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The State of IT Governance in South Africa

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14 November 2007

A research project submitted to the Gordon Institute of Business Science, University of Pretoria, in partial fulfilment of the requirements for the degree of Master of Business Administration.

Abstract (Max 200)

The growth of Information technology is characterised by the chronic failure rate of IT enabled projects. IT governance is recognised as the mechanism for overcoming the challenges which hinder Information Technology's ability to fulfil its potential. An understanding the state of IT governance provides insight into whether the current organisational IT environment is conducive toward allowing South African firms to sustain their operations and support their future strategies.

The approach used for obtaining the required information for the research consisted of 2 concurrent data gathering methods, semi-structured interviews and an on-line survey. Both methods utilised a survey to assess IT governance in South Africa. A combined total of 48 surveys were completed consisting of 32 on-line surveys and 16 semi-structured interviews. The combined results of the completed surveys provided the basis for the research findings.

The researched assessed the State of IT governance in South Africa as less than optimal based on specific issues relating to three key IT governance success criteria namely IT value measurement, executive management involvement in IT governance, and IT governance alignment with the business. Fortunately South African organisations have acknowledged the shortcomings and have taken active steps in adopting various international best practices, standards, frameworks, and tools towards addressing these challenges.

Declaration

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University.

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José Gomes 14 November 2007

Acknowledgments

I would like to thank the following people and organisations who were instrumental in the completion of the research, namely:

Peter Tobin, my supervisor, for his direction and invaluable guidance throughout this project.

Survey participants involved in the online survey, interviews, and organisations that helped make the on-line survey a possibility through their investment of time, effort, and resources; particularly IT Web, GIBS, Britehouse, Internet Solutions, 3fifteen, and Analytix.

My colleagues at 3fifteen have encouraged and supported me throughout this project.

And last but not least my wife Diana and boys Ronaldo and Renato whose patience, support, and faith provide an inexhaustible fountain of inspiration.

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Chapter 1: Introduction to Research Problem

1.1 Overview

The theme of corporate governance has received increased attention as legislative and regulatory environments, locally and internationally, were updated to address the devastating effects of recent corporate scandals (Creating stakeholder value in the information age, 2004). The results are new requirements in the areas of risk, compliance, and control underpinned by legislated frameworks such as Sarbanes-Oxley in the USA (Damianides, 2005), Basel II in Europe (Brunson, 2005), and the impending revised corporate governance codes in South Africa, King 3 (Naidoo, 2007). Information technology (IT) governance, a subset of corporate governance, is focused on the governance of IT within organisations and is responsible for the alignment of IT with the business through corporate governance (Damianides, 2005).

A combination of events including increasing corporate governance requirements, a rapidly developing knowledge economy and complementary technologies, an increasingly competitive global economy, and traditional business pressures of value maximisation have resulted in expectations for organisational IT to maintain pace with these developments. These pressures are exacerbated by organisational stakeholder expectations of an increasingly efficient and well governed IT function (Hoving, 2007; Scott, 2007). The relationship between these drivers and IT are characterised by increased interdependence, as developments and innovations in the IT environment resulted in additional pressure on existing organisation governance structures

including IT governance. The King report acknowledged this phenomenon referring to IT as an “integral part of an enterprise's strategy” and later highlighting “ the significant impact IT has on corporate governance in terms of its role in the provision of information and the impact it has on improved fiduciary control” (IT has significant impact on corporate governance, 2001:online).

Organisations were challenged to ensure IT delivered the expected results while maintaining alignment with the organisational goals without becoming overwhelmed by these complexities. The responsibility of balancing these often conflicting objectives is allocated to IT governance through the provision of well implemented, formal, defined, flexible controls, and processes.

The introduction provides an overview of the role of IT governance and the concept of the *state of IT governance* based on local and international findings and observations which identified the various concepts, challenges, and risks related to IT governance initiatives. These findings provided the background and rationale for research to contribute toward existing IT governance knowledge through an updated understanding of the current level of IT governance within South African organisations.

1.2 The Responsibility of IT Governance

IT governance is responsible for the provision of control mechanisms for governing IT. This responsibility is underpinned by the requirement of ensuring IT remained aligned with organisational strategy through integration and

alignment with the corporate governance framework (Gillies, 2005; Jordan and Musson, 2004). Dallas and Bell (2004) stated that the responsibility of IT governance does not only belong to organisational IT but the entire organisation ensuring "that an effective, well-conceived IT governance mechanism is in place to provide a coherent, disciplined overview of IT investment decisions" (Dallas and Bell, 2004 p.2). The motivation for a well defined IT governance environment justified the investment through the advantages of providing a mechanism for driving value throughout the organisation and the ability to overcome challenges such as optimal resource allocation and risk management (McKnight and Cukor, 2001).

1.3 The State of IT Governance

An IT governance survey by KPMG (Creating Stakeholder Value in the Information Age, 2004), revealed that most organisations acknowledged the value of IT governance in achieving IT alignment with the business, however the actual implementations seldom met expectations. The study found that existing governance structures did not fulfil regulatory and legislative requirements with over half the respondents confirming that IT governance initiatives were not integrated into their companies' corporate governance structures. This despite the fact that the same respondents acknowledged that alignment is a key success criteria of IT governance initiatives. The reasons provided for this failure were the informal nature of IT governance and lack of understanding of IT Governance concepts. Two years later a complementary report provided additional insight into IT governance challenges attributing the misalignment of IT governance expectations and outcomes to the lack of

integration between corporate and IT governance as a result of various factors, including the view of IT governance as a "control mechanism which is operationally oriented, and whose benefits were primarily qualitative and less quantitative" (IT Governance in Practice-Insight from Leading CIO's, 2006 p. 13).

The findings highlighted serious challenges for organisational IT and highlighted the importance of educating organisational stakeholders of the costs of ineffective IT governance structures. IT governance had to support these initiatives by ensuring the benefits derived from IT investments were clearly quantified to obtain the executive management support required to maintain the IT investment (Damianides, 2005).

1.4 Rationale for Research

The South African IT governance conference in 2005 estimated that approximately 20% of IT budgets did not create value for organisations (Czernowalow, 2005a), a potential inefficiency of R10 Billion Rand based on an estimated South African IT expenditure of R50 billion for the same year (State accounts for 6,5% of IT spend, 2006). A subsequent international report incorporating models developed and researched in South Africa found that the chronic failure rate of IT-enabled business projects seriously impaired the achievement of business value. The report attributed these failures to the "lack of effective IT governance in the majority of organisations resulting in increased costs due to the inefficiencies of short-term, tactical IT deployments, unproductive use of human resources and IT assets, and the potential risk of

breaching data security and regulatory compliance requirements" (Lack of IT governance is putting business value at risk, 2007:online).

An IT governance survey conducted in 2005 by IT Web in South Africa showed a strong correlation with the results of the global IT governance survey conducted by KPMG in 2004 (Creating Stakeholder Value in the Information Age, 2004) with 80% of respondents rating IT as very important to their organisations' business operations and growth. The finding did not translate into successful IT Governance implementations as only 30% of these organisations formally implemented IT governance with less than 60% of these implementations judged as having been effective (Czernowalow, 2005b)

The objective of the research is to build on previous South African IT governance research initiatives by assessing the current state of IT governance and IT governance changes since the South African IT governance survey in 2006. The research outcomes will contribute toward understanding the state of IT governance and whether these are conducive to allowing South African firms to sustain their operations and support their future strategies (IT Governance Institute, 2003: online).

1.5 Research Scope

The scope of the research is based on the 2005 and 2006 Analytix and IT Web online survey (Senne, 2006) which is in turn based on IT Governance Institute's (ITGI) 2003 and 2006 global IT governance reports (IT Governance Global Status Report, 2003; IT Governance Global Status Report, 2006). The initial

motivation for the local survey was based on the fact that the ITGI study had tracked international IT governance trends, but did not specifically focus on the South African market.

This research utilised the 2006 survey with some adjustments to accommodate the update of ITGI's Control Objectives for Information and related Technology (COBIT®) framework (IT Governance Institute, undated) and structural changes based on feedback from the previous initiative. In addition to the online survey supplementary semi structured interviews were conducted using the same survey.

To achieve the research objectives the exercise focused on specific elements of IT governance namely:

- Identification of the key drivers and criteria for the establishment and assessment of IT governance.
- Identification of the level of integration of IT governance within organisations based on its relationship with the business stakeholders and the corporate governance framework.
- An understanding of the extent of IT governance implementations and level of maturity of various IT governance related processes based on the COBIT framework (IT Governance Institute, undated).
- The identification of changes in IT governance processes and frameworks which had taken place since 2006.

1.6 Summary

The growth in the importance of IT, changes in corporate governance requirements, and advances in the global environment have resulted in an increased reliance on IT governance. Within organisations IT governance has gained further attention due to increased expectations by organisational stakeholders that IT provide the necessary flexibility to allow the organisation to exploit new opportunities and technologies within an increasingly dynamic environment.

Despite the increased pressures on IT, research initiatives have highlighted a concerning trend of unsuccessful IT governance implementations despite acknowledgement by organisations of the importance of IT. The reasons attributed to this failure indicated a general lack of understanding of IT governance and the perception of IT governance as a control mechanism only, ignoring other potential benefits of value creation. The result is an underutilisation of the IT investment and increased pressures for IT to achieve its potential and increase its' contribution toward addressing the challenges facing business.

An understanding of the state of IT governance in South Africa provides insight into the level of IT effectiveness and potential conflicts which may be contribute towards the inability to maximise its return on investment. The approach toward establishing the state of IT governance in South Africa entails obtaining and analysing information related to the business drivers and criteria for the implementation and assessment of IT governance, the degree of alignment

between IT governance and the organisation, current levels of IT governance processes, and changes in IT governance since 2006.

Chapter 2: Literature Review

2.1 Overview

The increased focus on IT governance is driven primarily by the growing influence of IT in the business environment and increased profile of corporate governance. The rapid development and increasing dependence of organisations on IT is accompanied by significant investments with projected growth rates in the future generally exceeding those of other organisational areas (Damianides, 2005; Fox, Ward and O'Rourke, 2006; Gillies, 2005; Mawson, 2006). Corporate governance has experienced significant updates to address changes to strategic objectives as a result of factors such as globalisation, increased regulatory requirements due to numerous corporate scandals, and competitive pressures (Brunson, 2005; Damianides, 2005; IT has significant impact on corporate governance, 2001).

The successful implementation of IT governance in alignment with corporate governance through formal, well defined, flexible controls and processes to ensure the successful selection, execution, and support of IT initiatives is critical to the success of the IT function and continued investment in IT. In order to achieve these objectives organisations need to be continually reminded of the value provided by IT (Creating stakeholder value in the information age, 2004) and its contribution towards the achievement of strategic objectives through quantifiable outputs (IT Governance in Practice PWC Insight from Leading CIOs, 2006) which clearly demonstrate the expected return on investment.

The literature review discusses the growth of IT and its impact on business as a result of increasing expectations from organisational stakeholders for IT to provide a growing contribution toward addressing modern day challenges. This challenge is further complicated by IT innovations which introduce new risks and vulnerabilities for IT governance to address. The expectations provide the basis for identifying the key drivers for IT governance implementations and the criteria against which these implementations are measured.

The literature review explores corporate governance to position IT governance and its role within the corporate framework including the value provided by IT governance and link between successful IT governance implementations and key success criteria. The review concludes with specific aspects related to the implementation of IT governance which provide the basis for assessing the current state of IT governance in South Africa.

2.2 The Development of IT

2.2.1 Introduction

The unprecedented growth and proliferation of information technology (IT) and resultant onset of the *information age* (Fox *et al*, 2006) impacted considerably on global economies and public and private social structures (Seifert, 2003) to the extent that it is likened to the industrial revolution of our time (Li, 2005). The impact of IT on the improvement of personal and organisational productivity (Gable, 2006; Peterson, O'Callaghan and Ribbers, 2000) is illustrated by the assessment of IT assets as a measure of organisational competitive potential and future capability (Ataay, 2006) making IT itself, a

valued organisational asset (Dahlberg and Lahdelma, 2007). The impact is so pronounced that comparative measures between IT adoption and growth in productivity is not uncommon (Ataay, 2006), illustrated by fifty percent of the doubling of USA productivity between 1995 and 2000 being attributed to E-commerce and IT (Li, 2005).

This growth is complemented by increasing IT budgets (Damianides, 2005; Gillies, 2005) with US businesses attributing almost 50% of their capital expenditure to IT (Scott, 2007), resulting in the IT professionals market being the fastest growing sector in the US (Luftman and Kempaiah, 2007). The trend in South Africa is even more pronounced as IT budgets are expected to grow at a rate of 7.2% versus 2.7% for global IT budgets (Mawson, 2006). This dramatic growth introduced new challenges, risks, and expectations from organisational IT.

2.2.2 IT Challenges, Risks, and Vulnerabilities

The evolution and customisation of IT introduced new value dimensions and improvements in service offerings (Ataay, 2006; Damianides, 2005), spanning organisational environments, creating new opportunities and providing organisations with competitive advantages (Damianides, 2005; Weill and Aral, 2005). The technology improvements are accompanied by increased investment and growth of IT raising stakeholder expectations (Gable, 2006; Kimzey and Kurokawa, 2002) in the area of cost reduction, as organisations automated business functions. This is driven by decreasing IT costs relative to labour costs (Hoving, 2007; Lindstrom, Johnson, Johansson, Ekstedt, and

Simonsson, 2006) and economies of scale resulting from the spread of technology over a larger client base (Gable, 2006).

The continued growth of IT and its influence on the organisational environment show no signs of abating as technological innovations (Seifert, 2003) results in increasing organisational dependence on external sources of technology thus introducing new organisational challenges in technology management practices (Hoving, 2007; Kimzey and Kurokawa, 2002; Luftman and Kempaiah, 2007). This requires a review of traditional frameworks and organisational models toward increasing flexibility and improved service levels necessitating changes to tasks, structures, processes, and systems involving resources across different management levels and organisational entities (Shi, 2007).

These challenges are compounded by market pressures in the form of increased skills shortages (Scott, 2007), security concerns due to increasing workforce mobility (Hoving, 2007), document and knowledge management developments, compliance conformance pressures (Barlas, Queen, Radowitz, Shillam and Williams, 2007; Gillies, 2005) and the dramatic increase in complexity due to a growing user base and the advent of inter organisational systems. (Gable, 2006; Korac-Kakabadse and Kakabadse, 2001). The increased usage and commoditisation of IT resulted in pressure from consumers, referred to by Coupe (1995, p.108) as a “high degree of volatility in customer demands” due to innovations, such as the internet, raising client expectations as they demand faster and better service than was previously possible (Gable, 2006).

As the role of IT in organisations is further entrenched, the increasing complexity of enterprise solutions (Kimzey and Kurokawa, 2002; LindStrom *et al*, 2006) introduce a set of new risks and vulnerabilities to organisations and their operations (Scott, 2007) requiring a balance between the benefits of entrepreneurship and time-to-market with the advantages of centralised control and standardisation (Weill and Woodham, 2002a).

The IT industry is struggling to address these challenges as productivity results are offset by lacklustre IT performance due to failed projects and poor returns on investments (Robinson, 2005). The view is supported by findings in the 2003 Chaos report of IT project failures which found that of 13,522 cases only 34% of IT projects were considered successful, 15% complete failures and the balance of 51% overran on time and/or cost (Jordan and Musson, 2004).

2.2.3 Conclusion

The continuously changing organisational environment and rapid evolution of technologies (Peterson *et al*, 2000) together with the low effectiveness of IT (Robinson, 2005) is compounded by increasing organisational expectations. The expectations have introduced numerous and complex challenges to be addressed by IT without compromising the organisations' ability to fulfil its stakeholder expectations. The challenges have resulted in an increased focus on IT governance to provide the necessary mechanisms and structures to address these disparate and interdependent challenges. More recently developments in corporate governance have further propelled organisational

dependency on IT governance, not only as a result of regulatory changes but also due to the increased role IT is performing in the accumulation and presentation of information.

2.3 Corporate Governance

2.3.1 Introduction

Corporate governance is concerned with how organisations are controlled, leadership responsibilities, and risk management (Fox *et al*, 2006) with the goal of ensuring the delivery of anticipated benefits (Zyngier, Burstein and Mckay, 2006) of organisational stakeholders. Corporate governance structures including standards, processes, and procedures are theoretically based on a mix of legislative and self imposed regulations (Jordan and Musson, 2004). Theoretically because corporate governance is seen as a control mechanism and in reality organisations are so over burdened with existing responsibilities that there is little interest in adopting voluntary standards resulting in a reactive approach towards governance issues (Brenner, 2007; Damianides, 2005). This view of corporate governance is evolving as organisations increasingly begin to view governance as a mechanism to enhance corporate performance (Korac-Kakabadse and Kakabadse, 2001) and provide strategic advantages.

Globally the subject of corporate governance is receiving increasing attention (Peterson, 2004), due to highly publicised corporate scandals resulting in amendments to regulations governing relationships between organisational stakeholders. Many of these amendments relate to company audits specifically validity, verifiability, and security of information generated by organisations

(Gillies, 2005; Saint-Germain, 2005) with a view to improved corporate accountability (Damianides, 2005).

2.3.2 IT Governance and Corporate Governance

IT and organisations are integrally inter-related. The business environment is dependant on IT systems for control and provision of the information, including the automation of selected checks and balances, a role elevated due to the increasing importance of financial systems in corporate environments. These and other IT innovations influence business environments introducing new potential risks and capabilities requiring adjustments to existing organisational structures (Fox *et al*, 2006; Korac-Kakabadse and Kakabadse, 2001) and updates to information and IT requirements (Saint-Germain, 2005).

IT in turn is dependant on corporate governance to ensure its initiatives remain aligned with business strategy (Baker, 2006; Korac-Kakabadse and Kakabadse, 2001; Weill and Aral, 2005) and that strategic objectives are fulfilled within the existing regulatory environment (Brown and Nasuti, 2005) while minimising the potential risks introduced by IT innovations. Indications are that this interdependence would continue to develop within an increasingly complex environment and continued growth of IT's contribution to business strategy (Korac-Kakabadse and Kakabadse, 2001; Ranken, 2007).

The interdependence between IT and corporate governance (Peterson, 2004; Robinson, 2005; Weill and Ross, 2004) is managed by IT governance (Gillies, 2005; Jordan and Musson, 2004) which constitutes an ever increasing

component of corporate governance through its relationships with other asset governance processes, transcending management layers and organisational boundaries (Damianides, 2005).

The pace at which organisations adopt IT is unprecedented requiring that corporate and IT governance enable business to progress unhindered while ensuring that the necessary standards, processes, and procedures are updated so that the corporate governance objectives are not compromised. In order to achieve this it is imperative that organisational strategy and IT are aligned through IT governance, a fact most organisations acknowledged but whose implementation are seldom a success (Creating Stakeholder Value in the Information Age, 2004). The reality is that existing IT governance structures do not fulfil regulatory and legislative requirements and are often not integrated into their companies' corporate governance structures (Creating Stakeholder Value in the Information Age, 2004).

2.3.3 Conclusion

The increasing focus on corporate governance along with the influence of IT on aspects of corporate governance and corporate strategy provide sufficient motivation for IT governance to be an integral part of the corporate governance framework requiring that it receive the appropriate level of attention from executive management to ensure that IT and business focus remained aligned. Organisations that recognised the value of IT governance in providing increased accountability and responsiveness to business needs realise that this could become a competitive advantage through improved decision making

based on accurate and timely data resulting in a more effective and efficient business (Damianides, 2005). The challenge for IT is to ensure that organisations understand the importance of IT governance and realise the benefits of a well governed IT function (Gillies, 2005).

IT governance is allocated the responsibility of overcoming these challenges by ensuring the business understands the strategic and operational role of IT through the development of a transparent relationship with its stakeholders ensuring they are aware of the value delivered by IT. This value has to be underpinned by tangible benefits achieved through the successful delivery of projects utilising established governance structures which ensure the initiatives contribute to the defined business goals.

2.4 IT Governance

2.4.1 Introduction

Research amongst organisational stakeholders of top IT concerns identified specific focus areas including quality assurance, compliance, disaster and business continuity, information security, and measurement of IT derived benefits (Baker, 2006). Despite these concerns IT investments are not scrutinised with the same level of rigor as other discretionary investments made by corporations (Hoving, 2007). An IT governance survey amongst officers of Fortune 500 entities identified that 1 in 10 boards asked questions about IT (Damianides, 2005). Reasons for these findings are attributed to the informal nature of IT governance, a lack of understanding of IT governance concepts (Creating Stakeholder Value in the Information Age, 2004), and the view of IT

governance as a control mechanism whose benefits are primarily qualitative (IT Governance in Practice PWC Insight from Leading CIOs, 2006).

The responsibility of IT governance is to overcome these challenges by ensuring organisations understand the value of IT governance and its contribution towards the organisational objectives through effective implementation of IT governance initiatives. The challenges of implementing effective IT governance implementations cannot be underestimated as demonstrated by the findings of the 2005 South African IT governance survey. Of the 30% of organisations which formally implemented IT governance only 60% regarded the implementation as having been effective (Czernowalow, 2005b).

2.4.2 The Role of IT Governance

2.4.2.1 IT Governance Defined

There are a number of overlapping definitions for IT governance (Dahlberg and Lahdelma, 2007). For the purposes of this research the definition of IT governance is taken from the IT Governance Institute:

> "IT governance is the responsibility of the board of directors and executive management. IT is an integral part of enterprise governance that consists of the leadership, organisational structures and processes that ensure that the organisation's IT sustains and extends the organisation's strategies and objectives" (IT Governance Institute, 2003:online).

Fox *et al* (2006, p. 315) refers to governance as a dynamic process "forever breaking down and being reinvented" stressing the need to accommodate environmental changes and remain adaptive while focusing on creating a coordinated set of mechanisms driven by the strategic business objectives (Weill and Woodham, 2002a) which are consistently creating, delivering, and preserving value (Robinson, 2005). These objectives are achieved through the establishment of IT management structures, processes, frameworks, procedures, decision rights, and accountabilities with a view toward encouraging desirable behaviour in the deployment and use of IT (Gillies, 2005). These benefits have to be delivered in a controlled manner with measurable outputs to enable the justification of the ultimate outcomes (Dahlberg and Lahdelma, 2007; Zyngier *et al*, 2006).

2.4.2.2 IT governance and the Board

IT plays a prominent role in creating business value resulting in increasing dependence from IT to continue contributing towards organisations achieving and maintaining a competitive advantage (Damianides, 2005; Weill and Aral, 2005). The growth in the importance of IT in the area of value creation, and the interrelationship between IT and corporate governance require that not only IT management, but executive management take responsibility for ensuring IT governance is correctly designed and implemented (Damianides, 2005).

Heijden (2000, p. 153) referred to IT governance as "the capability to integrate IT effort with business purpose and activity" highlighting four behaviours that contribute toward its success:

- Quality of the executive relationship between the CIO and the other executives.
- Ability to arrive at shared objectives and visions particularly relating to alignment between business objectives and IT objectives.
- Fostering an appropriate culture in the IT department with a view to eliminating the cultural gap between IT and business departments.
- Behaviour of incorporating best practices in management and searching for continuous improvement of process associated with strong IT governance capabilities (Heijden, 2000).

IT governance is tasked with the responsibility of bridging the divide between IT effort and business purpose (Heijden, 2000; Jordan and Musson, 2004; Ranken, 2007) or risk incurring the penalties of decreasing value from IT investments (Weill and Woodham, 2002b) due to low project success rates as a result of ineffective IT alignment with the organisational objectives (Brown and Nasuti, 2005), or the inability to co-ordinate and focus organisational resources towards successful development and implementation of IT based initiatives. Weill and Ross (2004) supports this view based on research illustrating a positive relationship between IT governance performance and company performance ascribing this to the organisations ability to identify and understand issues and risks surrounding the strategic importance of IT, a symptom of a close relationship with the business. The same study went on to conclude that the best indicator of IT governance effectiveness is senior management awareness.

2.4.2.3 IT Governance Objectives

IT governance responsibilities cover a broad technical and organisational spectrum (LindStrom *et al*, 2006) complicated by the highly dynamic, complex, and flexible nature of IT introducing numerous risks (Avison, Gregor, and Wilson, 2006) in an environment where demands for value continue to intensify (Dahlberg and Lahdelma, 2007; Seifert, 2003).

These responsibilities include the creation of an environment with the necessary checks and balances in place to monitor and guide IT performance in line with business imperatives (Avison *et al*, 2006). The needs of diverse stakeholders each pursuing legitimate agendas (Korac-Kakabadse and Kakabadse, 2001; LindStrom *et al*, 2006) must be fulfilled using systems and environments, developed, deployed, and supported by third parties. This created an extreme form of co-existence providing numerous challenges for IT management.

The IT Governance Institute describes IT governance objectives as follows:

> "The overall objective of IT governance activities is to understand the issues and the strategic importance of IT, to ensure that the enterprise can sustain its operations and to ascertain that it can implement the strategies required to extend its activities into the future. IT governance practices aim at ensuring that expectations for IT are met, IT's performance is measured, its resources are managed and its risks are mitigated" (IT Governance Institute, 2003: online).

Robinson (2005) referred to three areas of IT governance objectives, regulatory and legal compliance, optimal risk management, and operational excellence focusing on ensuring that IT operations are continuously improved to support organisational goals. This requires IT management to continually monitor the organisations environment (Weill and Woodham, 2002b) ensuring governance structures remain aligned to organisational strategy (Dahlberg and Lahdelma, 2007; Damianides, 2005; Weill and Ross, 2004) while accommodating competing organisational forces (Coupe, 1995; Peterson, 2004). In process the IT governance process must fulfil the objective of quantifying IT returns to justify continued investment in IT (Dahlberg and Lahdelma, 2007).

2.4.3 The Value of IT Governance

2.4.3.1 The Strategic Advantages of IT Governance

IT governance provides organisations with strategic advantages by ensuring that structures, processes and procedures are in place to enable organisations to outperform their competitors. This is achieved by facilitating decision turnaround time and improved quality of the IT related decisions enabling organisations to exploit opportunities and maximise return on investment eventually institutionalising these capabilities and achieving competitive advantages (Ciborra and Andreu, 2001).

These structures, processes, and procedures combined to create frameworks which ensure IT projects remain aligned with strategic business objectives through improved success and quality of projects which increase resource efficiencies, improve service delivery, revenues, and market share (Brown,

2006; Hoving, 2007). The capabilities allow organisations to respond quickly to demands by basing their investment decisions on these frameworks (LindStrom *et al*, 2006) providing organisations with the ability to accommodate multiple value drivers without compromising one for the other (Peterson, 2004). Hoving (2007) refers to an example of this in *Portfolio excellence,* which described an organisations ability to selecting projects using governance structures with solid financial benefit determination followed by project execution using disciplined, consistent, repeatable practices.

