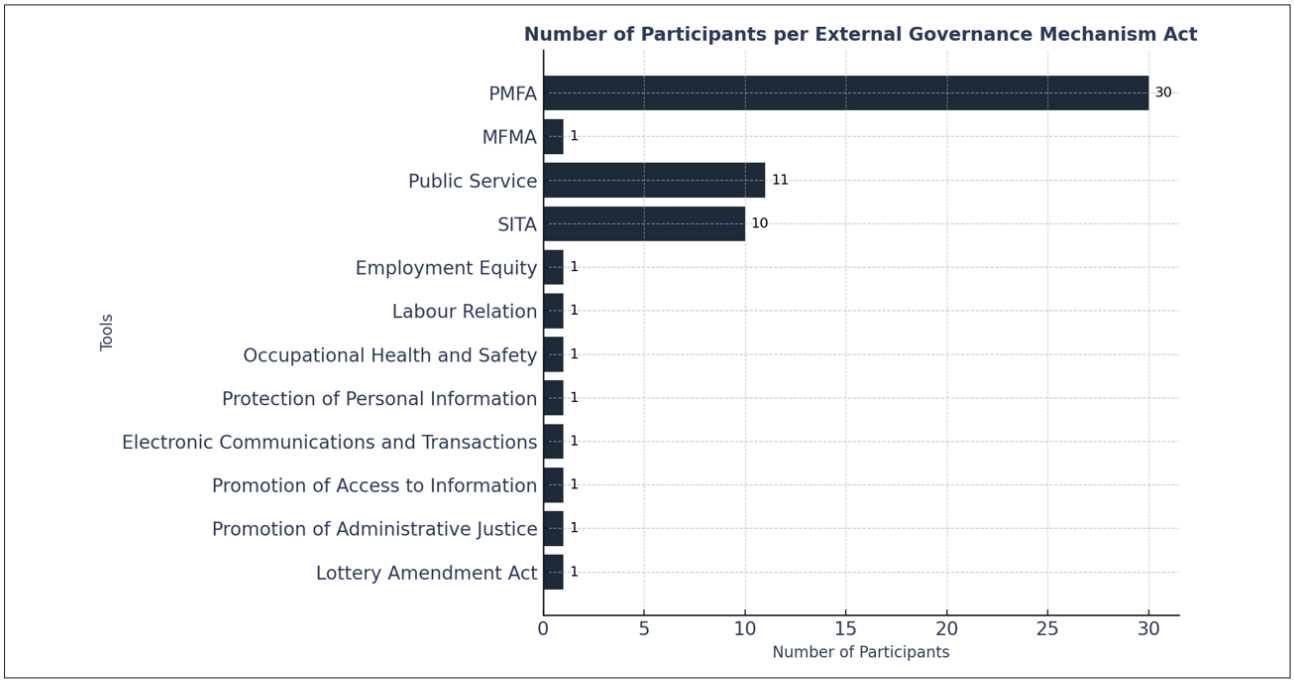

Figure 5. External governance mechanisms & acts

As figure 5 depicts, it is evident that legislative acts, one of the common external governance mechanisms are widely used similarly by participants.

The Public Finance Management Act (PFMA) is the most cited legislation among the given legislation in the study.

The most mentioned instrument according to the participants' response in this study was the PFMA, with 29 participants noting this as the instrument of governance. This applies to make its significant emphasis on the significance of the outside influence on the hierarchical financial governance, as well as accountability among the key public sector domains. The seeming popularity of PFMA can therefore be seen as evidence of an increasing institutional commitment to best and effective practice in the management of public resources and in meeting the requirements of the new governance.

To this end, as envisaged by GITO 1, *"PFMA is there to guide, otherwise the entity would have more audit findings, irregular expenditure including fruitless expenditure. PFMA also assists to combat fraud."*

Similarly, GITO 10 reflected his/her thoughts by saying, "*Yes it does impede – For ICT the PFMA and National Treasury regulations are non-negotiable. The Department's SCM will enforce these rules and regulations. They are beneficial to ICT as they ensure that good governance is maintained which results in good management practice. From an ICT operations perspective, it can be cumbersome."*

These observations summarise show that PFMA serves two ends as an anti-fiscal fraud mechanism, as well as a limiting and determining agency of ICT planning and performing.

The Municipal Finance Management Act (MFMA) is substantially lower.

PFMA was mentioned much more often than the MFMA, which outlines financial management practice at the municipal level. This could be due to skilful control vested on central government and less observation of strategic propriety formulation at the municipal level.

GITO 2 commented *"The MFMA complements the PFMA and provides additional regulations specific to municipal entities. It sets out requirements for budgeting, financial reporting, and supply chain management."* Thus, asserting its auxiliary role for the governance in different levels.

However, as GITO 43 rightly put it *"The Public Sector, being a big spender of IT infrastructure components and technology procurements, requires lots of compliance through, for example, the PFMA and MFMA. These frameworks have good intentions but do have downsides. Exceptions require a strict approval process, which may result in delays in embarking on a project or its completion because things change during the project. Decisions taken may be in contravention of the procurement frameworks or are not straightforward decisions by an accountable person."*

Public Service and SITA Acts Have Moderate Representation

There are some other working cases, for instance, Public Service Act and SITA Act, which was discussed by 10–15 participants. This implies that while public service governance and IT regulations under SITA have influence on the institutional processes, they are not as significant as the financial governance instrument like the PFMA.

