

**A CONCEPTUAL FRAMEWORK FOR IT
PROGRAMME MANAGEMENT GOVERNANCE: AN
INTEGRATED VIEW**

By

KWETE MWANA NYANDONGO

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Supervisor: Dr C. Marnewick

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Abstract

Project and programme management have become important organisational developments in today's business environment. The growth in projects across different sectors and industries, and their capability to enable organisations to cope with change in order to remain in business has emphasised the importance of project, programme and portfolio activities.

Although project management has provided a means of achieving goals that could not be achieved in traditional ways, the single project model has failed to address issues that arise when multiple and related projects are undertaken within an organisation. Programme management has then provided a means through which organisations achieve almost everything they undertake. It has been perceived as the strategy implementation vehicle that links the overall strategy of the organisation with the portfolio of projects.

While the use of programmes and programme management has grown in organisations, its capability to secure the investment of corporation has not been proven. Numerous failure stories with dramatic consequences for the corporation as a whole have been reported.

With the pace of new regulations that require the appropriate and responsible management of company affairs, considering the huge investment that corporations place in programmes, it has become important to devise an efficient and effective mechanism of overseeing these investments.

This research addresses the need to improve programme performance and ensure compliance with corporate policies. It focus on the governance side to determine how IT programmes can be governed while making sure that there is enough established control responsibility and accountability to ensure the achievement of the programme strategic objectives.

This has been addressed by identifying corporate, information technology and project governance requirements that have implications for IT programme

management. This had led to the consolidation of implications identified from the Sarbanes Oxley Act, Control Objective for Information and Related Technology and the Guide to Governance of Project Management in order to provide an integrated view of overseeing the management of programmes.

The value of the research is that it has devised a conceptual framework for IT programme management governance that provides a means to ensure both programme performance and compliance to governance requirements that pertain to corporations.

The value of the framework is that it contains governance requirements that ensure an efficient and effective decision-making and delivery management, focused on achieving programme goals in a consistent manner while addressing appropriate risks, issues and events that can impede the programme outcome.





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List of Acronyms

AFNOR	Association Française de Normalisation (French Association for Normalisation)
ANSI	American National Standards Institute
CCTA	Central Computer and Telecommunication Agency
CEO	Chief Executive Officer
CFO	Chief Financial Officer
CIPE	Centre for International Private Enterprise
CobIT	Control Objective for Information and Related Technologies
COSO	Committee of Sponsoring Organisation (Internal Control-integrated Framework)
DR	Disclosure and Reporting
DRR	Disclosure and Reporting Reformulated
EDPA	Electronic Data Processing Act
EDPAA	Electronic Data Processing Auditor Association
EU	European Union
GCGF	Global Corporate Governance Forum
GoPM	Guide to Governance of Project Management
ICAEW	Institute of Chartered Accountants in England and Wave
ICGN	International Corporate Governance Network
IDSA	Institute of Director for Southern Africa
IMF	International Monetary Fund
ISACA	Information Systems Audit and Control Association
ISACF	Information Systems Audit and Control Foundation

ITGI	Information Technology Governance Institute
KPMG	Klynveld, Peat, Marwick, and Goerdeler
MSP	Managing Successful Programme
OECD	Organisation for Economic Cooperation and Development
OGC	(UK) Office of Government Commerce
plc	Project Life Cycle
PM	Project Management
PMBOK	Project Management Body of Knowledge
PMGM	Programme Management Governance Mandate
PMI	Project Management Institute
PMO	Project Management Office
PMR	Project Management Reformulated
PPM	Project Portfolio Management
PPPP	Policies, Processes, Procedures and Practices
ProgM sig	Programme Management Specific Interest Group
PS	Project Sponsorship
PSR	Project Sponsorship Reformulated
SA	South Africa
SCRE	Scottish Council for Research in Education
SEC	Securities Exchanges Commission
SOX	Sarbanes-Oxley Act
UK	United Kingdom
UNDP	United Nations Development Programme
USA	United States of America

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Chapter 1

Orientation

1.1 Introduction

In the movement of global, economical, technological and social change of today the objective of an organisation is to survive. To survive in the context of an actual business environment organisations, public or private, must invest their revenue streams either in productivity or in growth strategy, thus enhancing technology initiatives (Bonham, 2005:38-40). The rapid spread of information technology-based (IT-based) business initiatives and the management issues surrounding them has led to a need for IT project management to ensure organisations have the ability to harness that technology (Bonham, 2005:41-43).

The use of projects and project management has grown in society and its organisations since before the days of the great pyramids, with project management having enjoyed a surge in popularity (Meredith & Mantel, 2003:3). Today, the growth in project work across different sectors and industries constitutes one of the most important organisational developments, and one which emphasises the importance of project, programme and portfolio management activities (Winter & Szczepanek, 2008).

As the field of project management has grown, so have tools, techniques, methodologies and approaches to it. This has occurred to such an extent that managing projects successfully to deliver the expected benefits is no longer the challenge (Reiss, Anthony, Chapman, Leigh, Pyne & Rayner, 2006). Rather, the difficulties arise in the management of interrelated projects undertaken in terms of programmes for their coordinated management so as to obtain benefits and control not available from managing them separately (Lycett, Rassau & Damson, 2004).

1.2 Topic Background

The concept of governance has been defined by The Organisation for Economic Co-operation and Development (OECD, 2004) as the system by which business corporations are directed and controlled. Good governance is seen as shareholder

rights, transparency and Board accountability. Governance is therefore concerned with the structure and processes associated with management decision-making and control.

The issue of corporate governance goes back several years to when management and ownership of enterprises were first separated, and when a revolution occurred in the emergence of incorporated enterprises being distinct from their owners. Thus, a need arose for some form of regulation and control to protect the interests of the owners (Monks & Minow, 2004). Although investors are interested primarily in the growth of their investments, they also need to be confident that the growth rests on secure foundations (Wixley & Everingham, 2005). They demand transparency and accountability in return for their capital so as to establish confidence (Monks & Minow, 2004:297).

A survey conducted by international consultants McKinsey & Company in June 2000 on investor opinion found that more than 80% of the more than 200 global institutional investors indicated willingness to pay a premium for shares in a well-governed company over one poorly governed but with a comparable financial record (Wixley & Everingham, 2005). Conversely, a recent series of corporate scandals, meltdowns, fraud and other catastrophic events, which led to the destruction of billions of dollars of shareholders' wealth, the loss of thousands of jobs and criminal investigations of executives have emphasised the need for effective governance (Cooke-Davis, 2005:2).

In regard to the need for a link between corporate governance, and project and programme governance, The Programme Management Group plc (2006) accentuates that the portfolio of projects being run by the organisation constitutes the main provenance of risk that reflects on the corporate level. It is in this context that corporate governance must operate at project and programme level, as these constitute major sources of risk for potential investors.

The modern global environment has forced companies, governments and non-profit organisations to pay special attention to project management in order to achieve successful management of projects, while programmes give competitive advantage.

The competition surrounding the business environment has emphasised the need for IT with the aim of enhancing existing products or creating new ones.

PMI (2001) reported huge world spending on a wide variety of projects. The worldwide IT spending was expected to grow by between 4% and 6% in the year following the study. KPMG (2005a) revealed that since its International Programme Management Survey had been conducted in 2002-2003, it observed an increase in programme activity across all sectors of the economy regarding the number of projects, their complexity and total project budgets, respectively 81%, 88% and 79% in responding organisations.

The complexity and interdependency of projects were also observed in an increase in the volume of cross-divisional initiatives requiring a multidisciplinary team aimed at the integration of customer-centred business. With this increase in project investment and accountability the KPMG study in 2005 had to question the ability to execute and oversee these initiatives, as this determines the likelihood of meeting the business commitment.

On the other hand, many studies, including KPMG surveys, reported an increased involvement from Boards and executives in project activities, thus increasing focus on governance (Cook-Davis, 2005:2; KPMG, 2002b; KPMG, 2005a; Reiss et al., 2006:6). The 2005 global IT Project Management Survey conducted by KPMG revealed that 40% of business cases were approved by the Board. Executives were accountable for 87% of these business cases, targeting benefit and executive sponsorship. Management buy-in remained the top factor for project success.

With this increased involvement of Boards and executives it is important to know how IT programmes should be governed. The benefit of this research project is immeasurable in terms of the impact of its outcome in the community, at national and international level.

Employees, communities and nations invest in corporations directly and indirectly because people believe that companies are accountable to them (Demba & Neubauer, 1992; Tully, 2005:227,237). These investments are in turn mostly driven as projects and programmes for which the outcome should guarantee a return on

investment and attainment of strategic objectives. The Project Management Institute (PMI, 2008a) specifies that sub-projects, projects, programmes and portfolios form the hierarchy of strategic plans in which a programme consisting of several associated projects will contribute to the achievement of the strategic plan.

Conversely, the Project Management Institute (PMI, 2008b) stated that programme management success in an organisation depended on the maturity of its policies as well as control and governance that define and align the organisation goals. Like a horse fenced in a pasture, corporate activities within which IT projects play a major role should then be bounded by a set of performance standards that reflect the expectations of stakeholders. A programme governance framework that ensures direction, transparency, commitment, fairness and control over IT initiatives and accountability together with responsibility towards the programme outcome will guarantee the expectations of stakeholders among which Tully (2005:20,24,48) include employees, customers, creditors, neighbours, suppliers, shareholders, competitors, national and local governments, management and citizens.

The present research provides a framework for efficient and effective decision-making and delivery management focused on attaining programme goals in a consistent manner, and addressing appropriate risks and stakeholder requirements, as recommended by PMI (2008b).

1.3 Literature review

Drucker (1989 as cited in Cadbury, 1995, p.183) identified corporate governance as an issue for the future when he wrote in *The Economist*. The widespread nature of the governance debate since then has decisively confirmed his conclusion on governance-related matters. Among persuasive change agents identified, Cadbury (1995) included technological advance and interests, the emergence of newly industrialised countries, the dismantling of stable control and increasing internationalisation of the market. These agents, according to Cadbury, were going to make competition more global and more intense, and would further affect governance. Cadbury (1995) also concluded that as companies and markets became more international, those investing in them would look for common standards of corporate direction and control.

The Institute of Directors in Southern Africa (IDSO, 2002:137) recognised that the advancement and change in the IT area led to it being regarded as an integral part of enterprise strategy rather than a mere enabler within an organisation. While technology development could help improve governance, it also brought an increased number of risks and challenges that needed to be addressed so that management could discharge its governance responsibilities. The report also stressed that the rate of technological advancement and limited understanding of it among stakeholders had provided further challenges.

Many efforts have been made at corporate level to create structure, define roles and responsibilities, report processes and control mechanisms in response to the governance needs at corporate level (Korhonen, 2007). These efforts, namely the King II Report (King III, 2002) and the Sarbanes-Oxley Act (SOX, 2002), are classified by Williamson, (1996) as cited in Miller and Hobbs (2005), as addressing the issue of what structure should be set up to govern an organisation. They are mostly presented as having a hierarchical binary relationship between a principal and an agent. Assumed to be static for a while, a contrast to project governance, time-dependent, has to be established.

The South African response to the control around governance came from the King Committee, which produced a report on corporate governance in 1994 and subsequently updated it in 2002 and 2010, emphasising the role of the Board and the importance of measures for transparency and accountability. It concluded: "Successful governance in the world in the 21st century requires companies to adopt an inclusive and not exclusive approach" (IDSA, 2002:20). The company must be open to institutional activism and there must be greater emphasis on the sustainable or non-financial aspects of its performance. The Board must apply the tests of fairness, accountability, responsibility and transparency to all acts or omissions, and not only be accountable to the company but also respond to and be responsible towards the identified company stakeholders. The correct balance between conformance with governance principles and performance in an entrepreneurial market economy must be found but this will be specific to each company. The question remains how this approach is to be conceptualised, developed and maintained at programme level.

According to Korac-Kakabadse and Kakabadse (2001), corporate governance is integrally interrelated to IS/IT governance; thus, making IS/IT governance a subset of corporate governance, albeit with a clear difference in their focus. Corporate governance is concerned with Board roles, composition, characteristics, and Board and organisational structure and processes in order to develop, implement and monitor corporate strategy. IS/IT governance is a level below corporate governance that concentrates on the structure of the relationships and processes to develop, direct and control IS/IT resources in order to achieve the enterprise goals. This is done through value adding contributions, which account for balancing risk versus return over IS/IT resources and its processes.

Enormous efforts have been made at IS/IT governance level; among these are standard and good practices (Korhonen, 2007). One refers to the most used, which is “Control Objective for Information and Related Technology” (CobiT) where the control framework is comprehensive and in alignment with enterprise governance principals. The IT Governance Institute (ITGI, 2007) states that the CobiT framework ties the business requirements for information and governance to the objectives of the IT services function. It is positioned at a high level, driven by business requirements and covers the full range of IT activities.

Langley (2003:3) adds that the Information Technology Infrastructure Library (ITIL) complements CobiT with a set of best practice and standards for IT service management. While both can be considered as important sources of IT programme governance, considering the wide range of topics they cover, it appears that they focus mostly on the management of the day-to-day IT services.

The Guide to Governance of Project Management (GoPM) commended by the Association for Project Management (APM, 2004) tries to provide answers to the questions related to the way those governing organisations should oversee the management of projects. While recognising that project management has come of age, that the body of knowledge is well-defined, and that skills requirement can be assessed and its method codified, thus proving good practices in managing and directing project work, the APM stresses the need to fulfil the gap in the governance requirement.

The APM guide provides a compliance checklist based on 11 principles identified from two corporate governance frameworks, namely the Sarbanes-Oxley Act of 2002 and the UK Listing Authority Combined Code of 2003. Despite the fact that most methodologies and activities involved with the day-to-day management of projects lie outside the direct concern of corporate governance, the APM guide focuses on the governance at individual project level.

Other research has been conducted at project level with the aim of establishing governance frameworks. Lambert (2003) and The Tasmanian State Government in Australia (TSG, 2005) developed frameworks in which they illustrated how various role players were involved in the governance of projects. As assessed by Lechtman (2005:107), they lacked control objectives similar to those specified in CobiT and did not address governance in the broad context of programmes, as intended in this study.

1.4 Project Description

1.4.1 Problem statement

The Programme Management Group plc (PMG plc, n.d.) stated in a white paper on governance in programme and project management that governance had become one of the buzz words of the age. Its absence has become a synonym for all that is wrong when corruption or mismanagement is uncovered. Masters Le Mesurier Pty Ltd (2006), consultant for organisations looking to the future, accentuates that generally failure to deliver benefits from most projects and programmes is due to over-run, or in the worst case, non-delivery, which can be traced back to inadequate programme governance.

Cooke-Davis (2005) argues that corporate scandals around the world have forced executives and top management to take an interest in the conduct of their organisation portfolios or projects. They focus on how to govern the initiatives undertaken by their organisations.

The concern of this research is based on the question:

How can IT programmes be governed while making sure that there is enough established control, responsibility and accountability to ensure the achievement of the programme's strategic benefit and objectives?

1.4.2 Research scope

As recommended, a research project should be delimited temporarily, spatially and logically. This research focuses on the need for a practical framework for IT programme governance. The study has been motivated by the fact that programme stakeholders are still 'flying blind', lacking a standard way of governing (KPMG, 2005a). Since the increase of programme management activities no study has emphasised or established a useful IT programme management governance framework.

This research will produce a literature survey on the field under research and an overview of the recent versions of governance frameworks and best practices, particularly corporate governance, IT governance and project governance. These standards will make a significant contribution to the development of an IT programme governance framework. The framework and comprehensive overviews of governance standards at corporate, IT and project levels are key to the success of this study.

The purpose of the research remains at programme level, excluding any implication or attempting to deal with governance issues at portfolio level, considering that this constitutes a research project on its own.

1.4.3 Research objectives

The goal of this research study is the development of a conceptual and detailed framework for IT programme management governance. This framework will gain an inside view of governance on other levels of the organisation, and provide an integrated model for efficiency and effective management of IT programmes.

To reach this goal the following objectives should be successfully attained:

- Establishing the foundation of programme management

- Analysing corporate governance to gain a broader understanding thereof and establishing its link to IT programme management governance
- Analysing IT governance with the aim of getting a broader understanding thereof and establishing its link to IT programme management governance
- Analysing project governance to get a broader understanding thereof and establishing its link to IT programme management governance
- Developing an IT programme management governance framework via the integration of the links established

1.4.4 Approach to the study

When conducting research the methodology and methods chosen depend on the researcher's beliefs, values and skills; the research goals and questions; and considerations of the time frame and funds available (Easterby-Smith, Thorpe, & Lowe, 1991).

Collis and Hussey (2003) describe research methodology as “a process of enquiry and investigation through which knowledge can be increased”. By considering the above description the researcher considers research methodology a process that is made up of systematic steps that must be followed correctly in order to undertake and complete a given research project effectively. The steps followed are usually pre-formulated and clarified stages, such as determination of the problem area, selection of the research topic, revision of the literature as well as data collection and analysis up to the final stage of drafting a final report.

For the purpose of this study and according to the intended goal a qualitative research approach will be used. By nature qualitative research describes events, persons or phenomena scientifically without the use of numerical data. It is on the other hand concerned with collecting and analysing information in many forms, mainly non-numeric. It tends to focus on exploring, in as many forms and as much detail as possible, smaller numbers of instances or examples which are seen as being interesting or illuminating. It aims to achieve “depth” rather than “breadth” (Blaxter, Hughes, and Tight, 1999).

Using a qualitative approach, the research methodology will include the following steps:

- A literature review of the recent researches on corporate governance. IT governance and project governance have been crucial for the researcher in compiling the present proposal, and they remain useful for the accomplishment of this research project.
- A document analysis and content analysis of the new versions of governance at different levels: corporate governance, IT governance and project governance.
- These standards will be analysed using a list of topics drawn up from the Standard for Programme Management (PMI, 2006, 2008b). This refers to understanding the standards and expectations of what should be included in programme management governance.
- A comparative study will be made of the results from the analysis of the standards for their integration and development of the framework for IT programme management governance by using a modelling approach.

The research type, form, approach, design (which includes methods for collecting and analysing data) and the research process are discussed in chapter 3.

1.5 Research layout

The most extensive and main objective of this study is the development of the framework for IT programme management governance. However, before the framework can be developed four important objectives are required to be attained, namely the establishment of the foundation of programme management, the analysis of a corporate governance framework, analysis of an IT governance framework and the analysis of a project governance framework.

The research project is made up of eight chapters outlined as follows:

- **Chapter 1: Orientation.** Based on the content of the proposal, the chapter describes the research problem and the intended method in which the

problem will be solved. It explains the design and the plan of the research project.

- **Chapter 2: Overview of Programme Management.** This chapter establishes an understanding of programme management, provides important concepts and terms as well as reviewing the evolution of the field.
- **Chapter 3: Research Methodology.** It contains in-depth descriptions, explanations and motivations of the process followed by the researcher to design the research, and to collect and analyse data and information necessary to attain the identified objectives and goal of the study.
- **Chapter 4: Corporate Governance.** This chapter gives an overview of corporate governance, analyses a corporate governance framework, discusses its relevance to IT programme management governance, and identifies its implications for IT programme management governance.
- **Chapter 5: IT Governance.** This chapter gives an overview of IT governance, analyses an IT governance framework, discusses its relevance to IT programme management governance, and identifies its implications for IT programme management governance.
- **Chapter 6: Project Governance.** This chapter gives an overview of project governance, analyses a project governance framework, discusses its relevance to IT programme management governance, and identifies its implications for IT programme management governance.
- **Chapter 7: The IT Programme Management Governance Framework.** Through this chapter the framework for IT programme management governance is developed and discussed extensively. The study compares various links identified from chapter 4, 5 and 6, and suggests an integrated view of the programme management governance framework.
- **Chapter 8: Conclusion.** This chapter summarises the research conducted in the study, showing how the objectives have been attained. The chapter is

concluded with a reflection on possible areas for further research, while looking at the shortcomings of this study.

Figure 1.1 illustrates how the chapters are correlated and indicates the manner in which each contributes to attaining the research objectives.