Research supports the view that above average IT governance performance results in superior returns (Gillies, 2005). Firms which successfully implement IT governance not only make better IT decisions, they also make IT decisions more consistently (Weill and Woodham, 2002a) using IT governance to create a control environment for desirable actions while maximising value from assets through reuse, standardisation, and financial disciplines (Weill and Woodham, 2002a).

Looking to the future, IT governance is expected to continue playing a significant role in the organisation particularly in the knowledge environment through capturing, utilisation, and re-utilisation of knowledge throughout the value chain reducing the unit cost of knowledge creation (Zyngier *et al*, 2006) and ensuring effective use of human resources (Niederman, 2005).

2.4.3.2 The Quantification of IT Value

Weill and Woodham (2002a) identified that firms vary in their view of the primary role of IT ranging from cost benefits to business strategy value. Depending on the organisational focus certain differences are evident in the areas of investment and manner in which performance and value are measured, a responsibility IT governance is expected to fulfil (Fairchild, 2004).

Hoving (2007) found that IT investments are "not scrutinised with the same level of rigour as other discretionary investments", a finding which is supported by the difficulty encountered by organisations in quantifying IT returns based on the nature of IT itself and pervasiveness in the organisation, particularly when dealing with highly complex systems requiring inputs from multiple IT and business resources which return less tangible benefits such as customer service, support for reengineering efforts, or improved information flows (Ataay, 2006; Fairchild, 2004).

IT governance is responsible for addressing this challenge through the implementation of structures to measure ongoing programs (Brown, 2006) that quantify the business value of IT in terms of traditional financial calculations such as NPV (Fairchild, 2004). Heijden (2000) stresses the importance of the relationship between IT and the rest of the business as being of critical importance in enabling IT to maximise its potential without compromising certain value drivers. The most effective and sustainable approach toward building and maintaining this relationship is based on the ability of IT governance to demonstrate clear business value derived from IT (Scott, 2007).

2.4.4 Implementing IT Governance

2.4.4.1 Challenges of IT Governance Implementation

Governing IT requires tradeoffs between balancing the responsiveness of the organisational process owners to their customers and sharing and standardising the use of IT assets within the firm. These tradeoffs require the use of different mechanisms, each focusing on specific value dimensions requiring different approaches for understanding and measuring the resultant benefits (Weill and Woodham, 2002a). The challenges are complicated as the implementation of IT governance affects areas outside of IT's direct control (Fairchild, 2004) posing challenges from competing forces in organisations (Weill, and Woodham, 2002a) requiring that consideration be taken of individualistic and organisational rights (Fox *et al*, 2006).

The consequences of the challenges include decision making responsibilities and authority requiring that IT governance structures focus on three areas - structural integration, functional integration, and social integration (Peterson *et al*, 2000) across five IT domains - IT governance decisions, IT Principles, IT architecture, IT infrastructure, and Business application needs prioritisation and investment decisions (Weill and Ross, 2005). The structures are designed according to organisational variables ranging from size and level of dependency on IT (Gillies, 2005) to industry challenges and strategic focus (Weill and Ross, 2004) influencing the mix of structures, processes and relational mechanisms constituting the IT governance environment (Brown, 2006; Weill and Ross, 2005).

2.4.4.2 The Successful Implementation of IT Governance

The most important IT governance success factor is management commitment and involvement (Brown, 2006) illustrated by a study of 256 companies in which Weill and Ross (2004) found that the best predictor of effective IT governance performance is the percentage of managers in leadership positions who could accurately describe their governance processes. Weill and Woodham (2002a) identified that governance structures of top performers reflect more mature IT management and better harmony between IT decision-making, desirable behaviours, and performance goals underpinned by performance measures linked to IT governance structures.

Ideally, the process of establishing, implementing, and managing IT governance is transparent and includes key organisational stakeholders that participate in the establishment of the IT governance structures and understand their purpose thereby eliminating potential conflict and establishing a balance between strategic and operational requirements (Gillies, 2005). The implementations should allow for governance changes in response to major organisational and environmental upheavals while providing the ability to handle exceptions not accommodated by existing governance structures (Weill and Woodham, 2002a). In order to ensure continued support of IT governance, the implementation of IT and the values underlying the governance framework such as reward schemes and behaviour codes must support the governance structures (Ciborra and Andreu, 2001) ensuring that the mechanisms provide accurate assessment of IT results through collaboration as opposed to control (Peterson, 2004).

2.4.4.3 IT Governance Frameworks

Several formal and informal best practice industry standard IT governance frameworks exist to help assess and move organisations to higher levels of IT governance effectiveness. These frameworks contribute to strategy, architecture, and planning processes enabling organisations to manage, anticipate, and assemble technologies and methodologies which provide stable and continuously improving IT environments (Brown and Nasuti, 2005; Robinson, 2005; Saint-Germain, 2005). Most frameworks provide the requisite support materials in the form of roadmaps, guides, templates, and samples (Robinson, 2005) locking in specific governance requirements such as cost estimation and management (Lindstrom *et al*, 2006).

The value of the frameworks is their ability to harmonise competing forces within the organisation, balancing the differing stakeholder requirements without compromising the organisations overall vision and principles (Korac-Kakabadse and Kakabadse, 2001; Weill and Woodham, 2002a). The frameworks achieve this by understanding and controlling how decisions are made through checks and balances and provide the means for measuring variances between the envisioned outcomes and final outputs (Zyngier *et al*, 2006).

The primary frameworks referenced in IT governance literature COBIT (Control Objectives for Information and Related Technology) is an open standard developed by ISACA (Information Systems Audit & Control Association), and

the IT Governance Institute (Brown and Nasuti, 2005; Hoving, 2007; Jordan and Musson, 2004) based on the IT governance goals of IT alignment with business, focusing on maximising the benefits of IT through the responsible usage of IT resources (Brown and Nasuti, 2005).

COBIT provides the overall framework for IT governance while other frameworks and bodies of knowledge such as ITIL, ISO/IEC 17799, Balanced Scorecard, and formal project management methodologies focus on specific value propositions (Hoving, 2007; Robinson, 2005) that focus on specific COBIT process areas. The challenge for organisations is to recognise the necessity and value of these frameworks in the context of organisational needs and ensure that implementations are relevant and successful (Gillies, 2005).

2.4.4.4 IT Governance Maturity

The quality of the IT function and its processes are measured using any one of several maturity models depending on the business focus. The SEI (Software Engineering Institute) capability maturity model for example, is commonly applied to software development processes focused on evaluating and optimising processes, whereas enterprise architecture maturity models focus on software modularity to provide organisations with flexibility in enterprise architecture implementations (Fairchild, 2004).

The underlying premise of maturity models is that if an organisation does not have defined and standardised processes they are unable to provide consistent and reliable products or services. The alternative is that IT organisations with

consistent and reliable processes contribute to the organisations competitive and strategic advantage (Weill and Aral, 2005) as a result of their ability to predict inputs and outcomes more accurately. At higher maturity levels, these performance and value delivery measures are compared to best practices of other enterprises (Dahlberg and Lahdelma, 2007) providing organisations with the ability to benchmark themselves against industry standards. The maturity models provide methods for assessing processes based on models offering insights into how computer-based IT, managerial, and organisational strategies evolve and mature over time. According to the models, organisations progress through a number of successive stages each reflecting a level of maturity in terms of use and management of IT in the organisation (Brown and Nasuti, 2005; Fairchild, 2004).

2.4.5 Conclusion

The success of IT governance is based on a number of interrelated variables all of which are required to take organisational attributes and goals into account. These variables can be divided into three areas:

- IT governance and its relationship with the business
- The quantification of IT specifically focused on ensuring that the outputs derived from IT initiatives are quantified and that these are communicated to the organisational stakeholders
- The implementation of IT governance to support organisational objectives through integration with corporate governance initiatives.

These interdependent variables are critical toward ensuring the continued sustainability of the IT function and its ability to achieve its objectives successfully. Fortunately IT governance is receiving significant focus as IT consumes an increasing portion of the organisational investment resulting in the development of a number of frameworks and standards. These frameworks focus on IT and allowed organisations to improve their IT governance initiatives by providing stakeholders with the ability to understand and govern their IT investments with the benefit of cumulative experience of the industry.

2.5 Summary

IT innovations and its influence within organisations has resulted in IT developing into a major dependency for organisations (Damianides, 2005; Fox *et al*, 2006; Gillies, 2005; Mawson, 2006). Recent developments focusing on corporate governance further perpetuates this dependency as management looks toward IT to provide accurate and timeous information (Brunson, 2005; Damianides, 2005; IT has significant impact on corporate governance, 2001). These influences are contributing towards increased investment in IT placing pressure on it to deliver value and justify this investment (Ataay, 2006; Damianides, 2005). These developments are resulting in an evolution of IT governance to balance competing forces (Coupe, 1995; Peterson, 2004) and maximise IT potential in addressing operational challenges and providing strategic advantages to organisations (Ciborra and Andreu, 2001; Gillies, 2005). Fortunately organisations have a significant knowledge base at their disposal which allows them to leverage industry lessons and increase the

probability of successfully implementing a value generating IT governance environment (Brown and Nasuti, 2005; Robinson, 2005; Saint-Germain, 2005).

The process of evaluating the state of IT governance entails identifying the level of alignment between business and IT priorities through an evaluation of the IT governance relationship with executive management (Brown, 2006) and corporate governance (Gillies, 2005; Jordan and Musson, 2004). The strength of the relationship provides insight into the extent of the integration of the various roles and degree of alignment (Weill and Ross, 2004). Alignment must be supported by the capability to fulfil the expectations of the organisational stakeholders and regular demonstration of the businesses value delivered by IT (Scott, 2007) to re-enforce the relationship with the business Heijden (2000). The current capability of IT governance is obtained through maturity assessments of aspects of IT governance thereby gaining insight into the quality of the IT function and its ability to "sustain its operations and to ascertain that it can implement the strategies required to extend its activities into the future" (IT Governance Institute, 2003: online).

The comparison of the state of IT governance between 2006 and 2007 is the final aspect of the assessment of the state of IT governance based on observations by Weill and Woodham (2002b) who identified the requirement for continuous monitoring of IT governance to ensure governance structures remain aligned to organisational strategies (Fox *et al*, 2006).

Chapter 3: Research Questions

Struwig and Stead (2001) outlined a process for designing research based on the selection of a topic and investigation of the problem domain followed by the formulation of objectives or aims. The basis for the research objectives were established in previous IT governance survey initiatives of 2005 and 2006. In order to ensure the research contributed toward the existing knowledge base the research maintained a level of consistency with previous initiatives to allow comparative analysis across time and information categories in the future.

The assessment of the state of IT governance was based on 3 secondary objectives (Struwig and Stead, 2001) focused on understanding the issues of IT and whether these were conducive toward allowing South African organisations to sustain their operations and support the organisations future strategies (IT Governance Institute, 2003: online). The 3 secondary objectives were derived from the primary objective (Struwig and Stead, 2001) and resulted in the development of the 4 research questions.

The secondary objectives are as follows:

- Understand the degree to which the concept of IT governance is understood, integrated, and established in South African organisations.
- Identify the current maturity level of IT governance in South African organisations.
- Identify differences between IT governance findings of 2006 and 2007 with the aim of identifying specific trends.

Four questions were formulated based on the secondary objectives which provided the basis for the research:

1. **What are the IT governance drivers for South African organisations and to what extent are these supported by IT governance?**

   The literature review highlighted a number of IT governance drivers in the form of various IT challenges and expectations (Hoving, 2007; Kimzey and Kurokawa, 2002; Luftman and Kempaiah, 2007). The objective was to identify the business drivers particular to South Africa for assessment of the alignment between the business imperatives and IT governance (Creating Stakeholder Value in the Information Age, 2004).

2. **How well is IT governance recognised and integrated with the business?**

   The research addressed certain aspects of the key behaviours identified by Heijden (2000) as having contributed to successful IT governance implementations particularly the relationship and integration between business and IT defined by Weill and Ross (2004) as the most important determinant of successful IT governance initiatives.

3. **What is the extent of IT governance implementations and at what level of maturity are existing IT governance initiatives?**

   The literature review identified a number of challenges related to the successful implementation of IT governance initiatives (Fairchild, 2004; Fox *et a*l, 2006; Weill, and Woodham, 2002a) contributing to a low implementation success rate (Creating Stakeholder Value in the Information Age, 2004). Understanding the extent of current IT governance implementations and level of maturities achieved for specific IT governance processes, provides an indication of the current state of IT governance.

4. **What IT governance related changes have taken place since the South African IT governance survey of 2006?**

   Business and IT environments were constantly evolving requiring that IT governance initiatives remain adaptive (Fox *et al*; 2006) ensuring IT could continue to consistently create, deliver, and preserve value (Robinson, 2005). The objective was to perform a comparison between the results of 2006 and 2007 and identify changes in the state of IT governance to establish whether or not IT governance initiatives had remained adaptive.

Chapter 4: Research Methodology

4.1 Overview

The basis for the research approach was based on previous South African IT governance survey methodologies and research objectives. To enhance the previous IT governance initiatives the methodology was updated to gain a deeper insight into the research findings of 2007.

Zikmund (2003) referred to the usefulness of categorising research based on function arguing that the nature of the problem would influence the choice of research method. The objective of this research was to gain an understanding of the current state of IT governance exploratory research (Zikmund, 2003) through the identification and gathering of non-empirical (Tobin, 2006), archival (Howard, 1985), or secondary data (Zimund, 2003) which had not been collected specifically for this study. The research also included the acquisition of empirical data to allow for descriptive research to gain an understanding of the characteristics of a specific population, organisational IT, based on observable results (Zikmund, 2003). The results of the research report employed inductive reasoning to create a general inference of the state of IT governance in South Africa (Hussey and Hussey, 1997; Zikmund, 2003).

The empirical research generated primary data and included aspects of both quantitative (positivist) and qualitative (phenomenological) research philosophies based on specific advantages and disadvantages of each paradigm (Hussey and Hussey, 1997; Tobin, 2006). Quantitative research methods tend to be more objective requiring higher numbers of samples

producing specific and precise data with potentially low reliability whereas qualitative research uses smaller samples, due to the additional investment required during the data gathering process, producing more accurate data but also introducing the potential of interviewer subjectivity into the process (Hussey and Hussey, 1997).

The non-empirical research used the 2006 IT Web and Analytix South African IT governance survey and various sources of secondary data including the Internet, IT governance articles, survey results of previous years, and various IT governance frameworks for guidance. The empirical research was largely based on the IT governance survey of 2006 with minor adjustments based on feedback from the research supervisor, Peter Tobin; Johan Botha from Analytix and Ranka Jovanovic from IT Web. Senior IT management of South African organisations were targeted through two concurrent initiatives to obtain the necessary primary data for analysis. The initiatives included an on-line survey hosted by IT Web and a complementary semi-structured interview process using the on-line survey to allow respondents the opportunity to qualify their responses.

4.2 Research Methodology Overview

The research methodology was based on a single survey utilising two data gathering channels, namely the Internet (structured) and face to face interviews (semi-structured) (Zikmund, 2003). The research design consisted of a combination of quantitative and qualitative research methods:

- **Quantitative Research** - In order to assess a general concept such as IT governance, primary and secondary data was gathered and analysed. The primary data obtained from the analyses of the consolidated results from both the semi-structured and structured surveys was evaluated and inferences made based on the results. The results also provided the basis for comparison with the results from the 2006 IT governance survey.
- **Qualitative Research** – Concurrent with the on-line survey face-to-face interviews were conducted with a target sample group, providing respondents with the opportunity to qualify specific choices. To avoid bias the interviewer avoided prompting interviewees for additional information other than clarifications of specific questions or requests for elaboration.

Once the primary data had been gathered the data was validated and captured into Microsoft (MS) Excel spreadsheets to facilitate the creation of graphs, charts and Tables for the analysis and presentation of the results.

4.3 Proposed unit of Analysis and Population

The target population consisted of employees of South African organisations that had IT departments providing services internal to the organisation and / or to external customers. The unit of analysis were C-level managers of the organisation's IT function or management delegated by C-Level management who were responsible for utilising, developing, enforcing, or implementing IT governance within their respective organisations.

4.4 Sampling Method and Size

Each of the alternative channels identified for gathering primary data required different non-probability sampling methods (Zikmund, 2003). Non-probability sampling methods require experienced individuals to select the sample based on some appropriate characteristic of the sample members (Zikmund, 2003). For this study the subject matter, IT governance, provided the basis for the selection of the samples. The techniques used to obtain the primary data, methods for selecting samples and size of the sample groups, excluding surveys which did not fulfil the data validation criteria described in chapter 4.6, are detailed in Table 1.

Data Gathering Technique	Sample Selection Method	Sample Size
Internet Survey	**Convenience Sampling (Zikmund, 2003)** – Individuals volunteered to complete the survey once they come across it either by chance or intentionally. Various incentives were offered for completing the survey.	32
Face-to-Face Interviews	**Judgement (Purposive) Sampling (Zikmund, 2003)** – Individuals were selected based on pre-specified criteria, namely responsibility for organisational IT or portions thereof which required their input into decisions relating to the establishment and management of IT governance within their organisations. Sample selection was based on existing formal networks established through business interactions of the interviewer and snowball sampling through references provided by industry experts.	16

Table 1: Research Data Gathering Methods, Sample Selection Method, and Sample Size.

4.5 Data Gathering Process

The data gathering process included primary and secondary sources. Secondary data included:

- Past results of IT governance surveys conducted by IT Web and Analytix.
- Peer reviewed articles, industry publications, and subject matter reports.
- Information from organisations involved in defining, formulating and assessing IT governance structures, models, and methodologies.

Primary data was obtained via two different methods or channels:

- **Online Survey** – A structured survey (Appendix A) was made available for access via a South African IT Web portal, www.itweb.co.za, for general web users or via banner advertisements on 3rd party IT company websites. The survey took the form of a self administered questionnaire (Zikmund, 2003), completed by the respondent without any input from an interviewer.

- **Face-to-Face** – The on-line survey provided the basis for semi-structured interviews (Zikmund, 2003) enabling respondents to include additional detail relating to their choices. These responses were recorded via Dictaphone, which were then transcribed, or as notes taken by the interviewer during the interview. The interview process was guided by the structure of the survey and entailed completing the same survey which was available on-line.

Given that the survey was mostly identical to the IT governance survey of 2006 a process of refinement to the questions was all that was necessary in terms of the development of the survey. The survey was reviewed by the research supervisor and representatives from IT Web and Analytix, all of whom had participated in the previous survey. Before publishing the questionnaire IT Web had an internal review process which included the Information Systems Audit and Control Association (ISACA). The feedback from all review parties included re-structuring of specific questions, updates to terminology and options for specific questions, elimination of specific personal information requirements, and an update of COBIT process areas to accommodate the release of the updated COBIT version 4.1.

The on-line survey was published on the 31st of August 2007 and was accessible via a survey menu on the IT Web website. A banner advertisement with a link through to the website was placed on three separate websites to direct traffic through to the survey to increase the number of responses. The websites were those of South African IT companies including the largest South African internet service provider, Internet Solutions (www.is.co.za), a newly formed Dimension Data division Britehouse (www.britehouse.co.za) and one of its subsidiaries 3fifteen Technology Solutions (www.3fifteen.co.za). IT Web also published an article on the 4th of September 2007 informing its user base of the survey and incentives for completion of the survey. The links to the survey were removed on the 8th of October 2007.

The semi structured survey process included 16 respondents of whom 15 allowed the interview to be recorded. The interviews were carried out by the same interviewer and included the completion of the survey whose results were later integrated with the on-line survey results. Interviews were held in various locations in Johannesburg and included a wide range of South African based companies the majority of which conducted business exclusively within South Africa.

4.6 Data Analysis and Validation

Once the results of the on-line survey were received a process for evaluating each of the responses was undertaken. Each completed survey was reviewed according to the following criteria:

- Identification of duplicate entries which were removed.
- If more than one survey was completed for the same organisation then the respondent with the highest designation and reporting level was selected, others were removed from the result set.
- Each company was evaluated to confirm that they were valid. The evaluation entailed a search on the Internet for the organisation or in the case of public department's, telephonic confirmation. Surveys submitted without company names were excluded from the research.
- Additional questions over and above the first five questions had to have been answered.
- Respondents had to be related to management positions which indicated an understanding of the IT governance within the context of

their organisation for example surveys indicating designations such as data capturers and java developers were excluded from the result set.

The process of evaluating each survey required a level of subjectivity on the part of the researcher and resulted in the removal of 13 on-line surveys from the initial 44 submitted for 2007 and 17 surveys from a total of 65 on-line surveys submitted in 2006.

The methods of data consolidation were as follows:

- **Survey Results** - Inferential statistics i.e. “statistics used to make inferences or judgements about a population on the basis of a sample” (Zikmund, 2003, p. 402), provided the basis on which the analysis of the data was performed. Each individual survey obtained via the on-line channel underwent the validity evaluation after which successful responses were added to a spreadsheet for analysis .

- **Semi-Structured Interview** – The results used in the research report from the semi-structured interviews were based on three open ended questions. Hussey and Hussey (1997) describe a process for consolidating and analysing the results of the qualitative data gathered during the research process. The methodology included the following steps:
    - **Data Reduction** – A process of focusing and reorganising data discarding irrelevant data through some a form of coding. The process entailed the identification of key words or phrases which

related to specific questions and the survey as a whole. These were allocated a unique identifier. The numbers of occurrences were recorded and observations derived from the results.

- **Structure the Data** – During the interview process a logical sequence of questioning was followed based on the questionnaire. The results of the coded data obtained during the data reduction process were often made within the context of a specific question, providing insight into the respondent's choice. The logical sequence of the questionnaire provided the structure for the data.
- **Detextualising the Data** – Most data was gathered in extended text format which was not suitable for analysis. To enable analysis the results were tabulated and the number of occurrences for specific key words, phrases, or themes documented. The purpose of the coding exercise was to reduce the large number of individual responses to a few general categories of answers that could be assigned numerical scores (Zikmund, 2003) based on the number of instances the categories had been referred to.

The semi-structured interviews included completion of the questions in the remainder of the survey. The results of questions which did not relate to open ended questions were incorporated into the MS Excel spreadsheet with the results from the on-line survey.

Once the qualitative and quantitative data had been incorporated into their respective spreadsheets the results from the 2006 online survey were obtained and formatted for inclusion into the existing results spreadsheet. Certain attributes were associated to each record to ensure that the results could be distinguished between 2006 and 2007 and to differentiate which results were obtained from the semi-structured interviews and via the on-line channel.

The consolidated results were reviewed to ensure that formats and categories of responses were consistent to facilitate the data analysis. Once the data validation process was completed a pivot table was created for each spreadsheet which allowed for filtering of the results based on the questions and criteria defined by the researcher for analysis. Results that required data manipulation, calculations, or the creation of figures were extracted from the pivot table and placed in another spreadsheet for analysis.

4.7 Research Limitations

The major research limitations were categorised into four areas:

1. In terms of the survey the possibility existed of variances in the results due to:
    - Systematic (non-Sampling) error, or non-response error (Zikmund, 2003) resulting from non-responses from persons refusing to participate in the survey. The concern was that C-level individuals did not take the time to complete the survey due to other more pressing issues or indifference relating to the subject of IT governance.

- Self Selection Bias, a situation where bias occurred because people who felt strongly about a subject or had an interest in it were more likely to respond than people who were indifferent (Zikmund, 2003). This was particularly relevant to Internet surveys based on the haphazard manner in which individuals may come across the survey.
- In terms of the actual questions themselves response bias as a result of "unconscious misrepresentation" could have occurred due to people not understanding the question content or the rating based on a personal view which may not be shared by other experts either within the organisation or industry (Zikmund, 2003) resulting in over or under estimation of maturity of specific governance areas for example.

2. The results of the interviews required coding of the responses. The definition of these codes required judgement by the researcher introducing potential subjectivity into the data analysis process.
3. The aim of the survey was to formulate a picture of the current IT governance landscape. The concern was that sampling frame error (Zikmund, 2003), where certain sample elements were excluded or over represented due to the sample selection method, could introduce bias into the results.
4. The business environment was highly pressurised and access to C-level individuals difficult to obtain. Where access to these individuals was not possible replacements were sought however these did not necessarily represent the views of the C-level position of the organisation.

4.8 Summary

The purpose of the research was to evaluate the state of IT governance in South Africa. The decision to employ a combination of qualitative and quantitative research methods was based on a combination of factors:

- The intent of increasing the quality of the information gathered in previous IT governance surveys by decreasing the disadvantage of low reliability of results associated to the positivist research techniques (Hussey and Hussey, 1997; Tobin, 2006).
- Time and resource constraints did not allow for the entire information gathering process to consist of semi-structured interviews which benefitted from the advantage of phenomenological research philosophy specifically relating to increased data accuracy (Hussey and Hussey, 1997; Tobin, 2006).
- A sufficient sample population was required to provide sufficient data to draw inferences of the state of IT governance in South Africa.
- The requirement of the outputs of the research to conform to the outputs of previous initiatives to enable future comparative analysis research which required historic data based on a common categorisation of results.

Previous IT governance surveys had focused on the on-line surveys only. The combination of both semi-structured and structured data gathering methods provided the ability to address the shortcomings associated to the

phenomenological and positivist research philosophies (Hussey and Hussey, 1997; Tobin, 2006).

The primary data gathering exercise introduced a number of challenges ranging from the assessment of the validity of on-line surveys to obtaining C-Level management representation and sufficient number of completed surveys to enable the research to make the necessary inferences relating to IT governance in South Africa. The data analysis challenges related specifically to the simplification of the results particularly IT governance maturity categorisations to allow for direct assessments and comparisons between IT governance processes. The details of how these challenges were overcome and considerations when reviewing the results are detailed in chapter 5.2.

The results of the data gathering exercise are consolidated in the results which are presented according to the four questions on which the research was based. The results from the survey were extensive and allowed for deeper analysis and cross examination of specific IT governance variables and their interrelationships however the focus of the research was to provide an assessment of the state of IT governance in South Africa and did not include a synopsis of the individual IT governance variables.

Chapter 5: Results

5.1 Overview

The data gathering and analysis process is guided by the research four research questions in chapter 3 which also provide the basis for the overall structure for presentation of the results. The presentation of the results is initiated with commentary of the considerations that should be taken into account when reviewing the results and is followed by details of characteristics of the respondent population from the on-line survey and semi-structured interviews. The remainder of the chapters address each of the research questions in the order in which they are presented in chapter.

Each of the questions or combination of questions utilised from the survey are represented as figures, in the form of either graphs or charts, and tables dependent on the number of variables utilised and complexity of the information which is displayed. The figures include the number of responses or relative percentages and are accompanied by detail and notes of how the results were derived. The question numbers and survey questions (Appendix A) provide the description for each of the figures. The data on which the figures are based are listed in Appendix B in the same order as the figures in this chapter. To facilitate the identification of the underlying data for a specific figure the question numbers, figure descriptions, and table descriptions are the same for the figure and related table. Questions in which no responses were provided for specific options are excluded from the results but are reflected in the tables.