GITO 46 pointed out that; *"Firstly, the Public Service Act (PSA) and its related Regulations places oversight on the Department of Public Service Administration (DPSA) for the management of ICT."*

In the same vein, GITO 14 stated, *"In limiting everyone to bring any company and mandating use of SITA, it helps with standardisation and pricing but delays delivery sometimes".*

Thereby highlighting the procurement standards highlighted by the SITA Act. However, the fact that most of the materiality relates to financial instruments reveals that compliance, budgeting and financial accountability outdo service-specific ICT frameworks in the discourse of governance.

Minimal Representation for Other Acts

Specifically, Employment Equity (EE), the Labour Relations Act (LRA), Occupational Health and Safety (OHSA), and the Protection of Personal Information Act (POPIA) were mentioned prominently only a few of times, indicating that these governance tools are still peripheral in the context of ICT governance. An even for time, ICT governance was presented only peripherally as part of general compliance despite including acts such as the Electronic Communications and Transactions Act (ECTA), the Promotion of Access to Information Act (PAIA), and the Promotion of Administrative Justice Act (PAJA). However, the Lottery Amendment Act, which was justified on the principle of gambling regulation, was the least cited legislation, a suggestion that its use was rare in the operational and regulatory practicalities of public sector ICT.

This limited engagement was reflected in GITO 2 by stating the following, *"Improved Data Protection: Compliance with POPIA enhances data protection measures, which is crucial for IT services that involve the processing of personal information."*

GITO 20 commented, *"...compliance with relevant laws, regulations, and industry standards related to information systems. This may include regulations such as Protection of Personal Information Act 4 of 2013, Regulation of Interception of Communications Act 70 of 2002, Promotion of Access to Information Act 2 of 2000, Electronic Communications and Transactions Act 25 of 2002 and industry standards like ISO 27001, King IV Report on Corporate Governance, and COBIT."*

This broad but not high-visibility view was supported again by GITO 46, who stated, *"The ICT*

Governance and ICT decisions relate to compliance of accepted standards, Policies, Processes and Procedures, related Acts such as SITA, EE, LRA, OHSA, PFMA, POPIA, ECT, PAIA, PAJA etc., and ensuring acceptable level of services for processes, systems and solutions."

These suggest that while such frameworks are formally recognized and accepted, they are far less powerful in actuality than dominant instruments like the PFMA.

Table 1. Summary of external governance mechanisms & acts

Legislation	# of Participants Mentioning	Key Insights / Observations
Public Finance Management Act (PFMA)	29	Most cited; central working tool in financial management, accountability and sustainability of the institutions
Municipal Finance Management Act (MFMA)	Significantly fewer than PFMA	Less emphasis: possibly because central government policy has less of an impact on what happens at municipality level
Public Service Act	~10–15	Moderate attention; determinant of other related aspects of public service but not pervasive
SITA Act	~10–15	Moderately cited; plays the role of overseeing ICT procurement but leisurely to financial management
Employment Equity Act	Very few	Closely related to relevance in the proportions of governance context as seen by the participants
Labour Relations Act	Very few	Lack of visibility in external governance stakeholders
Occupational Health and Safety Act	Very few	Neither ICT incorporated nor financial governance issues
POPIA (Protection of Personal Information)	Very few	Emerging concern: has not emerged as a mode of governance as it is yet to become a popular topic for discussion among key governance stakeholders
Electronic Communications and Transactions Act	Very little	Minor reference: limited relevance noted
PAIA (Promotion of Access to Information Act)	Very little	Still, this description has a low emphasis despite the potential for inclusion in transparency
PAJA (Promotion of Administrative Justice Act)	Very little	Limited mention; peripheral governance relevance
Lottery Amendment Act	Least cited	As earlier established, the findings of this study do not hold any significant correlation with the aspects of ICT or financial governance frameworks

Thus, financial governance remains the most important element of external regulation as it is dominated by such acts as PFMA and MFMA. Public service governance and digital regulations (SITA) have moderate importance, which is still subordinate but is increasingly emphasized in governance. Little attention is paid to labour, health, information protection laws and this may be interpreted as lacking an interest as it is not narrowly financial and IT. But this might need a rethink given the emerging risks on cybersecurity, rights of employees, and privacy laws and such omission may also suggest lack of transparency and access laws (promoting PAIA, PAJA) in governance frameworks for enabling access to information and public justice.

The results indicate that financial control remains the primary area where external governance mechanisms concentrate their attention, while public service, IT governance, and transparency-related rules receive comparatively little consideration. As such, for future work, organizations might need to increase their attention towards labour laws, information security, and administrative justice regulations to avoid compromising the principles of governance.

Regulations

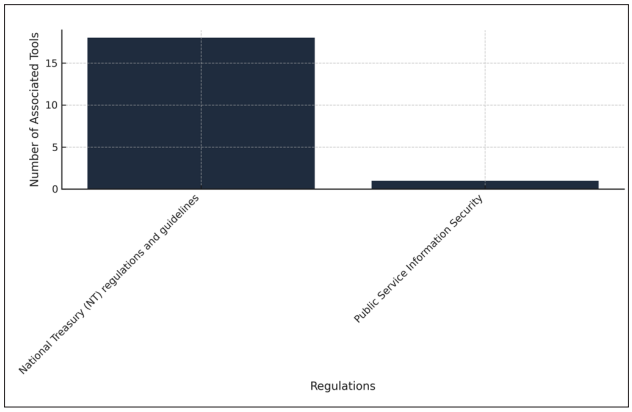

Figure 6. External governance mechanisms & regulations

Figure 6 shows the number of related tools that are related to two kinds of regulation under external regulation discipline: The guidelines to be used in the formulation of the National Treasury (NT) [32] regulations and guidelines and Public Service Information Security.