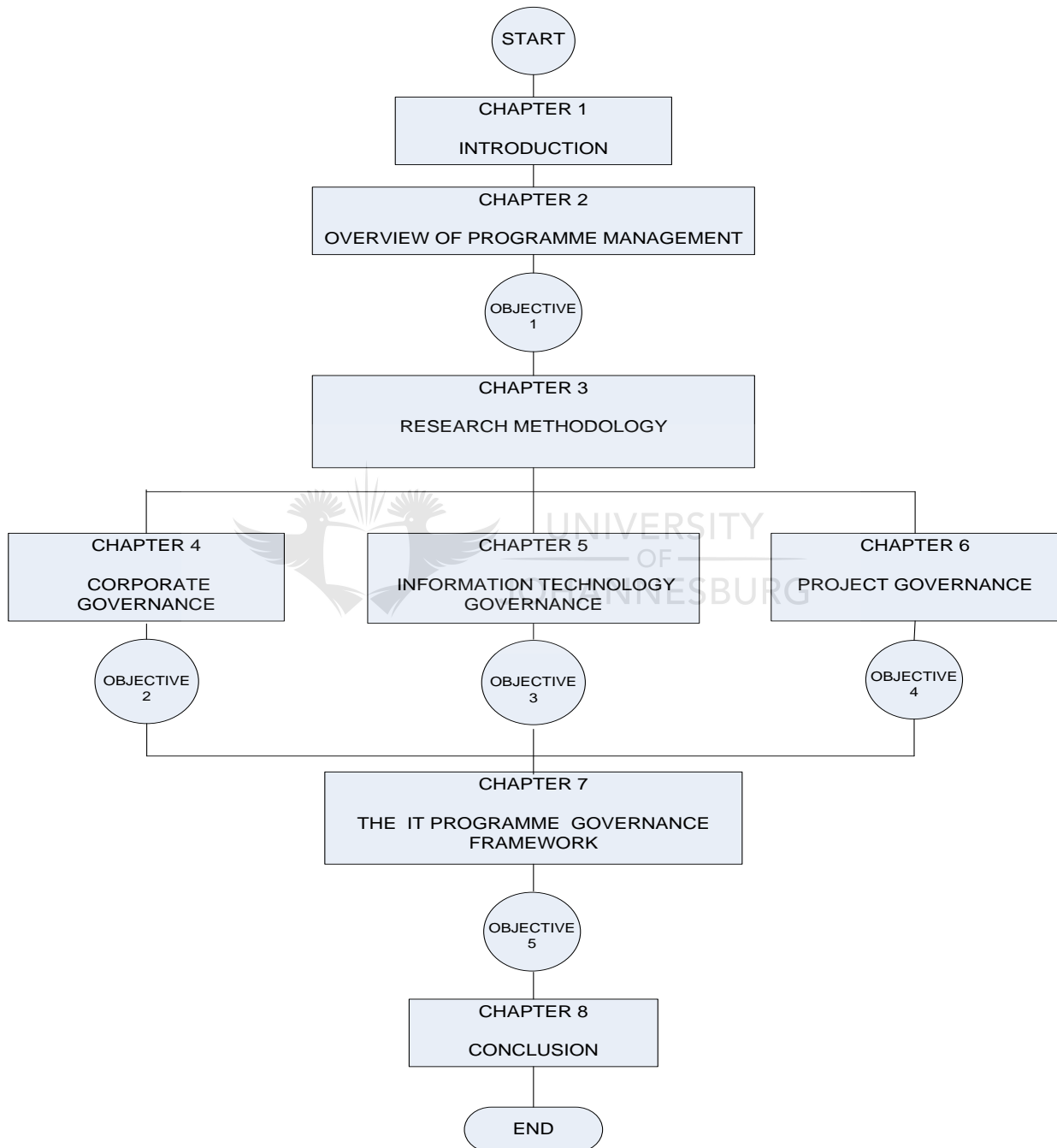


Figure 1.1: Chapters and their Contribution to Attaining the Research Objectives

1.6 Ethical considerations

According to Merriam-Webster Online Dictionary (2005), 'ethics' represents principles of conduct governing an individual or a group. As with each science that deals with individuals, it is appropriate to adhere to specific sets of rules that will minimise or prevent incidents of conflict between populations. When conducting a research project, research carries a responsibility to respect the right of subjects under study, and information collected must be protected and used fairly for the purpose for which it is intended.

Providing guidelines about ethical consideration, the University of Ulster (2003) says that "ethical consideration is a central issue in the design of any research project involving human subjects as it ensures integrity and good conduct". This research project will not make use of subjects (participants) from whom information could be collected; thus, it is exempted from such ethical implications. The only sources of information are governance standards.

The following chapter presents an overview of programme management. It establishes a basic understanding of programme management, and provides important concepts and terms as well as a review of the evolution of the field.

Chapter 2

Overview of Programme Management

2. 1 Introduction

2.1.1 Context

Programme management practices have existed for thousands of years (ProgM sig, 2008). From its early stages in the military and aerospace industries these have migrated to the commercial sector. It is widely recognised as a management discipline (Reiss et al., 2006).

The impact of speedy development of technology and the increased scale of change in the current business environment have forced organisations to cope so as to survive. Programmes are perceived as a means of achieving organisational change. As changes to be addressed divert, subsequent programmes are relatively different in their shape, size and structure. Thus, the meaning, use and approach to programmes and programme management vary widely across industries, sectors and business cultures (Artto, Martinsuo, Gemunden & Murtoaro, 2009).

2.1.2 Goal

The goal of this chapter is the establishment of a basic understanding of programme management, and provision of important concepts and terms as well as a review of the evolution of the field.

2.1.3 Objectives

In order to attain the goal mentioned above, objectives must be derived from the goal and they must be met.

- The first objective is to establish the foundation of programme management by providing various related terminologies.
- The second objective is to provide the purpose of programme management.
- The third objective is to review the historical development of programme management as an evolving discipline from project management.

- The fourth objective is to identify issues and developments in programme management.

2.1.4 Layout

The first section provides the foundation of programme management. It defines related terms and concepts, and establishes a basic understanding of programme management by discussing programme life cycle, processes, programme management tools and techniques, and programme types.

The second section determines the purpose of programme management. It links the purpose of programme management to the two main types of programmes, which embed what organisations strive to achieve by using a programme approach.

The third section focuses on historical developments based on recent literature. It discusses the advent of the discipline, significant contributions made to its emergence, and its move from a resource-centred view to a change vehicle and strategy delivery mechanism.

The fourth section deals with issues facing the discipline and forecasts developments.

2.2 Programme Management Foundation

The field of programme management grows from the field of project management; thus, the understanding of the context of programme management lies within the evolution of project management (Reiss et al., 2006:5-6; Russell, 1998). Project management has existed for many years, providing a structured and organised way of achieving success in business. The competition surrounding the actual business environment has emphasised the need for new technology with the aim of enhancing existing products or creating new ones; thus, splitting growth in project activities across different sectors (Bonham, 2005).

Meredith and Mantel (2003) recognise that the use of projects, project management and its organisation continue to grow, enabling us to attain goals through project organisation, which could be achieved only with the greatest difficulty, if organised in traditional ways.

Beside the success and surge of popularity enjoyed by project management since the 1960s, Meredith and Mantel (2003) point out a relatively new growth area in the use of project management, namely the use of projects as a way of accomplishing organisational reorganisation and change. This has been indeed noticed by the increase in the number of projects driven by an organisation and the increase in the number of firms that use projects as a preferred way of accomplishing almost everything they undertake (KPMG, 2005a).

Lycett, Rassau and Danson (2004) state that the majority of practical and theoretical developments in project management are related to single projects considered in isolation. Over time, however, issues arise when multiple projects are undertaken within organisations. Among these issues they have pointed out are:

- The risk that the lack of co-ordination and overall control was going to impact efficiency and effectiveness
- Confusion over responsibility for managing multiple demands on staff
- The matrix structure which, in some cases, could diffuse authority to the point that managers could no longer carry out their responsibilities.

In early 2001, Haughey (2001) introduced his perspective on programme management by saying that “today most organisations manage multiple projects concurrently with shared overlapping resources often in different geographical locations. Traditional project management products and techniques do not recognise the reality of today’s organisational structures and workplace priorities, nor do they leverage the potential benefits that accrue from multi-skilled, multi-location teams”. Programme management has been seen as a technique, which will lead organisations to drive multiple related projects concurrently to obtain significant benefits from them as a collection.

Reiss et al. (2006) attest that the move from physical projects to technology-led projects, which share resources with many other projects and with the normal business-as-usual workload, has given rise to many issues that the single project model fails to address. Programme management offers a way to deal with these issues.

The observation by Reiss et al. (2006) confirmed what Levene and Braganza (1996) had pointed out as a result of applying business process re-engineering (BPR). They specified that by applying BPR, organisations found themselves driving a series of projects, ranging from process improvement through to radical organisational transformation. These projects, somewhat large and interrelated, were difficult to manage using traditional or conventional project management due to a range of variables having to change, which makes it even more difficult to define and control the scope.

Although the widely use of project management as a business tool by major corporations, small businesses, government divisions and non-profit organisations for the achievement of various tasks and problem-solving, Boutross (2005) recognised that the use of straight forward project management showed limits. The author suggested an enterprise programme management philosophy and approach as a way of overcoming the limitations of the project-by-project approach.

From the business perspective, organisations are actually finding themselves confronted with new realities to which they have to respond as to remain in business. These realities can be new competitors entering the market, changes in customer behaviour or sudden change to government legislation.

Beside these external forces are some internal factors such as launching new products, creating new markets, remodelling business processes and providing new facilities. Both internal and external factors demand action.

The Office of Government Commerce (OGC, 2007) confirms these tensions and specifies that organisations exist in a climate where change is ubiquitous. Whatever the organisation, wherever it is located, however it is structured, the rate of change is increasing.

Levene and Braganza (1996) stipulate that succeeding in the business environment depends on how the organisation copes with change. They mention in particular change that comes from strategic decisions. OGC (2007) confirms that organisations that have learned how to transform themselves through effective leadership and strategic control are more likely to survive and prosper.

People in organisations are expected to be able to react quickly, flexibly, effectively and efficiently to the demands and impulses from their environment (Wijnen & Kor, 2000:13). They move from routine to improvisation by driving unique assignments. Project management seems to fill the gap between routine with its limits, and improvisation with its uncertainty, non-commitment and unpredictability.

Considering that change is driven by means of projects, successful projects are therefore likely to lead to successful business change when these projects are undertaken as a result of effective strategic direction.

Levene and Braganza (1996) recognise the need to create a strong link between strategy and project. Arto and Wikstrom's (2005) bibliometric study on project business indicates in its findings that projects, whether dependent or independent, are brought to a more strategic context and contribute to the fulfilment of strategic objectives in the entire business system.

Programmes provide the structure within which projects and business are brought together. Labuschagne and Marnewick (2006) confirm that programmes bent on strategic processes enable the linkage of projects directly to the strategy and it constitutes the basis of strategy implementation. Contemporary studies, referred to by Arto et al. (2009), emphasise the strategic orientation of programmes, its link to business and its ability to renew organisations with their own vision.

Within business, programme management offers companies a systems approach to solving business problems. Among these problems Martinelli (2007) cites the integration of various operating functions, aligning strategy and execution, mitigating business risks, managing complexity required to meet customer demand for performance, and enhancing development effort.

From the above literature programme management can be contextualise as a discipline that emerges from issues that have arisen from the application of project management to a group of related projects, which address changes facing the organisation, and the need for business to establish a link between the overall strategy of the organisation with their portfolios of projects.

While project management concepts are clearly understood by both academics and practitioners (Vereecke, Pandelaere, Deschoolmeeters & Stevens, 2003), literature recognises that programme management terms are still loose and have not yet settled down, and that the field is still in its early stage (Artto et al., 2009; Reiss et al., 2006).

Thiry (2002) stressed the difference among authors' views on programme and programme management, which ranged from programmes being associated with projects when they last longer than two years to programmes associated with multi-project coordinating or portfolio management. He emphasised that as views on programmes diverge, views on programme management are also diverged. While some organisations use project paradigms to run their programmes, others use a more holistic approach for their programmes (Thiry, 2002).

The understanding of concepts and terms of programme management implies an understanding of related terms and disciplines. This section commences with a profound discussion on projects and project management, as these constitute the basis of programme management.

2.2.1 Defining Projects

Project definitions vary according to the authors and their different fields of application. The discipline of project management has grown and much literature is accessible. Some of these definitions are given and a conclusive view has been drawn from their commonalities and differentiations.

Bitz and Knutson (1991) define *project* as a “unique effort to introduce a new product or service conforming to certain specifications and applicable standards”. This definition points out the uniqueness of the assignment, which differentiates a project from routine work or on-going operations of the organisation. The conformance aspect implies that, as a result-oriented assignment, the final product or service should meet the expectations and needs, and comply with the widely recognised model of excellence for that particular product or service.

According to MacLachlan (1996), “a project is a task with a beginning, middle and an end, which you as a manager, need to complete”. MacLachlan (1996) also points out

the temporary aspects of projects, which rely on the effort to be used to get them done. Limiting projects on the only characteristic of duration would qualify many activities as projects and create confusion over the difference between projects and other activities because even routine sometimes requires an end.

The British Standard (BS) 6079-1 on Project Management (Part 1, Guide to Project Management, 2000:2) states that “a project is a unique set of coordinated activities, with a definite starting and finishing point undertaken by an individual or organisation to meet specific objectives within defined schedule, cost and performance parameters”. Besides the fact that the British Standard poses the principles of uniqueness and temporality, it adds important features to a project, known as the ‘triple constraints’: scope, time and cost.

Kerzner (2003) says that projects can be considered to be any series of activities and tasks that “have a specific objective to be completed within certain specifications, have defined start and end dates, have funding limits if applicable, consume human and non-human resources (i.e. money, people, equipment), and are multifunctional (i.e. cut across several functional lines)”. Kerzner’ definition adds the fact that projects make use of organisational resources and are driven by a means of temporary organisation within a parent organisation, which would be disbanded as soon as the project objective has been accomplished (Lewis, 1995).

PMI (2008a:5), in its Guide to Project Management Body of Knowledge, stipulates that “a project is a temporary endeavour undertaken to produce a unique product, service or result”. The definition does not provide new elements but combines the result-oriented aspect of a project introduced by Bitz and Knutson (1991), and the temporary characteristic stated by MacLachlan (1996).

There is no exclusive definition of a project but most of them have some commonalities. Defining a project in this research will lead to identifying essential characteristics and features of projects, which should be applied to each activity for it to qualify as a project.

An activity, task or an assignment will be considered a project when:

- It is unique and temporary;

- It is multifunction-oriented;
- It uses human and non-human resources within defined scope, schedule and cost; and
- It complies with quality standards.

2.2.2 Defining *Project Management*

Kerzner (2003:4) defines *project management* as “the planning, organising, achieving and controlling of company resources for relatively short-term objectives that have been established to complete specific goals and objectives. Furthermore, project management utilises the systems approach to management by having functional personnel (the vertical hierarchy) assigned to a specific project (the horizontal hierarchy)”.

Kerzner’ understanding of project management underlines the result-oriented aspect of project management. All that would be done should focus on producing a service or a product with the aim of achieving specific goals. Callahan and Brooks (2004:23) explain that project management is not an end in its own but a process to achieve an end.

One of the important characteristics of project management is the system approach that has been mentioned. Project management as a temporary organisation requires resources from the permanent organisation in order to complete the project work. Meredith and Mantel (2003:10) identify conflict as one attribute of projects, which characterises the world project managers live in. They compete with functional managers for resources and personnel, or other project managers for resources within multi projects organisations.

The system approach, which applies the concepts of *system theory* and *system analysis* to the task of management, recognises that organisations exist in a universe of forces and comprise interrelated units, the goals and effects, which must be coordinated and integrated for the benefit of the organisation. Kerzner (2003) confirms that “project management is a system oriented approach to management because it considers the project as a system of interrelated tasks and work unit operating in a changing environment. It seeks to unify the planning and work effort of

numerous organisational units working on a project, to efficiently accomplish, with minimal trade-offs, the multiple goals of a project”.

Lewis (2005:12) defines *project management* as “the facilitation of the planning, scheduling and controlling of all activities that must be done to meet the project objective”. Lewis’s view of project management adds two concepts of consideration: these are the facilitation of the process and the application of these processes on all activities. Facilitating processes call on the ‘people’ aspect of project management, as they are the ones engaged in processes. This implies that processes only would not get projects to be successful but the way in which these processes are applied (people intervention) remains a key factor. Schwalbe (2010:339) states that people determine the success and the failure of organisations and projects.

The application of processes on all activities related to the project refers to the system approach suggested by Kerzner (2003). Not only direct project works are the focus of project management but understanding how the project relates to the entire organisation, business, and technological and organisational issues related to each project should be considered. Stoneham, (n.d.) as cited in Schwalbe (2010), says that “if you approach everything from system thinking, you see everything as connected; successful change has to be planned and managed at the organisational level so that the whole system is taken into account”.

The Project Management Institute’s (PMI, 2008a:7) definition of *project management* is: “... the application of knowledge, skills, tools and techniques to project activities to meet projects requirements”. This emphasises the use of a proper methodology to enhance project success or successfully carry out project work.

From the above definitions *project management* can plausibly be define as “the system approach of the planning, organising, monitoring and controlling of all project activities while using a methodology to meet the project goal within the boundaries of time, cost, scope and quality”.

Multiple projects with a common theme or objective can be grouped into a programme and managed, using the programme management approach (Vereecke

et al., 2003). The concepts of *programme* and *programme management* are defined in the next section:

2.2.3 Defining *Programme*

Literature approaches the concepts of *programme* and *programme management* differently because of a lack of theoretical foundation, consensus and precise definition of both concepts (Rayner, 2007). The comparative bibliometric study on programme management conducted by Artto et al. (2009) points out the use of loose definitions of programme concepts to such an extent that it is difficult to establish distinctive features and differences between projects and programmes, and their management.

Ferns (1991) defines *programme* as “a group of projects that are managed in a coordinated way to gain benefits that would not be possible where the projects are to be managed independently”. Ferns stress the benefit of coordinated management comparative to the individual management of a project.

Pellegrinelli (1997) describes *programme* as “a framework for grouping existing projects or defining new projects, and for focusing all the activities required to achieve a set of major benefits. These projects are managed in a coordinated way, either to achieve a common goal or to extract benefits which would otherwise not be realised if they were managed independently”. This definition emphasises the coordinated management introduced by Ferns (1991) and considers *programme* as a project organiser for the achievement of predefined goals.

Gray (1997) provided a means by which projects are organised within a programme. He identified two chronologies of programme formulation. He defined “loose model” as the one in which a programme is derived from grouping existing projects that have something in common, and the “strong model” as the one in which the starting point is the high strategic objective from which a programme mission statement can be formulated. Then various projects are defined.

This has been emphasised by Labuschagne and Marnewick (2006) who consider that a programme can serve as a framework for grouping existing projects in the

bottom-up approach, and as a framework for defining new projects in the top-down approach.

It is also important to mention here that both Gray (1997), and Labuschagne and Marnewick (2006) mention that commonalities or interrelations among projects constitute the basis from which these projects can be grouped in a programme.

Murray-Webster and Thiry (2000) extend the concept of *programme* to include other works. They define *programme* as “a collection of change actions (project and operational activities) purposefully grouped together to realise strategic or tactical benefit”. It then appeals that not only projects constitute a programme but also other works, as these are impacted by or contribute to the achievement of the programme goal or realisation of the benefit.

The Standard for Programme Management (PMI, 2008b:5) defines *programme* as “a group of related projects managed in a coordinated way to obtain benefits and control not available from managing them individually”. By adding control, the PMI perceives programme as an umbrella under which project works are conducted.

This view has also been stated by Haughey (2001), arguing that programme management is a way to control project management and it covers vision, aim and objectives, scope, design, approach, resourcing, responsibility and benefits realisation.

Another aspect that needs to be mentioned is the strategic aspect of programmes. The British Telecommunications plc (BT) Project Management Handbook (1994:3) establishes a link between the benefit gained from the coordinated management to the overall strategy of the business. The BT’s definition stipulates that projects grouped into a programme should strive to achieve common purpose in support of the strategic aims of the business. It is in this context that in Managing Successful Programmes (MSP), the OGC (2007) defines a *programme* as “a temporary, flexible organisation created to coordinate, direct and oversee the implementation of a set of related projects and activities in order to deliver outcomes and benefits related to the organisation’s strategic objectives”. The understanding here is that programmes are

created to serve the organisational strategy; thus, they should be flexible enough to accommodate possible change from the strategy.

Factors merge from the above literature regardless of whether a programme is a top-down or bottom-up initiative. These common factors are:

- Projects within a programme should be interrelated.
- Programmes include project and other work.
- Their management must be coordinated.
- The coordinated management must provide benefit and control.
- The goal of the programme should support organisational strategic objectives.

In this study, *programme* is defined as a collection of interrelated projects and other works managed in a coordinated way so as to provide benefits and control for the achievement of strategic objectives.

Further into this research the term *portfolio* is used to describe certain projects or programmes. A *portfolio* is “a collection of projects or programmes and other works that are grouped together to facilitate the effective management of that work to meet strategic business objectives” (PMI, 2008c:4).

2.2.4 Defining Programme Management

Programme management has been defined differently in the literature, mostly described as the management of a collection of projects or the management of change.

The Central Computer and Telecommunication Agency (CCTA, 1999), in its introduction to programme management, referred to by Haughey (2001), describes *programme management* as the coordinated management of a portfolio of projects to achieve a set of business objectives.

Haughey (2001) provided an analysis of the CCTA approach. He places it in the context of an organisation having established its long-term objectives; then identifies projects that help attain these objectives and think of possible benefits. The kinds of projects in this case are likely to change the organisation itself. He find CCTA definition suitable for organisations about to go through considerable internal

change, mostly public funded bodies, as the CCTA referred to projects such as competing projects or projects that bring new products as a result of external changes.

The OGC (2003) emphasises the notion of change. It asserts that programme management is “the coordinated management of a portfolio of projects that change organisations to achieve benefits that are of strategic importance”.