5.2 Result Analysis Considerations

5.2.1 Result Analysis Issues

There were a number of challenges encountered during the results analysis which should be considered when reviewing the results.

- **Number of surveys completed** - A larger number of completed surveys were anticipated. The data gathering exercise was expected to include additional resources to perform a number of additional semi-structured interviews. Furthermore certain initiatives which involved raising the awareness of the survey by third parties including the use of existing formal networks did not materialise. A larger sample group would have contributed toward increased credibility of the findings.

- **Respondent differences between 2006 and 2007** – Analysis of the characteristics of the sample groups reveal a similarity in terms of industry representation but differ based on criteria such as turnover and number of IT staff. These characteristics and the fact that few of the same companies are represented in both surveys indicate that the sample groups are significantly different from one another which influence the comparative analysis.

- **IT governance process and maturity subjectivity and interpretation** – The nature of the process maturity assessments lends itself to a degree of subjectivity based on the respondent's interpretation of the IT governance process areas within their organisation and their understanding of each

maturity level. This was especially evident during the semi-structured interviews based on the requests for clarification of various processes. Only 1 of the 16 semi-structured respondents indicated that a 3rd party maturity audit of their IT governance processes was performed.

These research issues support the research limitations discussed in chapter 4.7 and the some of the limitations of the phenomenological and positivist research philosophies.

5.2.2 Maturity Level Assessment Consistency, Challenges and Measurement

COBIT identifies thirty four IT governance processes (IT Governance Institute, undated) each with the potential maturity levels 0 to 5. Each maturity level describes criteria which allow IT management to assess an IT governance process and allocate a maturity level (IT governance Institute, 2003). During the presentation of the results references are made to maturity levels of specific IT governance processes. These maturity levels and their definitions differ between organisations and frameworks (Fairchild, 2004; IT governance Institute). In order to ensure consistency of maturity interpretations, the COBIT maturity level definitions (appendix C) provide the basis for maturity assessments for this research (IT governance Institute, 2003, p.48).

In addition to the potential respondent subjectivity of maturity level assessments, the comparative analysis of the maturity levels between the different processes require the identification of an average maturity for a

process and a point along the maturity scale at which a process could be assessed as having achieved an acceptable maturity level. Assessing the maturity of specific IT governance processes requires a consolidation of the number of responses for each maturity level, 0 to 5 for each process. To facilitate this assessment a percentage range for each maturity was identified. The ranges were calculated by dividing 100 by the 6 maturities as illustrated in Table 2.

Maturity	Lower Percentage	Upper Percentage
0	0	17
1	18	33
2	34	50
3	51	67
4	68	83
5	84	100

Table 2: Maturity levels and associated percentage ranges

The COBIT maturity assessment scale illustrated in Figure 1 indicates the *international standard guidelines* and *industry best practice* (IT governance Institute, 2003, p.48) maturities located half and three quarters of the way between maturity levels 2 and 3 respectively and with *enterprise current status* at maturity level 2. This provides a baseline for comparing the results of the South African IT governance process maturities.

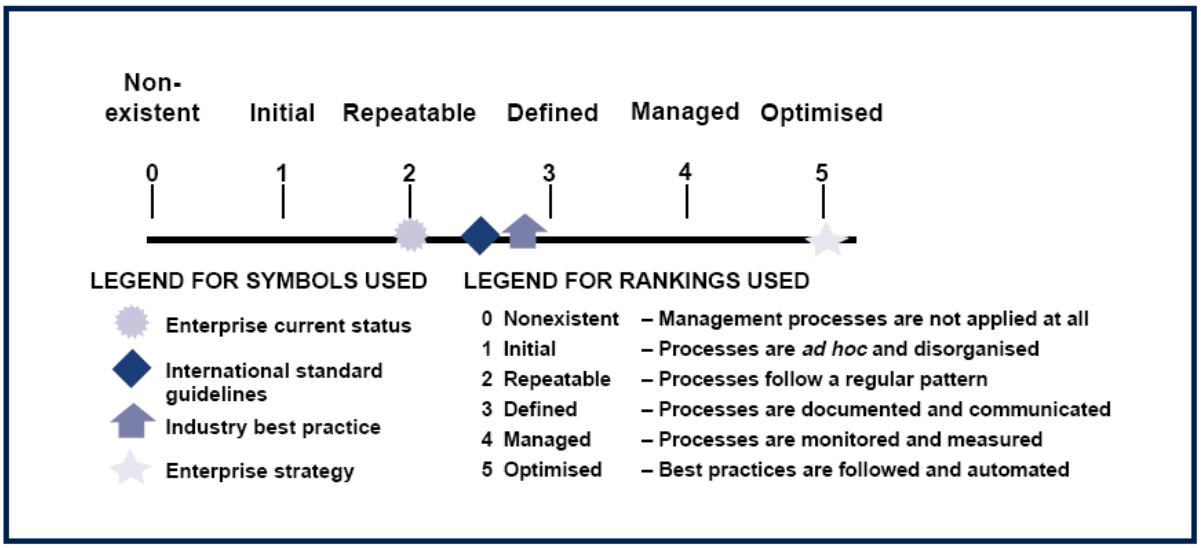

Figure 1: Cobit International Standard Guidelines and Industry Best Practice Maturity Levels

The other consideration used in establishing a point along the maturity scale for assessing maturities relates to senior management involvement in IT governance identified as a key determinant of the success of IT governance initiatives (Brown, 2006; Weill and Ross, 2004). The criteria for the COBIT maturity level 2 refers to IT governance relying primarily on the "IT management team, with voluntary or co-opted participation by key business stakeholders, depending on current IT projects and priorities" whereas COBIT maturity level 3 definition refers to IT governance being driven from board level, "The board has issued guidance, which has been developed into specific procedures for management covering key governance activities" (IT governance Institute, 2003, p.48).

These observations provide the basis for establishing the point between maturity level 2 and maturity level 3 as the target maturity level incorporating

industry best practice and achieving the key IT governance criteria of executive management driven IT governance. For the purposes of this research the IT governance processes which achieve a maturity level 3 or higher are acknowledged as having achieved a high maturity status whereas as maturity levels lower than maturity level 3 are assessed as requiring attention.

To allocate a maturity average to simplify the analysis process and enable comparison between the IT governance processes the following methodology was employed. 2 categories, maturity levels 0 to 2 and 3 to 5 are created. The percentage responses for each category are combined and average contribution of each maturity category obtained. The results are displayed as the total percentages for the maturity category 3 to 5. The percentages indicate a distribution for the individual maturity categories. If the research report had entailed a comparison of the state of IT governance against international standards then category 2 would include maturity level 2 responses thus making the milestone for assessing the maturity at the point between the end of maturity 1 and beginning of maturity 2 requiring that total category percentage would need a distribution of 67% or higher. For the purposes of this research the point between maturity 2 and 3 is used requiring that category 2 obtain a percentage of 50% or higher to indicate a maturity level 3.

5.3 Population Characteristics

The 2007 data set includes 16 interviews and 32 online surveys resulting in a total of 48 completed surveys. Initially 44 on-line surveys were submitted but 12 are excluded based on the pre-defined criteria, described in section 4.6 for

inclusion into the research. The designations of the respondents vary significantly with the largest grouping consisting of 16 IT managers. The next largest grouping selected the *other* option and includes roles ranging from IT risk and governance managers to IT advisors, strategists, and information managers. The industries represented in the population are *finance and insurance* with 13 entries, followed by *IT and telecommunications* with 9 entries and lastly *public sector* and *retail and manufacturing* each with 5 entries. 11 surveys represent organisations with IT staff numbers of *1001 or more* followed by 8 companies with *101 to 200* IT staff members and four companies with between *501 to 1000* IT employees. The question relating to the number of PC's in the organisation was dominated by 16 responses with *5001 or more PC's* and an additional 7 responses of between *1001 and 2000 PC's* and finally 6 surveys representing organisations with between *2001 and 5000 PC's*. 35 surveys represent organisations with turnover of *R251 million or more*, followed by 6 entries with turnover of between *R51 million and R250 million*. Of the 48 surveys, 24 respondents completed the COBIT process maturity assessments or portions thereof.

The IT governance survey of 2006 provides 48 surveys from an initial total of 65 after the data validation process. 19 surveys are completed by *IT managers* followed by 17 selecting the *other* option with similar designations to those of 2007. The most highly represented industry is *IT and telecommunications* with 14 surveys followed by 11 in *finance and insurance*. 23 respondents represent organisations with turnovers of between *R0 and R50 million* with an additional 21 responses representing organisations with turnovers of *R250 million or*

more. 22 surveys did not indicate the numbers of staff. 10 surveys represent organisations with *5000 or more PC's* and an additional 9 represent organisations with between *2001 and 5000 PC's*. 13 responses did not indicate the number of PC's in their organisation. The details of the population characteristics are specified in Tables 7 to 11 in Appendix B.

5.4 IT Governance Drivers

5.4.1 Introduction

The IT governance drivers were presented in two sections, namely qualitative and quantitative results. The qualitative results demonstrate the key IT issues and priorities and a comparison of the IT governance motivation versus the criteria against which IT governance is assessed. The quantitative results present the level of importance attributed to each of the thirty four COBIT IT governance processes provide insight into the alignment between the importance attributed to IT governance processes and the IT issues and priorities.

5.4.2 IT Governance Drivers - Qualitative Results

The analysis of the qualitative results entails a level of subjectivity based on the interviewer's interpretation of data and categorisation of this data to create the figures below. The results of the most critical IT issues and priorities include all categories that are referred to more than once across the consolidated results. Categories that received less than two references are excluded from the graph but are detailed in appendix B.

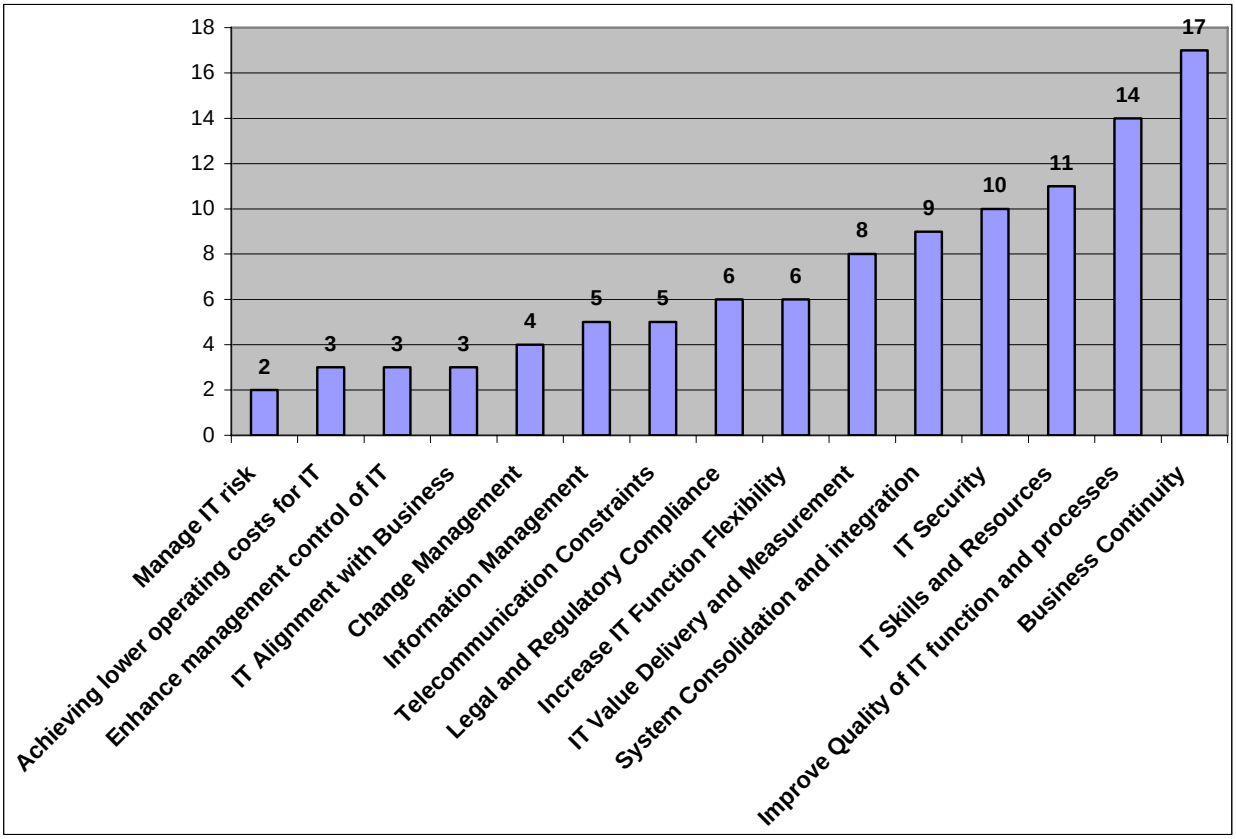

Figure 2: Question 7 - What are your organisation's most critical IT issues / priorities?

There are a total of 109 references across all categories of which the top 8 issues and priorities account for over 74% of the total responses. *Business continuity* represents 16% of the total, followed by *improvement of the quality of the IT function* at 13% and *IT skills and resources* at 10%. Categories that received less than two references were *benchmarking, portfolio management*, and *vendor management*.

Figure 3 is the result of a combination of two questions and compares the results for the motivation of implementing IT governance and criteria for

assessing IT governance. The motivation for implementing IT governance is only answered by respondents that had already implemented IT governance within their respective organisations. The survey question provides respondents with some categories and also allowed the respondents to add additional criteria. To ensure that comparison was not unequally weighted only respondents that answered both questions were included in the result set.

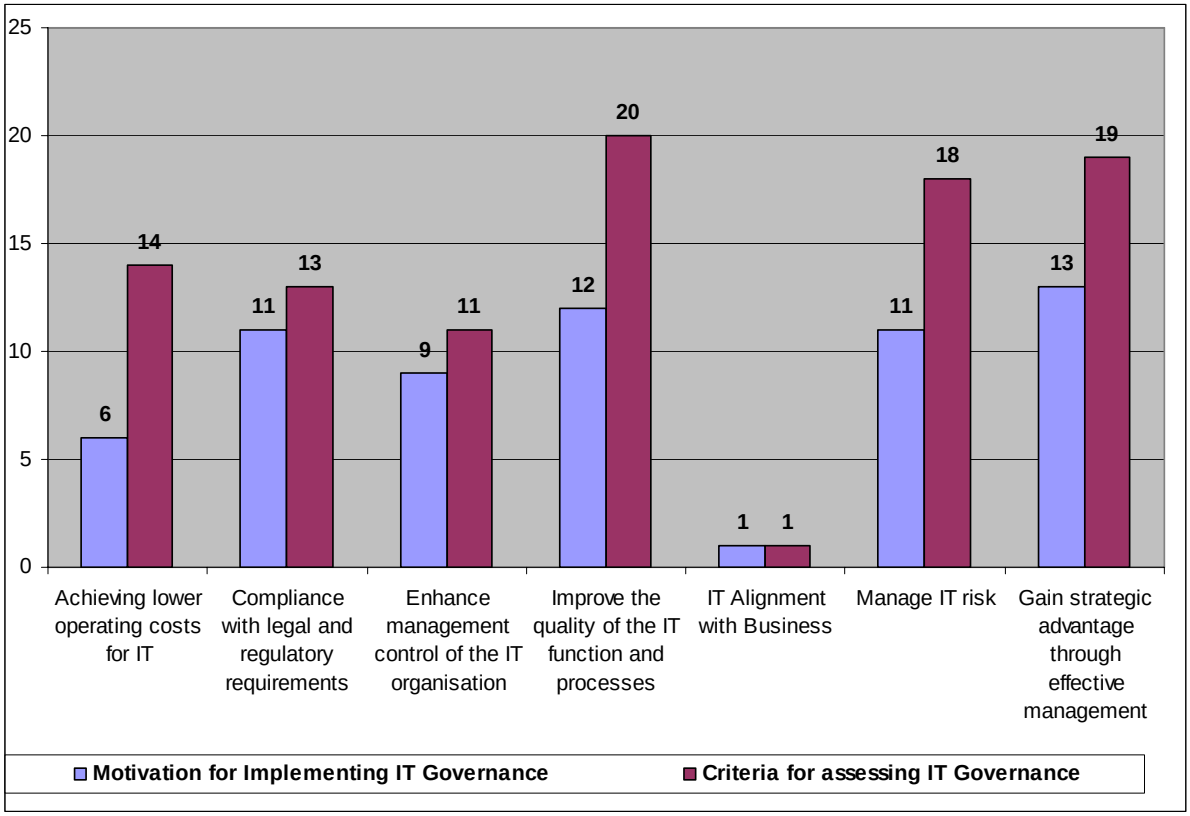

Figure 3: Question 27 and 34 – Comparison of Motivation for Implementing IT Governance and Criteria for Assessing IT Governance

The results include a total of 63 responses across all categories for the motivation of implementing IT governance while the criteria for assessing IT governance had 96 responses resulting in an increase of 34% between the numbers of responses for the two questions. The primary areas of difference

between the two results are *achieving lower operating costs* with a 133% difference between the motivation for implementing and criteria for assessing IT governance, *improvement of the quality of the IT function* with a 67% increase, *managing IT risk* with a 64% increase, and *gaining strategic advantage through effective management* with a 46% increase.

5.4.3 IT Governance Drivers - Quantitative Results

5.4.3.1 Importance of IT

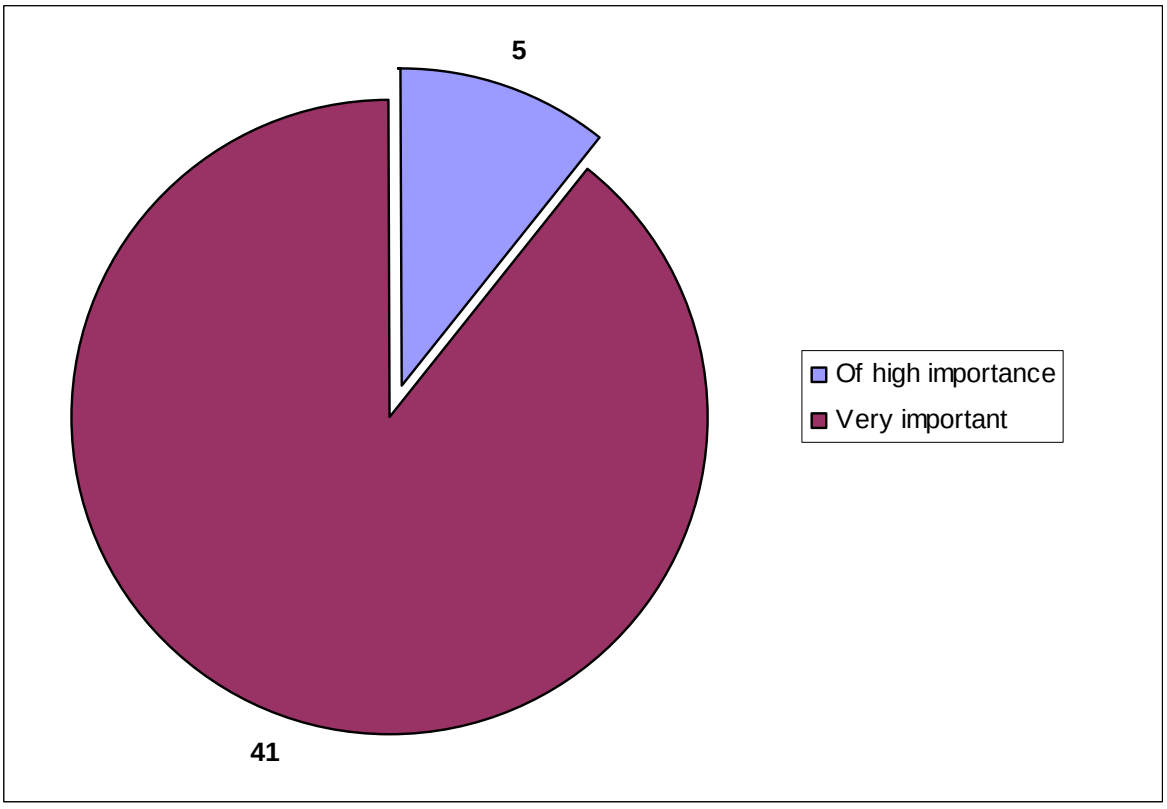

Figure 4: Question 6 - How critical is IT to your organisation in sustaining its day to day operations?

Two of five available options are selected for the 46 responses regarding the criticality of IT to organisations in sustaining day to day operations in Figure 4. Almost 90% of the responses indicate that IT is *very important* with the remainder indicating that IT is *of high importance*.

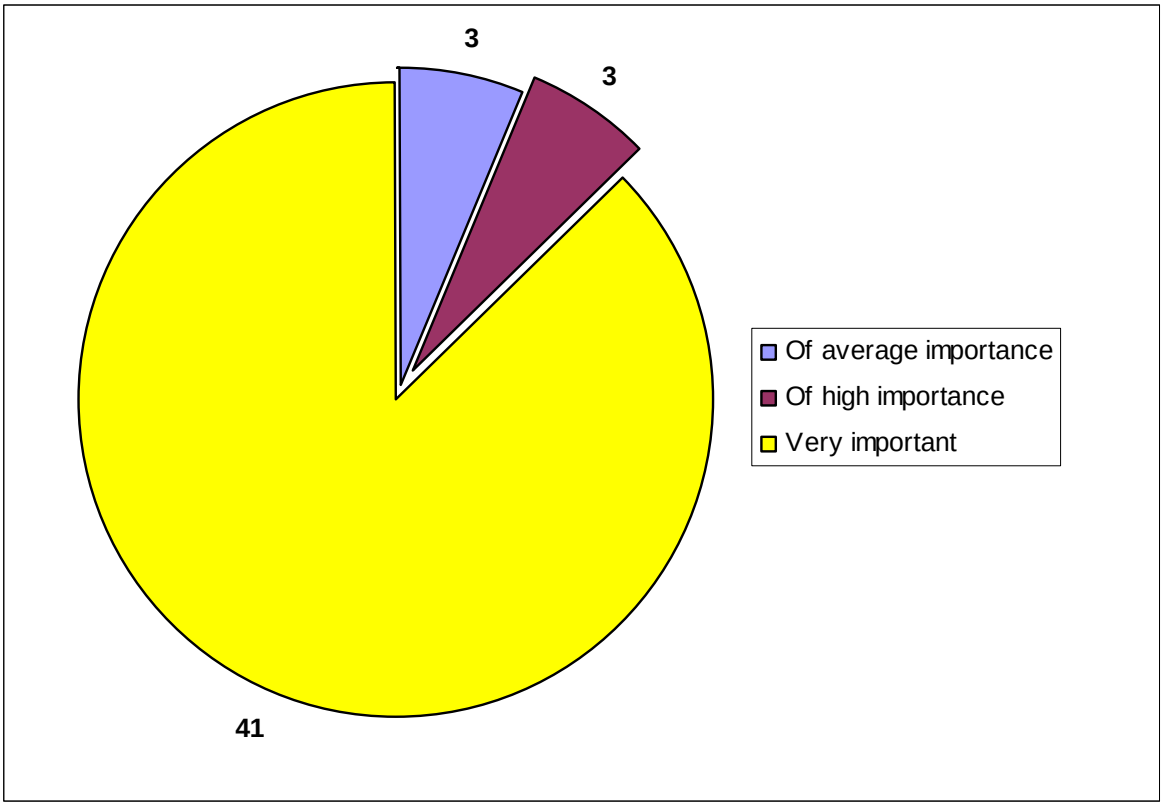

Figure 5: Question 8 - How important is Information Technology to enable growth and achievement of your organisation's strategic objectives?

The importance of IT in its role of achieving organisational strategic objectives has 47 responses, 87% of which indicate that IT is *very important* and the remainder *of either high or average importance*.

5.4.3.2 Importance of IT Processes

A total of forty five respondents completed the assessment of the importance of the IT governance processes as defined by the COBIT framework. Some of the respondents did not include responses for all areas. Table 3 provides a list of all the IT governance processes in order of the descending average percentages for the number of *high* responses. The calculations entail dividing the number of high responses by the total responses for each process area.

	Process Area	High %		Process Area	High %
1.	Define a strategic IT plan.	84%	18.	Ensure compliance with external requirements.	57%
2.	Ensure continuous service.	84%	19.	Communicate management aims and direction.	56%
3.	Ensure systems security.	72%	20.	Manage third-party services.	56%
4.	Manage performance and capacity.	71%	21.	Manage service desk and incidents	55%
5.	Provide IT governance.	71%	22.	Manage the configuration.	55%
6.	Determine technological direction.	67%	23.	Monitor and evaluate IT performance.	55%
7.	Define the information architecture.	66%	24	Manage IT human resources.	51%
8.	Manage changes.	66%	25.	Manage operations.	51%
9.	Manage the IT investment.	65%	26.	Manage the physical environment.	50%
10.	Manage projects.	65%	27.	Acquire and maintain technology infrastructure.	49%
11.	Enable operation and use.	64%	28.	Monitor and evaluate internal control.	49%
12.	Manage data.	64%	29.	Identify automated solutions.	48%
13.	Define the IT processes, organisation and relationships.	63%	30.	Identify and allocate costs.	47%
14.	Manage quality.	63%	31.	Acquire and maintain application software.	45%
15.	Define and manage service levels.	62%	32	Educate and train users.	43%
16.	Assess and manage IT risks.	60%	33.	Procure IT resources.	40%
17.	Manage problems.	60%	34.	Install and accredit solutions and changes.	38%

Table 3: Question 33 – Ranking of IT governance process area importance based on *High* response average.

The average across all processes of *high* responses is 59%. The combination of the *high* and *medium* response averages reveal that all process areas averaged between 77% and 98%.

5.4.4 Conclusion

Understanding the evaluation of the different process areas provides IT governance with guidance on the IT focus areas and drivers for IT governance initiatives (Hoving, 2007; Kimzey and Kurokawa, 2002; Luftman and Kempaiah, 2007). The relationship between IT priorities and the level of importance attributed to specific IT governance processes that support the IT priorities, and motivation and criteria for measuring IT governance is the first indication of the level of alignment between business, IT governance, and IT. The level of alignment between IT priorities and the importance attributed to related IT governance processes reflect the extent of executive management (Heijden, 2000) participation in IT governance structures and of IT governance integration with corporate governance structures.

5.5 IT Governance Recognition and Alignment with Business

5.5.1 Introduction

The level of integration between IT governance and corporate governance is critical in ensuring IT governance remains aligned with the business as it evolves to accommodate the dynamic environment within which it operates (Baker, 2006; Korac-Kakabadse and Kakabadse, 2001; Weill and Aral, 2005). The alignment requires executive management participation and awareness to

ensure that IT governance understands the critical issues and priorities of the business so that it can establish its own priorities.