National Treasury (NT) regulations together with guidelines establishes primary authority.

Among the regulatory framework forms identified in the study, those of NT were mentioned most often with reference to 18 governance tools in the context with this framework. This has been occasioned by the fact that NT plays a central function in the provincial financial management encompassing issues to do with budget and expenditure, as well as accountability for funds. Adherence to NT regulations is seen as important to ensure that the resources being utilised in the public sector are done efficiently whilst exercising accountability in the preparation of financial reports – characteristics that define public sector governance.

GITO 39 supported this by saying, *"National Treasury is responsible for setting standards and baselines, so it does not impede. Without these guidelines, departments would do as they please and IT in government would be all over the place."* Without these guidelines, departments would go about their own ways and there would be no cohesion in IT in government."

GITO 43 supported this view by saying, *"The Public Finance Management Act (PFMA) plays a vital role in overseeing the management of government finances. It also outlines the functions and powers of the National Treasury (NT), which is responsible for managing the budget preparation process…Some of the traversal contracts are facilitated by the Procurement Office in the National Treasury. Where clarity or guidance is sought, this office provides advice so that procurements do not become non-compliant, resulting in fruitless and wasteful expenditure or irregular expenditure."*

These reflections paint the picture that NT frameworks are firmly established in determining the forms of financial and ICT governance all over the public service.

Public Service Information Security has limited number of available regulatory tools for implementing security measures.

Public Service Information Security has only one tool that has been directly linked to it based on available regulations, which is quite worrisome given its importance. This absence points to the fact that external reporting focuses on the financial governance instrument more than information security instrument. It also means that the importance of information security seems to be waning through the lack of focus and enforcement by the regulators.

GITO 8 recognised the importance of the cited formal frameworks as it noted that *"The corporate governance systems described, namely the Corporate Governance of ICT (CGICT) Framework version 2 and the Directive on Public Service Information Security, play crucial roles in shaping the information systems (IS) landscape..."*

However, GITO 50 pointed out an implementation gap saying that *"Resources to correspond with governance frameworks like having a Information Security Officer is not funded yet the mandates are pushed for these corporate governance. There is no synergy. A huge disconnect and no synergies."*

These perspectives put into question the organizational practices of security as a mandated form of governance, on the one hand, and the absence of institutional structures that would actually enable the formalization of security, on the other.

Table 2. Summary of external governance mechanisms & regulations

Regulation	# of Associated Tools	Key Insights / Observations
National Treasury (NT) Regulations and Guidelines	18	Most cited regulatory framework; reflects strong external oversight over financial governance, budgeting, and fiscal accountability. Emphasizes compliance, transparency, and responsible resource use
Public Service Information Security	1	Least cited; limited tools suggest weak external regulatory focus on information security. Lack of emphasis may reflect low prioritization of cybersecurity in governance frameworks

The reliance on National Treasury (NT) regulation implies that financial accountability and governance continues to be given more prominence by external bodies. The scarcity of the Information Security regulations may suggest a need to strengthen Information Security regulations to fight cyber threats and risks that are currently rampant and playing a significant role in corporate affairs. While engaging in their activities, such organizations must abide by the NT guidelines and at the same time appreciate the growing necessity of effective cybersecurity measures. The research reveals that financial governance remains a crucial aspect under external form of governance and information security regulations may need further enhancement and a proper tool. Finally, having well-developed and strengthened compliance tools for public sector information systems could help to improve the stability of governance activities and secure organizational systems against diverse risks posed in the course of information sharing.

Support, Security, Compliance & Assurance

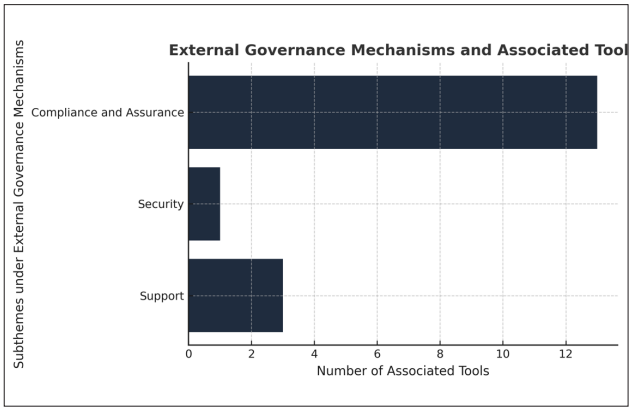

Figure 7. External governance mechanisms - compliance and assurance, security, and support

In Figure 7, you can see the number of associated tools falling under three subthemes of external governance mechanisms: These are compliance and assurance, security, and support categories. It was found that each subtheme has varying control by governance as seen in the number of tools employed.

Compliance and Assurance

Compliance and assurance were the most tool-intensive subtheme, with thirteen correspondents highlighting the Auditor-General of South Africa (AGSA). This shows how much governance framework exist for compliance that is underpinned by requirements that have to be adhered to, metrics that have to be audited, and constant monitoring and, in most cases, enforcing. Due to compliance being such a niggling activity, where one almost needs to constantly check, document and report, internal consistency becomes so important for the institution, as to reduce the amount of risk out there.

This was further supported by GITO 26, who postulated that, *"AGSA has assisted by auditing the policies by highlighting gaps and encouraging departments to ensure the policies are approved and implemented within the set timeframes. It provides an independent voice and guidance to ensure compliance with legislation and policies and they don't just raise findings they follow up until measures are in place to resolve the findings..."*

In similar vein, GITO 2 noted that, *"The AGSA's oversight of internal audit adds an additional layer of accountability that helps institutions to stay compliant and identify weaknesses early on."*

These considerations serve to re-establish the fact that, while compliance is an important factor in an organization, it is also a routine aspect of business within the public sector area of ICT.