The view of programme management as a change vehicle is also stressed by Nieminen and Lehtonen (2008). They argue that programme management is “the integration and management of a group of interdependent projects with shared objectives to implement a strategic change and to achieve benefits that would not be realised if the projects were managed independently”. The definition links change to the strategy. This is to ensure that the programme still establishes a bridge between projects and the strategic goal of an organisation.

Programme management as a change vehicle would impede or need contribution from other parts of the organisation. The implementation of the outcome of the programme of projects for illustration would impact on the business as usual and the operational environment.

OGC (2007) defines *programme management* as the “action of carrying out the coordinated organisation, direction and implementation of a dossier of projects and transformational activities to achieve outcome and realise benefit of strategic importance to the business”.

Transformational activities, brought in by the OGC’s (2007) definition, extend programme management to other activities or works, which, together with projects, deliver organisational changes.

Another school of thought on programme management is the one supported by PMI (2008b). The Standard for Programme Management (PMI, 2008b:6) defines *programme management* as “the centralized coordinated management of a programme to achieve the programme strategic benefit and objectives”. Centralised coordinated management implies that the cross-functional coordination and integration within the context of project management would be extended to include

cross-project coordination and integration, which will impact significantly on the schedule, incremental benefit and resources.

Besides the programme management structure supported in the definition, PMI (2008b) underlines the overriding mission of a programme: the achievement of the strategic benefit. The definition absorbs Partington, Pellegrinelli and Young's (2005) concept of corporate programme management, referring to the structure and processes that are used to coordinate and direct the multiple interrelated projects that together support the strategy of an organisation.

While definitions of programme management vary in the literature and depending on the field of application, some common aspects may be addressed:

- Coordinated management
- Management of interrelated projects and other activities
- Achievement of change
- Delivery of benefit
- Accomplishment of strategic objectives or stated business goals

From the above, in the context of this study, *programme management* will be defined as “the coordinated management of interrelated projects and other activities with the aim of achieving organisational change and/or delivering benefit of strategic importance”.

The common elements identified, which have led to the definition of *programme management*, describe what programme management entails. Besides these elements, numerous activities which are required in order to achieve effective programme management are grouped into what Reiss et al. (2006:28), OGC (2007) and PMI (2008b) respectively identify as topic areas, governance themes or programme knowledge areas. These activities are discussed below.

2.2.5 Programme Management Activities

Just like “knowledge area” in project management, “programme management” groups its activities into broad topic area, themes or knowledge areas, which run throughout the programme life cycle and are present in all stages within the

processes. These themes or areas vary, depending on the programme management approach.

It is highly complicated and time consuming to analyse all available programme management approaches. The 3 approaches (Reiss et al., 2006; OGC, 2007; PMI, 2008b) discussed within this section were chosen for the following reasons:

Firstly, the PMI standard for programme management and the OGC framework called Managing Successful Programmes are considered as solid and intelligible methodology from content point of view (Danneels, 2006), and key international standards for programme management (Strausser, 2009).

Secondly, the Gower Handbook of Programme Management provides a definitive reference to programme management written by six of the most experienced practitioners in this area (Reiss et al., 2006).

Reiss et al. (2006:28) describe *programme activities* as the supporting infrastructure that comprises techniques and structure that will be required to deliver efficient organisational changes. These activities (topic areas) are needed in support of the practical programme management life cycle and the programme management processes. Table 2.1 presents these topics areas identified by Reiss et al. (2006).

Table 2.1: Programme Management Topic Areas

	Topic Area	Description
1	Programme Organisation and Governance	The programme organisational structure which operates at programme level within the programme and at the interface with the rest of the organisation. This includes roles, responsibilities, processes and activities that provide control.
2	Programme Planning and Control	Techniques for planning and controlling a number of programmes by establishing processes and procedures that allow for consistent planning. This excludes the planning and controlling of individual projects.
3	Benefits	A continuous process of defining, agreeing, measuring

	Topic Area	Description
	Management	and reporting on the expected benefit, which ensures that the programme effectively delivers the expected benefit
4	Stakeholder Management	The process by which those leading and managing a programme organise things so as to manage key individuals in the programme and the inevitable politics that surrounds the programme
5	Management of Risks and Issues	Activities required for the management of uncertainty within a programme. These uncertainties can take two forms: issue or risk.
6	Programme Assurance and Quality	An effective regime that determines quality requirements and ensures that they are met
7	Configuration Management	The process of identifying controlling and protecting products generated by a programme, and their interrelationship to one another
8	Internal Communication	The process of planning, organising and monitoring the internal communication mechanism within the programme team
9	Programme Accounting and Financial Control	The process that provides senior management with assurance that the programme can be completed within the financial constraints placed upon it
10	Management of Scope and Change	This ensures that the programme recognises when changes are required, and it initiates a predefined process that provides appropriate information for effective decision-making.
11	The Programme Office	A collection of functions that provides services to programmes. These functions may not be located in the same physical area.

	Topic Area	Description
12	Programme Knowledge Management	The process of capturing and sharing knowledge, while through monitoring and review, ensuring that it is a worthwhile and valuable asset

Source: Reiss et al., 2006

OGC (2007) considers programme management activities as governance themes that must be applied throughout the programme in order to support the transformational flow, and provide a reference point, guidance, tools, and techniques. Governance themes are therefore considered to be the means by which an organisation's approach to programme management will be defined, measured and controlled. These themes are described in Table 2.2 below.

Table 2.2: Programme Management Themes

	Themes	Description
1	Organisation	Describes the structures and roles to enable programme delivery, including the responsibilities and competencies of individuals within that structure
2	Vision	Describes the role of the vision statement, its development, contents and contextual importance to the programme
3	Leadership and Stakeholder Engagement	Describes the need and nature of leadership against the backdrop of stakeholder engagement. Provides tools and techniques to analyse individuals and groups of stakeholders with a cycle of activities to maintain engagement and support the communication plan
4	Benefits Realisation Management	Explains how benefits are central to any programme. Describes the tools and techniques that can be deployed to ensure understanding and opportunities are maximised during deployment

	Themes	Description
5	Blueprint Design and Delivery	Describes the criticality of designing the organisation that the programme will deliver, the to-be state and the steps through which it will be delivered
6	Planning and Control	Describes the elements that need to be considered to plan, design and deliver the complex set of management practices that enable project coordination and focus on transition whilst maintaining business-as-usual
7	Business Case	Describes how the business case will provide the key decision-making information within any programme. It represents the balance between the investment costs and the realisable benefits to be achieved. This theme helps define the life cycle of the business case and management controls to be applied.
8	Risk Management and Issue Resolution	Risk management is based on the Office of Government Commerce's (OGC) management of risk framework. This then describes how it should be applied to the programme management environment to ensure a structured and systematic approach to identifying and controlling risk and issues, which continues from the start through to the end of the programme.
9	Quality Management	Describes how quality is applied to the programme, and the areas and activities that characterise quality in the programme

Source: OGC, 2007

Relative to knowledge areas in project management, PMI (2008b) defines *programme management activities (knowledge areas)* by their requirements and

describes them in terms of their components, processes, practices, input, output, tools and techniques. These areas of programme management, identified by PMI (2008b), are summarised in table 2.3 below.

Table 2.3: Programme Management Knowledge Areas

	Knowledge Area	Description
1	Programme Integration Management	Programme integration management includes the processes and activities needed to identify, define, combine, unify and coordinate multiple components within the programme as well as coordinate the various processes and programme management activities within the programme management process group.
2	Programme Scope Management	It identifies the deliverables, estimates the major risks, and establishes the relationship between product scope and programme scope, while setting standards for clear achievable objectives.
3	Programme Time Management	It involves processes for scheduling the defined programme components and entities necessary to produce the final programme deliverables. This includes the order in which components are executed, the critical path and the milestones to be measured in order to keep the programme on track.
4	Programme Cost Management	This has to be aligned with the PMBOK guide, fourth edition, which entails the estimating, budgeting and controlling cost so that the project can be completed within the approved budget.
5	Programme Quality Management	This has to be aligned with the PMBOK guide, fourth edition, which entails the processes and activities of the performing organisation that determines quality policies, objectives and responsibilities so that the project will satisfy the need for which it was undertaken.

	Knowledge Area	Description
6	Programme Human Resource Management	This has to be aligned with the PMBOK guide, fourth edition, which entails the processes that organise, manage and lead the project team.
7	Programme Communication Management	It includes the processes for ensuring the timely and appropriate generation, collection, distribution, storage, retrieval and ultimately disposition of programme information.
8	Programme Risk Management	It describes the processes involved with identifying, analysing and controlling risks for the programme.
9	Programme Procurement Management	It describes the processes, inputs, tools, techniques and outputs associated with performing procurement for a programme.
10	Programme Financial Management	It includes all the processes involved in identifying the programme financial sources and resources, integrating the budget of individual programme components with the overall budget for the programme, and controlling costs throughout the programme life cycle.
11	Programme Stakeholder Management	This defines programme stakeholders as individuals and organisations whose interests may be affected by the programme outcomes, either positively or negatively.
12	Programme Governance Management	This ensures that decision-making and delivery management activities are focused on achieving programme goals in a consistent manner, addressing appropriate risks and fulfilling stakeholder requirements.

Source: PMI, 2008b

Despite the difference in grouping and naming schemes, the above three programme management activities approaches show some commonalities. By comparing them, an inclusive view of programme management areas can be provided. Table 2.4 compares these three approaches.

Table 2.4: Inclusive Views of Programme Management Areas

Reiss et al. (2006)	The OGC (2007)	PMI (2008b)	Inclusive View
Programme Organisation and Governance	Organisation	Programme Governance Management	Organisation and Governance Management
Programme Planning and Control	Planning and Control	-	Planning and Control
Benefits Management	Benefit Realisation and Management	-	Benefit Realisation and Management
Stakeholder Management	Leadership and Stakeholder Engagement	Programme Stakeholder Management	Leadership and Stakeholder Management
Management of Risks and Issues	Risk Management and Issues Resolution	Programme Risk Management	Risk and Issues Management
Programme Assurance and Quality	Quality Management	Programme Quality Management	Assurance and Quality Management
Configuration Management	-	-	Configuration Management
Internal Communications	-	Programme Communication	Communication Management

Reiss et al. (2006)	The OGC (2007)	PMI (2008b)	Inclusive View
		Management	
Programme Accounting and Financial Control	-	Programme Financial Management	Accounting and Financial Management
		Programme Cost Management	
Management of Scope and Change	-	Programme Scope Management	Scope and Change Management
The Programme Office	-	-	The Programme Office
Programme Knowledge Management	-		Programme Knowledge Management
-	Vision	-	Vision
-	Business Case	-	Business Case
-	-	Programme Integration Management	Integration Management
-	-	Programme Time Management	Time Management
-	-	Programme Human Resource Management	Human Resource Management
-	-	Programme Procurement Management	Procurement Management

As it can be seen in Table 2.4, some programme management activities are common to the three approaches analysed by illustration, while others are particularly considered in one of these approaches. Of particular importance for this study is the inclusive view provided. It is important to understand what is being managed before engaging in a quest to develop a framework for governing programme activities.

In summary, Table 2.4 suggests that programme management areas that are similar should be broadened to include all views, and those that are differential should be included to provide an exhaustive view of programme management activities. However, programme activities operate throughout the programme life cycle and processes. The following section discusses the programme management life cycle before analysing programme management processes.

2.2.6 Programme Management Life Cycle

Literature on programme management frequently uses the concepts of *life cycle* and *process* interchangeably (Reiss et al., 2006:31), or in other cases develop *life cycle* from the process perspective or process-based approach (OGC, 2007).

Although *life cycle* and *process* can be combined within a framework, *life cycle* in a broad context establishes the cyclical nature of the organisation, processes, products and systems comparatively to the cradle-to-grave life stages in terms of birth, growth, maturity, decay and death of living organisations while *process* comprises procedures that use resources to convert input into output (WebFinance Inc, 2008).

Reiss et al. (2006:31) state that a programme has a beginning, middle and an end that constitute the stages, referred to as *programme life cycle*. The OGC (2007) describes *programme life cycle* as the transformational flow that details the programme journey through the programme evolution.

There is no standard naming of the phases. In contrast, they vary according to programme or industry. Lycett et al. (2004) recognised the existence of generic stages common to most approaches to programme life cycle. These stages are (i) programme identification, (ii) definition, (iii) execution, and (iv) closure.

The early programme life cycle suggested by Pellegrinelli (1997) tended to group programme management processes into five relatively discrete phases where between the (i) initiation phase and (v) dissolution phase, are (ii) definition and planning, (iii) projects delivery and (iv) renewal, constituting the 'spiral' or 'loop'. The spiralling or looping creates a series of programme works proceeding in waves or tranches. The model suggests that after initiating programme, projects are defined and their sequence planned. As progress is made and reached, the organisation can evaluate the validity of the programme on a periodic basis and decide whether it should be renewed or dissolved.

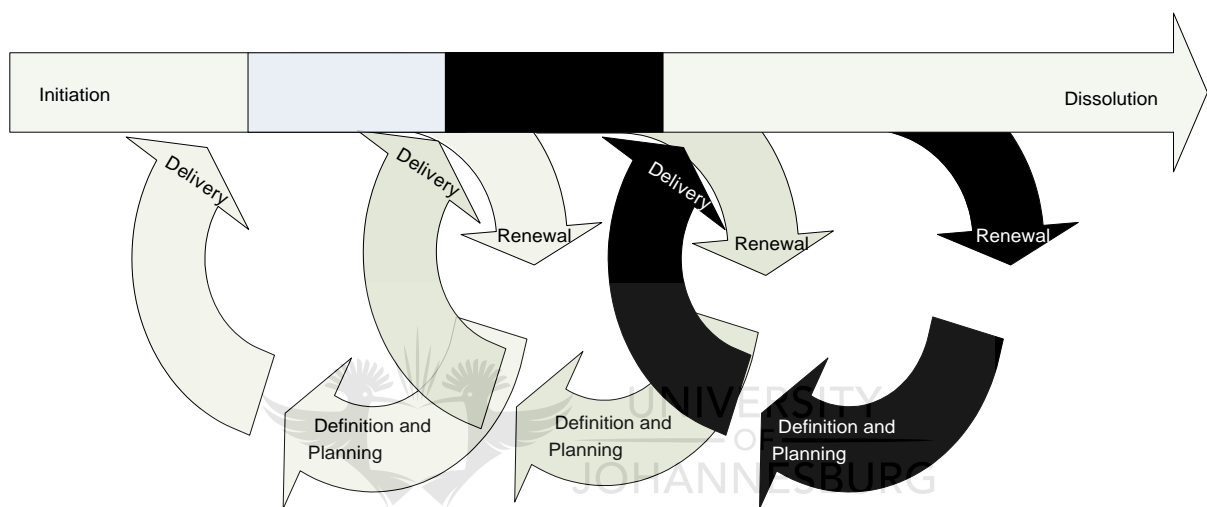


Figure 2.1: Programme Management Life Cycle

Source: Pellegrinelli, 1997

Haughey (2001) introduced a four-stage programme management life cycle presented below.

- **Programme identification** focusing on the high level whereby the strategy and business direction are decided, the required programme determined and the expected benefit defined
- **Programme planning**, which deals with the design of the programme in terms of the approach, resources and responsibilities

- **Programme delivery**, which entails the monitoring and controlling of the programme work, reporting on the progress of the programme, managing risk and issue, while projects are being managed to produce their deliverables
- **Programme closure**, where the desired benefits are proved to be realised

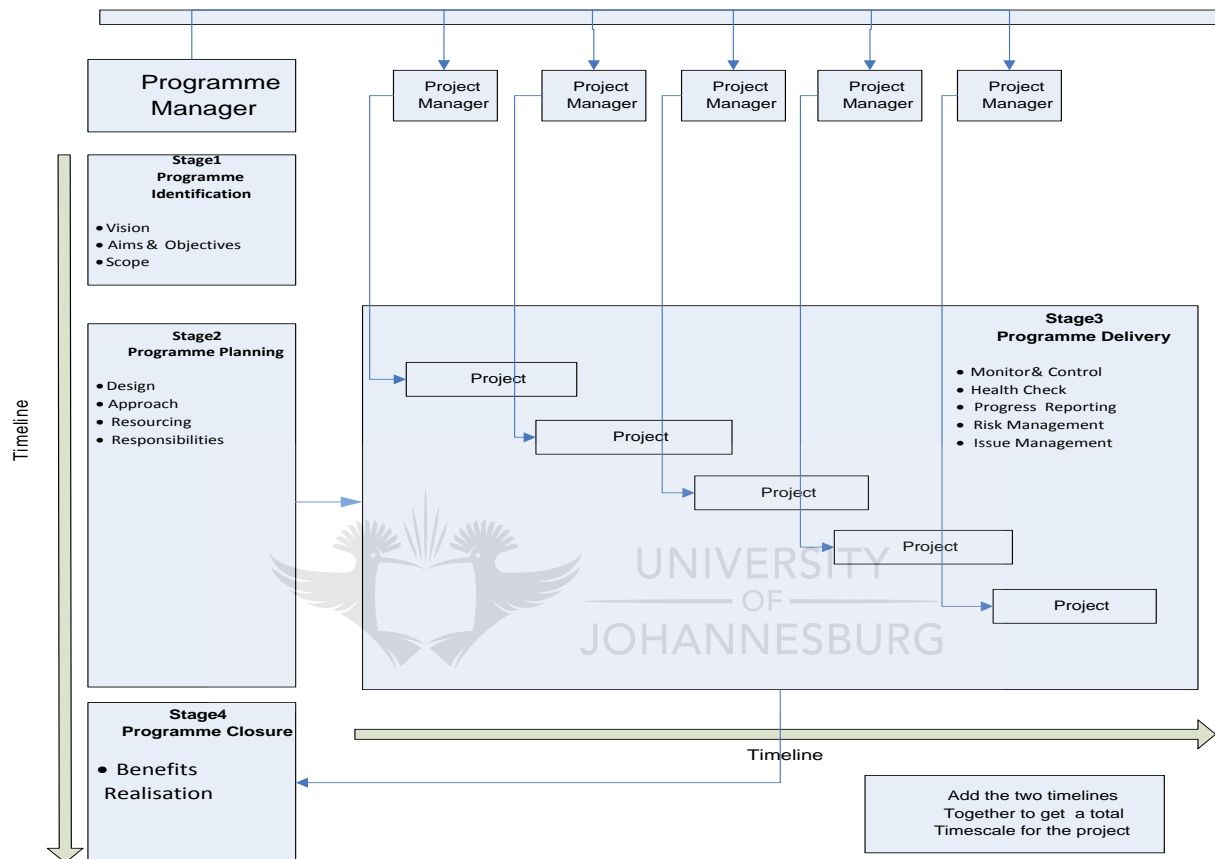


Figure 2.2: Programme Management Life Cycle

Source: Haughey, 2001

The naming schemes of programme management life cycle used by Pellegrinelli, (1997) and Haughey (2001) are based on project concepts and use project rhetoric. Thiry's (2004) study on programme management life cycle process notes that "a number of books and papers have suggested programme 'phases' which albeit their different names, are in most instances just transposition of the project paradigm into

programme management”. His advice was that programmes should consider the learning paradigm that comes from strategic management and value instead of referring to project management, which has difficulty to provide strategic change or improvement programmes.

A five-phase life cycle model was suggested and described in his own words as “both iterative and based on learning in order to address multiple stakeholders, spacing, changing context, and interdependencies, which are essential characteristics of programmes, and uses strategic long term management rhetoric, rather than project rhetoric”. His model, “For DAD”, has the following stages:

- **Formulation:** sense-making, seeking of alternative evaluation of option and choices
- **Organisation:** strategy planning and selection of action
- **Deployment:** execution of actions and projects, and support of operational activities and control
- **Appraisal:** assessment of benefits, review of purpose and capability, and re-pacing, if required
- **Dissolution:** reallocation of people and funds, knowledge management and feedback

The particularity of the “For DAD” model also relies on its iterative process that the model suggests. Although many literature sources (Lehtonen & Martinsuo, 2008; Pellegrinelli, 1997; PMI, 2008b; Reiss et al., 2006) recognise that a programme does not necessarily proceed in a linear manner from one phase to another. Instead, the stages may overlap. The “For DAD” model suggests that the first four stages are iterated until the rationale for the programme no longer exists.

By including the formulation stage in the loop, the model ensures a constant alignment of the programme with its strategic objectives shaped by emerging inputs: threats or opportunities from the internal and external environment. The “For DAD” model is illustrated in Figure 2.3.