The following chapter explores the relationship between IT and the organisation through executive management involvement in IT decisions and integration of IT governance with corporate governance structures. The assessment of the level of alignment and integration of IT governance with the business includes results of executive management involvement in specific aspects of IT governance decisions and involvement in IT governance structures, and IT governance alignment with corporate governance. The relationship is reciprocal, and includes results of organisational IT's understanding of business needs and quality of communications to the business.

5.5.2 Relationship between IT Governance and Organisation Board / Exco

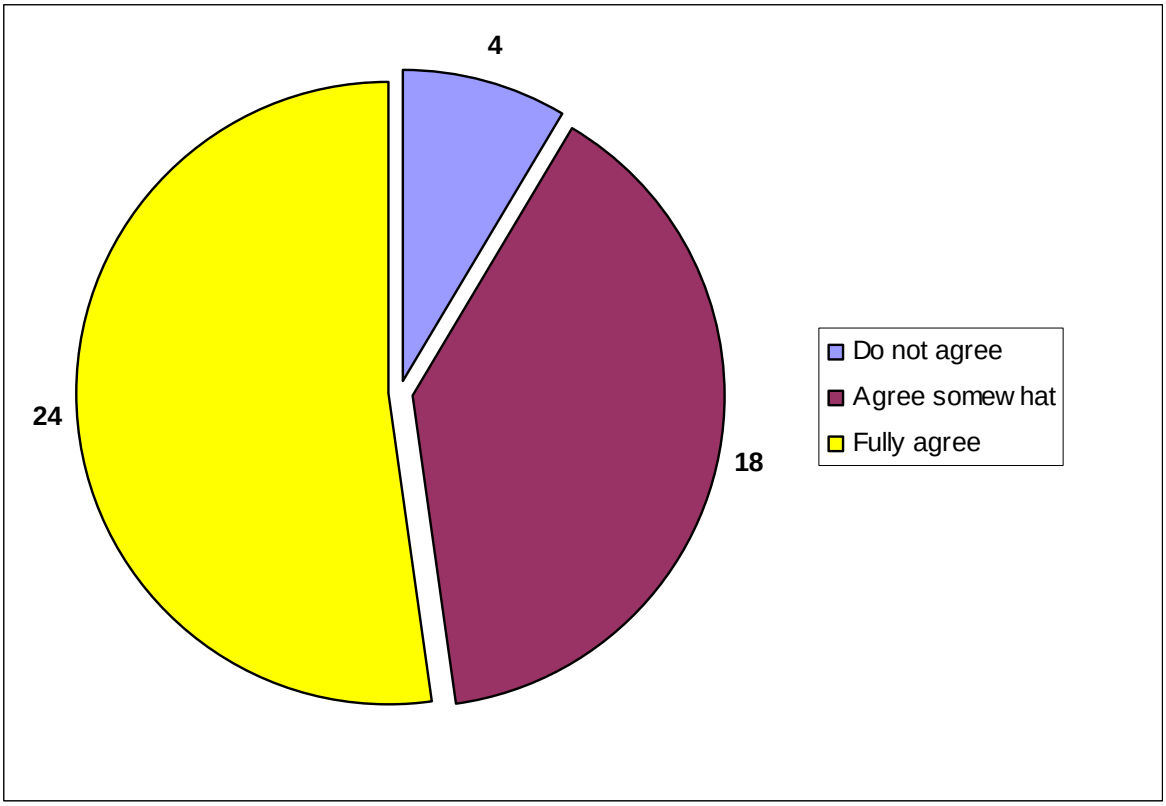

Figure 6: Question 19 - All major IT investments in my organisation are taken in consultation with the Board / Exco, and are based on a risk return perspective?

Of the 46 responses for Figure 6, 52% *fully agreed* with the view that major IT investments was taken in consultation with executive management based on risk return perspective with another 40% agreeing to a lesser extent. Less than 10% indicated that this is not the case.

Figure 7 illustrates the number of responses for specific aspects of IT governance which are addressed by executive management. The question

listed the IT governance aspects and allowed for a *yes* or *no* option for each. The differing totals for the various aspects indicate that some respondents did not select either option for a specific aspect of IT governance.

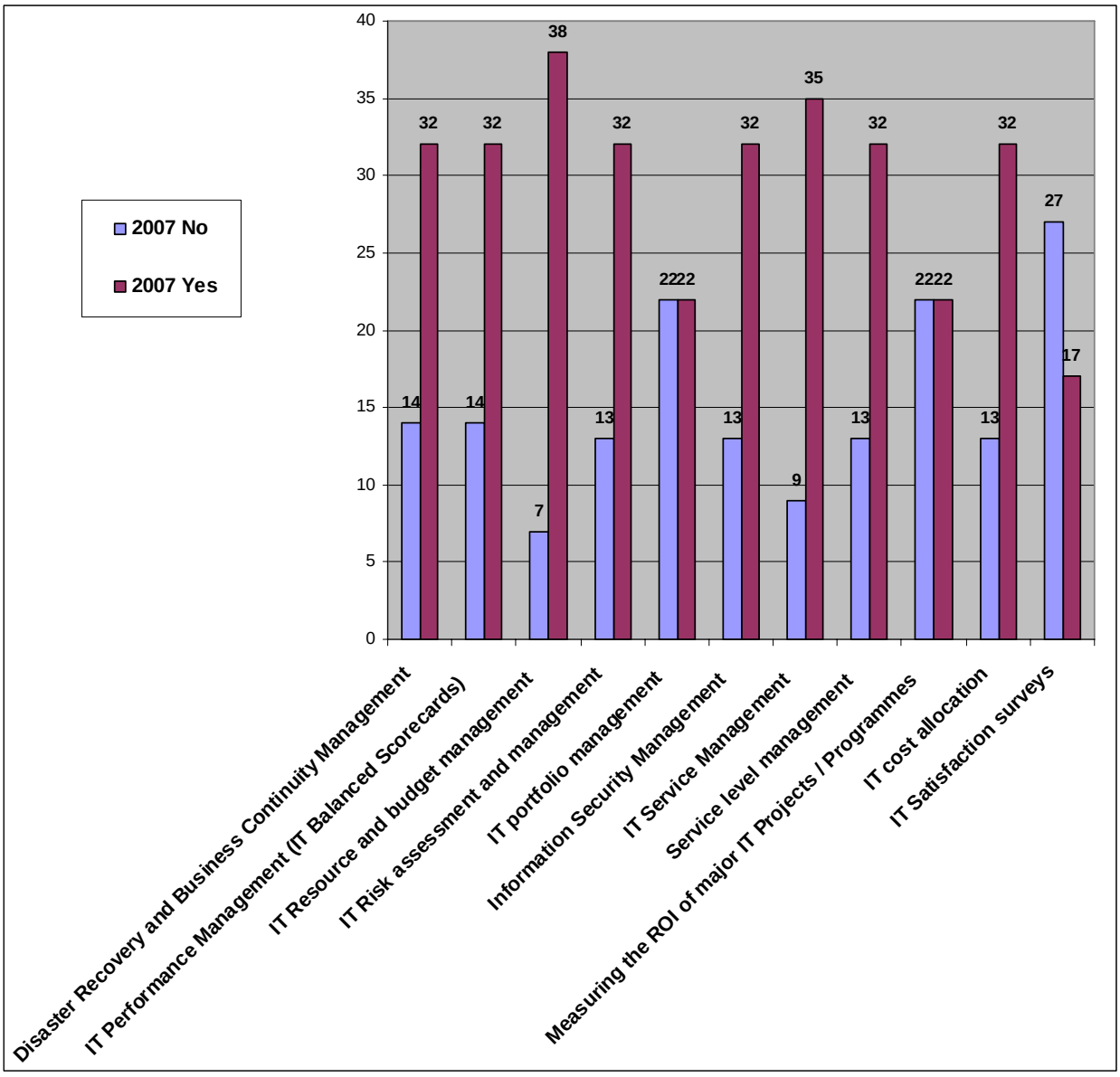

Figure 7: Question 14 - Which of the following aspects of IT governance are addressed by the members of your board / exco in a structured manner?

The number of responses relating to the aspects of IT governance addressed by executive management in a structured manner varies between 46 and 44

responses. *IT resource and budget management* receives the highest focus with an additional 7 IT governance aspects receiving over 70% confirming that they are addressed in a structured manner. The only IT governance area which received less than 50% affirmative responses is *IT satisfaction surveys* with 61% of responses indicating it was not addressed in a structured manner.

5.5.3 The Integration of Corporate Governance and IT Governance

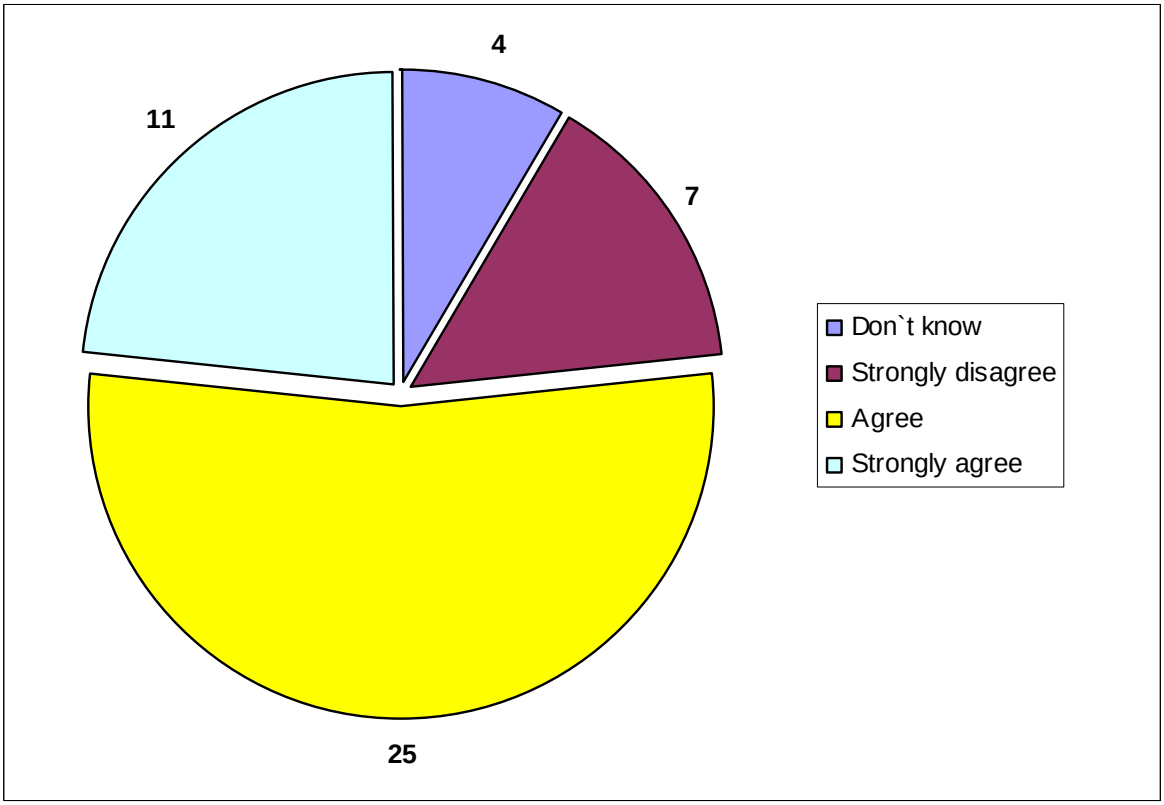

Figure 8: Question 23 - The IT governance structures in my organisation are aligned to the overall corporate governance structure and processes.

53% of the 47 responses confirmed that IT governance structures are aligned to the overall corporate governance structure and processes. 23% of the

respondents agreed to a lesser extent and 15% confirmed that there was no alignment between IT governance and corporate governance.

5.5.4 IT Integration with Business

The results in figures 9 and 10 provided insight into the quality of IT communications to executive management and understanding of the business needs.

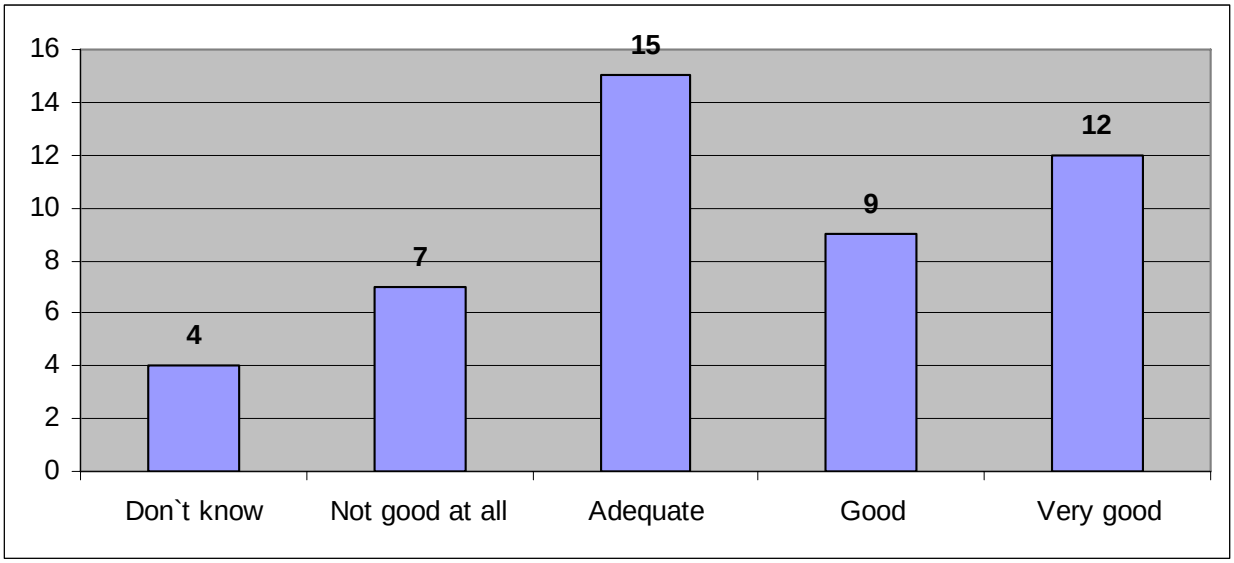

Figure 9: Question 22 - How good is your organisation's board / executive management at getting assurance on the performance of IT and on the mitigation of IT risks?

Of the 47 responses, over 25% confirmed that executive management was getting *very good* assurance on the performance of IT and mitigation of risks. 55% of respondents felt that communication is *adequate* or *below adequate*.

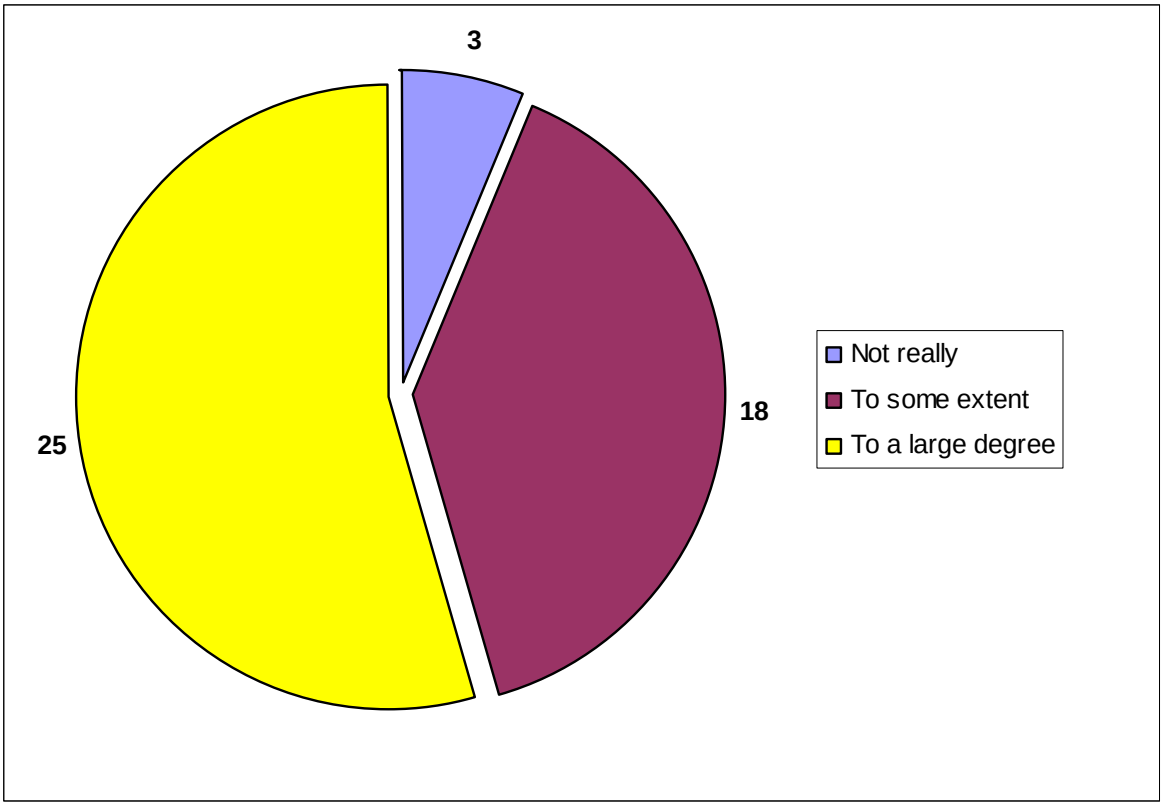

Figure 10: Question 20 - Does your IT department fully understand the business needs of your organisation?

The question of whether the IT department felt that it understood the business needs of its organisation received a total of 46 responses with 54% indicating it did understand the business needs and 40% that they did *to some extent*.

5.5.5 Conclusion

The success of IT governance initiatives are highly dependant on organisational stakeholder commitment and involvement (Brown, 2006). In order to obtain this support IT governance needs to ensure alignment between the business objectives and IT priorities (Brown and Nasuti, 2005). Fulfilling these objectives requires regular interaction with executive management

(Damianides, 2005) and corporate governance structures to understand the business needs and changing dynamics within the organisation to enable a review of the existing governance structures and updates to ensure they remain relevant (Fox *et al*, 2006).

The assessment of IT governance recognition and alignment with the business explores the relationship between IT governance and executive management using criteria identified as contributing toward the success of IT governance implementations. The criteria include an assessment of executive involvement in specific aspects of IT governance, the evaluation IT's understanding of business needs, and communication to business of the performance of IT and mitigation of risks .

5.6 IT Governance Maturity

5.6.1 Introduction

An assessment of the current maturity of IT governance processes provides insight into whether the current state of IT governance is aligned with the IT governance drivers (Figure 2) and whether the level of maturity is aligned with the importance attributed to specific IT governance (Table 3). The results provide an indication of the level of alignment between IT capability and business imperatives.

To obtain an understanding of the level of effectiveness of IT governance specific measures were identified including the elapsed time since IT

governance implementations were implemented and best practices, standards, frameworks, and tools (hereafter referred to collectively as frameworks) that organisations were in the process of implementing or which had been implemented. These findings indicate whether the investment in IT governance is growing. The chapter concludes with the respondents' assessment of the maturity of the individual COBIT processes within their organisation.

5.6.2 The Current State of IT Governance

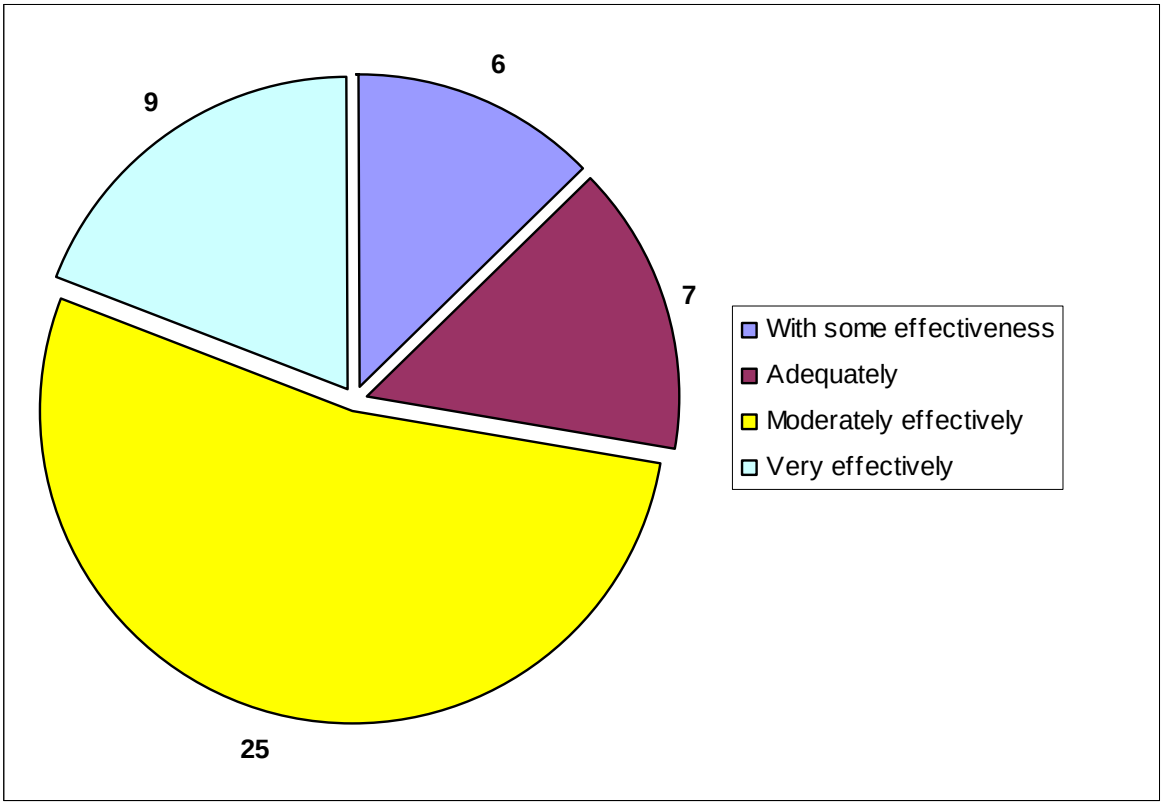

Figure 11: Question 9 - How effectively is your organisation addressing and managing IT governance?

47 responses were received relating to the effectiveness with which organisations are addressing and managing IT governance. Of these

responses 20% felt that this was being done *very effectively* with a 54% majority indicating this was being done *moderately effectively* and 30%, *adequately* or *with some effectiveness*. No responses were received for the *not effectively at all* option.

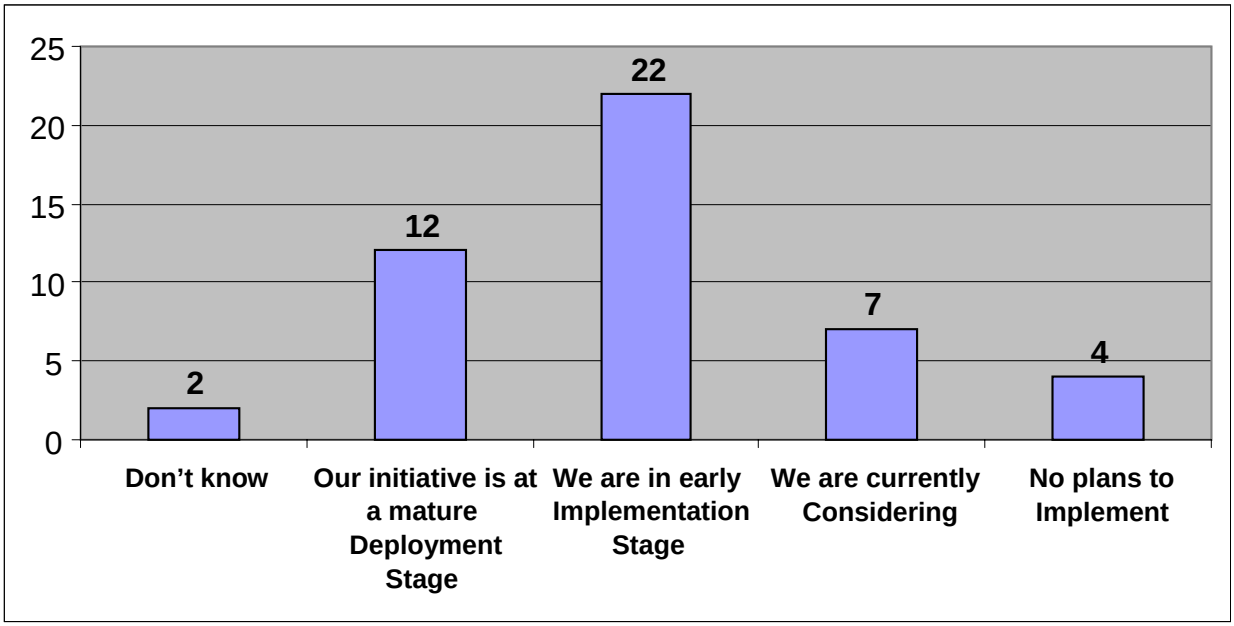

Figure 12: Question 25 - What is the current status of IT governance implementation in your organisation?

Of the 47 responses for the current status of IT governance implementations 47% of organisations are in early implementation stage and an additional 23% are either *considering* or have *no plans of implementing* IT governance. 26% of the organisations assessed their IT governance deployments as being mature.

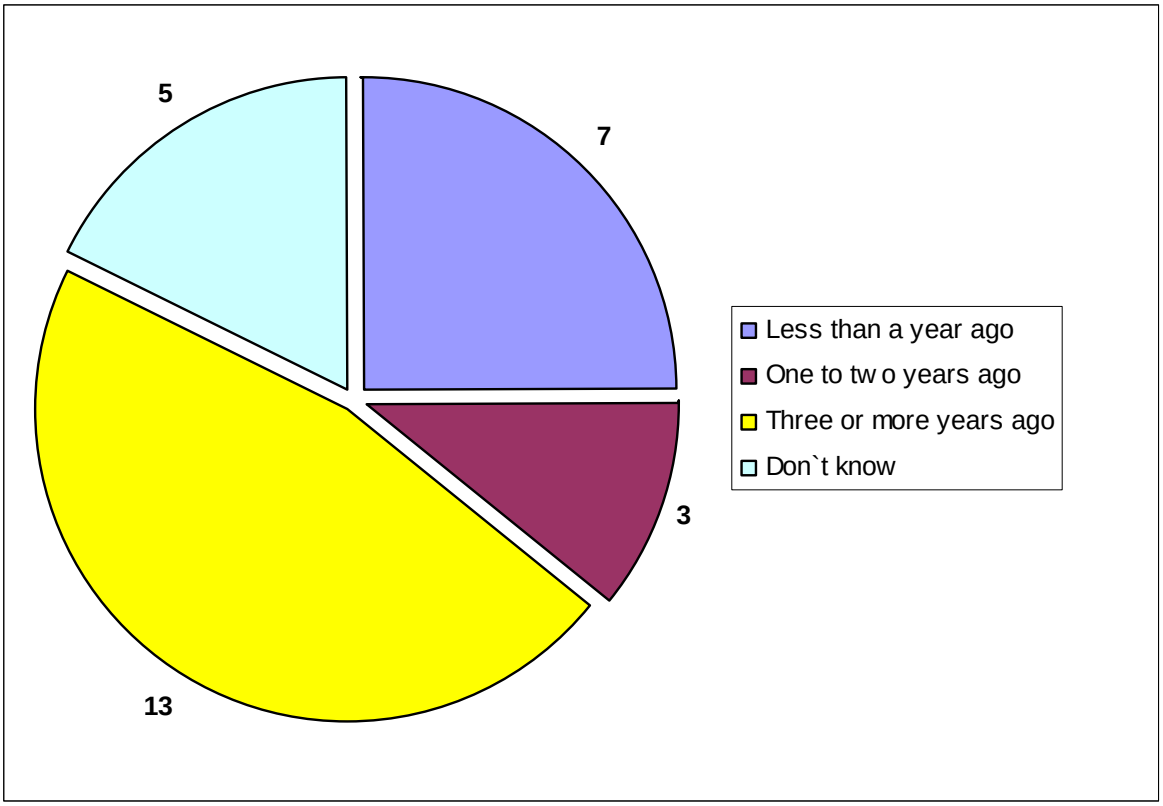

Figure 13: Question 26 - If your organisation has already implemented an IT governance framework and solution, when was it deployed?