State Security (SSA)

In the context of the described SSA, the concept of security governance seems to be represented within the dataset by just one correlated instrument. Such a limited role may mean that security governance more heavily localized with fewer but more specialized instruments of regulation. It also entails that these mechanisms are not as publicized or well known; this can be attributed to the fact that the operations which they are involved in are confidential and secret to the activities conducted by a country's security sector. This might be deliberately so; the nature of security is intrinsically more secretive as compared to other areas like financial management or purchase management.

GITO 14 supported this interpretation saying that, *"State security Agency which is responsible for the information security and responsible for management information security systems."*

Such a single mention highlights the relevance of the SSA to the security of information systems in the nation, but one would hardly see the organisation very active in the governance conversation, thus, a clear demarcation of the public sector's interaction with classified instruments in the field of ICT security.

Table 3. Summary of external governance mechanisms – compliance and assurance, security, and support

Subtheme	# of Associated Tools	Key Insights / Observations
Compliance and Assurance	13	Most cited subtheme; governed by AGSA. Means that, because of the complexity of compliance the structures need to be put in place through the standards, guidelines and audit mechanisms
State Security	1	Currently being under the State Security Agency. The reasons behind such a low number may include centralization and specialization of instruments or limited reporting because of the sensitive nature of security governance

The Compliance and Assurance cluster is highly detailed and process-oriented, and therefore calls for considerable attention when it comes to oversight made in terms of ensuring regulatory compliance in addition to auditing processes. On the other extreme, Security has the lowest score, indicating a centralised and possibly secret situation with clear-cut forms of governance.

Best Practices

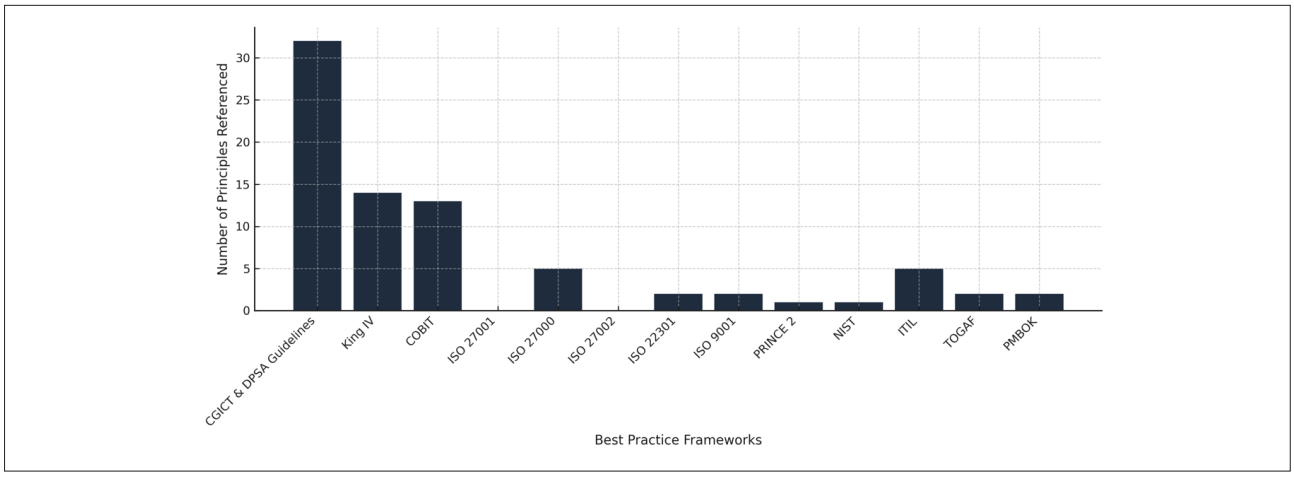

Figure 8. External governance mechanisms – best practices

Figure 8 serves to demonstrate the number of principles that are covered by external governance mechanisms according to different best practice frameworks. To sum up, the observations are the following based on the chart.

CGICT & DPSA Guidelines Dominate

Interestingly, the most cited framework covering the dataset is the CGICT framework, which also includes the mentioned DPSA guidelines. This may mean it holds the potential of being a framework with a high degree of fit when it comes to large scale implementation of reforms.

GITO 19 agreed with this position and averred, *"Yes, the CGICTPF guidelines are aligned with King IV, and we are compliant, and we would recommend it."* This augments the departments to digitize and measure innovation."

Likewise, GITO 8 focused on institutional implementation by stating, *"The entity adopted the Corporate Governance of ICT (CGICT) Framework version 2 from the DPSA as the updated corporate governance of ICT directive for government departments…. from the implementation of CGICT version 1 and 2, the entity has shown significant alignment to adoption and compliance to the directive. Challenges remain on implementation as a result of inadequate resources."*

These findings also highlight that the analysis of the CGICT Framework brings out the point that as a main governance tool that is characterised by appreciation in terms of structure and strategic direction, the complete realisation of the resource constraint depends on some considerations.

King IV and COBIT as Prominent Frameworks

King IV and COBIT are two classifications that are referred in the dataset extensively; both consist of a large number of principles that govern ICT and corporate sector within the public sector. King IV was designed to address both corporate and IT governance, and this can be seen from the fact that it was featured prominently in the participant's responses and strategic plans. COBIT, in turn, provides a framework for IT governance and controls, which is helpful for determining the practical adherence and assessment of governance frameworks.