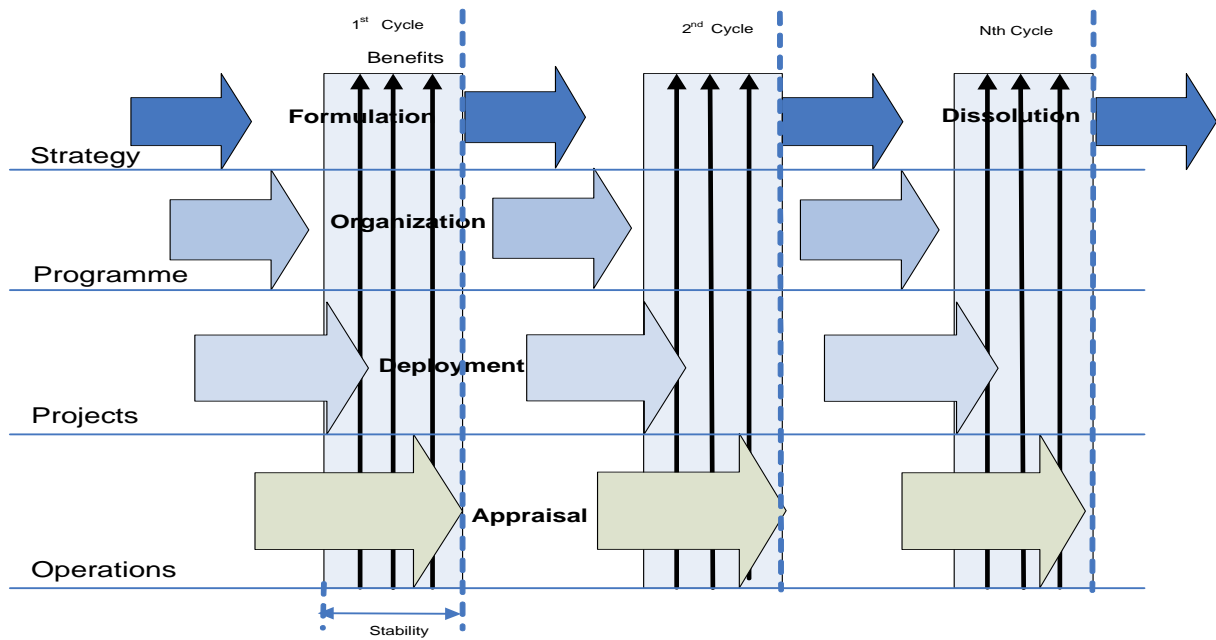


Figure 2.3: Programme Management Life Cycle

Source: Thiry (2004)

Reiss et al. (2006:31) suggest a model that contains five nonlinear phases with review based on accomplished programme tranches. The model splits Thiry's (2004) organisational stage into two phases: *Define Programme* and *Establish Programme*. The model combines the deployment and appraisal stages of the Thiry (2004) model into one phase, namely the *Manage Programme* phase.

The five phases are: (i) Start Up, (ii) Define Programme, (iii) Establish Programme, (iv) Manage Programme and (v) Closure. They are illustrated in Figure 2.4.

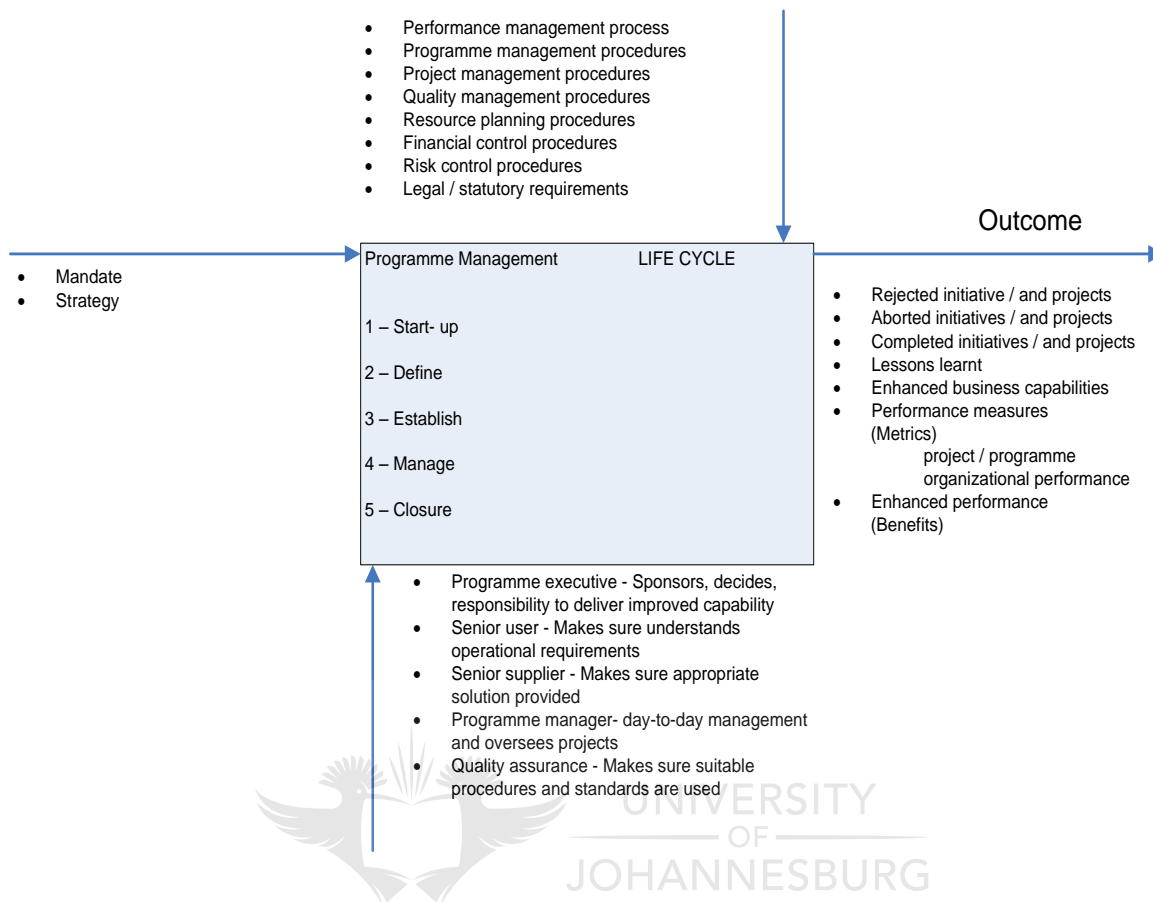


Figure 2.4: Programme Management Life Cycle

Source: Reiss et al., 2006

Another approach to programme life cycle has been provided by OGC (2007) with six phases, three of which constitute a decomposition of the *Manage Programme* phase from the Reiss et al. (2006) life cycle version.

The MSP phases are: (1) Identifying a Programme, (2) Defining a Programme, (3) Managing the Tranches, (4) Delivering the Capability, (5) Realising the Benefits and (6) Closing the Programme. Figure 2.5 below illustrates the OGC (2007) life cycle.

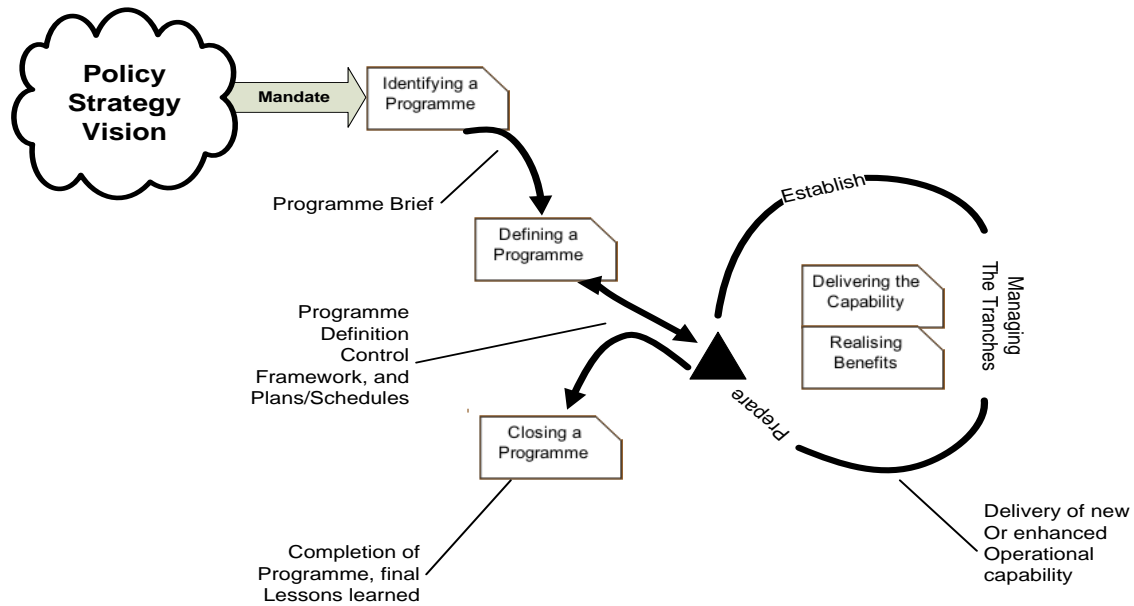


Figure 2.5: Programme Management Life Cycle

Source: OGC, 2007

PMI (2008b:18) makes a difference between *programme process* and *programme life cycle* by describing the latter as the breaking of programmes into discrete and overlapping phases, which facilitate programme governance and control, coordination of programme and component resources, and overall risk management.

Despite the recognition of the adaptive characteristics of the life cycle to the programme type or its requirements, the standard states that the major life cycle phases and their deliverables remain the same regardless of the model being used.

The PMI (2008b) model suggests a gate review for each phase instead of the Thiry (2004) review, which is based on accomplished programme tranches. The five phases of the PMI (2008b) model are: (i) Pre-programme Preparation, (ii) Programme Initiation, (iii) Programme Setup, (iv) Delivery of Programme Benefit and (v) Programme Closure. The model is illustrated in Figure 2.6.

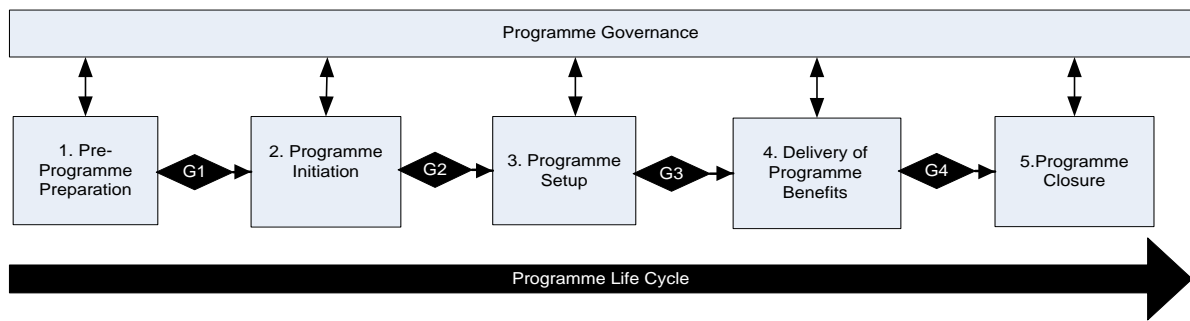


Figure 2.6: Programme Management Life Cycle

Source: PMI, 2008b

Using the four generic stages (Identification, Definition, Execution and Closure), identified by Lycett et al. (2004) as common stages to most approaches to programme life cycle, the following table compares the six programme management life cycle models discussed above:



Table 2.5: Comparisons of Programme Management Life Cycles

Authors Stage	Pellegrinelli (1997)	Haughey (2001)	Thiry (2004)	Reiss et al. (2006)	OGC (2007)	PMI (2008b)
Identification	1. Programme Initiation	1. Programme Identification	1. Formulation	1. Start up	1. Identifying a Programme	1. Pre-programme Preparations
						2. Programme Initiation
Definition	2. Definition and Planning	2. Programme Planning	2. Organisation	2. Define Programme 3. Establish Programme	2. Defining a Programme	3. Programme Setup
Execution	3. Project Delivery and Renewal	3. Programme Delivery	3. Deployment	4. Manage Programme	3. Managing the Tranches	4. Delivery of Programme Benefits
			4. Appraisal		4. Delivering Capabilities	
					5. Realising Benefit	
Closure	4. Dissolution	4. Programme Closure	5. Dissolution	5. Closure	6. Closing the Programme	5. Programme Closure

As can be seen from Table 2.5, existing programme management life cycles are all inspired by the generic stages identified by Lycett et al. (2004), although their naming scheme and number of stages differ. Regardless of the life cycle used, each programme has to be identified, defined, executed and finally closed.

What would constitute important differences from the researcher's point of view are the iteration method, and the process and frequency of reviews. These are quite different from one model to the next.

For the purposes of this research project, the PMI (2008b) programme management life cycle will be used, based on the following reasons:

Firstly, the standard for programme management has a universal recognition of providing good practices and the necessary steps for the successful management of programmes. It is an American National Standards Institute (ANSI/PMI 08-002-2008) standard (ANSI, 2008).

Secondly, the PMI, which is the organisation that provides the standard, is the leader in the development of professional standards, providence of professional career paths and maintenance of a family of globally transferable professional credentials that include Programme Management Professional (PgMP). It has more than one million members, credential holders, volunteers and trained project professionals worldwide (ANSI, 2008).

Lastly, the suggested life cycle provides a governance mechanism on a routine basis, specifically at each stage of the programme life cycle (PMI, 2008b:21). These gate reviews ensure top management oversight of deliverables, performance, risks and issues; therefore, they constitute an important principle with regard to the purpose of the study.

The following is a description of each phase:

1 Pre-programme Preparations

In the pre-programme preparations phase the foundation for the programme support, approval and prioritisation has to be established. That is a high-level business case, demonstrating an understanding of the need and ensuring the

strategic value of the business change is developed, programme objectives defined and a plan, which includes a programme checkpoint, is developed (PMI, 2008b:22-23).

2. Programme Initiation

During the programme initiation phase a robust approach and detailed structure are developed, giving direction to how programme executives will manage the programme. The fundamental deliverable of this phase is the programme charter that contains all available programme information and constitutes the basis of which the strategic body would approve the programme (PMI, 2008b:24-25).

3. Programme Setup

During the programme setup phase the programme infrastructure is established, components and their deliverables are identified, and the management approach specified (PMI, 2008b:26-28).

According to Reiss et al. (2006:97), at the end of this phase, “all the necessary elements required undertaking the first tranche of a programme activity should be on the starting grid, and ready to go”. This means that feasibility studies should be done to ensure that all possible programme issues are dealt with.

4. Delivery of Programme Benefits

The delivery of programme benefits phase, also described as the business end of the programme (Reiss et al., 2006:116), entails the initiation of component projects and the coordination of the deliverable to deliver the benefits required by the organisation. During this phase a governance structure for monitoring and controlling projects must be established, projects are initiated and responsible practices related to the management of the deliverable, progress, environmental changes, resource, risks, issues, benefit and corrective actions are constantly applied.

5. Programme Closure

The programme closure phase implies the shutting down of the programme organisation, technical infrastructure and relative facilities. Among various activities related to the closure of such a temporary organisation, programme closure includes reviewing the status of benefits with stakeholders, documenting lessons learned, providing feedback, recommending possible changes, storing and indexing programme documents, and managing the transition to the operational environment of the organisation (PMI 2008b:30).

After describing the cyclical nature of programme management, it is now important to look at the procedures that use resources to convert input into output. The section below discusses programme management processes.

2.2.7 Programme Management Processes

As defined earlier in this study, a process comprises a set of procedures that use resources to transform input into output. The outputs to the process n are used as input to the process $n+1$ until the final goal or result will be reached.

In the context of programme management, two schools of thought have emerged with different views on programme management processes:

Firstly, literature describing the programme life cycle using a process-based approach assumes that programme management is a single process comprising a number of stages where each stage converts input into output by means of actions using organisational resources, applying control and ensuring that all work has been done before moving to the next stage (Reiss et al., 2006:32, 33). Stages in this context are different steps of the programme life cycle.

Reiss et al. (2006:33, 41) presented the single programme management process as occurring in three phases within which the five stages of the programme life cycle fit. These stages are encompassed by supporting processes.

Figure 2.7 illustrates the process phases, life cycle stages, supporting processes and the pursued objectives for each phase.

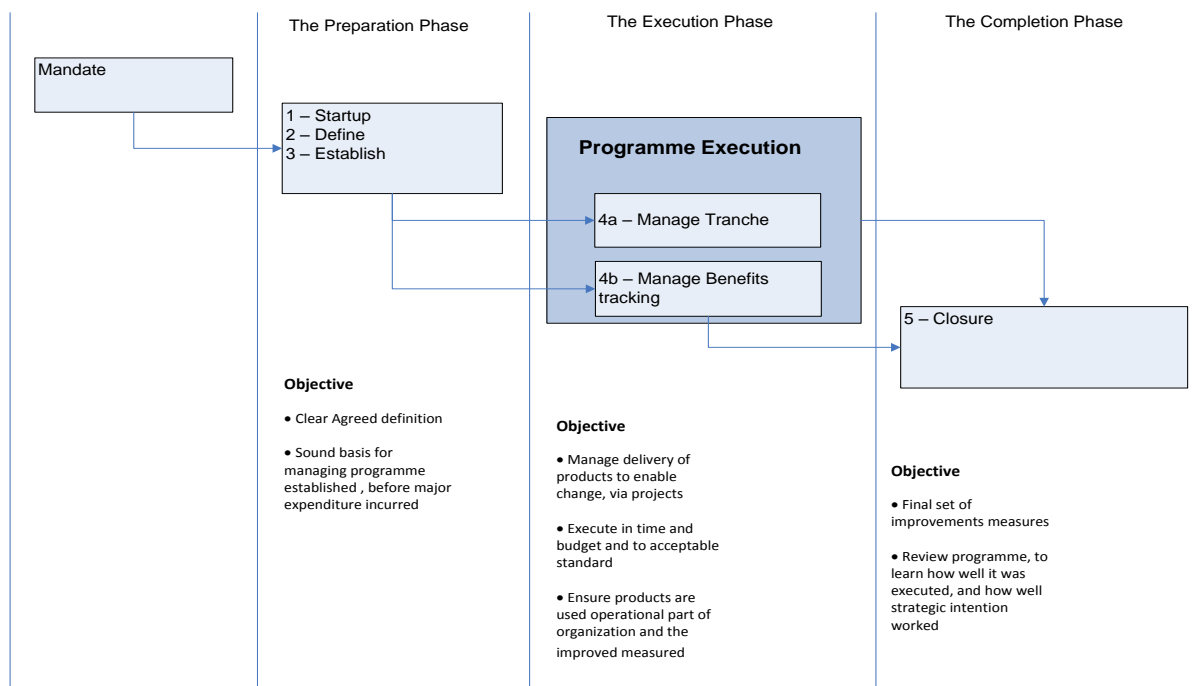
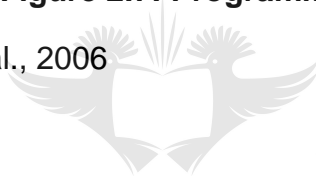


Figure 2.7: Programme Management Process

Source: Reiss et al., 2006



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The Standard for Programme Management (PMI, 2008b) gives the second view on programme management processes, very similar to processes in project management, but different on the level of details involved. It argues that programme processes seek to resolve issues between projects and enable a synergy approach so as to deliver programme benefit. Following are the processes as defined in the Standard for Programme Management (PMI, 2008b:40):

- **Initiating Process Group:** “Define and authorise the programme or a project within the programme, and produce the programme benefit statement for the programme”
- **Planning Process Group:** “Plan the best alternative course of action to deliver the benefits and scope that the programme was undertaken to address”

- **Executing Process Group:** “Integrate projects, people and other resources to carry out the programme plan and deliver the programme benefits”
- **Monitoring and Controlling Process Group:** “Require that the programme and its component projects be monitored against the benefit delivery expectations and that their progress be regularly measured to identify variance from the programme management plan. This process group also coordinates corrective actions to be taken when necessary to achieve programme benefits.”
- **Closing Process Group:** “Formalise acceptance of a product, service or benefit/result and bring the programme or programme component (e.g. project) to an orderly end”

Besides the differentiation between programme life cycle and programme processes made by PMI (2008b), its processes approach focuses on how the programme management areas or themes (known as knowledge areas), discussed in section 2.4, are addressed within the processes. The process groups are mapped with the programme knowledge areas, which are critical to successful programme management (PMI, 2008b). The mapping of programme management knowledge areas with programme management process groups can be found in Appendix A.

The PMI (2008b) programme processes approach will be used in this research for the following reasons:

Firstly, as it can be seen from Appendix A, this approach specifies what is expected at the junction of each process group and knowledge area.

Secondly, other approaches such as the MSP have been largely criticised for their limitations. Pellegrinelli, Partington, Hemingway, Mohdzain and Shah (2007) concluded their empirical review of programme practices by stating that “the mechanical application of MSP tends to support a tactical, controlling agenda rather than a strategic, empowering agenda. Some public sector informants hinted that following the MSP guide was more a matter of compliance than conviction”.

Lastly, in the particular case of this research it must be recalled that the OGC (2007) has indicated that the MSP guide is not suitable for specification-led programmes. Therefore, the use of MSP in this study is not considered as IT programmes fail within the scope of specification-led programmes.

In order to accomplish a process available tools and techniques are used. Tools and techniques required in programme management are discussed in the section below.

2.2.8 Programme Management Tools and Techniques

The above section described processes for the management of programmes. These processes need to be associated with tools and techniques for the successful management of programmes.