28 respondents indicated that they had implemented IT governance frameworks. 46% of the implementation were done 3 or more years ago, 10% between 1 and 2 years, and 25% implemented an IT framework within the last year.

5.6.3 IT Governance Implementation and Maturity

5.6.3.1 IT Governance Best practices / Standards / Frameworks / Tool Synopsis

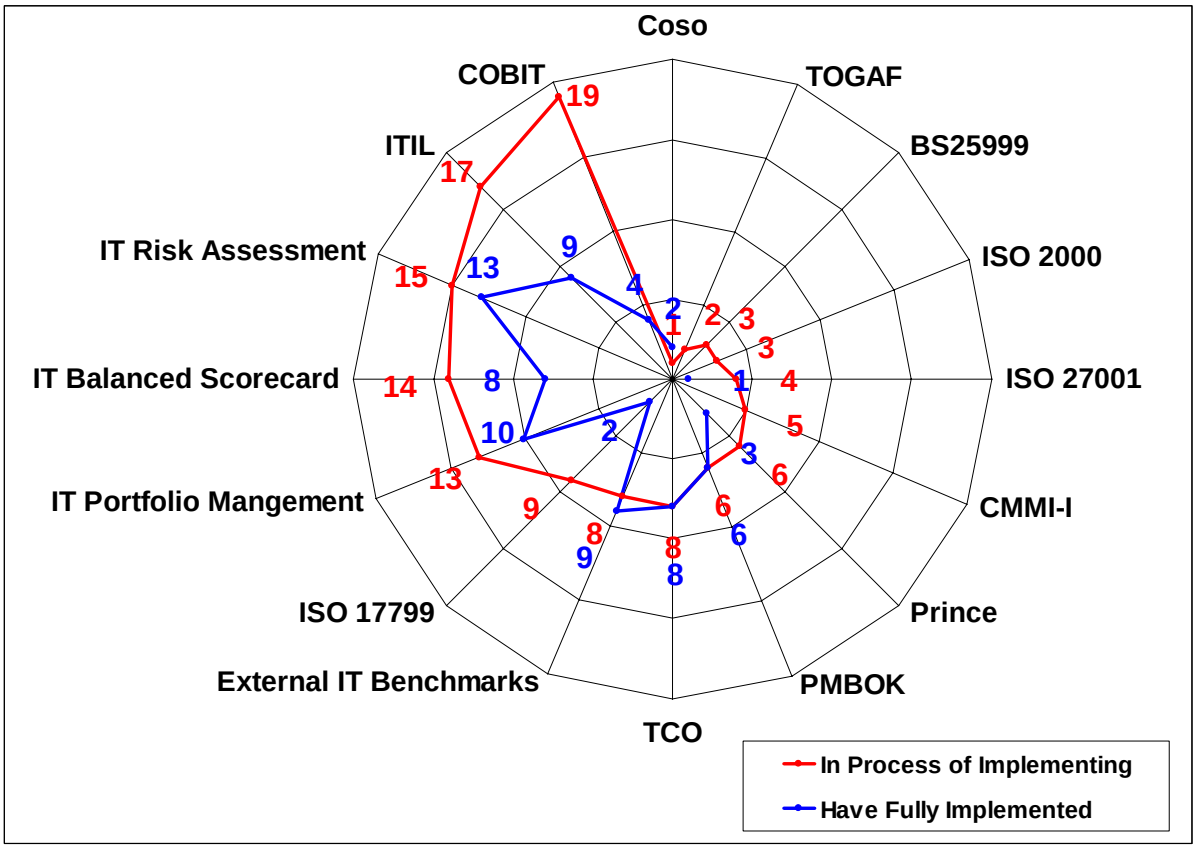

Figure 14: Question 30 - Which of the following Best Practices / Standards / Frameworks / Tools does your organisation use or plan to use?

The numbers of responses for the frameworks that the organisations use or planned to use varied significantly with 35% of the total being *don't know* responses for the various options. Of the available options the majority of respondents indicate that *IT risk assessment*, with a total of 13 implementations, is the most implemented process followed by *external IT benchmarks* with 10 implementations. *ITIL* and *TCO* each have 9 responses.

The *in the process of being implemented* option indicates a significant focus on COBIT with 19 respondents indicating that their organisations are in the process of implementing this framework. Other significant implementations include ITIL with 17 implementations, IT risk assessment with 15 implementations, IT balanced scorecard with 14 implementations, and IT Portfolio management with 13 implementations.

The results demonstrate a 77% increase of systems that are *in process of being implemented* versus those that had been *fully implemented*. 8 of the 16 frameworks accounted for 86% of the combined responses of frameworks that were implemented or in the process of being implemented. 28 organisations are either *in the process of* or have *fully implemented IT risk assessment* followed by *ITIL* with 26 implementations, and *COBIT* and *IT Portfolio management* each with 23 implementations.

5.6.3.2 IT Governance Process Maturity Assessment

The number of responses for each of the COBIT processes range between 23 and 24 responses despite the fact that only organisations that had implemented the COBIT framework were required to complete the question. This observation contributes toward the concern of subjectivity of the maturity assessments. The process for evaluating IT governance process maturities is based on the categorisation of the maturity results described in chapter 5.2.2. The purpose of the results in Table 4 is to establish maturities of the various IT governance processes relative to one another and how these relate to the IT governance importance ratings in Table 3 to establish whether process

maturities were above or below the percentage level of 51% which indicates an average maturity level of 3 or higher for specific process. Table 4 below lists the process from highest to lowest average maturities for the maturity range 3 to 5.

	Process Area	%		Process Area	%
1.	Manage service desk and incidents	79%	**18.**	Manage performance and capacity.	58%
2.	Install and accredit solutions and changes.	78%	**19.**	Manage problems.	58%
3.	Procure IT resources.	75%	**20.**	Ensure compliance with external requirements.	58%
4.	Manage changes.	74%	**21.**	Determine technological direction.	57%
5.	Manage projects.	71%	**22.**	Provide IT governance.	54%
6.	Manage operations.	71%	**23.**	Define IT processes, organisation and relationships.	54%
7.	Acquire and maintain technology infrastructure.	70%	**24**	Manage quality.	54%
8.	Enable operation and use.	67%	**25.**	Assess and manage IT risks.	50%
9.	Define and manage service levels.	67%	**26.**	Manage the IT investment.	50%
10.	Manage third-party services.	67%	**27.**	Manage IT human resources.	50%
11.	Manage the physical environment.	67%	**28.**	Educate and train users.	50%
12.	Acquire and maintain application software.	67%	**29.**	Manage the configuration.	50%
13.	Ensure systems security.	67%	**30.**	Manage data.	50%
14.	Ensure continuous service.	63%	**31.**	Identify automated solutions.	46%
15.	Identify and allocate costs.	63%	**32**	Define a strategic IT plan.	46%
16.	Monitor and evaluate IT performance.	63%	**33.**	Define the information architecture.	43%
17.	Communicate management aims and direction.	58%	**34.**	Monitor and evaluate internal control.	42%

Table 4: Question 32 - Organisational Maturity of COBIT IT Governance Processes

The average of all IT governance processes is 60%. The processes between 25 and 34 fell below the milestone of 51%. The top 7 processes have average maturity level of 4 (between 68% and 83%) and 16 processes with an average maturity level of 3 (between 51% and 67%).

A comparison of the top 17 maturity assessments from Table 3 versus the top 17 most important IT governance process ratings displayed in Table 4 is combined in Table 5.

	Maturity		Importance rating	
1	Manage service desk and incidents	79%	Define a strategic IT plan.	84%
2	Install and accredit solutions and changes.	78%	Ensure continuous service.	84%
3	Procure IT resources.	75%	Ensure systems security.	72%
4	Manage changes.	74%	Manage performance and capacity.	71%
5	Manage projects.	71%	Provide IT governance.	71%
6	Manage operations.	71%	Determine technological direction.	67%
7	Acquire and maintain technology infrastructure.	70%	Define the information architecture.	66%
8	Enable operation and use.	67%	Manage changes.	66%
9	Define and manage service levels.	67%	Manage the IT investment.	65%
10	Manage third-party services.	67%	Manage projects.	65%
11	Manage the physical environment.	67%	Enable operation and use.	64%
12	Acquire and maintain application software.	67%	Manage data.	64%
13	Ensure systems security.	67%	Define the IT processes, organisation and relationships.	63%
14	Ensure continuous service.	63%	Manage quality.	63%
15	Identify and allocate costs.	63%	Define and manage service levels.	62%
16	Monitor and evaluate IT performance.	63%	Assess and manage IT risks.	60%
17	Communicate management aims and direction.	58%	Manage problems.	60%

Table 5: Question 32 and 33 – Top 17 Comparison of IT governance process areas maturities and importance rankings.

The process areas which are highlighted are the areas that are common across both lists. A total of 6 process areas are common across the top 17 processes from each exercise.

5.6.4 Conclusion

The results of the maturity assessment present the results of survey on the effectiveness of IT governance implementations by identifying the current status using the elapsed time since the IT governance implementations and the respondent's assessment of the current status of the deployments. The findings are explored through a process of identifying the actual frameworks which were implemented or that were in the process of being implemented and an assessment of the maturity of the individual IT governance processes.

The evaluations of the maturities are based on a categorisation of maturities 3 to 5 using the collective percentage contribution of the maturities to obtain a total percentage to represent the category. Processes which achieved a cumulative percentage of over 50% exceeded the Cobit international standard guidelines and industry best practice maturity levels. The maturity assessments provide insight into the relative maturities of the processes against one another.

The maturity levels of the various processes and current frameworks either implemented or in the process of being implemented within an organisation provide insight into the level of effectiveness and ability of IT to sustain their operations and support the organisations future strategies (IT Governance

Institute, 2003: online). The analysis of the results should consider the research limitations discussed in chapter 4.7 and analysis considerations in chapter 5.2.

5.7 IT Governance Developments 2006 to 2007

5.7.1 Introduction

To obtain an understanding of the changes that took place since the 2006 IT governance survey, two areas of analysis were identified. The first is a comparison between the frameworks that organisations are in the process of implementing and those that were implemented, followed by changes in maturity levels for each of the COBIT based IT process.

In addition to the result analysis issues discussed in 5.2, the comparative analysis between the IT governance survey between 2006 and 2007 uncovered additional challenges. The COBIT process maturity assessment for 2006 does not include the more recent COBIT 4.1 process areas due to subsequent updates to the framework (IT Governance Institute, undated). Only those areas common to both surveys are used.

An additional consideration when assessing the results of the comparison between the two years are the differences in characteristics between the responses detailed in the population characteristics in chapter 5.3. Ideally the overlap between the respondents for both years should have been greater to obtain a clearer picture of changes which have taken place.

5.7.2 IT Governance Practices, Standards, Frameworks, Tools 2006 vs. 2007

The comparison of the frameworks that were in the process of being implemented is plotted for 2006 and 2007 in Figure15.

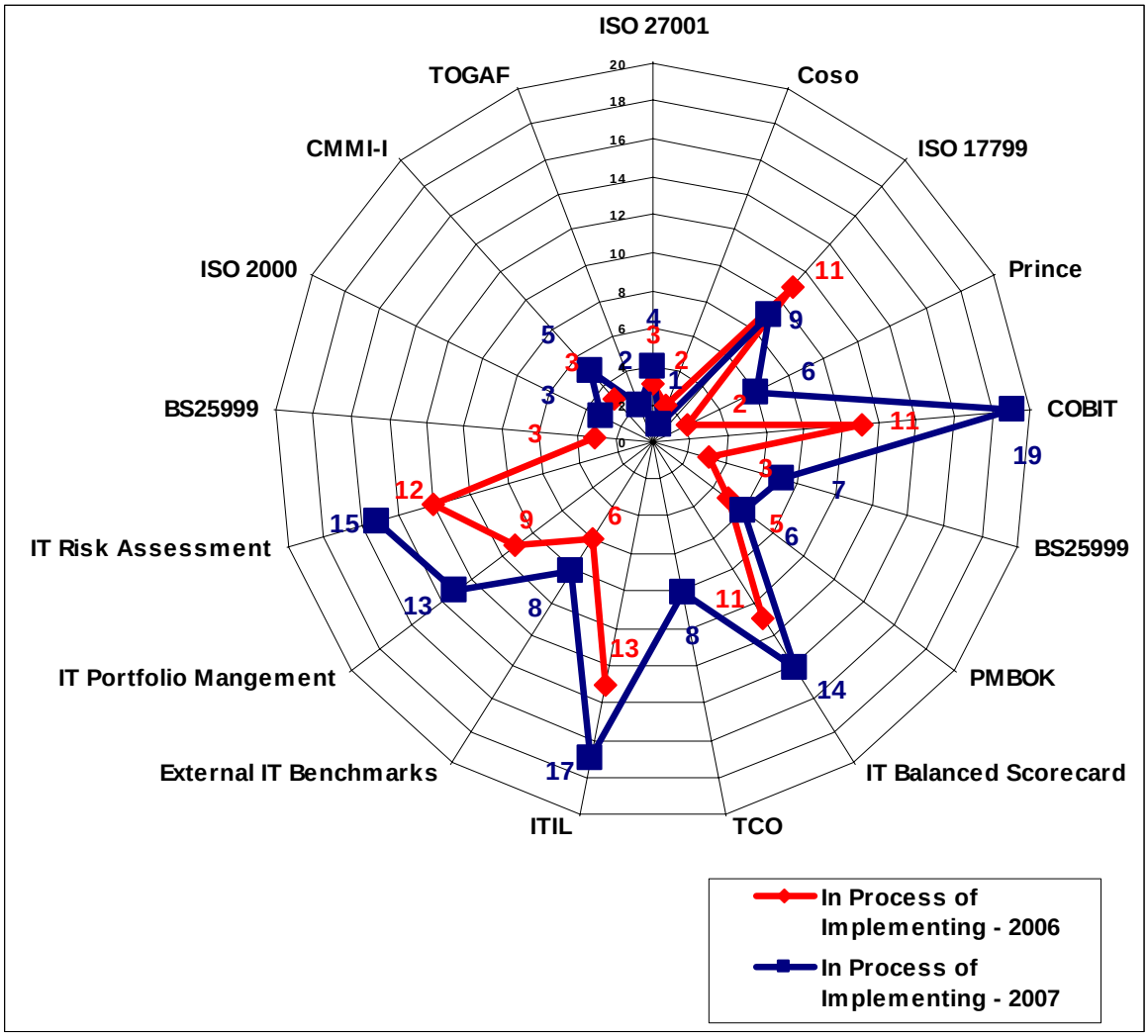

Figure 15: Question 30 – Comparison of Difference between 2007 and 2006 of Best Practices / Standards / Frameworks / Tools organisations were in the Process of Implementing.

A consideration when reviewing the results is that the number of respondents differs between the two years, 47 in 2007 versus 43 in 2006. In 2006 a total of

100 frameworks are selected at an average of 2.3 frameworks per organisation, of which the top 8 accounted for 80%. In 2007 a total of 133 responses identified an average of 2.8 frameworks per organisation, of which the top 8 account for 77% of the responses.

In order to eliminate the weightings associated to the differing number of responses, calculations of the percentage contributions of the top 8 frameworks provided a comparison of the relative contributions of the specific frameworks. Six of the top eight frameworks experienced variances of less than 1% between the two years, the two exceptions are a 36% decrease for *ISO 17799* and a 22% increase of *COBIT* implementations.

The same criteria, including the differing number of respondents, and process is applied to frameworks which *are fully implemented* in Figure16.

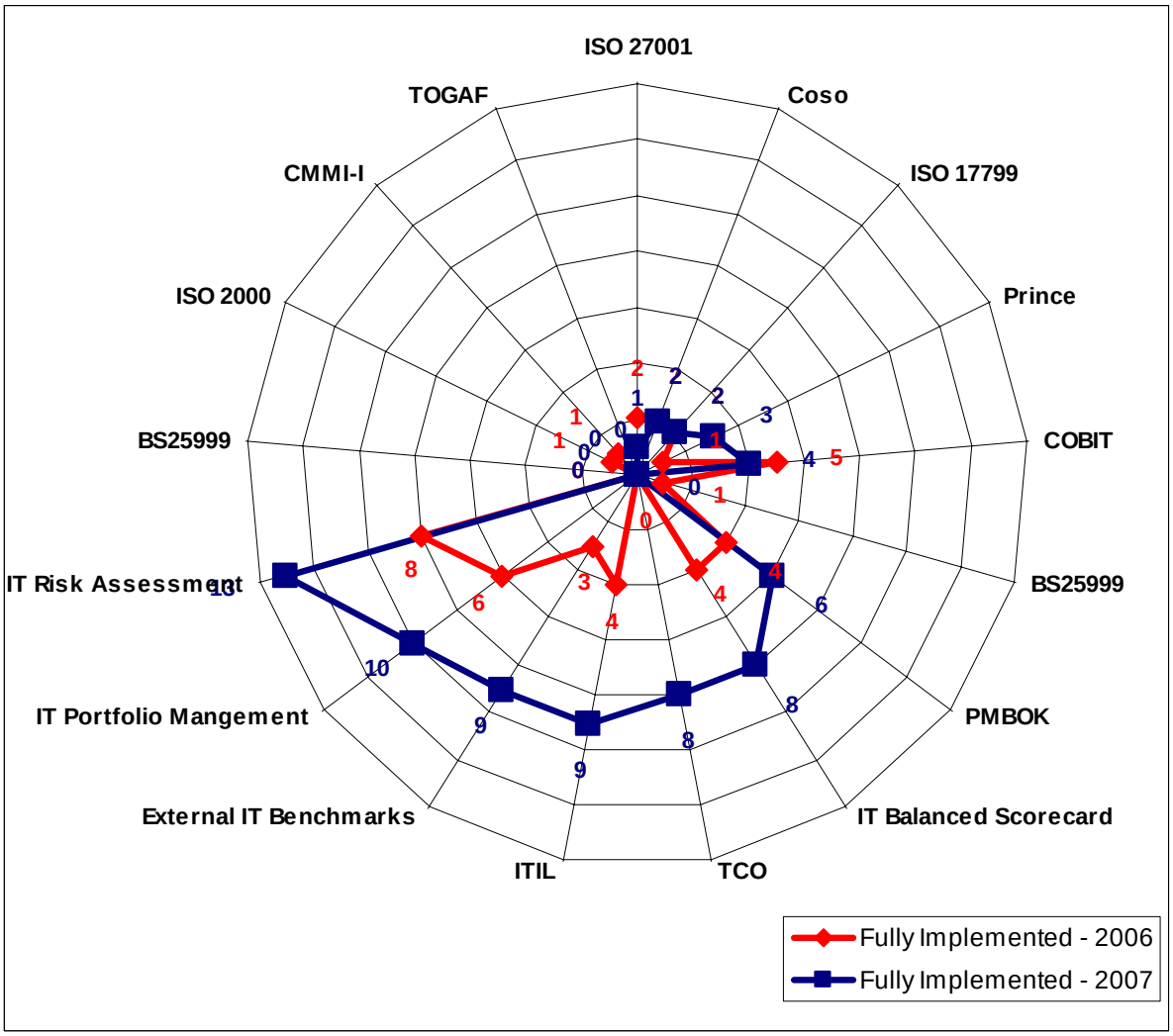

Figure 16: Question 30 – Comparison of Difference between 2007 and 2006 of Best Practices / Standards / Frameworks / Tools organisations had fully implemented

Figure 16 shows a significant increase in the number of implementations between 2006 and 2007. In 2006 a total of 53 frameworks, are *fully implemented* at an average of 1.2 frameworks per organisation, of which the top 8 accounted for 77% of all implementations. In 2007 this number increases to 75 at an average of 1.6 frameworks per organisation, of which the top 8 accounted for 89% of the responses. The relative percentage difference

between 2006 and 2007 for the top 8 frameworks experienced greater fluctuation than the results in Figure 15 with decreases in COBIT of 50%, TCO of 29% and increases of 54% for external benchmarks and 23% for ITIL.

5.7.3 IT Governance Maturity Comparison 2006 vs. 2007

The method used to display the results of the maturity comparison between 2006 and 2007 identifies the COBIT processes common for both years and the changes in maturities using the process described in chapter 5.2. Having identified the average percentage for maturity levels 3 to 5 for each of the processes the 2006 result are subtracted from 2007. The differences indicated the changes between the two years for specific IT governance process.

Only organisations that implemented the COBIT framework were required to complete the question. In 2006 five organisations indicate they have implemented COBIT and in 2007 only 4. Despite this over 20 maturity assessments for each year were completed supporting concerns of potential subjectivity in the maturity assessments.

The total number of responses for this question in 2006 exceeded the responses in 2007 by 100.

	Process Areas	% Change Maturity 3 to 5		Process Areas	% Change Maturity 3 to 5
1.	Identify automated solutions.	**-10%**	**14.**	Acquire and maintain application software.	**14%**
2.	Manage data.	**-2%**	**15.**	Ensure continuous service.	**19%**
3.	Manage IT human resources.	**0%**	**16.**	Manage operations.	**20%**
4.	Manage the configuration.	**2%**	**17.**	Communicate management aims and direction.	**18%**
5.	Define the information architecture.	**3%**	**18.**	Identify and allocate costs.	**19%**
6.	Manage problems.	**4%**	**19.**	Define and manage service levels.	**20%**
7.	Educate and train users.	**2%**	**20.**	Manage performance and capacity.	**20%**
8.	Define a strategic IT plan.	**4%**	**21.**	Manage changes.	**21%**
9.	Ensure systems security.	**7%**	**22.**	Manage quality.	**25%**
10.	Manage the IT investment.	**9%**	**23.**	Manage third-party services.	**24%**
11.	Assess and manage IT risks.	**13%**	**24.**	Acquire and maintain technology infrastructure.	**23%**
12.	Determine technological direction.	**15%**	**25.**	Manage projects.	**29%**
13.	Define the IT processes, organisation and relationships.	**16%**	**26.**	Install and accredit solutions and changes.	**39%**

Table 6: Question 32 – Percentage calculations for IT Governance Process Maturity Comparison between 2006 and 2007

Table 6 shows the result of the changes in the maturities for common process areas for both years. Two processes *identify automated solutions* and *manage data,* experienced decreases in maturities for the maturity categories 3 to 5, which are offset by an increase by the same percentage in the maturity category 0 to 2. The most significant increases are *install and accredit solutions and changes* at 39% followed by *manage projects* with 29%. The average increase across all IT governance processes between 2006 and 2007 is 14%.

5.7.4 Conclusion

The process of evaluating the IT governance changes that took place between 2006 and 2007 consisted of a comparison of the frameworks that are either in the process of being implemented or which are fully implemented and a comparison of the changes in maturities for the IT governance processes between the 2 years.

The assessment utilised the completed maturity assessments despite the fact that the majority of the submissions for both years were completed by organisations that had not implemented COBIT. The purpose was to assess the changes in the levels of maturity and assess which IT governance process maturities had changed and the extent of the changes. The combination of the differing population characteristics discussed in chapter 5.3 and two years worth of data do not allow for conclusive evidence to establish specific trends. The challenges were exacerbated by the issues and research limitations discussed in chapter 5.2 and 4.7.

5.8 Summary

The process of identifying the results which contributed towards achieving the primary objective of establishing the state of IT governance in South Africa includes four questions which contribute towards fulfilling the primary objective. Each of the research questions are allocated the results of specific survey questions. In addition to providing input into the specific research question the results from certain survey questions allow for a comparison of the results between the different questions to establish contradictions or differences in

related aspects of IT governance and allow for the research to draw linkages between the outputs of the different results.

The results are initiated with considerations for the result analysis which could influence the final assessment including details of the sample populations. The results are presented in the order of the four research questions discussed in chapter 3 focusing on the IT governance drivers, level of recognition and alignment of business with IT governance, assessment of IT governance framework implementations and process maturities, and the comparison of specific results for 2006 and 2007 to identify any changes which had taken place.

A review of the results provides the information required to assess the state of IT governance in South Africa. The challenges and issues encountered during the research process will provide input into future research suggestions and be communicated to the current research stakeholders to ensure that future IT governance surveys evolve to provide more relevant and insightful data with a view towards contributing toward improving the quality of the inputs into the assessment of the state of IT governance in South Africa.

Chapter 6: Discussion of Results

6.1 Overview

The assessment of the state of IT governance is based 4 research questions focusing on "understanding the issues" of IT and whether these are conducive toward allowing South African organisations to sustain their operations and support future strategies (IT Governance Institute, 2003: online). The IT governance goals are driven by the alignment of IT with business to maximise the benefits of IT through the responsible usage of IT resources (Brown and Nasuti, 2005). The results are structured according to the four research questions and use the results of specific questions from the survey which focused on the secondary objectives to identify the state of IT governance in South Africa. The three secondary objectives are as follows:

- A number of characteristics of successful IT governance implementations were identified during the literature review. These characteristics focus primarily on the level of involvement by senior management (Brown, 2006; Heijden, 2000 ;Weill and Woodham, 2002a; Weill and Woodham, 2002b; Weill and Ross, 2004) with a view toward achieving alignment between business imperatives or purpose and IT governance (Dahlberg and Lahdelma, 2007; Damianides, 2005; Gillies, 2005; Heijden, 2000; Jordan and Musson, 2004; Ranken, 2007; Weill and Ross, 2004). The focus of the objective is to evaluate the relationships between the organisation, IT, and IT governance and level of alignment between their respective priorities.