GITO 49 described how effective King IV is in practice when he said *"With the application of good governance and best practices as prescribed in King IV, one of the outcomes has been the elimination of repeat audit findings…. yes, we also use international best practices and frameworks like ISO 83500, COBIT, ITIL etc., and helps our entity to align with best practices."*

GITO 45 also echoed an integration perspective of King IV that stated with the words, *"King IV provides the overall governance principle for Information and Technology..."*

This confirms that both systems are primitive tools for supporting structure of the government, enhancing compliance and organisational governance development in the public sector.

ISO Standards have varied presence

It was identified that the topic with the most references is ISO 27001 and ISO 27000 that addresses information security management and that reflects the requirement for security governance in relation to the external regulation compliance. These standards are often used in connection with risk management, data security, and how institutions adhere to the guidelines in information systems management. Other ISO standards mentioned as important by significantly lesser participants include ISO 22301 which is related to business continuity management and ISO 9001 on quality management.

GITO 20 was not far from such standards noting that *"Compliance and Regulatory Requirements assist with corporate governance frameworks which often include compliance with relevant laws, regulations, and industry standards related to information systems. This may include regulations such as... ISO 27001, King IV Report on Corporate Governance, and COBIT."*

As GITO 32 also pointed, "*The Governance Frameworks are PFMA, SCM & NT Guidelines, IT Policies, ISO 9001, PRINCE 2 and ITIL….ISO 9001 – Improves quality management processes. Enhances customer satisfaction and trust. Increases operational efficiency and productivity. Facilitates continuous improvement and innovation."*

The following responses show how organisations, especially those in the public sector, use ISO standards both on security and quality to improve on the governance of ICT.

ITIL and TOGAF as IT-Centric Frameworks

ITIL and TOGAF, tours an important ground in the enhancement of structured IT governance in the public sector. These frameworks are COBIT – an IT governance framework that deals with the management of IT services and provides guidelines and best practices for their integration in line with strategic institutional objectives, and Enterprise Architecture (EA) – that serves to link business goals and IT strategies, as well as offer a strategic plan to achieve these goals.

GITO 17 confirmed *"Yes, the IT unit always strives to discharge its functions effectively by adopting and applying conventional best practice IT governance and related frameworks such as COBIT 19, ITIL, and PRINCE 2 & PMBOK. We do not utilise these frameworks fully, but our approach is to continuously improve towards full compliance."*

Likewise, GITO 31 stated on institutional value of these frameworks *"Other frameworks adopted include PMBOK, King IV, COBIT, ITIL, TOGAF, ISO 9001… leveraging ICTs to attain institutional goals – ITIL, COBIT".*

The above responses highlight the measures adopted by the respondents in utilizing ITIL and TOGAF to guide architectural design and service management procedures that underpin the technical framework of various ICT governance systems.

Niche Frameworks have lower reference counts

Among the data sets comprising the analysis, PRINCE2 (Project Management), PMBOK (Project Management Body of Knowledge), and NIST (National Institute of Standards and Technology) was identified to have fewer principles cited in this study than the other frameworks indicating that, whereas, project and cyber security management frameworks are recognized, they are of second order in the governance structure. This suggests that there is more to operational frameworks that are implemented operational areas than these frameworks are the frameworks within which operational governance strategies are developed.

GITO 3 reported on this operational focus, saying, *"All public entities when it comes to ICT Projects follow the rule of law and further the implementation of projects by service providers follows the methodology of project management such as PRINCE2 and PROMBOK. The project implementation is then reported to Project Committee, ICT Steering Committee, Audit and Risk Committee, the Executive committee, and the Board."*

Likewise, for GITO 44 there was a stern application of the methodologies embraced within this research in that s/he testified, *"Yes, for projects have embraced the PRINCE2 and PMBOK methodology."*

These considerations concern more specialised structures such as PRINCE2 or PMBOK as being directly applicable to individual projects, while less specific ones pertain to organisational ICT management and adherence to corporate strategy.

Table 4. Summary of external governance mechanisms – best practices

Framework Category	Examples	Key Insights / Observations
Most Referenced	CGICT & DPSA Guidelines	Most referenced framework: proposes a general and abstract concept of process that is currently commonly used to govern
Prominent Frameworks	King IV, COBIT	King IV is a framework aimed at corporate and IT governance; COBIT facilitates control of IT and structured IT governance
Information Security Standards	ISO 27001, ISO 27000	Recognized for information security governance; highlight relevance in external ICT-related governance mechanisms
Other ISO Standards	ISO 22301, ISO 9001	Address business continuity and quality management; mentioned relatively rarely, but which show concern with resilience and quality
IT-Centric Frameworks	ITIL, TOGAF	It mainly covers the service management and enterprise architecture. contribute structured IT governance elements
Niche Frameworks	PRINCE2, PMBOK, NIST	Fewer references to project control point toward its position as a minor issue, the same applies to cybersecurity

Figure 8 suggests that it is found that external governance mechanisms rely highly on CGICT & DPSA Guidelines, King IV, as well as COBIT possibly due to their guided facilitate governance principles in the corporate, IT, and regulatory domains. Indeed, information security is highly relevant to ISO standards and IT governance frameworks but is different in terms of applicability. The lower-referenced frameworks are still used but are more specific in their areas of application.