PMI (2006) asserts that programme management processes accomplish programme management by receiving inputs and generating outputs with the use of tools and techniques. They are key players behind the process that the programme team brings to the programme. Martinelli and Waddell (2007) consider tools and techniques as support mechanisms of processes for efficiency in performing programme management.

Findings from the study done by Vereecke et al. (2003) indicate the existence of a formal programme management methodology and a wide range of tools. PMI (2006) asserts that each programme management methodology has associated tools. A detailed discussion of tools falls beyond the scope of this study, but some key indications are given.

PMI (2006) mentions that, when establishing the programme infrastructure, programme-specific tools such as enterprise resource planning, programme tracking tools, time/expense reporting, software development tools, benefit measurement, monitoring and tracking, and many others, should be part of the programme infrastructure. At process level, apart from the particular tools of each process, expert judgment, meeting, review, policies and procedures are common to all programme management processes.

Martinelli and Waddell (2007) group tools into two broad categories: strategic programme management and operational management tools.

Tools such as the portfolio map, programme road map and complexity assessment support the strategic aspect of the organisation and are normally used at senior management level, while operational tools such as programme maps, programme strike zones and projects status indicators are needed by programme managers on an on-going basis for the management of programme works (Martinelli & Waddell, 2007).

A more recent and coherent toolkit provided by the US Defence Acquisition University (2008) comprises tools and techniques that can assist programme managers, collaboratively with their project managers and project teams, in managing benefits and stakeholders within the governance framework. It comprises a set of tools that covers programme work from the pre-programme preparations phase to programme closure.

Pelleginelli et al (2007) states that besides life cycle, processes, tools and techniques “programme management work is intimately bound up with, and determined by context rather than governed by a common set of transferable principles and processes”. This is to say that the context of the programme would shape the management approach to be used; therefore, a particular type of programme would require a particular methodology. The section below discusses programme types.

2.2.9 Programme Types

Previous discussions on the definitions for *programme* and *programme management* have led to conclude that both terms are approached differently in the literature. The existence of divergent definitions and approaches to programme management lead to a wide range of programme typology.

Vereecke et al. (2003) recognised variance in programme classification and established a link between the types of programmes, the management approaches and the programme structures, as the first constitutes the basis for the remainder. Their study made a special mention of the origin of the programme, which played an important role in deciding on the way in which a programme should be managed.

Evidences in literature show that, multiple factors are used as the basis of programme categorisation. Findings from the study done by Artho et al. (2007) indicated that “programme typology deals with the number of projects, projects sizes and locations, degree of change and extent to which a project exists at the time of programme launch, strength of coordination, relation of strategy and projects in the programme, and scope in terms of functions involved and extend of change”.

Gray (1997) defined a programme typology based on the chronology of the programme foundation and its consequent structures. He distinguished two chronologically opposed types, namely the loose model and the strong model, and established a consolidated type between both, namely the open model.

The strong model comprises projects derived from the high level strategy with centralised control or authority, while the loose model groups existing projects to deliver a benefit. The open model draws the line between both by using the bottom-up derivation of projects from the loose model, and the centralised structure of control and authority from the strong model.

Furthermore, Gray and Bamford (1999) revised Gray's (1997) categorisation, and used a qualitative approach to programme typology. They distinguished a delivery programme, externally focused, from platform programmes, internally focused. Delivery programmes are “those whose output results directly in an inflow of funds to the organisation”, while platform programmes are “those designed to improve the organisation's infrastructure; they are enabling rather than directly revenue-enhancing”.

Reiss et al. (2006) recognised Gray and Bamford's (1999) qualitative programme typology. They stated that internal programmes (platform programmes) involved a controlled environment, internal change and relatively low risks while the external programme (delivery programme) involved a less controlled environment, change subject to impact from environmental factors and relatively high risks.

The particular point of this model that merits attention is the environmental dimension within which the programme operates. It is clear that the management approach to internal and external programmes will differ in terms of intensity of risk

and change management. Gray and Bamford (1999) stated that in delivery programmes, external issues such as corporate strategy, portfolio planning, competitor analysis, market intelligence and sales projection should be considered. Reiss et al. (2006) stipulated that external programmes benefited from constant monitoring of the external market place or environment.

Pellegrinelli (1997) suggested a programme typology that emphasised the rationale for which the programme was being undertaken. He distinguished Portfolio Programme, Goal Oriented Programme, and Heartbeat Programme.

Portfolio programmes are undertaken when the organisation intends coordinating projects with a common theme, using a common resource skills base. The goal-oriented programmes are driven when organisations envisage developing a completely new system, infrastructure or service. For the Heartbeat Programmes the intention of organisation is to enhance existing functionality or service delivery.

The Portfolio programmes and goal-oriented programmes are respectively very similar to Gray's (1997) loose and strong models. It appears clearly that Pellegrinelli (1997) also embedded the chronological formation of the programme in his typology but further included the extent of change in his categorisation scheme.

Vereecke et al. (2003) built on the work of Pellegrinelli (1997) and assumed that the model failed to provide a conceptual basis that would allow understanding why these three categories would be sufficient for describing and categorising all programmes. By combining the extent of project existence at the launch of the programme and the degree of change expected from the programme, they identified four programme types:

- Grouping of existing projects which modify or improve the existing system or processes
- Grouping of existing projects to achieve a new system or process
- New initiatives to modify or improve existing systems or processes
- New initiatives to achieve new systems or processes

Programmes can also be categorised based on the available definitions for *programme management*. Reiss et al. (2006) used the most common definitions and established a typology: strategic-driven programmes, multi project-driven income, customer centric programme, common method and very large programme.

Another perspective of programme typology is the OGC (2007) categorisation, which assumes that all programmes manage changes; they can only be differentiated based on how the need for the programme has arisen. The OGC (2007) distinguished three types of programmes: a vision-led programme, an emergent programme and a compliance programme.

Vision-led programmes exist to deliver a clearly defined vision that has been created and owned by the top members of the organisation. It focuses on strategic or innovative opportunity. Emergent programmes have evolved from current, uncoordinated projects that have grown within an organisation, presenting a value of a joined-up approach with an emergent vision and end goal. Compliance programmes, referred to as “a must”, are the result of external events such as market forces or legislative change.

An analysis of the above typologies identifies a common factor that, in most of the cases, forms the basis of programme categorisation: the chronology of the programme which plays a major role. Based on the extent of project existence at the launch of the programme, literature differentiates programmes generated using the top-down approach (vision leading to new projects) from programmes generated using the bottom-up approach (grouping of existing projects into a programme).

Table 2.6 summarises programme typologies per author with each type falling under one of the two dimensions: chronological criteria or other criteria.

Table 2.6: Programme Typologies

Authors Criteria		Gray (1997)	Gray and Bamford (1999)	Pellegrinelli (1997)	Vereecke et al. (2003)	Reiss et al. (2006)	OGC (2007)
Chronology	From Strategy	Strong Model		Goal-oriented Programmes	New Initiatives to Modify/Improve the Existing System or Process	Strategic-driven Programmes	Goal-oriented Programmes
					New Initiative to Achieve a New System or Process	Very Large Programmes	
	Bottom up	Loose Model		Portfolio Programmes	Grouping of Existing Projects to Improve/ Modify an Existing System or Process	Multi-project Income-driven Programmes	Emerging Programmes
					Open Model	Grouping of Existing Projects to Achieve a new System or Process	
Other Criteria		Delivery Programmes	Heart-beat Programmes		Common Method Programmes	Compliance Programmes	
		Platform Programmes					

The OGC categorisation will be used in this study, as it broadens the concept of change, including both the top-down and bottom-up approaches, and adds a compliance category, which is important for organisations operating in the competitive environment and global context of today.

Section 2.3 discusses the purpose of programme management.

2.3 Purpose of Programme Management

Previous sections on programme types categorised programmes, based on two main dimensions: grouping of existing projects, which have something in common and would benefit from a coordinated management, or initiating new projects from organisational strategic goals.

The purpose of programme management can be linked to the programme type, as the type of programme gives a direct indication of what the organisation intends to achieve by using a programme-driven approach.

Despite the existence of variations in the way programme management concepts are applied, Rayner (2007) noted common characteristics of the programme result, namely “Their purpose is to deliver the capability to make strategic, significant or steps changes to organisations, normally referred to as or measured by benefit.” This is to say that programme management is about benefits that are of strategic importance to an organisation and it focuses on delivering a business strategy at operational level; thus bridging the gap between strategy and project. Rayner (2007) added that it provided a management interface between strategy decision and the management of component projects and other works.

Pellegrinelli (1997) argued that programme management created value by improving the management of projects in isolation. This emphasised the value added by programme management in comparison to the management of the projects. He noted six advantages:

- Greater visibility of projects to senior management and a more comprehensive reporting process
- Better prioritisation of projects
- More efficient and appropriate use of resources

- Project-driven by business needs
- Better planning and coordination
- Explicit recognition and understanding of dependency

A more inclusive view of programme management is the one suggested by Lycett et al. (2004). They categorised the purpose of programme management into two fundamentals goals, namely an efficiency and effectiveness goal, and a business focus goal. A discussion of these goals follows.

2.3.1 Efficiency and Effectiveness Goal

According to Lycett et al. (2004), efficiency and effectiveness are likely to occur when an integrated approach has been taken. Related objectives are the improvement of coordination and dependency management, more effective use of resources and knowledge transfer, and greater senior management visibility.

Findings by the Haughey survey (2001) on what people want from programme management revealed that the visibility of programmes and projects across the organisation, and the ability to plan resources effectively are key benefits of programme management.

From Table 2.7 above which summarises programme typology, programme falling under the bottom-up category of chronological criteria and those under other criteria are mostly managed by using a programme-driven approach for the purpose of an efficiency and effectiveness goal.

2.3.2 Business Focus Goal

The business-focus goal entails that programme management strives to ensure the alignment of projects with the goals, vision and strategy of the organisation. More coherent communication, improved project definition and better alignment with business drivers, goals and strategies are objectives related to this goal (Lycett et al., 2004).

The business focus goal highlights the strategic importance of programme management and its value to an organisation. The OGC (2007) certifies that programme management aligns critical organisational elements and manages tensions existing between them. These elements are corporate strategies and

delivery mechanisms for change, business-as-usual and the operational environment.

At project level, the need to move from a product-creation view to a value-centred view of projects has been widely recognised. The concern is increasingly the challenge to implement business strategy (Winter & Szczepanek, 2008). In this context a project should be considered less than an output but much more than an input to the organisational goal. Strategic goals should then be the starting points for defining programmes and projects. The business focus goal can be associated with programmes falling under the top-down approach.

The challenge for programmes to reach the business goal is the ever changing business environment of today. Pellegrinelli (2002) suggested that “where programmes provide a bridge between projects and the organisational strategy, they must be both malleable and forceful, and absorb shocks and discontinuities, yet ensure progress is achieved”.

A concluding view on the purpose of programme management can be drawn from Lycett et al. (2004) who have recapped that “it is essential that programme management approaches address both the areas of efficiency and effectiveness, and business focus”.

After discussing in details the programme management approach, it is now important to look at how the discipline has evolved from its early stage to its actual form. Section 4 retraces the developments within the field.

2.4 Historical Development in Programme Management

The programme management specific interest group (ProgM sig, 2008) believes that programme management has existed since the times of the crusades. Although the concept of business management was unknown, the Jihad or Holy War to free Palestine, conducted by Saladin, ruler of Libya, Egypt, Syria, Northern Iraq and Western Arabia, against the Christian kingdom of Jerusalem which occupied Lebanon, Israel and Jordan, was a successful programme management approach.

PM Sig (2008) states that Saladin, the pride of Islam, and Richard of England who had Phillip II of France and Frederick IV of Germany as partners in their venture

against Saladin, successfully achieved their programmes of military enterprise and state building.

The use of methodological preparations, which ensures adequate resources and maintains cohesion, discipline and morale above their heterogeneous armies, the ability to inspire confidence in others and delegate authority to trusted lieutenants, the ability to compromise and accept good results, an awareness of the benefits to be gained and the high level of motivation are today required for modern programme managers.

The formal beginning of programme management lies within the evolution of project management. Artto et al. (2009) stated that during the emergence of modern project management between the 1930s and 1950s the terms *project* and *programme* were used interchangeably with no distinction to what constituted a project or how each should be approached.

A specific approach to programme management started emerging in the last decade of the millennium due to issues that arose when technology-led industries adopted project management from the heavy engineering industries and the laboratories of the space industries (Reiss et al., 2006). Programme management then started enjoying interest in business literature with project management journals starting to define the term *programme*, identify the types of programmes and develop good practices in the field (Artto et al., 2009).

Among significant contributions in programme literature from both academics and practitioners, Pellegrinelli et al. (2007) names:

- Ferns (1991) who approached programme management as a coordinated mechanism for projects,
- Pellegrinelli (1997) described a programme as a generating mechanism for projects, which provided direction to the achievement of a common goal
- Murray-Webster and Thiry (2000) suggested the inclusion of operational activities within a programme, tactical and strategic benefits as core logic of programme creation,

- Thiry (2002) introduced concurrent performance and learning loops in programme management

Reiss et al. (2006) qualified the early days of programme management as the world of resource-centred programme management with the use of tools such as personal plans and time sheets for planning, and Web-based tools, which enabled communication among multi-located team members.

Besides the above contributions, an emergence of programme management standards and best practices has also been observed. From the early codification of programme management practices by CCTA (1999), the OGC (2003) provided a programme management framework (MSP), which contained guidance on techniques and principles for the delivery of business transformation. The guidance has been reviewed in 2007 and it is supported by a qualification scheme as well as accredited training and consultancy services.

PMI (2006) developed the Standard for Programme Management, setting good practices by describing a documented set of processes. The Standard has been reviewed and the new version published in 2008, included programme-specific knowledge areas.

Recent literature mentions a strategic shift in project and programme management approaches (Soderholm, Gemunden & Winch, 2008; Winter & Szczepanek, 2008). Cohen and Graham (2001) stated that “the old success criteria of meeting organisation outcome cost and schedule constraints are no longer adequate”, an imperative move from just getting the project done to implementing the organisational strategy.

Pellegrinelli (2002) stressed that “programmes have become preferred vehicles for making the rapid, complex, enterprise-wide changes required for sustained organisational performance and vitality”.

In such a role programmes are constantly subject to influences and developments emanating from within the organisation; from the external environment and from the organisational response to the changing environment. Pellegrinelli et al. (2007) summarised that “programmes shape and coordinate projects and related activity in

pursuit of organisational goals and benefits in the context of a dynamic organisational environment”.

Throughout the evolution of programme management issues have arisen with a considerable impact on the maturing of the discipline. These issues are addressed in the section below. Section 2.5 looks at recurrent issues in programme management.

2.5 Issues and Developments

The majority of research on programme management points out the lack of maturity of the discipline (Vereecke et al., 2003), creating enormous confusion over the nature of programme management and its approaches (Pellegrinelli, 2008), which Vereecke et al. (2003) attribute to the different influences that have tried so far to shape programme management.

As it would be expected, the immaturity observed, differences in views and the resulting confusion, created issues that have driven the development of the programme management discipline into its modern form.

Pellegrinelli (1997) and Lycett et al. (2004) identified two key issues, which underlay some related sub-issues. These key issues are firstly, considering programme management as a scale-up form of project management; secondly, assuming that programme management is a uniform, homogenous discipline; there is a one-size-fits-all approach. These issues are, according to Lycett et al. (2004), the main causes of an excessive control focus, insufficient flexibility in the context of evolving business strategy and ineffective cooperation among projects experienced in the programme management environment.

2.5.1 Programme Management as an Extension of Project Management

The assumption of programme management as a scaled-up form of project management has been active by adapting, refining and enhancing project management concepts and techniques to cope with programme characteristics (Pellegrinelli et al., 2007).

Pellegrinelli (1997) pointed out the common origin of the concepts of *programme* and *project*, and the non-existence of a largely recognised body of knowledge as factors that have led to this assumption. He argued that viewing a programme as a scaled-

up form of a project blurred the distinction between programme and project, and shoe-horn programmes into project level thinking. Consequently, the benefits and flexibility provided by the programme management approach are lost and their roles in realising organisational strategy ignored.

An analysis of the scale-up assumption and its consequences for various standard programme management methodologies shows the following weaknesses (Lycett et al., 2004):

- Strict hierarchy perspective
- Time-constrained linear programme life cycle
- Parity of approach pervading programme management techniques
- Implicit reinforcement of the similarity of roles

Another consequence of this assumption is the promotion of an individual project manager into programme manager level, based on his past performance (Pellegrinelli et al., 2007). Among difficulties encountered by project managers converted into programme managers based on such inappropriate intentions, Pellegrinelli et al. (2007) reported the tendency to seek for guidance and structure instead of rethinking the competence needed to deal with complex business initiatives.

In relation to the move from project to programme manager, Pellegrinelli (2002) revealed that participants on the Masterclass of Syscon realised that “it demanded a change of focus from project and technical issues to business drivers. It required a way of thinking more tolerant of uncertainty, more embracing of change and more aware of wider business influences. Participants realised that they needed to be more adept at improving and drawing on a repertoire of skills, rather than apply a familiar, structured approach”.

Lehtonen and Martinsuo (2008) have concluded that programmes are qualitatively a different phenomenon from projects and should not be treated as scaled-up form of projects because of their strategic importance. This was previously recognised by Pellegrinelli (2002) who stated that programmes, as a bridge between project and strategic goals of an organisation, move into the traditional domains of strategic

change management and organisational development. A more strategic management perspective than a project perspective should be taken (Pellegrinelli et al., 2007). Extracting the full benefits requires the acknowledgement of the uniqueness and distinctiveness of programme management to avoid the tendency to leverage inappropriate project concepts and overlook the nascent programme level concepts (Pellegrinelli, 1997).

Referring to the findings of the Sandberg study (2000), which states that individuals holding lower-order conceptions do not recognise or appreciate behaviours, attitudes and actions emanating from higher-order conceptions, Partington et al. (2005) conclude that “established organisational processes for programme management that are based mainly on project management principles may be supporting, enabling and encouraging the dominance of lower-level conceptions”.

2.5.2 Programme Management as Uniform, Homogenous Discipline

Lycett et al. (2004) recognised the existence of a conflicting view on the programme management approach between a single rigid and high structured approach which is to be applied equally in all contexts, and the acknowledgment of the need to allow for variation in programme configuration.

Although the existence of a standard for applying programme management, Paiivi, Lehtonen and Martinsuo (2008) stated that, in practice, as the dynamics of the context required constant adaption and responses, programme stakeholders were forced to actively craft the programme content, structures and processes to respond to the diversity of aims and interest. Haughey (2001) noted that the way in which the programme would be run should be left to the skill of the programme manager who, based on many factors, decided the most effective way.

Among factors that must be considered for the contextualisation of the programme approach Lycett et al. (2004) cites the rationale for the programme based on the programme type, the nature of the constituent project, the geographical distribution of the programme and the strength of the programme mandate.

2.5.3 A Standard for Programme Management

Literature describes the key assumption about issues in programme management discussed above as shortcomings of a standards approach to programme management (Lycett et al., 2004; Pellegrinelli et al., 2007).

Professional bodies in project management tradition such as the Project Management Institute 1996, the Project Management Body of Knowledge PMBok, the UK Association for Project Management Body of Knowledge (APMBOK), including the recent OGC (2007) Managing Successful Programmes and the PMI (2008b) Standard for Programme Management display the same shortcomings in terms of the hierarchy of roles, linear life cycle and a defined set of activities.

Other criticisms of particular importance to this study are the ones formulated by Lycett et al. (2004), which are grouped into three themes: the management of relationships between programme managers and project managers, between constituent projects and the wider business context, and between the individual project managers within the programme.

Between programme management and project management, Lycett et al. (2004) noted excessive control and inappropriate level of details, which led to unnecessary hierarchical bureaucracy.

Between organisational strategy and constituent projects of the programme, the linear programme life cycle and the finite life that standard approaches attribute to programmes are the main causes of lacking to align the programme with the evolving business environment (Lycett et al., 2004).

Between projects within the programme, rivalry among projects in terms of priorities and resources being ignored by standard approaches, leads to inter-project competition and failure to harness organisational learning (Lycett et al., 2004).

These issues will be considered when developing the programme management governance, which is the final outcome of the study.

2.5.4 Programme and Portfolio Management

Among issues related to programme management lies also the tendency of confusing the terms *programme management* and *portfolio management*. Haughey (2001) confirmed that the term *programme management* is often used to mean *portfolio management* and vice versa.

While recognising the existence of an overlap between programme management and project portfolio management, Reiss et al. (2006:18-19) stated that *project portfolio management* referred to the process of selecting and prioritising projects of work, while *programme management* referred to the execution of those projects.

For the aim of clarifying the difference between these two totally different disciplines, the term *portfolio management* is discussed.

According to PMI (2008c:6) *portfolio management* is “the coordinated management of portfolio components to achieve specific organisational objectives”. Pacific Edge Software (2004) says that the PPM is a continuous process, as it does not have an end. It focuses on maximising the contribution of projects on the bottom line (Levine, 2004:27).

In the context of programme management, portfolio management techniques are useful for handling intense emotional and political heat by providing a more logical programme selection process (Reiss et al., 2006).