- An assessment of the current IT governance implementations (Korac-Kakabadse and Kakabadse, 2001; Weill and Woodham, 2002a; Zyngier *et al*, 2006) and IT governance process maturities, based on the COBIT IT governance framework (Brown and Nasuti, 2005), to identify the current maturity of IT governance. The assessment includes an evaluation of IT governance framework implementations that are either *in progress of* or that are fully implemented, to establish levels of formal IT governance adoption within South Africa and identify whether organisations are leveraging the advantages of frameworks to ensure stable and continuously improving IT environments (Brown and Nasuti, 2005; Robinson, 2005; Saint-Germain, 2005).
- The final objective focuses on comparing the changes in the frameworks which were either in the process of being implemented or are implemented, and maturities of the common IT governance processes from the IT governance surveys of 2006 and 2007.

To facilitate the analysis of the results the structure for the results discussion is based on the 4 research questions with cross references between the discussion where required.

6.2 IT Governance Drivers

6.2.1 Introduction

The drivers for IT governance initiatives provide the motivation for the necessary investment of resources to provide IT governance initiatives with the ability to ensure that IT deliver the expected return on investment (Jordan and

Musson, 2004; Robinson, 2005) through responsible use of IT resources (Brown and Nasuti, 2005). These drivers contribute towards a clearer understanding of IT governance expectations and whether the IT governance objectives of regulatory and legal compliance, optimal risk management, and operational excellence are fulfilled (Robinson, 2005).

The survey questions which provide the results for the IT governance drivers identified the key issues and priorities facing IT, the motivation for implementing IT governance and criteria against which IT governance is measured, and the importance of each of the 34 IT governance processes as defined by the COBIT framework (IT Governance Institute, undated). The evaluation of the results includes a comparison of the areas of misalignment between the IT drivers and importance attributed to related IT governance process, a comparison between the motivation and measurement criteria of IT governance initiatives, and a cross reference across all the results to identify any specific exceptions. Collectively the results provide insight into the general focus areas for IT governance in South Africa.

6.2.2 IT Governance Drivers Observations

90% of responses in figures 4 and 5 show the undoubted importance attributed to IT in its role of enabling the organisation to achieve its operational and strategic objectives. Figure 2 provides a list of the most referenced IT issues and priorities. The top two issues relate to maintaining and improving the current service provided by IT to the business, followed by *IT skills and resources*, *IT security, system consolidation and integration, IT value delivery*

and measurement, increased IT flexibility and legal and regulatory compliance accounting for almost 75% of the total responses.

A concurrent initiative explores the motivation for the implementation of IT governance initiatives and criteria against these initiatives were measured. Figure 3 shows an inconsistency in the motivation for the establishment of IT governance and criteria against which it is measured with expectations exceeding the initial motivation of IT governance by an average of 34% across all responses. The largest discrepancy is *achieving lower operating costs* with a 133% difference.

Table 3 ranks the key IT governance drivers based on the *high* importance for specific IT governance processes. The top 8 process areas all receive over 66% *high* responses and the average across all process is 59% with the averages of the combination of *high* and *medium* responses ranging between 77% and 98% for all IT governance processes*. Define a strategic IT plan* and *ensure continuous service* are the highest rated process areas.

6.2.3 IT Governance Drivers Discussion

The priorities from the 2007 survey results are similar to those identified by international studies. The priority of *business continuity* echoed the findings of Hoving (2007), Kimzey and Kurokawa (2002), and *improved quality of the IT function and processes* is referred to by Shi (2007) who views this as requirement for increased flexibility and improved service levels. The challenges of IT skills and their impact on IT raised are discussed by Luftman

and Kempaiah (2007), and Scott (2007) as potentially hindering IT development, and Hoving (2007) identifies security and related concerns, particularly due to an increasingly mobile workforce, as a challenge facing IT. Weill and Woodham (2002a) discusses centralised control with its benefits and challenges. The weighting of the top 8 priorities indicate the major IT and business focus areas within the industry and provide the basis for motivating and assessing IT governance initiatives and the IT governance processes that should be highest on the IT governance agenda.

The results uncover a number of discrepancies which hinder the ability of IT governance to achieve its objectives. The primary area of concern is the misalignment between the motivation for IT governance implementations and criteria against which it is measured. Avison *et al* (2006) refers to the responsibilities of IT governance to create an environment with the necessary checks and balances to monitor and guide IT performance in line with business imperatives. These business imperatives or drivers provide the basis for motivating IT governance initiatives and the criteria against which the implementations are assessed. If the IT governance drivers differed from the criteria against which they are measured then IT governance initiatives would not be considered successful, even if they fulfilled the initial objectives on which the implementations were based. Figure 3 shows significant differences between the motivations for IT governance implementations and criteria against which they are measured.

The alignment between the level of importance attributed to specific IT governance processes, motivations and criteria for IT governance initiatives and IT priorities show another area of misalignment. An example of this is illustrated by the *management of IT human resources* in Table 3, 24th of the 34 IT governance processes versus the priority allocated to *IT skills and resources* in Figure 2 receiving the 3rd highest number of responses of the 18 categories. Another illustration of the misalignment is the *achievement of lower operating costs for IT* in Figure 2 which was 14th in the list of 18 priorities, 30th of the 34 IT governance *high* importance processes, and the lowest importance as a motivator for IT governance initiatives in Figure 3. The alignment between the three sets of results conflicts with the criteria for the assessing IT governance in which *achieving lower operating costs* was the 3rd highest criteria after *improving the quality of the IT function and processes*, and *gaining strategic advantage through effective management*.

The results also show that despite the misalignment between certain priorities and importance attributed to related IT governance processes, the majority of high importance's attributed to specific processes are aligned to the IT priorities. These included *business continuity* in Figure 2 which compared favourably to the motivation and criteria for IT governance initiatives in Figure 3, and *ensuring continuous service* in Table 3 all of which were in the top 2 in their respective lists and *IT security* which was 4th on the list of IT priorities and 3rd highest process importance.

6.2.4 Conclusion

Robinson (2005) refers to three main areas of IT governance objectives, regulatory and legal compliance, optimal risk management, and operational excellence (Robinson, 2005). The results indicate a general tendency towards operational excellence and risk management through ensuring continuous operations (Weill and Aral, 2005).

The major IT issues and priorities raised by South African organisations do not differ from those identified in international studies. This bodes well for the various international best practices, standards, frameworks and tools which are based on international IT markets and thus are applicable within the South African context. It was evident from the results that specific drivers are supported by the importance attributed to related IT governance process areas including *ensuring continuous services, ensuring systems security,* the *provision of IT governance*, and *determining technological direction* based on their high ratings across the three result sets (figure2, Figure 3, and Table 3).

The results also identify some notable exceptions of misalignment particularly the differences between the motivations of IT governance implementations and the criteria against which they are measured and between specific IT priorities and the relative importance attributed to the related IT governance processes. These exceptions highlight the importance of IT management awareness of the key organisational issues and priorities and alignment with IT governance focus and motivations, a key aspect of the IT governance function (Avison *et al*, 2006; IT Governance Institute, 2003: online).

A possible explanation for the discrepancy between IT governance motivations and measurement criteria is that IT governance initiatives evolve over time and that the motivations for their implementations were not updated to reflect these changes whereas the criteria for measuring IT governance were more tightly aligned with business expectations. The concern is whether IT governance initiatives are updated to accommodate the revised measurement criteria. This misalignment hinders the ability of to fulfil business expectations and provides a possible explanation for the high level of inefficiencies in organisational IT (Jordan and Musson, 2004).

The discrepancies between IT priorities and the importance attributed to IT governance processes identify specific areas of IT governance which require attention. It is the responsibility of IT governance to ensure alignment between the priorities and importance allocated to related IT governance processes to ensure the investment is focused on the aspects of IT that require attention.

The synopsis is that the importance attributed to IT governance processes is generally high, an average of 59% *high* importance across all IT governance processes, however the alignment between certain IT priorities is not always reflected in the motivation for IT governance implementations and specific IT priorities. Specific areas of concern related to:

- IT human resources identified as high priority but relatively low IT governance importance

- Importance attributed to operating costs as criteria for measuring IT governance but which is not identified as a top IT priority, a relatively low level of importance, and a low motivator for IT governance initiatives.

The Importance attributed to strategic advantage and strategy by IT governance is not identified as a critical IT priority despite it being a high focus area of IT governance and providing a key criterion for motivating IT governance and its measurement. Brown (2006) and Hoving (2007) identify that ensuring IT projects remain aligned with strategic business objectives through improved success and quality of projects increase resource efficiencies, improve service delivery, revenues, and market share which contribute toward strategic advantages. The focus on business continuity and improvement of the quality of IT governance would contribute to strategic advantages and may explain the finding that IT strategy is not identified as a priority.

6.3 IT governance Recognition and Alignment with Business

6.3.1 Introduction

The extent to which IT governance is recognised and integrated with the business provides insight into the alignment of IT and the business. Brown (2006) and Heijden (2000) identify the importance of the relationship between IT governance and executive management as a critical success factor in predicting the success of IT governance. The primary mechanism for IT governance alignment with the business, as it evolves to accommodate

environmental influences, is through tight integration with the corporate governance framework (Baker, 2006; Korac-Kakabadse and Kakabadse, 2001; Weill and Aral, 2005). Previous international studies observed that IT governance are often not integrated into their companies' corporate governance structures (Creating Stakeholder Value in the Information Age, 2004) contributing to the disillusionment of the value provided by IT.

In order to assess the level of IT governance recognition and its alignment with the business the discussion focuses on three areas. The areas are the identification of the quality of the relationship between executive management and IT governance (Heijden, 2000), the level of alignment between IT governance and corporate governance (Heijden, 2000; Jordan and Musson, 2004; Ranken, 2007), and IT's understanding of business needs and quality of its communications to the business (Heijden, 2000).

6.3.2 IT governance Recognition and Alignment with Business Observations

The results in Figure 7 show significant involvement by executive management in most aspects of IT governance. The areas which achieved relatively low attention were IT portfolio management, measuring the ROI of major IT projects or programmes, and IT satisfaction surveys all with 50% or less of organisations indicating executive management involvement in a structured manner. The nature of the involvement was not established however Figure 6 shows that 52% of organisation have executive management involvement in all major IT investments which are based on risk return perspective indicating that

a significant portion of the investments included executive management involvement. The extent and quality of the involvement is not explored. It is worth noting that the area which received the highest level of executive involvement was *IT resources and budget management* followed closely by *service level management*. Service level management corresponds closely to the level of importance attributed to ensuring continuous service results in Table 3, the motivation and criteria for measuring IT governance in Figure 3 and improvement of the quality of the IT function and processes in Figure 2.

The high involvement of executive management on *IT resources and budget management* is not aligned to earlier results relating to the priority of IT costs in Figure 2, importance of *identification and allocation of costs* and *management of human resources* in Table 3, and IT governance motivation of *achieving lower operating costs in Figure* 3, all of which had received low ratings. The finding is however supported by the IT governance assessment criteria *of achieving lower operating costs for IT* in Figure 3.

Figure 8 indicates that generally IT governance structures are aligned with overall corporate structures. Figure 9 shows that the quality of the communications on performance assurance and IT risk mitigation by IT to executive management was generally good. An assessment of this observation in context of the results in Figure 10 shows that although generally the communication to executive management was adequate or more than adequate, that is based on almost 40% of organisational IT understanding business needs *to some extent* and 6% *not at all*.

6.3.3 IT governance Recognition and Alignment with Business Discussion

The IT governance institute's description of the IT governance objectives refers to "IT governance practices aim at ensuring that expectations for IT are met" (IT Governance Institute, 2003: online) supported by Heijden's (2000, p. 153) reference to IT governance as "the capability to integrate IT effort with business purpose and activity". In order to achieve this Heijden (2000) indentified four behaviours that contribute to this success including the quality of the relationship between IT governance and executive management and the ability of IT to share it's objectives and vision with the business while "fostering an appropriate culture in the IT department with a view to eliminating the cultural gap between IT and business departments" (Heijden, 2000, p.153).

The dramatic growth of the investment in IT identified by Damianides, (2005) and Gillies (2005) particularly in South Africa, is expected to outstrip global IT budget growth by three times (Mawson, 2006), placing increased pressure on IT governance to ensure close alignment between IT governance and business. This close alignment requires an awareness of business needs through established relationships with executive management and the corporate governance framework.

The aspects of IT governance addressed by executive management were high with most aspects of IT governance receiving significant executive management involvement. The areas received relatively low responses included *measurement of return on investment of major IT projects or*

programmes and *IT portfolio management.* The challenge related to this observation is that both of these IT governance aspects relate to the measurement of value through their contribution of aligning IT investments with business priorities. These findings support observations by Hoving (2007) that IT investments were not scrutinised with the same level of rigor as other discretionary investments and explain findings of the lacklustre performance by IT due to failed projects and poor returns on investments (Jordan and Musson, 2004, Robinson, 2005). The dilemma facing IT investments is further exacerbated by the fact that aspects of IT governance that received the highest level of affirmative responses include *IT resource and budget management* with *IT cost allocation*s which are other portions of the value equation.

The results indicate that executive management is involved in aspects of the investment decision, but this involvement is not carried through all aspects of value measurement. These results raise questions relating to the quality of IT investments decisions which were based on a risk return perspective. Figure 6 shows that over 50% of organisations made IT investments based on risk return perspective with the remainder agreeing to a lesser extent. The questions are pointed to the remaining organisations which exclude specific aspects of IT governance relating to understanding the return of investment (figure 7). These findings hinder IT's ability to demonstrate value to the business (Fairchild, 2004).

The misalignment is not only limited to financial aspects of IT governance value. The second highest priority allocated to the *improvement of the quality*

of IT delivery in figures 2 and 3, did not receive the appropriate executive management involvement illustrated by the least addressed IT governance aspect, *IT satisfaction surveys* in Figure 7. The expectation is that reviewing feedback from IT stakeholders would contribute significantly toward businesses understanding of IT weaknesses and areas which require additional focus. The counter argument is that this would not be an aspect of IT governance which executive management would need to necessarily invest in.

The relationship between IT governance and corporate governance is expected to ensure IT investments and initiatives remain aligned with corporate strategy (Baker, 2006; Korac-Kakabadse and Kakabadse, 2001; Weill and Aral, 2005). Figure 8 shows the results of the alignment between corporate governance and IT governance. The quality of this alignment is questionable based on the earlier results which show that the alignment between business and IT was not carried through to all aspects of the relationship particularly the differences identified between IT priorities and importance attributed to specific IT governance processes and the criteria for assessing IT governance. The results in Figure 8 support these findings as over three quarters of the responses indicate that this alignment had room for improvement.

IT governance is tasked with the responsibility of bridging the divide between IT effort and business purpose (Heijden, 2000; Jordan and Musson, 2004; Ranken, 2007). Quantifiable results from IT governance processes should be communicated on a regular basis to executive management and the remainder of the organisation to gain support through the demonstration of value derived

from the effective use of IT (Fairchild, 2004). Inadequate understanding of business needs will hinder the quality of the communications provided by IT governance. 77% of the responses in Figure 9 indicate that IT is currently performing adequately or better when providing executive management with assurance on the performance of IT and the mitigation of IT risks (figure 9). These communications are based on IT's understanding of business needs. 54% of the organisations indicate that they have a good understanding of these needs and the remainder of the responses indicated they had some or no understanding of the business needs.

Ideally IT should have an intimate understanding of business needs to enable them to anticipate requirements and ensure the appropriate prioritisations are allocated to the competing forces within the business environment (Hoving, 2007; Weill and Woodham, 2002a) while providing IT with the ability to communicate the results in a context that the business can relate to (Fairchild, 2004).

6.3.4 Conclusion

The most effective and sustainable approach toward building and maintaining the relationship between IT and business is based on the ability of IT governance to demonstrate clear business value derived from IT (Scott, 2007). In order to achieve this objective certain fundamentals must be continuously re-assessed and improved to bridge the gap between IT effort and business purpose (Heijden, 2000).

With the exception of the question of executive management getting assurance on the performance of IT and the mitigation of risks, all of the results received over 50% of the responses selecting the highest option available. This shows that 50% of the remaining responses indicated that more could be done to improve the alignment between IT governance and business.

The discussion of the results identify the primary areas of IT governance that required attention. The most concerning observations relate to the unbalanced attention by executive management to certain aspects of the value equation. 50% of organisations indicated that they did not measure the ROI of major projects or programmes and were not involved in IT portfolio management in a structure manner. The focus on other aspects of the value equation including *IT and resource budget management* and *IT cost allocation* indicate that the executive management focus is on the initial budgeting process but not necessarily on the budget allocation and performance review of the investment. This hinders the ability of IT to demonstrate value.

Other areas that require attention is IT understanding of the business needs and the quality of its communications to executive management. The understanding of business needs is a pre-cursor to the ability of IT to provide value to the organisation. The remaining 46% of organisations that identified they understood business needs to a certain extent or not at all will undoubtedly struggle to identify areas of the business where they could provide value. The results of the communication to executive management on the performance of IT and the mitigation of IT risks combined with the understanding of business

needs indicates the potential for significant improvement of the quality of IT communications with the business and understanding of business needs.

6.4 IT Governance Maturity

6.4.1 Introduction

Understanding the extent of IT governance implementations and level of these implementations is the culmination of the assessment of the state of IT governance in South Africa. This understanding within the context of the IT governance drivers and relationship between the business and IT governance provide answers to the questions of whether the IT governance is fulfilling its obligations to the business (Robinson, 2005) and the aspects of IT governance which could be improved to increase the effectiveness of IT (Fox *et al*, 2006).

During the semi-structured interviews it became apparent that organisations identified specific IT governance processes they believed should be within the organisations' control and those that could be outsourced to 3rd parties. Typically 3rd parties are allocated the responsibility of specific IT governance process areas in which they were industry experts. The partners, in conjunction with IT management, are expected to identify the appropriate frameworks for the governance area based on organisational requirements and industry best practices. This *outsourcing* of IT governance functions was not addressed by this research but introduced certain dynamics resulting in complexities during the assessment due to the fact that effectively the maturity for the related IT governance process was partially *outsourced*.

This chapter assesses the current state of IT governance based on a general evaluation of IT governance through the individual IT governance process evaluations using the COBIT IT governance processes, and details regarding IT governance implementations through the identification of frameworks which were either implemented or in the process of being implemented.

6.4.2 IT Governance Maturity Observations

On the question of the effectiveness that organisations were addressing and managing IT governance, Figure 11 shows that over 50% of the organisations felt that this was done *moderately effectively* and an additional 27% felt it was done less than *moderately effectively.* These results had a correlation with the evaluation of the current status of IT governance in Figure 12 in which 26% of organisations have mature IT governance deployments and the majority of, 47% are in early implementation stage. The remaining organisations are either considering or have no plans to implement IT governance. Figure 13 shows that 46% of IT governance implementations were completed over 3 years ago and 35% of organisations had completed their implementations within the last 2 years.

The deployments vary across a number of recognised frameworks with a select number accounting for the major portion of the implementations. Figure 14 shows that the number of frameworks which are fully implemented versus those that are in the process of being implemented. 3 observations are evident:

- 35% of the total responses are *don't know* responses indicating that organisation tend to focus on assessing frameworks which addressed specific needs (Hoving, 2007; Robinson, 2005).
- The concentration of framework implementations indicates a preference toward specific frameworks. This view is supported by the combination of the results of fully implemented frameworks and those that are in the process of being implemented of which 8 of the 16 account for 86% of the responses.
- A significant increase of 77% of frameworks *in the process of being implemented* when compared to the frameworks that are *fully implemented*.

Of particular interest are the existing frameworks which are implemented or in the process of being implemented relating to *return on investment* and *portfolio management* illustrated in Figure14 which both received significant focus but lagged other IT governance in terms of structured executive management involvement based on earlier discussions relating to return on investment and portfolio management in chapter 6.3.

The results of the maturity assessments for each of the IT governance process areas in Table 4 reveal that *assess and manage risks* obtained a maturity level of 50%, a ranking of 25th in the list of 34 processes. *Portfolio management* implementations shown Figure 14, whose responsibilities include the identification of the most optimal investment decision for resource allocation (Hoving, 2007; Peterson, 2004), did not make any significant impact on the

rating of *Manage the IT investment* which has a maturity percentage of 50%. The majority of IT governance processes had maturity levels of 3 or higher.

A useful comparison entailed the combination of the top 17 *high* importance IT governance processes from Table 3 and the top 17 most mature IT processes average of maturity levels of 3 or higher in Table 4. The results indicate that 6 of the 17 processes are common amongst both sets of results. The converse to this is that of the 17 least mature IT governance processes, 11 of these processes have an average *high* importance in the top 17.

6.4.3 IT Governance Maturity Discussion

The maturity evaluations of the different IT governance process areas are based on the view that organisation that did not have defined and standardised process are unable to provide consistent and reliable products or services (Weill and Aral, 2005) impacting on the general consistency of IT delivery and its ability to focus on improvements. Regular maturity assessments provide a method for assessing processes based on models offering insights into how computer-based IT, managerial, and organisational strategies evolve and mature over time (Brown and Nasuti, 2005; Fairchild, 2004). These process maturities enable executive management to track organisations progress through a number of successive stages each reflecting a level of maturity in terms of the use and management of IT in the organisation (Brown and Nasuti, 2005; Fairchild, 2004).

Weill and Woodham (2002a) found that governance structures of top performers reflect more mature IT management and better harmony between IT decision-making, desirable behaviours, and performance goals underpinned by performance measures linked to IT governance structures as opposed to typical firms which employ generally accepted guidelines with broad based inputs and tightly controlled decision rights.

This indicates that implementing IT governance frameworks that are aligned to the corporate governance framework alone is not sufficient to ensure their success. IT governance implementations require structures and processes to underpin their implementation and encourage specific behaviours (Weill and Woodham, 2002a) to ensure continued effectiveness and success of IT. Evaluating the maturity of the various IT governance processes provides organisations with the ability to assess whether IT governance processes are effective and delivering the expected value to the organisation (Dahlberg and Lahdelma, 2007).

Hoving (2007), Robinson (2005) and Gillies (2005) refer to the varying IT governance frameworks many of which focus on specific value propositions presenting organisations with the challenge of recognising which of these frameworks are most applicable to their needs. This explains the high percentage of *don't know* responses regarding the frameworks as IT management focus on those that address their specific needs.

Figure 11 shows an acknowledgement by respondents that IT governance could be more effective with 77% of responses indicating that the effectiveness IT governance was moderate or less than moderate. The combination of results from figures 12 and 13 illustrate the difficulties of successfully implementing IT governance (Czernowalow, 2005b). Figure 13 shows that 46% of implementations were implemented over 3 years ago yet Figure 12 indicates that 26% of organisations assessed their IT governance as being mature. This indicates that almost 50% of implementations that were implemented over 3 years ago were not assessed as being mature. A large portion of the organisations were in the process of IT governance implementations, an increase of 45%.

The combination of the findings in Figure 13 with the results of Figure 14 illustrate of 77% increase in the number of frameworks that are in the progress if being implemented indicating significant increases in the number of organisations that were implementing IT governance initiatives and frameworks. This supports the acknowledgement by organisations of the potential for improving the effectiveness of IT through investment in IT governance initiatives.

In the process of alignment with the business, IT governance is required to identify key process areas and ensure that they achieve maturities which reflect the level of importance of the related business need. A combination of the IT governance process importance rankings in Table 3 and maturity level rankings in Table 4 is presented in Table 5. The results indicate a significant

misalignment between the level of maturities and importance of the differing processes including *define a strategic plan* identified as the most important IT governance process but not falling within the top 17 process maturity rankings. The reasons for this misalignment could include misalignment between IT governance and the corporate governance framework and the relatively immature IT governance implementations in South African organisations have as yet not addressed the maturity weaknesses in specific aspects of IT.

A snapshot the IT governance process maturity assessment indicates that the state of IT governance in South Africa is considerably higher than international benchmarks (IT governance Institute, 2003). The concerns identified in chapters 5.2 and 4.7 casts a significant shadow over these process assessments. The value of the results does allow for a comparative assessment of the results in relation to each other and to the importance attributed to IT governance processes. Frameworks with a high number of implementations include portfolio management and TCO in Figure 14. These implementations are not reflected in the IT governance process maturity levels based on their low maturities. This supports the observations of difficulties related to successful IT governance implementations (Czernowalow, 2005b). This observation expands on the earlier discussion in 6.3 relating to executive management's selective involvement in aspects of the value calculation specifically ROI and portfolio management, key aspects of TCO and the portfolio management IT governance processes and could explain their relatively low maturity levels.

The other key finding relates to the low number of common IT governance processes in Table 4. The table combines the top 17 IT governance processes based on maturities from Table 3 and *high* importance IT governance processes from Table 2. The results indicate a significant misalignment between the IT processes which are regarded as important by IT governance and the levels of maturity for those processes.

The number of current IT governance implementation indicated that organisations were aware of the weaknesses between the IT governance priorities and its capabilities. Investments are being made by organisations to improve the maturities of the IT governance processes that were deemed as important by IT. Clearly the challenge lies in ensuring that these implementations are successful and do indeed improve the current alignment between IT governance expectations and the related IT governance process capability.

6.4.4 Conclusion

The general indication of IT governance maturity is positive with the majority of process maturities well above the COBIT international standard guidelines and industry best practice (IT governance Institute, 2003) levels. These findings are accompanied with a level of circumspection based not only on the research issues and limitations discussed in chapter 5.2 and 4.7 but also the significant increase in activity of IT governance implementations illustrated in Figure 14, percentage of mature implementations in Figure 13, and misalignment of high importance IT governance processes and their maturities in Table 4.

The results of the maturity assessments when compared against the results of the importance ratings for each of the process areas indicate a significant misalignment between the level of importance and level of maturity according to the rankings of the IT governance processes. Some of these misalignments support earlier discussions on IT governance alignment with the business in chapter 6.3 specifically the IT value aspects ROI and portfolio management.

It is clear that significant improvement is required to ensure that the IT governance process maturities support the importance attributed to the specific IT governance process. The results indicate an acknowledgement of the existing weaknesses in IT governance supported by a significant growth in IT governance investments.

6.5 IT Governance Developments between 2006 and 2007

6.5.1 Introduction

The final aspect of assessing the state of IT governance in South Africa is an assessment of the changes that took place since the IT governance survey of 2006. The results provide insight into shifts in South African organisations in terms of their thinking and focus regarding IT governance and provide a baseline against which the state of IT governance can be measured. The comparison between the two years uncovered some challenges particularly the reality that trends cannot be established within such a short time frame particularly when the sample populations differ to such a large extent (chapter 5.3).

This research is not conducted with the intent of understanding the state of IT governance based on organisational characteristics and thus focuses a general comparison between the two sets of data of the difference between IT governance frameworks which are in the process of being implemented and or that are fully implemented, and changes in IT governance process maturities. The results of the maturity comparisons are subject to the same concerns as earlier discussions, outlined in chapters 5.2 and 4.7.