Best Practices

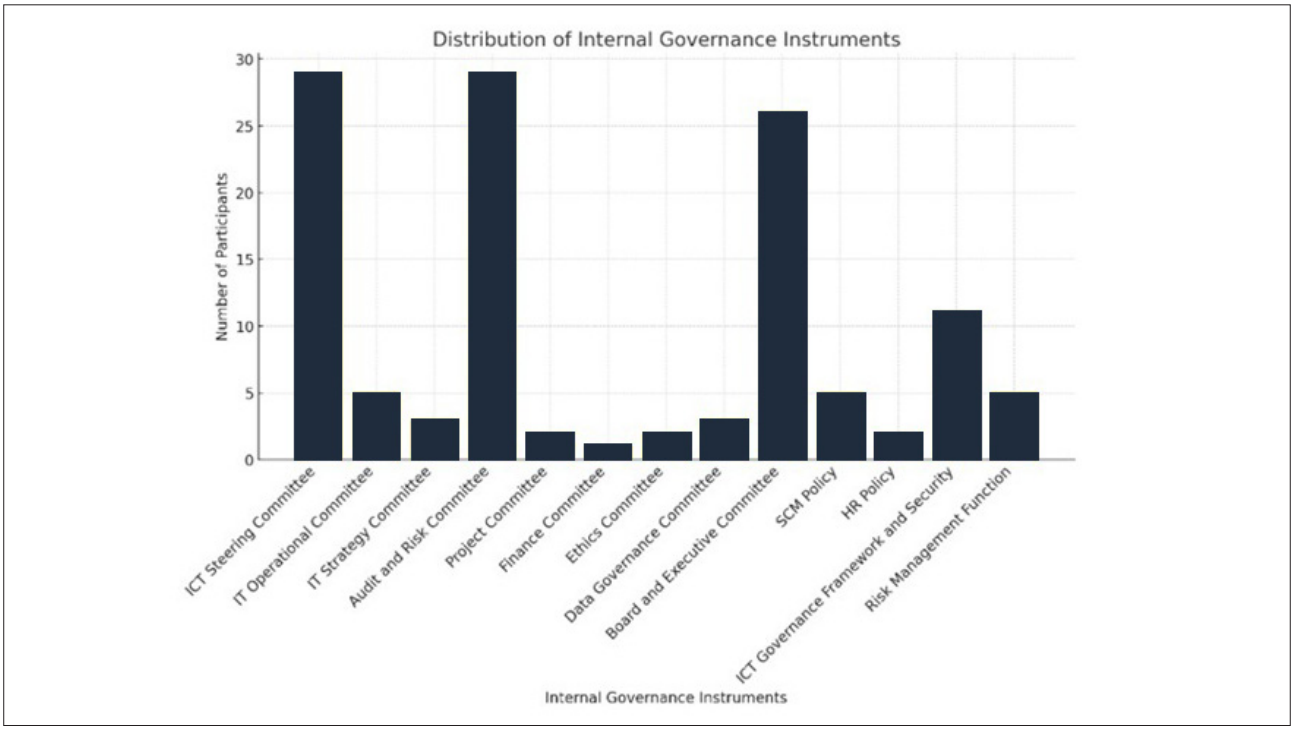

Figure 9. Internal governance mechanisms – tools

The pattern of distribution of the participants with regards to internal governance instruments is illustrated in Figure 9. The following deductions can be made from the analysis.

Most Utilized Instruments

This proposal reveals that out of the internal governance mechanisms in the current dataset, the ICT Steering Committee and the Audit & Risk Committee are the most reported with 29 participants. Moreover, there was a high recognition of the Board and Executive Committee's affiliation, and 26 participants pointed it out. This means that these committees are very crucial in governance probably because of the many aspects they cover and the fact that they can make important decisions affecting most facets of an organisation's operations.

GITO 52 supported this influence, contributing that, *"The success is due to amongst others the ICT Steering Committee that monitored and tracked the status of the projects. Regular meetings were held with all stakeholders to ensure the projects were on track and issues were resolved before it could escalate…the CIO does not only represent ICT at the Branch Exco but also at other forums where ICT matters (challenges etc.) are presented and monitored."*

Similarly, GITO 1 also indicated operations of committees, *"With so much negativity on IS in the public sector, the ICT Steering Committee and Audit and Risk Committees play a critical role in governance. These structures are where key decisions are made that affect the entire organization's operations."*

This means not only are commitments compliance focused, yet fully mandatory for creating awareness regarding ICT, for managing and coordinating ICT activities.

Moderate Utilization

Another category that was of moderate usage is the internal governance mechanisms and among them the most cited were the ICT Governance Framework along with the following security tools; This suggests that although there is recognition of these tools about managing cybersecurity and information systems, these are not addressed as intensely as are core governance bodies such as audit or the executive committee. In the same regard, only a few participants mentioned the SCM Policy and

Risk Management Functions in their institutions, inferring that whilst the areas exist in the institutional governance framework, they are not given the same relevance. Others such as the IT Operational Committee and Data Governance Committee only featured occasionally or altogether less often respectively, to suggest that they are less influential in strategic/decision-making than the committees.

GITO 44 commented; *"...we've incorporated the ICT Steering Committee into the ICT Strategic Committee, have an Audit & Risk Committee also, ICT Project committee, ICT Operations Committee and an Enterprise Architecture Committee."*

Similarly, in GITO 4, such mechanisms are mentioned in terms of the scope of their operation: *"My organisation has many governance structures, Audit and Risk Committee, Information Technology Operational Committee, Policy Advisory Forum, Risk Management Committee, Strategic and Leadership Management Committee (Management Committee), Office of the CEO Committee, Information and Communication Technology Oversight Committee…"*

Such studies reveal that these governance forums are present to some extent, although participation and activity are affected, and the phenomenon as a whole is less emphasized and less fully realized suggesting that it may be lower priority in the overall system of governance.