2.6 Conclusion

The goal of this chapter was the establishment of a basic understanding of programme and programme management by providing important concepts, terms and an overview of the evolution of the field.

The first objective of the chapter was to establish the foundation of programme management by providing fundamental concepts and terms. Different perspectives have been discerned before defining in the context of the study concepts such as *project*, *project management*, *programme* and *programme management*, as well as *portfolio* and *portfolio management*. The concepts of *programme management*, *programme life cycle*, *programme processes*, as well as *tools and techniques* used

in programme management were discussed. Different typologies of programme were analysed and a comparative summary presented in Section 2 of the chapter.

The second objective of the study aimed at providing the purpose of programme management. Within Section 3 of the chapter the efficiency and effectiveness goal, and business focus goal of programme management were discussed.

The third objective entailed the presentation of the evolution of programme management, and its development. Section 4 discuss how programmes have existed since the Crusades and their formal evolution as evolving discipline of project management, the emergence of its specific approach up to its modern form.

The fourth objective was to discuss issues and developments within the field. The two major assumptions that led to multiple issues in programme management were presented in Section 5. *Programme*, as scale-up form of *project* and one-size-fits-all were discussed as well as presenting their impact on existing standards and best practices.

As we conclude the chapter, it must be recalled that the programme management discipline is still in its infancy and lacks a commonly shared theoretical foundation. Literature from both practitioners and academics approaches the concepts of *programme* and *programme management* differently. Some use loose terms to define these concepts; in other cases no difference is made between *programme* and *programme management*.

There is no single view on programme management. It goes to an extent that areas such as life cycle, typology and process, where project management shows a common understanding, programme management approaches are totally different as much as are their authors, and in most of the cases life cycle and process are combined into one model.

However, in each stage in this study an informed decision has been made on which approach or view to use in this study. It is important to take the retained programme management approach and put it in practice as the basis for the programme governance framework, which is to be developed.

The research project begins with the acknowledgement that there is a gap in the governance layers of organisations. The researcher needs to collect qualitative data from secondary sources (standards on other layers) to inductively fill the gap at the programme layer.

Before engaging in the journey of collecting and analysing data, and then developing the framework, it is important to describe in detail the research structure, processes, procedures and systematic steps that must be followed in order to undertake and complete this research project.

The next chapter focuses on the research methodology. It serves to position the research and to elaborate on the research design, research methods and research process.



Chapter 3

Research Methodology

3.1 Introduction

3.1.1 Context

Research is generally defined as an organised and systematic way of finding answers to questions (Henrichsen, Smith & Baker, 1997). “Organised” entails that there must be a structure, a planned procedure or a method that details how one goes about doing one’s research within the research scope (Henrichsen et al., 1997). The research methodology to be adopted in the search for evidence therefore constitutes a determinant point in the process of doing research. Thus, the research approaches, tools and techniques chosen, and their implementations are key to success.

A research project should be commenced by its design where the researcher demonstrates how he will proceed to answer the question or assess the hypothesis specified in the problem statement. By answering questions such as what data is needed, how to collect and analyse that data, how to develop solutions and present findings, and assessing the suitability of the methods, their effectiveness, advantages and limitations which lead to making informed decisions on the choice among a spectrum of possible approaches, the researcher ensures a high probability of attaining the research objectives.

Chapter 1 stated the problem for which the study had been undertaken, provided the background to the problem, positioned the work by a means of a literature review, identified the goal and objectives of the study, gave a briefing of the methodology to be used and elaborated on the study structure. Chapter 2 provided the theoretical foundation of the field in which the research had to be conducted.

This chapter extends on the research methodology. The importance of describing the methodology is justified by the fact that the probability of succeeding in a research project is greatly enhanced when the beginning has been correctly defined. From a precise statement of the problem under investigation, the goal of the

research should be defined. In order to answer the research question, objectives must be derived from the stated goal. Once these have been derived, the challenging task of the researcher resides in answering the question related to how the different objectives will be carried out so as to attain the study goal and answer the research question.

This chapter also intends to demonstrate various alternatives of achieving a research project. This entails the rationale for the methodology choice knowing that some objectives might need one or a set of tools for its achievement. On the other hand, some tools can serve both data gathering and analysis purposes. Once the decisions on the methods are made for all the objectives of the study, the next step focuses on describing the way in which the retained methods will be implemented. Throughout the chapter the overall framework, guidelines and procedure for each research activity that needs to be conducted for each specified research objective of this study, will be provided.

Recall from chapter one that the goal of this research study is the development of a conceptual and detailed framework for IT programme management governance. This framework will gain an inside view of governance on other levels of the organisation, and provide an integrated model for efficiency and effective management of IT programmes.

Research objectives include:

- Establishing the foundation of programme management
- Analysing corporate governance to gain a broader understanding thereof and establishing its link to IT programme management governance
- Analysing IT governance with the aim of getting a broader understanding thereof and establishing its link to IT programme management governance
- Analysing project governance to get a broader understanding thereof and establishing its link to IT programme management governance
- Developing an IT programme management governance framework via the integration of the links established

3.1.2 Goal

The goal of the chapter is the description of the way in which the research will be done to answer the research question. This includes the step of positioning the research, the process of collecting data, the process of analysing data and developing the IT programme management governance framework, which is the final result of the study.

3.1.3 Objectives

The chapter goal mentioned above can only be attained if its composite objectives are met. These objectives are:

- Positioning the research project by determining the research type, the research form and the research strategy or approach
- Designing the research by providing a framework for data collection and analysis
- Identifying and describing relevant methods for data collection, data analysis and framework development in accordance with the research strategy and design
- Describing the research process to be followed

3.1.4 Layout

The first section positions the research by firstly determining the research type, form and approach, respectively based on its purpose, the way in which the study will be conducted, and the researcher's beliefs, perspective and paradigm.

The second section deals with the research design by providing a framework for the collection and analysis of data based on the decision on the priority given to a range of dimensions of the research process.

The third section provides and describes different methods (tools or techniques) to be used for gathering data, analysing data, and developing the IT programme management governance framework.

The fourth section describes the research process.

3.2 Positioning the Research

3.2.1 Research Type

A research project can be classified in many different ways, based on the approach of data collection or the discipline involved or the area in which the researcher focuses his or her work.

Generally, two major types of research are referred to: basic research and applied research. These two major types are approached differently in the scientific community regarding their explicit meanings (Brynard & Hanekon, 2006; OECD, 2002).

Calvert and Martin (2001), in their publication on changing the conception of basic research, state that it is difficult to distinguish basic and applied research. Among reasons for this is that they name the increasing speed of research, the increasing speed of moving from discovery to exploitation and the fact that the same person can be involved at any stage of the process.

The Lawrence Berkeley National Laboratory (n.d.) recognised the existence of major controversies taking place in the scientific community regarding various types of research. The researcher does not intend to get deeply involved in the controversy, as it falls beyond the scope of the study, but identifies the type of the present project, based on recent theories in the management related fields and the official definitions from the OECD.

Brynard and Hanekon (2006:7, 6) defined *basic research* and *applied research* as follows: “Basic research is used to develop theories by testing a hypothesis that has been deduced from them. Basic research is not necessarily conducted with any immediate practical implication in mind ... It is often attempted only to increase knowledge in certain area” while “applied research is undertaken specially to solve a certain problem. The results of applied research can therefore be used to solve an immediate problem. The research problem is selected according to the practical value the research would have in a particular situation.”

The above definitions basically exclude this research project from being classified as “basic research” because the researcher does not intend to seek knowledge for

knowledge's sake, but foresees a possible application of the outcome as programme governance shows a gap that still needs to be addressed in the industry. On the other hand, classifying the study as "applied research" will impede on the generalisation aspect of this project, as the researcher's intention is not about solving a particular problem for a particular organisation but he envisages to develop a framework likely to provide an overall view that can be relevant to a wide range of the phenomena under research and applied in different settings.

The OECD's (2002) definitions of *basic research* and *applied research* stipulate that "basic research is experimental or theoretical work undertaken primarily to acquire new knowledge of the underlying foundations of phenomena and observable facts, without any particular application or use in view", while "applied research is an original investigation undertaken in order to acquire new knowledge. It is, however, directed primarily towards a specific practical aim or objective". Apart from the intentional differentiation, which retains the researcher's attention, OECD (2002) specified that the results of basic research are not generally sold but are usually published in scientific journals or circulated to interested colleagues.

In the researcher's opinion the clue to the type of this study comes from the OECD's (2002) sub-categorisation of basic research. It distinguishes pure basic research from oriented basic research. The first is defined as the one "carried out for the advancement of knowledge, without working for long-term economic or social benefits and with no positive efforts being made to apply the results to practical problems or to transfer the results to sectors responsible for its application". The second is defined as the one "carried out with the expectation that it will produce a broad base of knowledge likely to form the background to the solution of recognised or expected current or future problems or possibilities".

From the above literature and according to the researcher's overall philosophy and final intent this research is classified as basic research, specifically oriented basic research.

Having determined the research type, it is now important to determine the form of this research, based on its purposes.

3.2.2 Research Form

A research project can also be classified based on the research purpose, which is the overall direction of the research. Robson (2002) distinguishes three forms of studies: exploratory study, explanatory study and descriptive study. He describes an exploratory study as the one that seeks to explore what is happening and asks questions about it. These studies are useful when enough is not known about a phenomenon.

In the words of Gray (2004:32), explanatory studies, identified as causal studies by Cooper and Schindler (2003:162), “are correlatives in nature, emphasising the discovery of causal relationships between variables”. Cooper and Schindler (2003:165) accentuates that in business research the causal-effect relationship is less explicit. Research in this field focuses more on understanding, explaining, predicting and controlling the relationships among variables than the discernment of causes.

Heindrick, Bickman and Rog (1993) classify a study as descriptive when its purpose is to provide a picture of a phenomenon as it naturally occurs, and it may also include a normative study, depending on the researcher’s intent.

Recall from chapter 1 that the purpose of the study is the development of a framework for IT programme management governance, using qualitative data collected from explored international standards on governance by means of a combination of multiple tools rationally chosen.

In his online article on a model in the research process, advising on the selection of research methods and emphasising the need to consider whether the work to be done can be based on earlier models, Routio (2007) suggests three possible alternatives: (i) research for testing a hypothesis; (ii) expanding and refining an early model and (iii) an exploratory study. The article describes exploratory research as the one in which the researcher uses no early model as a basis of his/her study for the simple reason that there is none or all available models have come from the wrong context.

The researcher classifies the study as exploratory because there is no framework focused on IT programme management governance to start from. Hardly anything is known about IT programme management governance frameworks, which constitute the outset of the research project. The researcher has to begin with a vague impression, exploring available standards and frameworks on corporate governance, IT governance, project governance and other supporting materials by means of a literature review and using a set of criteria to determine which should be studied in depth to gather useful information for the development of IT programme management governance.

The restriction of the specific materials to be studied does not mean that other standards are disregarded; a process of grouping these materials into categories (corporate governance, IT governance and project governance) is followed. Then criteria are applied to each category to retain the most qualified. However, through the analysis some of the excluded materials can still be needed for the aim of dealing with issues such as interpretation and understanding of the context.

Having determined the research type and form it is now important to determine the approach to be used, based on the researcher's beliefs, perspective and paradigm.

3.2.3 Research Approach

Choosing a methodology for a given research depends on a combination of several factors. These factors range from the researcher's beliefs, values, perspectives, research questions, skills, time and funds, leading to an informed decision on the approach, which might be deductive or inductive (Easterby-Smith et al., 1991).

Gray (2004:16) states that, despite the natural tendency for the researcher to select a data gathering method and carry on with the job the choice of the method will be influenced by the research approach chosen. The approach, in turn, will be influenced by the theoretical perspectives adopted by the researcher, which are finally influenced by the researcher's epistemological stance.

The process of selecting a research approach or strategy should show a logical flow by depicting the interrelationship that exists between the theoretical stance adopted by the researcher, the methodology and method used, and the researcher's view of

the epistemology. Easterby-Smith et al. (1991) justify the importance of having an epistemological stance, and among a variety of reasons, they point out the clarification of issues involved in the design process, which includes research tools, overarching structure and the kind of evidence being gathered with answers to questions such as from where and how is it going to be interpreted. The knowledge of the research philosophy would help the researcher to identify the design that would work in attaining the research objectives.

From the above literature, it must be recalled that two paradigms have dominated the approach of conducting a research. These paradigms are the positivist paradigm and the phenomenological paradigm, commonly known as quantitative and qualitative research approaches respectively (Cooper & Schindler, 2003; Gray, 2004).

3.2.3.1 Defining *Quantitative Approach*

According to Easterby-Smith et al. (1991), the basic beliefs of the positivist paradigm are that the world is external and objective, the observer is independent and science is value-free. Thus, the researcher should focus on facts, locate causality between variables, and formulate and test hypotheses by means of the deductive approach. Methods used in this paradigm involve operationalizing concepts so that they can be measured and using large samples from which to generalise the population.

Bryman (2004:19) ties quantitative research to this philosophy by describing it as “a research strategy that emphasizes quantification in the collection and analysis of data and that:

- Entails a deductive approach to the relationship between theory and research, in which the accent is placed on the testing of theory;
- Has incorporated the practices and norms of the natural scientific model and of positivism in particular; and
- Embodies a view of social science reality as an external, objective reality”.

3.2.3.2 Defining *Qualitative Approach*

Easterby-Smith et al. (1991) state that in the phenomenological paradigm, the basic belief assumes that the world is socially constructed and objective, the observer is a

party to what is being observed and science is driven by human interests. The researcher in this case focuses on meanings, tries to understand what is happening and constructs theories and models from the data by means of the inductive approach. In contrast to a deductive study, an inductive study uses multiple methods to establish different views of a phenomenon and small samples researched in depth or over time.

Phenomenological inquiry or qualitative research uses a naturalistic approach that seeks to understand phenomena in context-specific settings. According to Strauss and Corbin (1990:17), qualitative research broadly defined means “any kind of research that produces findings not arrived at by means of statistical procedures or other means of quantification”. It seeks illumination, understanding and extrapolation to similar situations and results in a different type of knowledge than does quantitative inquiry.

3.2.3.3 Chosen Approach

Deciding on the research approach to be used in this study does not imply the researcher’s strict adherence to the positivist paradigm or the phenomenological paradigm. Instead, the researcher values the “paradigm of choice” advocated by Patton (1990), which considers the methodological appropriateness as the fundamental criterion, based on which decision regarding the research strategy should be made. By doing so, the researcher ensures the responsiveness of the methodology in the particular setting of the study.

A basic differentiation of qualitative research from quantitative research, given by Hancock (2002), attests that “qualitative research is concerned with finding the answers to questions which begin with: why? how?, in what way?. Quantitative research, on the other hand, is more concerned with questions about: How much? How many? How often? To what extent?”

Based on this primary demarcation and considering that the research question addresses the “How?” issue of governance at IT programme management level, the researcher opts for a qualitative approach.

On the other hand, the form of the study would indeed influence the researcher's decision on the research approach. The exploratory form retained for this project should be understood as the one "used to make a preliminary investigation into a relatively unknown area of research. It employs an open, flexible and inductive approach to research, as it attempts to look for new insights into a phenomenon" (Blanche & Durrheim, 1999:39).

The qualitative strategy has been selected for this research project for the reason that, no concept will be quantified or measured in this study and the researcher does not intend to verify a theory, but rather explore existing governance standards to gain a deeper understanding and illumination of the context from different perceptions, investigate and establish the holistic view and the inter-linkage of these frameworks which are difficult and complex to quantify.

The researcher has to detect a pattern and theme, conceptualise and then generate or develop a framework for IT programme management governance. The research project begins with the acknowledgement that there is a gap in the governance layers of organisations. The researcher needs to collect qualitative data from secondary sources (standards on other layers) to inductively fill the gap at the programme layer.

The advantages of using the qualitative strategy reside in the ability of its data to more fully describe a phenomenon, which is an important consideration not only from the researcher's perspective but from the reader's perspective as well. Typically rich with detail insights and more meaningful information from selected best practices are crucial for the success of the framework. The researcher, acting as instrument with personal involvement and empathic understanding, would get a holistic and more accurate knowledge of the standards under study and issues surrounding them (Burns, 2000). The use of triangulation of data and the method would resolve the issues of reliability and validity (Kohlbacher, 2006).

One of the disadvantages of qualitative research is that by using small samples for which subjects have not been chosen randomly, the result of the study may not be generalised. In the case of this study the sample has been chosen based on a set of criteria and its composite subjects are internationally recognised best practices.

From the above sections this research has been typified as oriented basic research conducted in an exploratory form by using a qualitative approach. It can then be ascertained that the first objective of the chapter has been attained. The section below focuses on the design of the research.

3.3 Research Design

Polit and Hungler (1999:155) define *research design* as architecture, an outline, an overall scheme or programme for conducting a research project, which guarantees that the researcher will be able to exercise maximum control over factors that can interfere with the validity of the research outcome. Cooper and Schindler (2003:146) emphasise the above definition by stating that the research design is the blueprint for the collection, measurement and analysis of data, which aids the scientist in the allocation of his limited resources by posing crucial choices regarding the method to be used.

Considering the fact that the undertaken research project is by its form an exploratory study using the qualitative approach, which entails an in-depth understanding of the phenomenon under study, the design of the research should provide a plan and structure of investigation adequately conceived to help the researcher in obtaining needed information and increase the chance of succeeding in delivering the final result.

Deciding on the research strategy is an important step in the research design process but the strategy alone, which is qualitative in the case of this study, will not get the researcher along the road of doing research. Two important steps need to be achieved: the research design providing a framework for the collection and analysis of data, and a research method comprising one or a set of techniques for collecting and analysing data.

3.3.1 Possible Designs

Bryman (2004:27) distinguishes five prominent research designs: (i) Experimental and related designs, (ii) Cross-sectional design for which survey is the most common form known, (iii) Longitudinal design and its various forms, (iv) Case study design and (v) Comparative design. These designs are discussed below.

3.3.1.1 Experimental Design

Hunter (2009) defines the design of an experiment as a technique to analyse the effect of several varying variables simultaneously in order to get the most data with the fewest runs. Bryman (2004:22) suggests that it is preferable to manipulate the independent variable in order to determine whether it does in fact have an influence on the dependent variable.

Kavanaugh and associates (n.d.) states that experimental designs are used to identify or screen important factors affecting a process and develop empirical modes of processes.

According to Gray (2004:67), experimental design usually involves truth-seeking and may often involve the use of quantitative methods for analysis. It tends, therefore, to utilise a deductive approach to the research design; that is, the use of prior questions or hypotheses that the research will test.

3.3.1.2 Longitudinal Design

Longitudinal design is the design that involves examining the same group at different points in time. Stemler (2001) defines longitudinal design as the design in which subjects are assessed at several different times in their lives.

Longitudinal design is useful when the researcher is interested in subject changes over time, which may extend from weeks to years and the accompanying events; thus, representing the independent variable. The downside of this design is that it is time consuming, an expensive undertaking and it requires a more complex statistical analysis (Welman, Kruger, & Mitchell, 2005:96). Simon (2002) recognises that the design provides a wealth of information that could not be obtained readily with other types of research designs.

3.3.1.3 Cross-sectional designs

According to Bryman (2004:41), the cross-sectional design entails the collection of data on more than one case and at a single point in time in order to gather a body of data in connection with two or more variables, which are then examined to detect patterns of association.

Olsen and St George (2004), in their study on cross-sectional study design and data analysis, describe the cross-sectional design framework as the design type in which the entire population or a subset is selected, and from these individuals data is collected to help answer the research question of interest.

3.3.1.4 Case Study Design

Case study design has been defined by Yin (1994:13) as an enquiry that investigates a contemporary phenomenon within a real-life context, especially when the boundaries between phenomenon and context are not clearly evident. Welman et al. (2005:193) specify that the term “case study” pertains to the fact that a limited number of units of analysis (often only one), which can be an individual, group, single community, single school, single family, single event, single organisation or institution are studied intensively to understand their uniqueness and idiosyncrasy in all their complexities.

From the above explanation it is important to note that the term *case study* does not refer to a specific technique that is applied. Tools such as participant observation or unstructured interview are still needed for the collection of data. Most important to mention is the fact that a case study usually tries to attribute causal relationships and it is useful when the researcher intends to uncover relationships between a phenomenon and the context in which it occurs. In fact, as accentuated by Gray (2004:124), case studies tend to be deductive rather than inductive in nature.

3.3.1.5 Comparative Designs

Comparative design can be understood as a design that emphasises the comparison of two or more groups based on one or more variables. Literature describes this design as part of another design (Gray, 2004; Kavanaugh and associates, n.d.), but Bryman (2004) classifies it as a research design on its own and defines it as a research design that entails the comparison of two or more cases in order to illuminate existing theory or generate theoretical insight as a result of contrasting findings uncovered through the comparison.

3.3.2 Chosen Design

For the purpose of this study cross-sectional design and comparative design are used within a cross-sectional framework.

The cross-sectional design used in this study should not be understood as a survey design usually associated with structured interviews and questionnaires as research methods, but the one that has a wide relevance for a variety of research methods, including content analysis, structured observation, officials' statistics and diaries (Bryman, 2004:41).