6.5.2 IT Governance Developments between 2006 and 2007 Observations

Figure 15 shows the difference between the results of the IT governance survey of 2006 versus 2007 of frameworks that are in the process of being implemented. The results indicate an increase from 2.3 to 2.8 IT governance frameworks per organisation. The actual changes in the number of implementations in progress of being implemented provide little insight due to differing number of respondents however it is worth noting that in both years that top 8 best practices, standards, frameworks, and tools account for between 77% in 2007, and 80% in 2006, of all responses. Another key observation relates to the percentage contribution of the individual frameworks to the top 8 frameworks between the two years. Only 2 frameworks experienced differences of greater than 1%, ISO 17799 with a decrease between 2006 and 2007 of 36% and COBIT and increase of 22%.

The results in Figure 16 show that the frameworks that are fully implemented also increased from an average of 1.2 frameworks per organisation to 1.6 with

a noticeable shift of the total percentage contribution of the top 8 frameworks from 77% in 2006 to 89% in 2007. The results also indicate differences in relative percentages of frameworks that are implemented between the 2 years with decreases in specific frameworks contribution to the top 8 frameworks of COBIT by 50% and TCO by 29% and increases for external benchmarking by 54% and ITIL by 23%.

The differences of the maturities for IT governance processes which are common for both years, shown in Table 6, illustrate that 23 processes experienced increases in maturities and only 2 processes experienced decreases. The average percentage increase for all IT governance process maturities between maturity levels 3 to 5 is 14%.

6.5.3 IT Governance Developments between 2006 and 2007 Discussion

Fox *et al* (2006, p. 315) referred to governance as a dynamic process "forever breaking down and being reinvented" stressing the need to accommodate environmental changes and for governance to remain adaptive by focusing on creating a coordinated set of mechanisms driven by the strategic business objectives (Weill and Woodham, 2002a) which were consistently creating, delivering, and preserving value (Robinson, 2005). This dynamic environment requires that IT governance structures are able to accommodate changes and undergo reviews to remain relevant.

Little inference can be made of the comparison of systems that are fully implemented or in the process of being implemented as illustrated by the

decrease of COBIT implementations that are fully implemented between 2006 and 2007 in Figure 16. This result could only be ascribed to the fact that the 2006 sample population included organisations with more COBIT implementations as it is unlikely that organisations would have reversed their implementations. The specific observations that were derived form the results in figures 15 and 16 are:

- The concentration of the top 8 best practices, standards, frameworks, and tools ranging from 77% to 90% confirmed the high concentration of IT governance frameworks which are being implemented by South African organisations.
- An increase of the average number of frameworks which are implemented or are in the process of being implemented, per organisation.

The results of the maturity comparison in Table 6 for the common IT governance process for both years indicate a significant increase in the average maturity since 2006. In addition to the issues and research limitations discussed in chapters 5.2 and 4.7, the results of the maturity assessments also required that only companies that had implemented COBIT were supposed to complete the maturity assessment survey question. Based on the difference between the number of actual COBIT implementations and number of responses, this expectation was not understood by the sample population which contributed to the concern relating to the levels of subjectivity and interpretation of the role of the various IT governance processes and maturity assessments.

6.5.4 Conclusion

The general assessment is that the average number of frameworks per organisation is growing indicating that organisations with existing implementations have realised sufficient value from their existing implementations to justify additional investment in IT governance. Despite the differences in sample populations the general concentration of frameworks utilised by organisations in South Africa were similar. This could be a result of the size of the market or availability of IT governance competencies for specific frameworks in South Africa.

Although general observations regarding the concentration of frameworks are evident, results such as the decrease of COBIT implementations or increase in the average maturity level of IT governance processes indicate that further insight is required before general inferences can be made about the changes in IT governance between 2006 and 2007. No inferences were made from the IT governance maturity comparisons due to the issues discussed earlier.

6.6 Summary

The assessment of the state of IT governance is based on four research questions. The results of each question provide insight into the next question and allow the research to explore the research objective from four perspectives.

The first of the four research questions assesses the IT governance drivers, motivators and criteria for implementing and measuring IT governance, and the importance of individual IT governance processes. The analysis includes a comparison of the IT drivers against the priority attributed to the specific IT governance processes and identified the extent of the alignment between IT and IT governance priorities. The conclusions of the assessment of the IT governance drivers is that the priorities identified by South African organisations are not dissimilar to the challenges faced by IT internationally (Gable, 2006; Hoving, 2007; Kimzey and Kurokawa, 2002; Li, 2005; Luftman and Kempaiah, 2007). The observation justifies the use of international IT governance best practices, standards, frameworks, and tools in the local market. These drivers are more often then not supported by the importance attributed to related IT governance processes indicating a high level of alignment between IT drivers and IT governance priorities. Certain drivers however did not receive the appropriate focus identifying the requirement for a review of the importance attributed to certain IT governance processes. The primary area of concern was identified in the comparison of the motivators of IT governance implementations and criteria against which the implementations are assessed. Significant discrepancies highlight the difficulties facing IT governance initiatives which had been implemented. This misalignment raised concerns of IT governance's ability to fulfil business expectations.

The second question focuses on the quality of the relationship between IT and the business and includes IT governance alignment with corporate governance (Baker, 2006; Korac-Kakabadse and Kakabadse, 2001; Weill and Aral, 2005),

the level of involvement of executive management (Brown, 2006; Heijden, 2000) in specific forums and aspects of IT governance, and the level of IT's understanding of business needs (Avison *et al*, 2006) and communication to the business. The general consensus is that the relationship between IT governance and business is above average. The primary areas of concern relate to specific aspects of IT value measurement and the inconsistent focus by executive management on specific aspects of the value provided by IT. The findings were compared to the findings of the IT governance drivers from the first question and identified a pattern of inconsistencies specially relating to IT budgets including aspects of budget allocation and measurement of ROI. Another aspect of IT governance which requires additional focus is the quality of communications by IT to the business which is should be supported by an intimate understanding of business needs. The actual quality of the communication and level of understanding of business needs by IT required improvement.

The third questions is concerned with the assessment of the current status of IT governance through the identification of frameworks which were either been implemented or in the process of being implemented. These frameworks provide insight into the ability of organisations to harmonise competing forces within the organisation and balance the differing stakeholder requirements without compromising the organisations overall vision and principles (Korac-Kakabadse and Kakabadse, 2001; Weill and Woodham, 2002a). The frameworks provide a tangible view of the investment in IT governance through the successful implementation of these frameworks. The other component of

the assessment includes the evaluation of the current IT governance process maturities relative to the importance attributed to individual IT governance processes. This provides an indication of the ability of IT to provide consistent and reliable products and services (Weill and Aral, 2005) which fulfil business needs. The results of the individual IT governance maturity assessments are high, exceeding all international standards by a maturity level or more in the majority of the processes. Various issues and limitations were identified which could strongly influence the results.

Certain insights are evident, particularly the misalignment between the importance attributed to specific IT governance processes and the actual maturities. Earlier results established a relatively high alignment between the IT priorities and importance attributed to specific related IT governance processes. It is evident that the misalignment between the IT governance process maturities and importance attributed to these processes show that the existing capability of IT governance is unable to fulfil IT priorities. This result highlights the single largest area of weaknesses in the state of IT governance. Fortunately indications are that organisations have identified this challenge and initiated significant investment in IT governance initiatives relative to the existing investment. This is illustrated by the substantial increase of IT governance frameworks which are in the process of being implemented. The research results support earlier findings relating to the difficulties of successfully implementing IT governance raising a significant risk to the future success of IT governance.

The final question is concerned with assessing the state of IT governance in South Africa relative to the IT governance survey findings of 2006. The challenges relating to the use of the maturity assessments were compounded during the results analysis due to the size and differences between the sample populations. The areas of analysis include a comparison of the changes in frameworks in the process of being implemented or which were fully implemented and a comparison of the maturities for the individual IT governance processes between 2006 and 2007. The results of the maturity comparisons indicate significant increases in the level of maturity between the two years however additional research is required to ascertain the extent of the influence of the various issues. This research is outside of the scope of this paper. The framework comparisons highlight certain trends including consistency in the concentration of IT governance frameworks and increases in the average number of frameworks per organisation indicating continued commitment to improving IT governance. The identification of trends will gain greater relevance as additional years of data is added to the current knowledge base.

The research identifies a number of challenges facing IT governance in South Africa. These challenges require focus on specific aspects of IT governance particularly the criteria for the assessment of IT governance initiatives relative to the initial motivation, consistent executive management involvement in all aspects relating to measuring the value of IT, the improvement of communications by IT to the business based on a greater understanding of business needs, and the need for alignment between the levels of maturities for

specific IT governance processes and the importance attributed to those processes.

The acknowledgement by organisations of the requirement to improve IT governance in South Africa and active steps taken trough the implementation of formal IT governance frameworks indicates an awareness of these challenges supported by active steps towards overcoming them.

Chapter 7: Conclusion

7.1 Overview

In 2005 the South African IT governance conference estimated that approximately 20% of IT budgets did not create value for the business (State accounts for 6,5% of IT spend, 2006). This finding supported international findings that identified a high failure rate of IT-enabled business projects which seriously impaire the achievement of business value. This failure is attributed to ineffective IT governance resulting in short term inefficiencies, unproductive use of resources and an increase in potential risks (Lack of IT governance is putting business value at risk, 2007:online). South African IT governance research supports the observations of IT governance ineffectiveness based on findings that of the 30% of organisations that had formally implemented IT governance less than 60% of the implementations were assessed as having been effective (Czernowalow, 2005b).

Indications are that South African organisations acknowledge the advantages provided by IT governance as a mechanism for driving value through the business (McKnight and Cukor, 2001) illustrated by the significant increases of IT governance frameworks implementations. The ongoing challenge that faces organisations is to ensure that these IT governance implementations fulfil expectations and continue deliver the expected business benefits.

The purpose of the research is to continue with the annual South African IT governance survey (Senne, 2006) to evaluate the current State of IT

governance in South Africa and contribute towards the existing IT governance knowledge base. The process entailed obtaining primary data (Zikmund, 2003) through semi-structured interviews and an on-line survey aimed at C-level managers of the organisation's IT function or employees delegated by C-Level management who were responsible for the function of utilising, developing, enforcing, or implementing IT governance within their respective organisations.

The research focuses on addressing four questions derived from the research objective each focused on understanding specific aspects of IT governance including IT governance drivers, the quality of the alignment of IT governance with the business, the level of maturity of the different IT governance processes, and a comparison of selected findings from the 2006 IT governance survey with those of 2007. This chapter consolidates the research findings with recommendations to IT governance stakeholders and suggestions for future IT governance research initiatives.

7.2 The State of IT Governance in South Africa

The primary research objective is to assess the state of IT governance. Four questions were defined with the purpose of achieving three secondary objectives based on the primary objective. The secondary objectives were as follows:

- Understand the degree to which the concept of IT governance is understood, integrated, and established in South African organisations.
- Identify the current maturity level of IT governance in South African organisations.

- Identify differences between IT governance findings of 2006 and 2007 with the aim of identifying specific trends.

The research found that generally there is a high degree of alignment between IT drivers and the importance attributed to specific aspects of IT governance. These findings are however not reflected in the level of maturity of the related IT governance processes. The results indicate that the IT governance processes which are regarded as most mature differ from the processes which address the specific IT priorities. Initiatives to implement formal IT governance frameworks will contribute toward addressing some of these shortcomings on condition that they specifically address the relevant business and IT priorities.

The improvement of the level of IT governance maturity is an on-going process requiring a healthy relationship between business and IT. Failure to maintain this relationship will result in an unsuccessful IT governance environment. The research identified a number of issues which relate to weaknesses in the relationship between IT and the business. These related primarily to inconsistencies in executive management decisions. These inconsistencies are especially evident in the comparison between the motivations for IT governance initiatives and criteria against which they are assessed, and executive management participation in selected aspects of IT governance. The differences in the IT governance criteria assessment is tantamount to moving goal posts potentially contributing to general dissatisfaction with IT governance and ultimately a lack of support for its initiatives. It is imperative that the criteria against which IT governance initiatives are measured are based on the existing

capabilities and based on the motivations for its implementation. The inconsistent focus on specific aspects of IT governance, specifically financial aspects of the IT investment which contribute toward the understanding of value provided by IT brings into question the executive managements understanding of their IT investment and value it provides the organisation. Considering the growing investment in IT and increased expectations of management accountability for the performance of their organisations the current status quo is not sustainable.

The most serious challenge to the success of IT governance resides with IT itself. The provision of regular and high quality communications to executive management and the business underpins all the challenges facing IT governance. Current quality levels of communication are insufficient to obtain the necessary commitment from business stakeholders to ensure the success of IT governance. IT communications must include quantifiable and verifiable data to support its arguments of the value it provides to business. This requires an excellent understanding of business needs to enable organisational IT to proactively identify where best it able to contribute towards business imperatives in addition to providing IT with the ability to contextualise its value offering.

The results of the research are underpinned by various challenges particularly the potential subjectivity of maturity assessments and number of responses obtained. These challenges require alternative approaches to improve the quality of future IT governance research. The recommendations based on these

challenges are discussed in chapter 7.3. The low response rate of the on-line survey indicates a generally apathy toward the subject of IT governance itself raising a number of concerns relating to the potential of current IT governance initiatives.

The state of IT governance in South Africa requires significant improvements before it can be assessed as being healthy. Key criteria identified as contributing toward the success of IT governance include the alignment of IT governance with the business, the improvement of the quality of the executive management relationship and IT governance, and ability for IT governance to demonstrate value to the business. Each of these aspects experience challenges which led to the conclusion that the state of IT governance in South Africa was less than optimal and requires considerable effort in order to achieve its potential.

7.3 Future Research Suggestions

A number of research limitations and issues were identified during the research. Two key issues relate to the low response rate of the on-line survey and challenges of maturity assessments. Both of these shortcomings can be over come through greater use of semi-structured interviews. The interviews provide the respondent with the opportunity to request additional information and the interviewer to provide insight into the definition of the individual maturities. An additional consideration is the use of maturity criteria as opposed to actual maturities to assess specific IT governance processes. This

would entail identifying the key criteria which differentiate the various maturities and presenting these to the interviewee.

The challenges facing IT governance are categorised into three areas which reflect some of the major challenges hindering the successful implementation of IT governance in South Africa. Each of the subject areas deserve attention in their own right and thus provide the basis for future research suggestions.

- **Relationship between IT governance and business**

  Heijden (2000, p. 153) referred to IT governance as "the capability to integrate IT effort with business purpose and activity" highlighting four behaviours that contribute toward its success. These four behaviours focused on the relationship between the business and IT governance and provided a framework for assessing the likelihood of IT governance success within an organisation. Understanding the extent of these behaviours across existing organisations within existing IT governance implementations provide insight into the likelihood of the success of the IT governance implementations.

- **Implementation challenges**

  The subject area is concerned with understanding the IT governance implementation challenges from a South African context. Some of the challenges highlighted during the semi-structured interviews included skills retention, telecommunications, size of the market, variety of frameworks, and availability and accessibility of implementation

resources. Understanding these and other variables and how they impact the quality of IT governance implementations will contribute toward improving the current IT governance implementation success rate (Czernowalow, 2005b).

- **The role of executive management in success of IT Governance**

  The importance of executive management involvement in IT governance is highlighted by a number of studies yet an IT governance survey amongst officers of Fortune 500 entities found that only 1 in 10 boards asked questions about IT (Damianides, 2005). Reasons for these findings are attributed to the informal nature of IT governance, a lack of understanding of IT governance concepts (Creating Stakeholder Value in the Information Age, 2004), and the view of IT governance is primarily a control mechanism whose benefits are primarily qualitative (IT Governance in Practice PWC Insight from Leading CIOs, 2006). Exploring these issues and identifying the causal relationship with IT governance implementations would contribute toward executive management awareness of their role in the success of IT governance.

7.4 Summary

The assessment of the current state of IT governance cast a shadow over the ability of IT to continue justifying the growing investment of organisational IT. The continued inefficiencies in significant investments such as IT will not go unnoticed in an increasingly competitive environment. Indications are that active steps were being taken to increase the investment in IT governance to

address existing inefficiencies however the dismal success rate of IT governance implementations contributes as much to the challenge as it does to the solution.

The literature review identified a number of success criteria which influence the success of IT governance initiatives however this research has identified that despite the availability of research relating to the challenges of IT governance implementations organisations continue to persevere with IT governance initiatives without ensuring these challenges are addressed.

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Appendix A - IT Governance Survey SA 2007

A Joint ITWEB/Analytix/GIBS initiative

The overall objective of the IT Governance SA 2007 Survey, conducted for the 3rd year by ITWEB, Analytix and GIBS, aims to track the current state of IT Governance in South Africa, by reviewing actions taken by local organisations relative to IT Governance over the past 3 years.

Specific Objectives of the IT Governance SA 2007 survey project are as follows:

- To Survey and analyse the degree to which the concept of IT Governance is recognized, formalized, established, and accepted within South African organisation's
- To determine the level of IT governance expertise and to establish which IT Governance and related frameworks and standards are being used
- To Measure the maturity of IT Governance based on the COBIT framework, which will allow for benchmarking to be performed

Personal Details

Title : _____

Name : _____

Surname : _____

Company : _____

Cell : _____

E-mail : _____

Survey Questions

1. What is your Job title / designation?

CIO

CTO

CEO

MD / GM

FD

IT Director

General Manager IT

IT Manager

Other – please specify

2. What is your organisation's business focus?

Finance / Insurance

Telecommunications / IT

Health / Pharmaceutical

Retail / Manufacturing

Public Sector

Energy

Other, please specify

3. What is your organisation's IT staff compliment?

3 – 20

21 – 50

51 – 100

101 - 200

201 – 500

501 – 1 000

1 001 – or more

4. How many PC's are their in your organisation?

3 – 20

21 – 50

51 – 100

101 - 200

201 – 500

501 – 1 000

1 001 – 2 000

2001 – 5 000

5 001 or more

5. What is the annual turnover of your organisation?

0 - R50 million

R51- R250 million

R251 million or more

6. **How critical is IT to your organisation in sustaining its day to day operations?**

- ☐ Very Important
- ☐ Of high importance
- ☐ Of average importance
- ☐ Not very imporant
- ☐ Not important at all

7. **What are your organisation's most critical IT issues / priorities? Please List**

1.

2.

3.

4.

8. **How important is Information Technology to enable growth and achievement of your organisation's strategic objectives?**

- ☐ Very Important
- ☐ Of high importance
- ☐ Of average importance
- ☐ Not very imporant
- ☐ Not important at all

9. How effectively is your organisation addressing and managing IT governance?

- ☐ Very effectively
- ☐ Moderately effectively
- ☐ Adequately
- ☐ With some effectiveness
- ☐ Not effectively at all

10. Is IT governance an integrated part of your organisation's corporate governance framework?

- ☐ Yes
- ☐ No
- ☐ Don't Know

11. How often is IT governance discussed during your organisation board / exco meetings?

- ☐ Regularly
- ☐ Sometimes
- ☐ Irregularly
- ☐ Never
- ☐ Don't know

12. Is IT Governance addressed by Members of your board / exco in a structured manner?

- ☐ Yes
- ☐ No
- ☐ Don't Know

13. What do your regard to be good IT Governance practices?

1.

2.

3.

4.

5.

14. Which of the following aspects of IT governance are addressed by the members of your board / exco in a structured manner?

	Yes	No
a) Disaster Recovery and Business Continuity Management	☐	☐
b) IT Performance Management (IT Balanced Scorecards)	☐	☐
c) IT Resource and budget management	☐	☐
d) IT Risk assessment and management	☐	☐

e) IT portfolio management	☐	☐
f) Information Security Management	☐	☐
g) IT Service Management	☐	☐
h) Service level management	☐	☐
i) Measuring the ROI of major IT Projects / programmes	☐	☐
j) IT cost allocation	☐	☐
k) IT Satisfaction surveys	☐	☐

15. Does your organisation have an IT Strategy Committee or IT council that reviews major investments on behalf of the board and executive management, and advises the Board on strategic IT decisions?

☐ Yes

☐ No

☐ Don't Know

16. If "Yes", then does the IT strategy committee or IT council:

a. Involve the CIO and the most senior IT and senior business managers?

☐ Yes

- ☐ No
- ☐ Don't Know

b. Set priorities for IT initiatives and assigns ownership for IT-enabled business opportunities?

- ☐ Yes
- ☐ No
- ☐ Don't Know

17. Is your organisation's IT strategy influenced by your board / exco's business objectives for IT alignment, and based on the organisation's strategic plan?

- ☐ Yes
- ☐ Partially
- ☐ No
- ☐ Don't know
- ☐ We don't have a defined IT strategy

18. The strategic value of IT is understood by my organisation's board and executive management.

- ☐ Fully Agree
- ☐ Agree Somewhat

- ☐ Do Not Agree
- ☐ Don't know

19. All major IT investments in my organisation are taken in consultation with the Board / Exco, and are based on a risk return perspective?

- ☐ Fully Agree
- ☐ Agree Somewhat
- ☐ Do Not Agree
- ☐ Don't know

20. Does your IT department fully understand the business needs of your organisation?

- ☐ To a large Degree
- ☐ To some extent
- ☐ Not really
- ☐ Not at all

21. To whom does your organisation's most senior IT Director / manager report to?

CEO / MD

COO

FD

Other general management

Other – please specify

22. How good is your organisation's board / executive management at getting assurance on the performance of IT and on the mitigation of IT risks?

- ☐ Very Good
- ☐ Good
- ☐ Adequate
- ☐ Not good at all
- ☐ Don't know

23. The IT governance structures in my organisation are aligned to the overall corporate governance structure and processes.

- ☐ Strongly Agree
- ☐ Agree
- ☐ Strongly disagree
- ☐ Don't know

24. How effective is your organisation in managing IT risk?

- ☐ Highly effective
- ☐ Moderately effective

- ☐ Partially effective
- ☐ Ineffective
- ☐ Don't know

25. What is the current status of IT governance implementation in your organisation?

- ☐ No plans to implement
- ☐ We are currently considering
- ☐ We are in early implementation stage
- ☐ Our initiative is at a mature deployment stage
- ☐ Don't know

(Note: If not implemented go to **30)**

26. If your organisation has already implemented an IT governance framework and solution, when was it deployed?

- ☐ Less than a year ago
- ☐ One to two years ago
- ☐ Three or more years ago
- ☐ Don't know

27. What was the key driver when deciding to implement an IT Governance initiative?

- ☐ Achieving lower operating costs for IT
- ☐ Compliance with legal and regulatory requirements
- ☐ Enahance management control of the IT organisation
- ☐ Manage IT risk
- ☐ To gain strategic advantage through effective management of IT
- ☐ Improve the quality of the IT function and processes
- ☐ Other - Please specify

_____

_____

_____

28. How was the IT governance solution implemented?

- ☐ Own resources
- ☐ External consultants
- ☐ A combination of these two approaches
- ☐ Don't know

29. How difficult / easy was the implementation of IT Governance?

- ☐ Difficult
- ☐ Moderately difficult
- ☐ Easy
- ☐ Don't know

30. Which of the following best practices / standards / frameworks / tool does your organisation use or plan to use?

a) Coso

Not considering	Consider implementation	In process of implementing	Have fully implemented	Don't know
☐	☐	☐	☐	☐

b) COBIT (Control Objective for Information Related Technology)

Not considering	Consider implementation	In process of implementing	Have fully implemented	Don't know
☐	☐	☐	☐	☐

c) ISO 17799

Not considering	Consider implementation	In process of implementing	Have fully implemented	Don't know
☐	☐	☐	☐	☐

d) ISO 27001

Not considering	Consider implementation	In process of implementing	Have fully implemented	Don't know
☐	☐	☐	☐	☐

e) BS25999 (was PAS56)

Not considering	Consider implementation	In process of implementing	Have fully implemented	Don't know
☐	☐	☐	☐	☐

f) ITIL

Not considering	Consider implementation	In process of implementing	Have fully implemented	Don't know
☐	☐	☐	☐	☐

g) ISO 2000

Not considering	Consider implementation	In process of implementing	Have fully implemented	Don't know
☐	☐	☐	☐	☐

h) IT Balanced Scorecard

Not considering	Consider implementation	In process of implementing	Have fully implemented	Don't know
☐	☐	☐	☐	☐

i) IT Risk Assessment

Not considering	Consider implementation	In process of implementing	Have fully implemented	Don't know
☐	☐	☐	☐	☐

j) IT Portfolio Management

Not considering	Consider implementation	In process of implementing	Have fully implemented	Don't know
☐	☐	☐	☐	☐

k) External IT Benchmarks

Not considering	Consider implementation	In process of implementing	Have fully implemented	Don't know
☐	☐	☐	☐	☐

l) TCO

Not considering	Consider implementation	In process of implementing	Have fully implemented	Don't know
☐	☐	☐	☐	☐

m) CMMI - I

Not considering	Consider implementation	In process of implementing	Have fully implemented	Don't know
☐	☐	☐	☐	☐

n) Prince

Not considering	Consider implementation	In process of implementing	Have fully implemented	Don't know
☐	☐	☐	☐	☐

o) PMBOK

Not considering	Consider implementation	In process of implementing	Have fully implemented	Don't know
☐	☐	☐	☐	☐

p) TOGAF

Not considering	Consider implementation	In process of implementing	Have fully implemented	Don't know
☐	☐	☐	☐	☐

31. To what extent are you familiar with the content and scope of application of the following frameworks / tools?

a) Coso

Full Understanding	Some Understanding	No Understanding	Have not Heard of
☐	☐	☐	☐

b) COBIT (Control Objective for Information Related Technology)

Full Understanding	Some Understanding	No Understanding	Have not Heard of
☐	☐	☐	☐

c) ISO 17799

Full Understanding	Some Understanding	No Understanding	Have not Heard of
☐	☐	☐	☐

d) ISO 27001

Full Understanding	Some Understanding	No Understanding	Have not Heard of
☐	☐	☐	☐

e) BS25999 (was PAS56)

Full Understanding	Some Understanding	No Understanding	Have not Heard of
☐	☐	☐	☐

f) ITIL

Full Understanding	Some Understanding	No Understanding	Have not Heard of
☐	☐	☐	☐

g) ISO 2000

Full Understanding	Some Understanding	No Understanding	Have not Heard of
☐	☐	☐	☐

h) IT Balanced Scorecard

Full Understanding	Some Understanding	No Understanding	Have not Heard of

☐ ☐ ☐ ☐

i) IT Risk Assessment

Full Understanding	Some Understanding	No Understanding	Have not Heard of
☐	☐	☐	☐

j) IT Portfolio Management

Full Understanding	Some Understanding	No Understanding	Have not Heard of
☐	☐	☐	☐

k) External IT Benchmarks

Full Understanding	Some Understanding	No Understanding	Have not Heard of
☐	☐	☐	☐

l) TCO

Full Understanding	Some Understanding	No Understanding	Have not Heard of
☐	☐	☐	☐

m) CMMI - I

Full Understanding	Some Understanding	No Understanding	Have not Heard of
☐	☐	☐	☐

n) Prince

Full Understanding	Some Understanding	No Understanding	Have not Heard of
☐	☐	☐	☐

o) PMBOK

Full Understanding	Some Understanding	No Understanding	Have not Heard of
☐	☐	☐	☐

p) TOGAF

Full Understanding	Some Understanding	No Understanding	Have not Heard of
☐	☐	☐	☐

32. If you are using COBIT, what are the current "as-is" IT process maturity levels of your organisation for the following COBIT processes, based on the COBIT maturity model, using the COBIT Management guidelines?