Least Utilized Instruments

The least used internal governance tools are the Committee of Finance and the Committee of Projects, where respondents mentioned one and two respectively. This constrained approach may suggest that financial steering and project monitoring is configured in a wider framework, such as Audit Committees or EXCO, or run through the operating apparatus instead of silo committees.

As GITO 32 clarified it, *"FINCOM (Financial Committee) – Manages financial risks. Ensures financial compliance. Advises on budgeting and financial strategies. Monitors financial performance and reporting."*

In the same fashion, GITO 22 affirmed *"...sub-committees' function at an Accounting Authority (AA) level, which is considered the strategic level. They include an Audit and Risk Committee (ARC)... and the Finance Committee (FinCom) which addresses procurement and budgets, among others."*

GITO 2 supported this by stating, *"There are various reporting structures that assist with implementation and oversight, such as the Finance Committee, Risk Committee and Audit Committee. These committees have various members whereby at least one member is one from a Technology background. Other members have expertise in Risk and Information security and financial backgrounds. These have proven to be very influential when implementing corporate governance as every aspect is taken into account."*

Despite the fact that these committees are essential in specific institutions, and they play important roles, the poor coverage of the committees in the dataset means that they are not necessarily always empowered/defined in ICT control in the public sector.

Table 5. Summary of internal governance mechanisms

Utilization Level	Examples	Key Insights / Observations
Most Utilized	ICT Steering Committee, Audit and Risk Committee, Board and Executive Committee	High strategic involvement: of crucial importance to any form of governance, as well as when decisions are being made across sectors.
Moderate Utilization	ICT Governance Framework and Security, SCM Policy, Risk Management Function, IT Operational Committee	Major positions in cyber security, supply chain, and risk moderately prioritized
Least Utilized	Finance Committee, Project Committee, Ethics Committee, HR Policy	Financial, ethical, and HR oversight seem less centralized or embedded somewhere else

The committees that are most present are related to governance, especially ICT, audit, and risk committees, and executive committees; however, there is low engagement in operational areas such as HR and the financial and project management committees. This paper also identifies modern governance tools such as the Audit and Risk Committee and the ICT Governance Framework and Security as significant areas that focus on compliance, cybersecurity, and accountability. Although the results revealed that the overall engagement of employees is quite high, specific roles within several committees such as the sub-optimal engagement in the Finance, HR and Ethics Committees may present areas of future growth where governance mechanisms could be enhanced.

Discussion on the Distribution of Internal and External Governance Instruments

Governance Frameworks and Compliance

Compliance, risk management and oversight fulfil a prime role in the governance mechanism both at the organizational level and external requirements. According to the data it can be found that core governance structures, ICT Steering Committee and the Audit and Risk Committee participated most actively with 29 participants each. This can be justified by the fact that the role of governance is to also enforce policy compliance and risk management in relation to organizational and regulatory requirements in IT operations. According to [9] structured

governance eliminates as many operational risks as possible, supporting the need for these committees. In the same regard, the external governance mechanisms led by the PFMA feature prominently in the financial oversight category with nearly 30 mentions. This has placed a tremendous measure of importance on the regulation of financial responsibilities, control of financial resources, and auditability of the financial system in the public institutions as espoused by [19].

Strategic Oversight and Decision-Making

Proper governance structures ensure increased transparency in decision making processes and proper alignment of IT strategies. The IT Operational Committee and the IT Strategy Committee are fully responsible for ICT governance policy and guarantee that investment in the IT sector will fit the long-term strategic planning. [34] proves that structured IT governance is key to enhancing strategic alignment hence the need for such committees. Other legislative instruments that were mentioned by about 10–15 participants include SITA Act as well as the Public Service Act that indicates the influence of the external environment in the management of public service IT frameworks and policies. These are in agreement with [20] and [40] where they affirm that internal and external instruments make up the governance process, pointing to aspects on strategic direction, compliance and operationalisation of ICT policies.

Risk Management and Security Governance

Governance frameworks are very useful for risk management, security of information and assets. Among the 11 participants of the ICT Governance Framework and Security instrument there is alignment with the cybersecurity governance aspect, and according to [5], robust IT governance is a significant factor in the enhancement of security and handling of cyber risks. On the other hand, the conception of external governance mechanisms has a lower number of concerns towards information security where Public Service Information Security framework is indicated to be associated with a single tool. This implies that while internal structures are well in place to address IT security governance, external requirements must be enhanced in addressing present day cyber threats. The trend of digital transformation urgently requires that governance structures should enhance efficient cybersecurity measures.

Financial and Project Governance

Financial and project oversight are distinguishable facets of governance geared towards efficiency, minimized risks and sure-shot project management processes. The Finance Committee with an average of one participant for this committee and the Project Committee, which had two participants, implies that financial and project governance may be a sub constituent of other governance systems. According to [3], centralising financial monitoring within strategizing brings discipline on budgets and minimises financial irregularities. This is supported by external governance instruments where NT regulations and guidelines have 18 related tools supporting [6] to attest to the significance of financial governance and external regulation compliance. Nevertheless, the rate of compliance with Municipal Finance Management Act (MFMA) is much lower than that set for implementation of PFMA, meaning that financial accountability at the municipal level is less established than at the central government level.

Ethical and Institutional Governance

Ethical governance is a very important aspect that has however not received sufficient attention in the governance systems. Within internal governance mechanisms, we have the Ethics Committee (2 members) where it may be possible to incorporate ethical supervision alongside the audit and compliance departments. In a related work, [16] believes that there is a gap in governance arrangements since ethical governance encourages trust and institutional responsibility in an organization. Externally, only Employment Equity Act, Labour Relations Act, the Occupational Health and Safety Act, and the Protection of Personal Information Act present little activity, that is why are these organisations' governance structures simply neglect ethical and labour legislation in favour of the finance and IT legislation? Therefore, organisations may require the reconsideration of labour laws, information security and the administrative justice regulations within the governance spectrum to achieve a balanced manner of governance as put forth [29] and [11].