The qualitative cross-sectional design of this study comprises the simultaneous (single point in time) collection of data from standards for governance at different layers of the organisation (different cases or views) on a series of topics (variables) drawn up from the Standard for Programme Management, referred to as the triangulation of data.

The cross-sectional design provides the researcher with a snapshot of each topic or theme (category) under study; thus reducing bias as each of them will have more than one view from different governance standards. Among various advantages of this type of design the researcher has appreciated its inexpensive aspect and the short duration within which it can be conducted.

Within the cross-sectional design the comparative design is applied at the fifth objective of the research. This objective entails the development of the framework by integrating the links established from different governance frameworks analysed. The researcher will examine how each category is approached in each governance framework or setting with the intention of comparing these approaches and getting a deeper awareness and understanding of the topic (category).

While recognising that comparative design can be applied in relation to qualitative research strategy, Bryman (2004:55) asserts that comparative research should not be considered as being only concerned with comparisons between nations, as the logic of comparison can be applied to a variety of situations. By comparing two or more views the researcher will be in a better position to establish whether a principle will or will not hold. Furthermore, the comparison itself may suggest a concept or principle that is relevant to the framework to be developed.

The need to apply the comparative design accentuates the fact that the researcher lessens the attention to the specific context of each governance framework but

emphasises the way in which the link established from these standards can be contrasted in developing an explicit focus at the outset and adopt an open-ended approach in many instances, which is widely associated with a qualitative research strategy.

With a framework for the collection and analysis of data in hand, it can be confirmed that objective 2, which focuses on research design, has been attained. It is now important to look at the necessary research methods of data collection and analysis.

3.4 Research Methods

After posing the structure that will guide the execution of the collection and analysis of data by deciding on the type of research design to be applied, the researcher in this section has to answer questions related to how data is going to be gathered and analysed.

The design scheme does not provide the necessary data to accomplish the project but the decision on whether the researcher observes, conducts interviews, examines documents or administers questionnaires provides the researcher with a set of tools for data collection and its subsequent analysis.

Before deciding on the tools to be used for data collection and analysis, it is important to discuss the sources of the data.

3.4.1 Data Sources

Myers (1997) speaks about qualitative research in information system and distinguishes two sources of data, namely a primary data source and a secondary data source. He defines *primary source* as unpublished data gathered by the researcher through personal use of data collection techniques from the people or organisation directly, and *secondary source* as previously published material such as books, statistical documents, annual reports, life histories, journals, documents of all kinds including newspapers, articles and records kept in libraries from which the researcher gathers data.

For the purpose of this research project, only a secondary source was used to gain in-depth understanding of the topic and to extract useful information for the development of the framework. The reason is that the population to be studied is

composed of international, published standards on governance at different layers of an organisation.

3.4.1.1 Selecting the Site and Subjects

Devers and Frankel (2000), in their practical advice on study design in qualitative research, observe that the design of qualitative research in some cases are presented as abstract drawings without a clear specification of a particular site and/or subjects, while the design should prove the researcher's understanding and consideration of the unique characteristics of the study subjects and, their setting; thus securing their participation in the study.

This research project does not have a specific site but will be populated, as said before, with a set of best practices or standards on corporate governance, IT/IS governance and project governance.

3.4.1.2 Sampling Consideration

It is highly complicated, expensive and time consuming to initiate a study or research on each and every individual involved or concerned by that study if it concerns, for example, millions of populations or units. The best practices entail the drawing of a sample population that will represent the rest of the population or the group in general on which the study will be concluded or to which the final conclusion will be applied.

A sample is by definition, a subset of a population taken from a general group of a population that represents the main interest of the study (Collis & Hussey, 2003:56).

The design of a sample can be based on the concept of random sampling (probability sampling) or on another means by convenience or purposes (non-random sampling).

Considering the type of the research, its form, its strategy and design, the researcher has used purposive sampling by selecting only standards that can inform the research question being investigated. He has studied them closely for understanding them and obtained insight into them for developing an IT programme management governance framework.

The review of the literature shows that the governance issue has been dealt with at different levels of the organisation, namely corporate governance, IT/IS governance and project management. Each level has been locally or internationally provided with more than one approach. The researcher assumes that at each level of the organisation there should be a link to programme management governance and it would then improve the representativeness of the sample by using quota sampling. This implies that if certain relevant characteristics describe the dimensions of the population, the sample should have the same distribution of these characteristics (Cooper & Schindler, 2003:201). By applying quota sampling the researcher will retain one standard at each level.

After identifying subjects and conceiving the sampling strategy, it is now possible to look at tools or techniques that must be used in order to collect and analyse data.

3.4.2 Mode of Analysis

After identifying the data source, site, population and sampling strategy, the researcher would present within the chosen design framework methods to be used for data gathering and data analysis. These methods should be understood as techniques for data collection and analysis within the chosen design.

The researcher's decision of combining data gathering and data analysis methods in the broad context of modes of analysis is due to the fact that in the context of qualitative research it is usually difficult to make a distinction between data gathering and data analysis (Myers, 1997).

As is the case in this research, some tools used, such as content analysis, serve both data gathering and data analysis by extracting relevant parts of the text (standards) and then analysing them for their integration. A literature review, used as a tool to explore governance frameworks, ends with a qualitative evaluation of findings, which can be considered a form of analysis.

Myers (1997) states that "in qualitative research the analysis affects the data and the data affect the analysis in significant ways. Therefore, it is perhaps more accurate to speak of 'modes of analysis' rather than 'data analysis'. These modes of analysis are different approaches to gathering, analysing and interpreting qualitative data."

Table 3.1 below summarises the tools or techniques used in this research project.

Table 3.1: Research Tools

No.	Objective	Stage	Method
1	Establish the foundation of programme management	Stage 1	– Literature review
2	Analyse corporate governance to gain a broad understanding and establish its link to IT programme management governance	Stage 2	<ul style="list-style-type: none"> – Literature review – Document analysis – Qualitative content analysis
3	Analyse IT governance with the aim of getting a broad understanding and establishing its link to IT programme governance		
4	Analyse project governance to get a broad understanding and establish its link to IT programme governance		
5	Develop the programme governance framework by Integrating the links established from the above standards	Stage 3	<ul style="list-style-type: none"> – Modelling by design – Document analysis – Content analysis

Table 3.1 groups the five research objectives into stages. At each stage, the research methods or tools used are specified. These tools are discussed in the sections below.

3.4.2.1 Literature Review

In the research context, regardless of the field of the study or its type and form, literature reviews are always used for the purpose of informing the researcher of the background to the research project, and providing context and idea for the design of new studies [Harlen & Schlapp, the Scottish Council for Research in Education (SCRE), 1998]. Basically, the review of the literature provides the researcher with the necessary knowledge to define the study in its context, discuss challenges, identify the need and evaluate alternatives.

Literature review tools used in this study have taken the researcher on a journey of surveying books, scholarly articles, thesis, conference proceedings, both hard copy material and online publications relevant to IT management in general, and IT portfolios, programmes and project management in particular.

In respect of the exploratory form of this research the literature review has guided the researcher in exploring relevant publications. These have provided him with descriptions, summaries, critical evaluations and overviews of existing international standards on governance from the corporate layer to the day-to-day management of IT/IS resources.

The process of reviewing the literature in this study has been applied as follows (Harlen & Schlapp, the SCRE, 1998; Kitchenham, 2004):

- **Step 1 Problem formulation:** A previous review in the broad field of IT management, the 3PM (project, programme and portfolio management) model, and governance issues surrounding them were undertaken with the aim of understanding the topic, and clarifying the type of literature and terms to search for.
- **Step 2 Literature search:** The task of finding relevant literature on IT programme management and its governance issues has been done by focusing on written information. The first stage within this step was done by

asking for key materials from an knowledgeable expert in the field, which in the case of the study, has been the researcher's supervisor, who provided him with guidance to classic published and unpublished materials, latest findings, journals and theses.

Many sources have contributed significantly to the researcher's access to the literature. These sources range from physical and online libraries, computer databases, computerised catalogues and the Internet. A broad range of studies and standards related to the research were found by means of computer searches using a variety of key words and terms such as *programme management, project management, portfolio management, corporate governance, IT/IS governance, programme governance* and *project governance* paired with a variation of *framework, standard, approach, structure, model, context* and *integrated view*.

- **Step 3 Data evaluation:** Data evaluation in the context of this study would lead to determining which framework had significance to IT programme governance among a variety of governance standards and their supporting material resulting from the exploration and in fact, should be studied for its contribution to the development of an IT programme governance framework.

The researcher went through a scientific process, using weighted scoring models to determine at each level which framework qualified for a deeper analysis.

3.4.2.2 Document Analysis

Document analysis is the operation which consists in presenting under a concise and definite form, data characterising the information contained in a document or a group of documents [Association Française de Normalisation, Vocabulaire de Matériel (AFNOR), 1987].

A documentary analysis has been conducted to get the big picture of how governance issues have been dealt with at different levels of the organisation and to understand their implications for the IT programme management level. The basic goal and objectives of the document analysis in this study were the extreme familiarisation of the researcher with each single standard that held some value for

the overall goal of the study. These objectives include the researcher's ability to summarise, describe, interpret, review and explicate the content and implications of each governance framework studied.

The review of literature has led the researcher to retain among various standards a relevant set of frameworks to be analysed. In analysing these documents the researcher have addressed the following aspects:

- **Identification:** Each standard to be analysed is identified in terms of the author, the document type, date and audience, and purposes.
- **Explanation:** Difficult words or phrases and general meanings are interpreted, discussed and researched to ensure the right understanding of the content of the document.
- **Immediate context:** This entails the immediate significance of the standard in its own context and implies the researcher's knowledge of the situation and purpose of which the standard has been published.
- **Long range significance:** As part of a set of standards being studied, the researcher needs to understand the implications of the studied standards for the other composites of the set. Deviations from preceding versions should also be examined.

After completing the document analysis the researcher would strengthen his understanding of how each standard fits into the context of IT programme management governance; the convergence and divergence among standards; the change revealed by each standard over a period of time; and the structure of each standard in terms of what is included and what is excluded.

Documentary analysis would ensure the triangulation of evidence by bringing together data from different frameworks (sources of data) for the development of the IT programme governance framework. The National School of Government (2008) asserts that triangulation, which is in this case, data triangulation by the fact that it combines data from different sources or populations, broadens and deepens understanding, and adds richness and different perspectives.

However, as stated by Robson (2002), document analysis has weakness when the used documents have not been written for the purpose of the study; thus, it introduces potential biases or distortions. However, in this study the researcher has only used information from these standards that relates to programme management. A reliability check and data triangulation will ensure the avoidance of biases.

3.4.2.3. Content Analysis

Bryman (2004:392) states that qualitative content analysis is “probably the most prevalent approach to the qualitative analysis of documents that comprises a searching-out of underlying themes in the materials being analysed”. This definition distinguishes qualitative content analysis from the classical quantitative content analysis, which emphasises quantification of text content and focuses on the frequency of words within a given text.

Qualitative content analysis has been and is still being approached differently in the research environment (Graneheim & Lundman, 2004). Neill (2006), who describes content analysis as a tool that focuses on the essence where the researcher tends to immerse himself experientially in the holistic nature of the phenomenon, states that “(i)n content analysis, there is immersion in text, and one can use a variety of approaches to analysis. It may be that via deep, personal reading and thinking about textual data, a researcher develops an authentic and well-polished conceptualisation and understanding. But it may also be that, by using more structured, analytical techniques, involving steps such as sorting, categorizing, naming themes and counting, a more rigorous and valid content analysis can be achieved. As always, the exact method will depend on the nature of the situation, the personality and expertise of the researcher, the financial and political context, etc.”

Mayring (2000) has stated that “content analysis is actually a package of techniques from which the analyst can choose, and then adapt it to his research question”.

From the work of Zhang (2006) on content analysis (qualitative semantics), Kohlbacher (2006) on the use of qualitative content analysis in case study research, and Mayring (2000) on qualitative content analysis, the researcher has formulated an adaptive approach to answer the research question within this particular context. The

description of the adapted qualitative content analysis approach applied in this study follow.

1. Unit of analysis or content analytical unit

Unit of analysis in the world of Zhang (2006) refers to the basic unit of a text to be classified (extracted) during content analysis. Among various coding units such as words, concepts, sentences, paragraphs, full text or themes used in qualitative content analysis the researcher retains a theme as the coding unit to be used, considering that for this particular project he needs to code an idea or a statement fully expressed. This will ensure a correct categorisation.

2. Categories

According to Zhang (2006) the categories under which the unit of analysis should be coded may be derived from previous studies or from raw data or from theory.

Relatively to category development, Stemler (2001), in his review of content analysis, distinguishes two approaches of coding data: emergent coding versus a priori coding. While in emergent coding categories emerge from a preliminary analysis of data, in priori coding the categories are established before the analysis of the materials, based upon some theories. These two approaches match Mayring's (2000) differentiation of the category development process as respectively the inductive category development and the deductive category application.

In the context of this study, the IT programme governance framework for the development of which data is gathered should reflect basic principles stated in the Standard for Programme Management. The researcher's intention is that the data extracted from the material to be analysed should fit within the generic structure and principles of governance, as conceived by the PMI (2006) and (2008b) in the standard for programme governance. This entails that the researcher uses a deductive category application, drawn from the Standard for Programme Management.

It must be specified that the researcher's decision to draw categories for content analysis from the Standard for Programme Management relies on the fact that

chapter 2 has shown that the PMI's standard provides a life cycle and process approach that are suitable for the purpose of this research.

It is important to use both versions, the PMI (2006) and PMI (2008b), The first version considers programme governance as one of the three main themes of programme management and it provides enough details on what should be expected from a programme governance mechanism, while the second gives the latest views.

After data extraction sub-categories are applied in the last step of developing the framework, the sub-categories under each category are also extracted from the Standard for Programme Management (PMI, 2006 and 2008b). The concern of the researcher at this point is to structure data accurately for its efficient use in Objective 5 of the study, namely integration and framework development.

By analysing the Standard for Programme Management the following pre-defined coding categories and sub-categories have been extracted and retained for content analysis:



Table 3.2:

List of Categories and Sub-categories for Qualitative Content Analysis

Pre-defined Coding Category	Sub-category
1. Strategic Alignment	<ul style="list-style-type: none"> – Organisational strategy – Goals of the organisation – Constraint and guidance offered by strategic management
2. Roles and Responsibilities (Structure)	<ul style="list-style-type: none"> – Decision-making process
3. Policies, Procedures, Processes and Practices	<ul style="list-style-type: none"> – Project portfolio practices – Programme methodology – Risk management – Issues management

Pre-defined Coding Category	Sub-category
	<ul style="list-style-type: none"> - Delivery management - Quality assurance - Benefit management - Change management - Success evaluation - Stakeholder requirements - Developing and documenting assumptions and decisions
4. Monitoring and Controlling Performance	<ul style="list-style-type: none"> - Operations - Delivery of the programme benefit - Project and project progress - Programme outcomes - Organisational investment - Constant application of procedures - Opportunities and threats
5. Disclosure and Reporting	<ul style="list-style-type: none"> - Approval and reporting mechanism - Progress
6. Compliance	<ul style="list-style-type: none"> - Compliance with governance requirements - Compliance with PPPP
7. Knowledge Management	

3. Coding rules

Coding rules or recording instructions should be understood as a set of principles that has to be followed when conducting the coding activity. The content analysis applied in this research comprises two appraisals for each standard and will be processed as follows:

First Appraisal: Locating Data

From the programme management standard, the researcher has developed a list of pre-defined coding categories (concepts) based on which themes should be uncovered from the standard under analysis. This has been done in Table 3.2

Any theme, regardless of whether it is a paragraph, a sentence or a section or semantically fits a category or elaborates on a category must be coded under the concerned category. If the theme fits more than one category it must be coded under all categories to which references is made.

The coding activity must be done by highlighting the theme (paragraph, sentence, phrase or section) and indicate the category in the margin. Once again, if the theme relates to more than one category all referred categories must be indicated in the margin.

If the researcher gets across relevant information that does not fit any category, the theory-based category system must be applied by either modifying existing categories or creating new ones to accommodate that information.

Second Appraisal: Processing or Extracting Data

A coding table, drawn from Table 3.2, will be used for the analysis of each standard in order to extract data located in the first appraisal. An example of the coding template for a governance standard can be seen in Table 3.3. Column 1 (left) lists the pre-defined coding categories (concepts) and column 2 (right) provides the space in which relevant requirements matching a category will be coded.

By using the coding table the located themes highlighted in the standard during the first appraisal would be cut and pasted in the coding table under the category marked in the margin. This would result in a table for each standard, comprising extracted themes for each category.

Table 3.3: Coding Template

Pre-defined Coding Category	Relevant Requirement
1. Strategic Alignment (Sub-categories mentioned)	
2. Roles and Responsibilities (Structure) (Sub-categories mentioned)	
3. Policies, Procedures, Processes and Practices (Sub-categories mentioned)	
4. Monitoring and Controlling Performance (Sub-categories mentioned)	
5. Disclosure and Reporting (Sub-categories mentioned)	
6. Compliance (Sub-categories mentioned)	
7. Knowledge Management	

The data resulting from the coding process will constitute raw data that needs to be interpreted in the context of IT programme management. By carefully reviewing the raw data for context, its implications for IT programme management will be determined. These implications are the ones that will be used for the development of the framework.

A cut-and-paste approach will be used to create an integrated Microsoft Word document presented in table format and based on the data rectangle presentation in a cross-sectional research where standards are cases and categories are variables. Themes under each category will be compared for means, similarities, variances and conclusions.

The disadvantages of a content analysis merge from common issues associated with qualitative research: reliability and validity.

In order to deal with reliability in qualitative content analysis sufficient resources needed to ensure free coding error. For academic reasons and budget limitations the researcher would be the only coder but applies consistency by coding each standard more than once. The coding result would only be considered when at least two runs have produced the same result.

The researcher has built a validity dimension within the design framework that will also ensure the validity of the content analysis outcome. The cross-sectional design combined with comparative design leads to the triangulation of data while the consecutive use of document analysis and content analysis lead to the triangulation of the method. Both analyses are key to the success of validity in qualitative research.

The advantage of content analysis resides in the quality of the data collected. While methods such as surveys or interviews can provide data biased by informants, content analysis provides quality data already assessed when the document source is published. The explicit procedure offered by content analysis simplifies the researcher's task of analysing three large volumes of standards (corporate governance, IT governance, and project governance) in a short period of time.

3.4.3 Framework Development Method

Olivier (2009) distinguishes four modelling approaches, which are modelling by design, metaphor, formalisation and pure genius or pure luck. Despite the fact that the author gives fewer specifications on these approaches, which are more technical, he emphasises that the method used to design a model adds little to its value. However, the important fact, according to him, is about how the conceived model can be appreciated in comparison to competing models.

Soukhanov (2001) defines a framework as "a set of ideas, principles, agreements or rules that provide the basis or outline for something intended to be more fully developed at a later stage". In the context of this study the framework must set out roles and responsibilities, report arrangements for the individual and groups involved

in the programme life cycle, explain how decisions are made and in the case of disagreement, how these will be resolved.

Given the above expectations the researcher needs to describe how to get there. Using modelling by design the researcher would identify major components of the framework that can accomplish the goal of IT programme governance. These components would then constitute the components of the framework.

On the other hand, themes and categories resulting from content analysis would be considered as major components. Both will be compared for harmonisation and deciphering of interrelations among components. This approach proved successful in Martins's (2007) study on a holistic framework for the strategic management of first tier managers.

With the set of tools and techniques discussed above, all the steps are covered from data collection to its subsequent analysis. It can thus be ascertained that Objective 3, which focuses on research methods has been attained.

The section below articulates the process followed from the compilation of the research proposal to the final research results.

3.5 Research Process

The researcher's intent of ensuring proper planning of the overall study and proper conceptualisation of the various details involved in the project emphasise the need for understanding various phases occurring during the course of research.

Olivier (2009) defines the research process as a set of phases through which a research project goes. He distinguishes six phases: explore, propose, prepare, execute, analyse and publish. These phases will be discussed in the context of the present research project.

3.5.1 Explore

The exploration phase has been driven by the researcher's intent of understanding the field, finding an appropriate research problem, formulating the topic and acquiring general knowledge about the topic.

During this phase the researcher conducts a literature review on a variety of scientific materials to strengthen his understanding of issues surrounding corporate governance, IT/IS governance, project governance and programme governance. This exploration has led the researcher to discover the wide range of governance standards available and some key best practices in the above fields.

3.5.2 Propose

From the topic retained at the exploration phase the researcher compiles a research proposal in which he explains the research problem in-depth as well as its relevancy, gives background information, goals, objectives and a brief description of how he intends reaching the goals and answering the research question.

From the gap established in governance layers of an organisation and its impact on IT programme outcomes, the researcher proposes the development of a detailed IT programme governance framework.

3.5.3 Prepare

The preparation phase has focused on the methodology to be used in the research project. The researcher designs the framework that has led him to proceed.

A qualitative blueprint in a cross-sectional and comparative form, using the literature review, document analysis, content analysis and modelling by design method is the protocol compiled for this project. The subjects have purposively been selected and secured for participation in the execution phase.