Please rate the status of each of the IT processes used, using the following rating:

COBIT maturity levels Key:
0 Non-Existent
1 Initial
2 Repeatable
3 Defined
4 Managed
5 Optimised

COBIT Processes	IT Process	COBIT Maturity Level 0	1	2	3	4	5
PO1	Define a strategic IT plan.	☐	☐	☐	☐	☐	☐
PO2	Define the information architecture.	☐	☐	☐	☐	☐	☐
PO3	Determine technological direction.	☐	☐	☐	☐	☐	☐
PO4	Define the IT processes, organisation and relationships.	☐	☐	☐	☐	☐	☐
PO5	Manage the IT investment.	☐	☐	☐	☐	☐	☐
PO6	Communicate management aims and direction.	☐	☐	☐	☐	☐	☐
PO7	Manage IT human resources.	☐	☐	☐	☐	☐	☐
PO8	Manage quality.	☐	☐	☐	☐	☐	☐
PO9	Assess and manage IT risks.	☐	☐	☐	☐	☐	☐
PO10	Manage projects.	☐	☐	☐	☐	☐	☐
AI1	Identify automated solutions.	☐	☐	☐	☐	☐	☐

AI2	Acquire and maintain application software.	☐	☐	☐	☐	☐	☐
AI3	Acquire and maintain technology infrastructure.	☐	☐	☐	☐	☐	☐
AI4	Enable operation and use.	☐	☐	☐	☐	☐	☐
AI5	Procure IT resources.	☐	☐	☐	☐	☐	☐
AI6	Manage changes.	☐	☐	☐	☐	☐	☐
AI7	Install and accredit solutions and changes.	☐	☐	☐	☐	☐	☐
DS1	Define and manage service levels.	☐	☐	☐	☐	☐	☐
DS2	Manage third-party services.	☐	☐	☐	☐	☐	☐
DS3	Manage performance and capacity.	☐	☐	☐	☐	☐	☐
DS4	Ensure continuous service.	☐	☐	☐	☐	☐	☐
DS5	Ensure systems security.	☐	☐	☐	☐	☐	☐
DS6	Identify and allocate costs.	☐	☐	☐	☐	☐	☐
DS7	Educate and train users.	☐	☐	☐	☐	☐	☐
DS8	Manage service desk and incidents	☐	☐	☐	☐	☐	☐
DS9	Manage the configuration.	☐	☐	☐	☐	☐	☐
DS10	Manage problems.	☐	☐	☐	☐	☐	☐
DS11	Manage data.	☐	☐	☐	☐	☐	☐
DS12	Manage the physical environment.	☐	☐	☐	☐	☐	☐
DS13	Manage operations.	☐	☐	☐	☐	☐	☐
ME1	Monitor and evaluate IT performance.	☐	☐	☐	☐	☐	☐
ME2	Monitor and evaluate internal control.	☐	☐	☐	☐	☐	☐
ME3	Ensure compliance with external requirements.	☐	☐	☐	☐	☐	☐
ME4	Provide IT governance.	☐	☐	☐	☐	☐	☐

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33. Please rate how important the following IT processes are to your organisation?

Key:
H = High
M = Medium
L = Low
N/A = Not Applicable

COBIT Processes	IT Process	Level of importance			
		H	M	L	N/A
PO1	Define a strategic IT plan.	☐	☐	☐	☐
PO2	Define the information architecture.	☐	☐	☐	☐
PO3	Determine technological direction.	☐	☐	☐	☐
PO4	Define the IT processes, organisation and relationships.	☐	☐	☐	☐
PO5	Manage the IT investment.	☐	☐	☐	☐
PO6	Communicate management aims and direction.	☐	☐	☐	☐
PO7	Manage IT human resources.	☐	☐	☐	☐
PO8	Manage quality.	☐	☐	☐	☐
PO9	Assess and manage IT risks.	☐	☐	☐	☐
PO10	Manage projects.	☐	☐	☐	☐
AI1	Identify automated solutions.	☐	☐	☐	☐
AI2	Acquire and maintain application software.	☐	☐	☐	☐
AI3	Acquire and maintain technology infrastructure.	☐	☐	☐	☐
AI4	Enable operation and use.	☐	☐	☐	☐
AI5	Procure IT resources.	☐	☐	☐	☐
AI6	Manage changes.	☐	☐	☐	☐
AI7	Install and accredit solutions and changes.	☐	☐	☐	☐

DS1	Define and manage service levels.	☐	☐	☐	☐
DS2	Manage third-party services.	☐	☐	☐	☐
DS3	Manage performance and capacity.	☉	☐	☐	☐
DS4	Ensure continuous service.	☐	☐	☐	☐
DS5	Ensure systems security.	☐	☐	☐	☐
DS6	Identify and allocate costs.	☐	☐	☐	☐
DS7	Educate and train users.	☐	☐	☐	☐
DS8	Manage service desk and incidents	☐	☐	☐	☐
DS9	Manage the configuration.	☐	☐	☐	☐
DS10	Manage problems.	☐	☐	☐	☐
DS11	Manage data.	☐	☐	☐	☐
DS12	Manage the physical environment.	☐	☐	☐	☐
DS13	Manage operations.	☐	☐	☐	☐
ME1	Monitor and evaluate IT performance.	☐	☐	☐	☐
ME2	Monitor and evaluate internal control.	☐	☐	☐	☐
ME3	Ensure compliance with external requirements.	☐	☐	☐	☐
ME4	Provide IT governance.	☐	☐	☐	☐

34. What are the most important criteria when assessing the success of your organisation's IT Governance initiatives?

- ☐ Achieving lower operating costs for IT
- ☐ Compliance with legal and regulatory requirements
- ☐ Enahance management control of the IT organisation
- ☐ Manage IT risk
- ☐ To gain strategic advantage through effective management of IT
- ☐ Improve the quality of the IT function and processes
- ☐ Other - Please specify

Appendix B – Result Tables

Year	CEO	CIO	CTO	FD	General manager IT	IT director	IT manager	MD / GM	Strategist / Architect	Other	Grand Total
2006	3	2		1	1	1	18	3	1	18	48
2007	1	4	2		2	2	16	3		17	47
Grand Tot	**4**	**6**	**2**	**1**	**3**	**3**	**34**	**6**	**1**	**35**	**95**

Table 7: Sample Population characteristics - Designation

Year	Energy	Finance / Insurance	Food and Hospitality	Health / Pharmaceutical	Public sector	Retail / manufacturing	Telecomms / IT	Other	Grand Total
2006	1	11			5	3	14	14	**48**
2007	1	13	1	1	5	5	9	12	**47**
Grand Total	**2**	**24**	**1**	**1**	**10**	**8**	**23**	**26**	**95**

Table 8: Sample Population characteristics - Industry

Year	1001 or more	101 - 200	201- 500	21 - 50	3 - 20	501 - 1000	51 - 100	Grand Total
2006	6	3	9	4			4	26
2007	11	8		7	3	4	6	39
Grand Total	**17**	**11**	**9**	**11**	**3**	**4**	**10**	**65**

Table 9: Sample Population characteristics – IT Staff Compliment

Year	1001 - 2000	101 - 200	2001 - 5000	201 - 500	21 - 50	5001 or more	501 - 1000	51 - 100	Grand Total
2006	2	1	9	3	7	10	1	2	35
2007	7	5	6	2	3	16	4	2	45
Grand Total	**9**	**6**	**15**	**5**	**10**	**26**	**5**	**4**	**80**

Table 10: Sample Population characteristics – Number of PC's

Year	0 - R50 million	Don't Know	R251 million or more	R51 - R250 million	R 51 - R250 Million	Grand Total
2006	23		21	3		47
2007	5	1	35	5	1	47
Grand Total	**28**	**1**	**56**	**8**	**1**	**94**

Table 11: Sample Population characteristics – Turnover

Criteria	Instances
Benchmarking	**1**
Portfolio Management	**1**
Vendor Management	**1**
Manage IT risk	**2**
Achieving lower operating costs for IT	**3**
Enhance management control of IT	**3**
IT Alignment with Business	**3**
Change Management	**4**
Information Management	**5**
Telecommunication Constraints	**5**
Legal and Regulatory Compliance	**6**
Increase IT Function Flexibility	**6**
IT Value Delivery and Measurement	**8**
System Consolidation and integration	**9**
IT Security	**10**
IT Skills and Resources	**11**
Improve Quality of IT function and processes	**14**
Business Continuity	**17**
Grand Total	**109**

Table 12: Question 7 – What are your organisation's most critical IT issues / priorities?

	Question #	
Criteria	**27**	**34**
Achieving lower operating costs for IT	6	14
Compliance with legal and regulatory requirements	11	13
Enhance management control of the IT organisation	9	11
Improve the quality of the IT function and processes	12	20
IT Alignment with Business	1	1
Manage IT risk	11	18
Gain strategic advantage through effective management	13	19
Grand Total	**63**	**96**

Table 13: Question 27 and 34 – Comparison of motivation for implementing IT governance and Criteria for Assessing IT Governance.

Year	Of average importance	Of high importance	Very important	Grand Total
2006	1	8	39	48
2007		5	41	46
Grand Total	1	13	80	94

Table 14: Question 6 - How critical is IT to your organisation in sustaining its day to day operations?

Year	Of average importance	Of high importance	Very important	Grand Total
2006	2	10	36	48
2007	3	3	41	47
Grand Total	5	13	77	95

Table 15: Question 8 – How Important is IT to enable growth and achievement of your organisations strategic objectives?

		H	M	L	N/A
PO1	Define a strategic IT plan.	36	6		1
PO2	Define the information architecture.	29	14		1
PO3	Determine technological direction.	28	11	3	
PO4	Define the IT processes, organisation and relationships.	27	14	2	
PO5	Manage the IT investment.	28	13	2	
PO6	Communicate management aims and direction.	24	17	1	1
PO7	Manage IT human resources.	22	16	3	2
PO8	Manage quality.	27	14	2	
PO9	Assess and manage IT risks.	26	12	5	
PO10	Manage projects.	28	13	2	
AI1	Identify automated solutions.	20	15	7	
AI2	Acquire and maintain application software.	19	13	10	
AI3	Acquire and maintain technology infrastructure.	21	15	7	
AI4	Enable operation and use.	27	14	1	
AI5	Procure IT resources.	17	17	7	1
AI6	Manage changes.	27	12	2	
AI7	Install and accredit solutions and changes.	16	16	9	1
DS1	Define and manage service levels.	26	9	7	
DS2	Manage third-party services.	24	14	5	
DS3	Manage performance and capacity.	30	9	2	1
DS4	Ensure continuous service.	36	5	1	1
DS5	Ensure systems security.	31	9	2	1
DS6	Identify and allocate costs.	20	13	10	
DS7	Educate and train users.	18	14	9	1
DS8	Manage service desk and incidents	23	16	3	
DS9	Manage the configuration.	23	15	4	
DS10	Manage problems.	25	16	1	
DS11	Manage data.	27	11	3	1
DS12	Manage the physical environment.	21	16	4	1
DS13	Manage operations.	22	16	5	
ME1	Monitor and evaluate IT performance.	23	16	3	
ME2	Monitor and evaluate internal control.	21	15	7	
ME3	Ensure compliance with external requirements.	24	14	4	
ME4	Provide IT governance.	29	11	1	

Table 16: Question 33 – Please rate how important the following IT processes are to your organisation?

Year	Don`t know	Do not agree	Agree somewhat	Fully agree
2006	2	6	22	17
2007		4	18	24
Grand Total	**2**	**10**	**40**	**41**

Table 17: Question 19 – All major IT investments in my organisation are taken in consultation with the Board / Exco, and are based on a risk return perspective?

	2006		2007	
	No	Yes	No	Yes
Disaster Recovery and Business Continuity Management	19	27	14	32
IT Performance Management (IT Balanced Scorecards)	25	22	14	32
IT Resource and budget management	11	35	7	38
IT Risk assessment and management	16	31	13	32
IT portfolio management	24	23	22	22
Information Security Management	14	32	13	32
IT Service Management	12	35	9	35
Service level management	16	30	13	32
Measuring the ROI of major IT Projects / Programmes	26	20	22	22
IT cost allocation	13	33	13	32
IT Satisfaction surveys	22	24	27	17

Table 18: Question 14 – Which of the following aspects of IT Governance are addressed by the members of your board / Exco in a structured manner?

Year	Don`t know	Strongly disagree	Agree	Strongly agree
2006	3	7	26	10
2007	4	7	25	11
Grand Total	**7**	**14**	**51**	**21**

Table 19: Question 23 – The IT governance structures in my organisation are aligned to the overall corporate governance structure and processes.

Year	Don`t know	Not good at all	Adequate	Good	Very good
2006	3	4	14	17	9
2007	4	7	15	9	12
Grand Total	**7**	**11**	**29**	**26**	**21**

Table 20: Question 22 – How good is your organisation's board / executive management at getting assurance on the performance of IT and on the mitigation of IT risks?

Year	Not really	To some extent	To a large degree
2006	1	30	16
2007	3	18	25
Grand Total	**4**	**48**	**41**

Table 21: Question 20 – Does Your IT Department Fully Understand the business Needs of your Organisation?

Year	Not effectively at all	With some effectiveness	Adequately	Moderately effectively	Very effectively	Grand Total
2006	5	11	8	11	12	47
2007		6	7	25	9	47
Grand Total	**5**	**17**	**15**	**36**	**21**	**94**

Table 22: Question 9 – How effectively is your organisation addressing and managing IT Governance?

Year	Our initiative is at a mature deployment stage	We are in early implementation stage	We are currently considering	No plans to implement	Don`t know
2006	10	13	18	5	1
2007	12	22	7	4	2
Grand Total	**22**	**35**	**25**	**9**	**3**

Table 23: Question 25 – What is the current status of IT Governance Implementation in Your Organisation?

Year	Less than a year ago	One to two years ago	Three or more years ago	Don`t know
2006	8	6	8	15
2007	7	3	13	5
Grand Total	**15**	**7**	**21**	**20**

Table 24: Question 26 – If your organisation has already implemented an IT governance framework and solution, when was it deployed?

	Not Considering	Consider Implementation	In process of Implementing	Have Fully Implemented	Don't Know
ISO 27001	16	5	4	1	17
Coso	19	8	1	2	14
ISO 17799	13	7	9	2	13
Prince	15	7	6	3	14
COBIT	9	8	19	4	7
PMBOK	10	9	6	6	13
IT Balanced Scorecard	6	10	14	8	6
TCO	8	11	8	8	9
ITIL	3	10	17	9	7
External IT Benchmarks	7	13	8	9	6
IT Portfolio Mangement	5	10	13	10	7
IT Risk Assessment	4	10	15	13	4
BS25999	14	5	3		21
ISO 2000	16	7	3		16
CMMI-I	17	8	5		12
TOGAF	16	8	2		17

Table 25: Question 30 – Which of the following best practices / standards / frameworks / tool does your organisation use or plan to use?

	COBIT Maturity Level	0	1	2	3	4	5
PO1	Define a strategic IT plan.	5	3	5	8	3	
PO2	Define the information architecture.	3	5	5	4	6	
PO3	Determine technological direction.	2	5	3	7	6	
PO4	Define the IT processes, organisation and relationships.	2	4	5	5	8	
PO5	Manage the IT investment.	2	2	8	5	6	1
PO6	Communicate management aims and direction.	3	4	3	5	9	
PO7	Manage IT human resources.	4		8	5	6	1
PO8	Manage quality.	4	3	4	8	5	
PO9	Assess and manage IT risks.	2	5	5	5	7	
PO10	Manage projects.	1	3	3	6	10	1
AI1	Identify automated solutions.	1	3	9	5	6	
AI2	Acquire and maintain application software.	1	1	6	8	6	2
AI3	Acquire and maintain technology infrastructure.	1	3	3	6	10	
AI4	Enable operation and use.	1	2	5	6	10	
AI5	Procure IT resources.	1	1	4	11	7	
AI6	Manage changes.	1	3	2	8	8	1
AI7	Install and accredit solutions and changes.	1	2	2	8	10	
DS1	Define and manage service levels.	1	4	3	9	7	
DS2	Manage third-party services.	1	2	5	10	4	2
DS3	Manage performance and capacity.	1	5	4	9	5	
DS4	Ensure continuous service.	1	4	4	8	6	1
DS5	Ensure systems security.	1	3	4	8	5	3
DS6	Identify and allocate costs.	1	2	6	7	5	3
DS7	Educate and train users.	1	4	7	4	7	1
DS8	Manage service desk and incidents	1	1	3	9	7	3
DS9	Manage the configuration.	3	3	6	5	5	2
DS10	Manage problems.	2	3	5	7	6	1
DS11	Manage data.	1	2	9	6	5	1
DS12	Manage the physical environment.	2		6	5	9	2
DS13	Manage operations.	1	2	4	9	7	1
ME1	Monitor and evaluate IT performance.	2	1	6	8	6	1
ME2	Monitor and evaluate internal control.	2	3	9	4	5	1
ME3	Ensure compliance with external requirements.	2	4	4	7	5	2
ME4	Provide IT governance.	2	2	7	6	5	2

Table 26: Question 32 – If you are using COBIT, what are the current “as-is” IT process maturity levels of your organisation for the following COBIT processes, based on the COBIT maturity model, using the COBIT Management guidelines?

	Not Considering		Consider Implementation		In process of Implementing		Have Fully Implemented		Don't Know	
	2006	2007	2006	2007	2006	2007	2006	2007	2006	2007
ISO 27001	20	16	11	5	3	4	2	1		17
Coso	27	19	6	8	2	1	2	2		14
ISO 17799	16	13	11	7	11	9	2	2		13
Prince	24	15	9	7	2	6	1	3		14
COBIT	12	9	12	8	11	19	5	4		7
BS25999	24	0	7	7	3	7	1	0		
PMBOK	19	10	10	9	5	6	4	6		13
IT Balanced Scorecard	12	6	12	10	11	14	4	8		6
TCO	6	8	20	11		8	0	8		9
ITIL	9	3	15	10	13	17	4	9		7
External IT Benchmarks	14	7	14	13	6	8	3	9		6
IT Portfolio Mangement	8	5	15	10	9	13	6	10		7
IT Risk Assessment	4	4	17	10	12	15	8	13		4
BS25999	14		5		3		0	0		21
ISO 2000	22	16	12	7		3	1	0		16
CMMI-I	23	17	9	8	3	5	1	0		12
TOGAF		16		8		2		0		17

Table 27: Question 30 – Comparison of Difference between 2007 and 2006 of Best Practices / Standards / Frameworks / Tools organisations were in the process of implementing or had fully implemented.

	COBIT Maturity Level	0		1		2		3		4		5	
		2006	2007	2006	2007	2006	2007	2006	2007	2006	2007	2006	2007
PO2	Identify automated solutions.	4	1	3	3	5	9	8	5	2	6	5	
PO3	Manage data.	7	1	2	2	4	9	8	6	4	5	2	1
PO4	Manage IT human resources.	5	4	5		4	8	10	5	3	6	1	1
PO5	Manage the configuration.	4	3	4	3	6	6	6	5	5	5	2	2
PO6	Manage problems.	4	2	4	3	4	5	7	7	4	6	4	1
PO7	Manage the IT investment.	5	2	6	2	4	8	7	5	5	6	1	1
PO8	Define the information architecture.	5	3	8	5	4	5	6	4	5	6	1	
PO9	Define a strategic IT plan.	7	5	4	3	6	5	7	8	3	3	2	
PO10	Determine technological direction.	5	2	4	5	5	3	6	7	6	6	2	
AI1	Assess and manage IT risks.	4	2	4	5	8	5	5	5	4	7	2	
AI2	Ensure systems security.	7	1	3	3	3	4	8	8	5	5	2	3
AI3	Acquire and maintain application software.	6	1	2	1	5	6	7	8	6	6	1	2
AI6	Ensure continuous service.	6	1	4	4	5	4	5	8	6	6	2	1
AI7	Educate and train users.	5	1	6	4	7	7	7	4	2	7	1	1
DS1	Manage operations.	5	1	4	2	4	4	6	9	6	7	2	1
DS2	Manage changes.	5	1	4	3	4	2	9	8	4	8	2	1
DS3	Define the IT processes, organisation and relationships.	8	2	2	4	8	5	6	5	2	8	2	
DS4	Communicate management aims and direction.	6	3	5	4	6	3	6	5	2	9	3	
DS5	Define and manage service levels.	5	1	8	4	2	3	7	9	4	7	2	
DS6	Identify and allocate costs.	5	1	7	2	4	6	5	7	5	5	2	3
DS7	Manage quality.	5	4	4	3	9	4	6	8		5	3	
DS9	Acquire and maintain technology infrastructure.	6	1	4	3	5	3	5	6	6	10	1	
DS10	Manage third-party services.	7	1	3	2	6	5	6	10	3	4	3	2
DS11	Manage performance and capacity.	7	1	3	5	8	4	3	9	5	5	2	
DS12	Manage projects.	5	1	4	3	6	3	5	6	3	10	3	1
DS13	Install and accredit solutions and changes.	7	1	3	2	7	2	8	8	3	10		
	Total Responses	**145**	**47**	**110**	**80**	**139**	**128**	**169**	**175**	**103**	**168**	**53**	**21**

Table 28: Question 32 – Input data for percentage calculations for IT Governance Process Maturity Comparison between 2006 and 2007.

COBIT Maturity Level	0 to 2		% Difference	3 to 5		% Difference
Identify automated solutions.	44%	54%	10%	56%	46%	-10%
Manage data.	48%	50%	2%	52%	50%	-2%
Manage IT human resources.	50%	50%	0%	50%	50%	0%
Manage the configuration.	52%	50%	-2%	48%	50%	2%
Educate and train users.	44%	42%	-3%	56%	58%	3%
Define the information architecture.	54%	50%	-4%	46%	50%	4%
Manage problems.	59%	57%	-2%	41%	43%	2%
Define a strategic IT plan.	59%	54%	-4%	41%	46%	4%
Ensure systems security.	50%	43%	-7%	50%	57%	7%
Manage the IT investment.	59%	50%	-9%	41%	50%	9%
Assess and manage IT risks.	46%	33%	-13%	54%	67%	13%
Acquire and maintain application software.	48%	33%	-15%	52%	67%	15%
Determine technological direction.	54%	38%	-16%	46%	63%	16%
Define the IT processes, organisation and relationships.	64%	50%	-14%	36%	50%	14%
Communicate management aims and direction.	48%	29%	-19%	52%	71%	19%
Ensure continuous service.	46%	26%	-20%	54%	74%	20%
Identify and allocate costs.	64%	46%	-18%	36%	54%	18%
Manage performance and capacity.	61%	42%	-19%	39%	58%	19%
Define and manage service levels.	54%	33%	-20%	46%	67%	20%
Manage operations.	57%	38%	-20%	43%	63%	20%
Manage changes.	67%	46%	-21%	33%	54%	21%
Acquire and maintain technology infrastructure.	56%	30%	-25%	44%	70%	25%
Manage third-party services.	57%	33%	-24%	43%	67%	24%
Manage quality.	64%	42%	-23%	36%	58%	23%
Manage projects.	58%	29%	-29%	42%	71%	29%
Install and accredit solutions and changes.	61%	22%	-39%	39%	78%	39%

Table 29: Question 32 – Percentage calculations for IT Governance Process Maturity Comparison between 2006 and 2007.

Appendix C – IT Governance Maturity Model

The following excerpt is taken directly from COBIT's description of maturity levels (IT governance Institute, 2003, p.48)

0 Nonexistent

There is no senior management oversight of IT-related activities to ensure that the enterprise's IT goals add value to the organisation and to ensure that IT-related risks are appropriately managed.

1 Initial/Ad Hoc

The concept of IT governance does not exist formally and oversight is based mostly on management's consideration of IT-related issues on a case-by-case basis. The governance of IT depends on the initiative and experience of the IT management team, with limited input from the rest of the organisation. Upper management is involved only when there are major problems or successes. The measurement of IT performance is typically limited to technical measures and only within the IT function.

2 Repeatable but Intuitive

There is a realisation that more formalised oversight of IT is required and it needs to be a shared management responsibility requiring the support of top management. Regular governance practices such as review meetings, creation of performance reports, and investigation into problems take place, but rely mostly on the initiative of the IT management team, with voluntary or co-opted participation by key business stakeholders, depending on current IT projects

and priorities. Problems identified are tackled on a project basis with teams formed as necessary to undertake improvements.

3 Defined Processes

An organisational and process framework has been defined for oversight and management of IT activities and is being introduced to the organisation as the basis for IT governance. The board has issued guidance, which has been developed into specific procedures for management covering key governance activities. These include regular target-setting, reviews of performance, assessments of capability against planned needs, and project planning and funding for any necessary IT improvements. Previous informal but successful practices have been institutionalised and the techniques followed are relatively simple and unsophisticated.

4 Managed and Measurable

Target-setting has developed to a fairly sophisticated stage with relationships between outcome goals in business terms, and IT process improvement measures now well understood. Real results have been communicated to management in the form of a balanced scorecard. The enterprise's management team is now working together for the common goal of maximising IT value delivery and managing IT-related risks. There have been regular assessments of IT capabilities and projects have been completed that have delivered real improvements to IT's performance. Relationships among the IT function, its users in the business community and external service providers are now based on service definitions and service agreements.

5 Optimised

The IT governance practices have developed into a sophisticated approach using effective and efficient techniques. There is true transparency of IT activities, and the board feels in control of the IT strategy. IT activities have been optimally directed toward real business priorities, and the value being delivered to the enterprise can be measured and steps taken on a timely basis to correct significant deviations or problems. The balanced scorecard approach has evolved into one that is focused on the most important measures relevant to the enterprise's overall business strategy. The effort spent on risk management (and on IT management activities generally) has been streamlined through adoption of standardised and, where possible, automated processes. The practice of continuous improvement of IT capability is embedded in the culture and this includes regular external benchmarking and independent audits providing positive assurance to management. Overall, the cost of IT is monitored effectively and the organisation is able to achieve optimal IT spending through continuous internal improvements, the effective outsourcing of selected services and effective negotiation with vendors. When dealing with external business partners or service providers, the organisation is able to demonstrate first-class performance and demand best practices from others.