Best Practices and Regulatory Frameworks

It is common knowledge that external governance mechanisms use best practice frameworks to try and guarantee that the corporate governance framework is efficient in its execution. These findings also underscore the prominence of CGICT & DPSA Guidelines by featuring the most cited principles which align well with the proposition made by [1] about these frameworks offering a well-developed set of rules fit for the public sector ICT landscapes. Similarly, King IV and COBIT are both often cited, as stated by [41] for restating their importance for the corporate and IT governance guidelines. These frameworks facilitate structured governance by means of achieving accountability, minimising risks, and aligning to strategy as postulated by [16]. Nonetheless, the prevalence of ISO standards and IT governance frameworks is different, which suggests that security governance is acknowledged but still given less attention compared to financial and IT governance. According to [13], the summation of internal and external approaches in a given organisation increases the maturity of its governance hence aligning the regulations to operations and risks.

Transparency, Compliance, and Assurance

Adherence to certain corporate governance mechanisms must be of paramount importance to encourage the public's confidence and credibility of the institutions. Of all the four categories, external compliance and assurance mechanisms have the largest number of governance tools (13 tools) as supported by Hamid (2023) stating that audit oversight is vital in public sector governance. Security-related external governance coordinated by agencies of the state security has only one tool, meaning that the security management system is centralized and strict. Minimal interaction is observed with the transparency-related statutes

including the Promotion of Access to Information Act (PAIA) and Promotion of Administrative Justice Act (PAJA), implying the existence of possible governance flaws in the endeavour to provide the public with access to information as well as justice. The appointment of the external structures is considered increasing accountability and transparency according to [35] thus there is need for enhancing the interaction with the regulations on transparency to support ethical governance and accountability to the public.

Conclusion

In this regard, the findings established that internal and external governance mechanisms focused more on financial governance, IT strategic direction and risk management, with moderate attention to ethics/ethical issues, information security, and municipal financial oversight. PFMA and NT regulations clearly serve financial control and compliance, while public service, technical IT governance, and transparency are of lesser importance in regulations. The lack of regulation in cybersecurity and labour-related governance also implies there may be space in governance frameworks that require reconsideration. In the next stage, it may be essential for organisations to increase their focus on labour laws, information security, and administrative justice to achieve a better balance and enforcement of these rules. These ideas are consistent with the current body of knowledge on the subject which acknowledges governance as a principal cause of compliance, accountability and operation at large.

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ЭШЛИ ЛАТЧУ, ШАВРЕН СИНГХ

ИНСТРУМЕНТЫ КОРПОРАТИВНОГО УПРАВЛЕНИЯ, ВЛИЯЮЩИЕ НА ДОЛЖНОСТНЫХ ЛИЦ, ОТВЕТСТВЕННЫХ ЗА ИНФОРМАЦИОННЫЕ ТЕХНОЛОГИИ В ГОСУДАРСТВЕННОМ СЕКТОРЕ ЮЖНОЙ АФРИКИ

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Аннотация. *В государственном секторе Южной Африки необходимо совершенствовать законодательство, руководящие принципы и организационные структуры для управления информационными системами (ИС), чтобы технологические решения гарантировали поддержку выбранного стратегического направления. В данном исследовании обобщены отзывы, полученные от 55 государственных ИТ-специалистов (ГИТС / GITO), с целью понимания инструментов, формирующих работу ИС и корпоративное управление. Результаты дают сложную картину управления и могут быть рассмотрены следующим образом: существуют законы, такие как Закон о финансовом управлении, законы об ИКТ, которые устанавливают стандарты, регулирующие подотчетность и безопасность. Существуют другие документы (Рамочная политика корпоративного управления ИКТ (CGICTPF) DPSA, King IV, COBIT и ITI), формирующие принципы, которые реализуются посредством внутренних инструментов управления, таких как руководящие комитеты по ИКТ и аудиторские комитеты. Результаты исследования представлены в виде гистограмм, которые показывают, что более половины выявленных ГИТС считают важными такие инструментами, как CGICTPF, PFMA и аудиторские комитеты. Результаты исследования соотносятся с имеющейся литературой и сопоставимы с международными стандартами, а также выявляют проблемные области, такие как ограниченность ресурсов и компромисс между конформизмом и креативностью. В исследовании изложены рекомендации по улучшению управления информационными системами в контексте государственного сектора Южной Африки, включая необходимость постоянного совершенствования руководящих документов и повышения компетенций руководителей ИТ-подразделений в государственном секторе.*

Ключевые слова: *управление ИКТ, государственный сектор, Южная Африка, ГИТС, цифровая трансформация*

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Эксперт по управлению ИКТ с более чем двадцатилетним опытом работы в государственном и частном секторах, включая должности в Anglo-American, Shell & BP LOBP, Lafarge, Frigoglass, Mahle Behr и iSanti (Nampak Glass/AB InBev). В настоящее время возглавляет ИТ-отдел iSanti и является аспирантом Университета Южной Африки (UNISA). Исследования сосредоточены на корпоративном управлении в государственном секторе Южной Африки. Ранее работал в многочисленных советах директоров и аудиторских комитетах, в том числе возглавлял руководящие комитеты по ИКТ, осуществляя стратегический надзор за цифровой трансформацией и управлением.

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Шаврен Сингх
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