3.5.4 Execute

During the execution part three best practices are analysed for content and context, following guidelines and processes defined within the content analysis and document analysis tools. It is by combining links to programme governance, identified from the standard on corporate governance, IT governance and project governance that the framework for IT programme management governance will be developed.

3.5.5 Analyse

The analysis phase of this research requires the assessment of the IT programme governance framework to be developed. During this phase the researcher identifies

the advantages and limitations of the framework, and suggests areas of further research in order to enhance the framework.

3.5.6 Publish

Once the research objective has been completed and the goal attained, the final phase of the research is publication. The researcher will submit the final dissertation and an article to a project management institute conference.

3.6 Conclusion

The goal of this chapter is to describe the way in which the research will be done to answer the research question. This includes the positioning and the design of the research as well as the process of collecting and analysing the data.

The first objective of the chapter is about positioning the research project by determining the research type, form and strategy or approach. The researcher retains the oriented basic research type, the exploratory form, using a qualitative approach.

The second objective is to design the research. Within Section 3 possible designs have been explored and the cross-sectional and comparative designs chosen as the structures through which data will be collected and analysed.

The third objective entails the identification and description of relevant methods for data collection and analysis in accordance with the strategy and the design of the research. Literature reviews, content analysis, document analysis and modelling by design are largely described and adapted for their application in the context of this study. Content analysis is referred to for both data gathering and data analysis.

Objective 4 focuses on the research process. The researcher has distinguished six phases that will occur. These phases are: explore, propose, prepare, execute, analyse and publish.

In conclusion, research methodology is a broad concept that needs to be depicted and understood before undertaking a research project. Choosing tools for a given piece of research should not be a simple exercise based on people's habits but

research on its own to build the necessary knowledge of different factors and their interrelations that make up a methodology.

For qualitative research in particular where the researcher acts as an instrument less attention to the design of the research will definitely lead to a result that can be only valid for the researcher himself.

The next chapter focuses on the analysis of corporate governance using one of corporate governance framework as a sample for deeper analysis. It will serve as the starting point for the IT programme management governance framework. Extracted information will give clues on how programme management governance has been approached within corporate governance frameworks.



Chapter 4

Corporate Governance

4.1 Introduction

4.1.1 Context

Chapter 2 presented an overview of programme management as it has evolved from the military and aerospace industry to its modern format. Numerous concepts and approaches to programmes and programme management have been discussed as well as issues and developments within the field.

These discussions highlighted the lack of a common understanding of programmes and programme management among practitioners and academics in terms of the programme processes, programme life cycle, tools and techniques applied. The particular contribution made to this research study was the establishment of a programme management approach that would constitute the basis from which the programme governance framework would be developed.

The researcher's holistic view of the programme management governance framework to be developed implies the integration of corporate governance requirements with those of IT and project governance frameworks.

4.1.2 Goal

The goal of this chapter is to understand corporate governance, and to identify and establish the link with programme management governance.

4.1.3 Objectives

Some objectives derived from the above goal need to be attained in order to reach the chapter's goal. These objectives are as follows:

- The first objective is to establish the foundation of corporate governance to provide its genesis, purpose, key elements and explore existing standards.
- The second objective is to provide the historical development of corporate governance.

- The third objective is the analysis of an international standard of corporate governance retained as the blue print of corporate governance in this study.

4.1.4 Layout

The first section seeks to provide an overview of corporate governance. It includes the definition of concepts, and it also answers the *what*, *how* and *why* questions on corporate governance.

The second section articulates the historical development of corporate governance. It breaks down differences between developed and developing countries, and also analyses self-legislated initiatives.

The third section analyses an international standard of corporate governance. This includes the advent, purposes and implications of the retained code of corporate governance for IT programme management.

4.2 Overview of Corporate Governance

4.2.1 Definition of Concepts

Defining *corporate governance* should begin by defining its composite concepts. Within this section, the concepts of *corporation* and *governance* are explained before defining *corporate governance*.

4.2.1.1 Defining Corporation

Webfinance Inc (2009) describe a corporation as “the most common form of business organisation, which is characterized by a state, and given many legal rights, as an entity separate from its owners”. Within the definition InvestorWorld.com (2009) refers to the concept of *incorporation* (process of becoming corporation) as the element that gives a company separate legal standing from its owners by protecting them from being personally liable in the event that the company is sued (a condition known as *limited liability*). It provides the company with a more flexible way of managing their ownership structure.

It is important to point out the separate and distinct existence of a corporation from its members, even when they die or sell their shares. A corporation remains an entity

on its own and continues to exist until the shareholders decide to dissolve it or merge it with another.

Black's *Law Dictionary* (1990) outlines the separation of corporations from individuals who comprise them and describes a corporation as an artificial person or legal entity created by or under the authority of the law of the state. This is to say that it is the state law that supplies the life blood and beating heart of the existence of the company. Even when a corporation goes global it should be subject to the law of each of the countries in which it operates.

While some lawyers and economists describe a corporation as simply “a nexus (bundle) of contracts”, Monk and Minow (2004) view a corporation as “a mechanism established to allow different parties to contribute capital, expertise, and labour for the maximum benefit of all of them. The investors get the chance to participate in the profit of the enterprise without taking responsibility for the operations. The management gets a chance to run the company without taking the responsibility of personally providing funding”.

Their understanding of a corporation reveals that shareholders are not the only players within a corporation, but other stakeholders also play key roles, even if they are not present at the creation or conception of a corporation. Among these are suppliers, investors, employers and people living in the environment within which the corporation operates.

From the above definitions a corporation can be defined in our view as *an intangible entity that has its own rights and obligations, is created under a state law and involves different parties to make profit, which should be redistributed among all of them.*

4.2.1.2 Defining Governance

According to the United Nations Development Programme (UNDP, 2004), “governance is the system of values, policies and institutions by which a society manages its economic, political and social affairs, through interaction within and among the state, civil society and private sector. It is the way society organises itself to make and implements decisions. It comprises the mechanisms and processes for

citizen and groups to articulate their interests mediate their differences and exercise their legal rights and obligations”.

The above definition describes governance in the broadest context, as governance in its social, political and economic dimensions operates at every level of human enterprises. It can generally be applied to the purpose, management and function of a nation, government, region, municipality, village, community and possibly even an individual.

A clarifying view on the concept of *governance* is given by Tully (2005) who classified governance into three categories. He identified:

- Public governance related to the institution and relationship involving governments and those governed;
- Public sector governance related to principles, values and frameworks for the governance of the public sector bodies; and
- Corporate governance, focusing more discretely on organisations across the public and private sectors, and their governance internally and externally.

Paudel (2008) describes governance as the mechanism of exercising power and decision-making for a group of people. In this context people such as landlords, heads of associations, cooperatives and non-government organisations, religious leaders, political parties and of course governments, are all actors granted power to govern.

Through these three definitions one can derive that *governance* means both the action and the methods of governing but in the context of *corporate governance* the plausible sense for this concept is the method of governing, as specified by Cadbury (2002). With a clear understanding of the concept of *governance*, *corporate governance* can now be defined.

4.2.1.3 Defining Corporate Governance

The concept of *corporate governance* is approached differently in the literature. Naidoo (2002) states that besides the fact that corporate governance has become an

issue of global importance its boundaries and what it constitutes are still subject of debate.

Yuksel (2008) attributes these differences to the fact that corporate governance covers a large number of distinct economic phenomena, and as an emerging discipline recently conceived, it is yet ill-defined and consequently blurred at the edges.

Moreover, a review of existing standards and various corporate governance codes indicate that these standards and codes do not often explicitly define what corporate governance is. Most of them deal with corporate governance as a concept and explain its importance without defining its meaning (Global Corporate Governance Forum, 2005).

The researcher does not intend to resolve this disorder, as it is not the concern of the study but within the section different definitions are analysed. A more ranging definition is formulated at the end.

Cadbury (1992) defines *corporate governance* as “the system by which companies are directed and controlled”. This definition describes corporate governance as a set of mechanisms that determine how firms should operate.

The OECD (1999 cited in the Centre for International Private Enterprise, 2002:3) states that “corporate governance specifies the distribution of the rights and responsibilities among different participants in the corporation including the board, managers, shareholders and other stakeholders, and spells out rules and procedures for making decisions on corporate affairs. By doing this, it also provides the structure through which the company objectives are set, the means of attaining those objectives and monitoring performance”.

This definition extends the notion of corporate governance to the entire environment within which a corporation operates. It implies that shareholders are not the sole focus of corporate governance but other stakeholders should also benefit from the existence of good corporate governance in an organisation, as they are affected by its decisions. The definition also adds two important concepts, which are *structure* and *rules* pertaining to corporations.

Shleifer and Vishny (1997:737) define *corporate governance* as “the way in which suppliers of finance to corporations assure themselves of getting a return on their investment”. This means that corporate governance focuses on ensuring shareholders of the benefits provided by their investment; thus, those involved in management of the provided finance should serve them and avoid expropriation.

Whatever definition of or meaning assigned to corporate governance, the King II report (2002) notes that fairness, accountability, responsibility and transparency towards the identified stakeholders of a company are fundamental values that corporate governance should promote. These values are crucial in building and sustaining the corporation stakeholders' confidence.

The Global Corporate Governance Forum (GCGF, 2005) gives a more plausible interpretation of rules and institutions related to corporate governance referred to by the OECD (1995) in its definition. It groups the definition of *corporate governance* into two categories: (i) the actual behaviour of a corporation; and (ii) the normative framework.

The forum considers that the behaviour of a corporation focuses on issues within the firm itself. This would include matters such as the operation of the Board, roles of the executives and multiple stakeholders. The normative framework, on the other hand, entails the rules determined by a legal and/or judicial system as well as financial and labour markets.

These rules would include listing requirements, disclosure and accounting norms, protection of shareholders' rights and disposition related to governing insider dealing, to name but a few.

Tully (2005:24) formulated a more complex statement of *corporate governance* and *organisational governance*. He stipulated that an “organisation achieves good corporate governance by aligning, synchronising and integrating the various structures, systems, processes, practices and plans by which the organisation is directed, controlled and managed (that is, governed), involving the collective and individual roles and responsibilities of all stakeholders (internal and external stakeholders), and their cultural interface and relationships”.

Tully (2005) believes that addressing corporate governance from such a perspective would provide effective corporate performance and sustainable value and capital enhancement for the organisation's shareholders and stakeholders. This would be done by meeting challenges, exploiting opportunities and managing risks, in accordance with the goals, objectives and strategies of the corporation, which are effectively monitored, evaluated and reported.

Tully's definition takes the concept of *corporate governance* beyond arguing on how and why organisations are directed, controlled and managed, and for whose benefit, as largely discussed in the preceding definitions. It brings an illumination on the synchronisation, integration and alignment of various components. Moreover, the definition particularly ties the corporate plans and strategies with organisational activities, responsibilities and performance measures, which are all crucial elements of corporate governance.

Luo (2005) previously referred to these ties. He also links the elements of strategic direction and corporate performance to corporate governance.

Important characteristics of corporate governance presented in the definitions above are:

- It focuses on directing and controlling companies.
- It ensures stakeholders' expectations and demands.
- It consists of rules and structures.
- It must incorporate fundamental values such as fairness, transparency, responsibility and accountability towards stakeholders.
- It ensures the delivery of corporate performance, sustainable value and capital enhancement in accordance with the strategy of the corporation.

By grouping the above mentioned essential characteristics, a more ranging definition of *corporate governance* can be formulated. Therefore, corporate governance is defined as *a set of rules and a structure for directing and controlling an organisation. These are applied with the test of fairness, transparency, responsibility and accountability to the company and its identified stakeholders, while ensuring the*

delivery of corporate performance and sustainable value-capital enhancement in accordance with corporate strategy; thus maintaining stakeholders' confidence.

4.2.2 Genesis of Corporate Governance

Corporate governance has actually succeeded in attracting a good deal of public and academic debate (Yuksel, 2008). Although it has only emerged as a discipline recently, issues related to it stretch back through centuries to 800 years before business corporations became a dominant form of business association in the twentieth century (Clarke, 2007).

Cooke (1950), as cited in Clarke (2007), states that a corporation in those days succeeded in attracting investors as it proved capabilities of providing benefits. According to Clarke (2007) these corporations were granted a legal personality with rights and duties; they were managed by succession of joint holders of an office on behalf of a group of people interested in carrying out a common purpose or object. Cadbury (2002) considers that the court of proprietors and court of directors the early corporations had back then are equal to the shareholders and Board of today.

As corporations evolved, a wider diffusion of ownership occurred and investors were getting concerned about the way in which their companies were governed. Smith (1976) commented on the issue by stating that “the director of such companies, however, being the managers rather of other people’s money than of their own, it cannot well be expected, that they should watch over it with the same anxious vigilance with which the partners in a private copartnery frequently watch over their own.... Negligence and profusion, therefore, must always prevail, more or less, in the management of the affairs of such a company”.

Cadbury (2002) and Clarke (2007) point out the contribution made by Berle and Means (1932) on the consequence of separation of ownership from management, known as the agency problem, as the first attempt in addressing governance issues of the first corporations.

Corporate governance has since evolved, focusing on the shifting balance of power between the main players on the corporate stages, shareholders, boards of directors and managers. The agency problem constitutes the main point of the development of

governance issues. Cadbury (2002) confirms that “the basic governance issues are those of power and accountability. They involve where power lies in the corporate system and what degree of accountability there is for its exercise”.

The actual rise of corporate governance concerns can be linked to the direct consequences of the Second World War. Different views have evolved from the consequences of this worldwide regretted event.

Cadbury (2002) considers that the lack of suppliers needed for the worldwide reconstruction, the gentility of the pace of technical and market change, and the low level of competition or not existing in some sectors, have made any company look as if performs well; thus hiding the poor performance of the Board and its lack of accountability to shareholders. These somnolent boards are responsible for major scandals around the world, which not only cause the lack of confidence in the corporate sector but it also affects entire economies and endangers the stability of the global financial system.

Bhasa (2004a) states that the need to rebuild the world economy after World War II has increased cooperation among countries, which have liberalised their financial markets and favoured international movement of goods, services and capital. This has led to the growth of corporations needing more and more capital, the triumph of the corporation opposed to government by widespread privatisation and the emergence of new economy orthodoxy. Within this new era the bottom line is that investors could only invest in companies that have sound good corporate governance structures (CIPE, 2002). Bhasa (2004a) specifies that a stable political system and efficient economic policies providing protection to investors are a must for an economy to attract capital.

Within this research it is assumed that both views on the consequences of the Second World War have played a role in raising concerns regarding corporate governance. The effect of somnolent boards, the demand for capital, the triumph of corporations, competition and globalisation have all led to the existence of more than 60 governance codes in more than 30 markets as well as numerous international standards and best practices by the close of the century (Monks & Minow, 2004).

The following section discusses the purpose of corporate governance.

4.2.3 The Purpose of Corporate Governance

A general statement of the purpose of corporate governance would be to address issues that raise the need for corporate governance, as described in the previous section. Much of the discussion within this section is directed at how literature relates to this statement.

According to the Institute of Chartered Accountants in England and Wales (ICAEW, n.d.), “corporate governance aims to protect shareholders’ rights, enhance disclosure and transparency, facilitate effective functioning of the board, and provide an efficient legal and regulatory enforcement framework. It addresses the principle agency problem through a mix of company laws, stock exchange listing rules and self-regulatory codes”.

Two dimensions need to be mentioned. Firstly, efficient structures and principles are key in solving issues arising from the principle agent problem. Secondly, not only shareholders are being considered but stakeholders at large, as a poorly managed company affects stakeholders, including employers, creditors, debtors, vendors, suppliers, customers and the community within which the organisation operates. With companies going global today, it is definitely possible that such companies, if not well governed, can affect the well-being of the nation or the world economy, depending on the size and the level of its operations.

The notion of corporate social responsibilities clarifies the extension of company effect on society in general. An accurate statement was made by Wolfensohn, (n.d.) as cited in ICAEW (n.d.): “the governance of companies is more important for world economic growth than the government of countries”.

Naidoo (2002) states that, “good corporate governance makes good business sense”. Among the advantages of such a system he stigmatises that a properly managed company will attract investment, implement sustainable growth, identify and manage risks within agreed parameters, which would limit potential liabilities. From an investor’s point of view it will be logical to deduct that such company lowers its investment risks and can potentially add significant growth.

Recall from Section 4.2.2 on the genesis of corporate governance that two eras have been identified in the evolution of corporate governance: the first being corporations and the primary issue of separation of ownership from control; and the second being the new economy orthodox and corporate scandals that occurred after the Second World War. The purpose of corporate governance addresses the need of both eras.

In the wake of financial crises and corporate scandals after the Second World War, investors lost their confidence in the functioning of their corporations. It is in this context that the GCGF (2005) have stated that corporate governance strives to restore and sustain investor confidence. Its primary purpose is “to raise standards and drive corporate governance reforms”.

Raising standards and driving reforms still do not clarify how one motivates an investor to have his confidence restored. Kanai (2001) gives a more detailed purpose of corporate governance by stating its objectives.

These objectives are:

- The improvement of management efficiency
- The implementation of policies giving greater priority to stockholder interest
- The insurance of sound management, ultimately leading to the protection of shareholders and more effective market functioning
- The establishment of corporate ethics

Attaining these objectives is subject to having structures and principles that allow business to grow and flourish. The GCGF (2005) argues that without rules and structures of a binding nature, anarchy results, business becomes nothing but “casino capitalism” where investments are simply bets.

The following section discusses corporate governance principles and structure.

4.2.4 Corporate Governance Principles and Structure

A review of the literature reveals an on-going debate around convergence and divergence in corporate governance among regions, countries and industries. O’Sullivan’s (2003) comparative study of corporate governance presents a plethora of diverse arguments advanced for each case. Aguilera and Jackson’s (2003) study

on cross-national diversity of corporate governance explains the differences in corporate governance practices across national boundaries and gives reasons that lead countries to adopt a particular system.

As stated earlier in this chapter, whatever governance system is pursued in a particular market, it still has to be shaped by key elements of good corporate governance. These key elements are responsibility, accountability, transparency and fairness (ICAEW, n.d.; Monks & Minow, 2004).

Within this framework directors are responsible of the direction of the company; thus, they would employ, monitor, control and reward management. The Board is accountable to shareholders and exercise power over directors. Transparency implies the disclosure of information to shareholders about the functioning of the company and fairness demands equal treatment of all shareholders.

Based on these key elements and due to the inexistence of an international code that can apply worldwide, the OECD (2004) has provided a set of guiding principles to which companies should aspire. These principles are discussed below.

4.2.4.1 Corporate Governance Principles

The initial OECG guidelines, endorsed by the International Corporate Governance Network (ICGN) and published in 1999, had five core principles. Due to the worldwide development in corporate governance the 1999 version has been reviewed and a new version containing six principles has been made available in 2004. These principles are set out in Table 4.1 below.

Table 4.1: Principles of Corporate Governance

No.	Principle	Description
1	Ensuring the basis for an effective corporate governance framework.	The corporate governance framework should promote transparent and efficient markets, be consistent with the rules of law, and clearly articulate the division of responsibilities among different supervisory, regulatory and enforcement authorities.

No.	Principle	Description
2	The rights of shareholders and key ownership functions	The corporate governance framework should protect and facilitate the exercise of shareholders' rights.
3	The equitable treatment of shareholders	The corporate governance framework should ensure the equitable treatment of all stakeholders, including minority and foreign shareholders. All shareholders should have the opportunity to obtain effective redress for violation of their rights.
4	The role of stakeholders in corporate governance	The corporate governance framework should recognise the rights of stakeholders established by law or through mutual agreements, and encourage active cooperation between corporations and stakeholders in creating wealth, jobs and sustainability of financially sound enterprises.
5	Disclosure and transparency	The corporate governance framework should ensure that timely and accurate disclosure is made on all material matters regarding the corporation, including the financial situation, performance, ownership and governance of the company.
6	The responsibilities of the Board	The corporate governance framework should ensure the strategic guidance of the company, the effective monitoring of management by the Board, and the Board's accountability to the company and the shareholders.

After defining the principles of corporate governance that governs the relationship among corporate key players, the structure through which these principles operate can now be determined.

4.2.4.2 Corporate Governance Structures

Corporate governance principles can hold true only when they are applied within a defined corporate governance structure through which a company sets its objectives, and the process of attaining these objectives and monitoring performance is provided.

Shivdasani and Zenner (2002) note that due to the increased investors, regulations and public concerns about corporate governance companies have devoted themselves to the task of assessing the quality and structure of their governance. The existence of an excellent governance structure that enhances shareholder long-term value remains questionable.

There is no universally effective and accepted corporate governance structure (Clarke, 2007; Shivdasani and Zenner, 2002). This is due to the multiplicity of factors that are considered in shaping the structure of corporate governance.

Clarke (2007) states that, “different approaches to business formation, and the accompanying corporate governance structure and regulation have evolved in different social and economic contexts”. Among factors contributing to these differences he points out the following variables:

- National, regional and cultural differences
- Ownership structure and dispersion
- The industry and market environment
- Firm size and structure
- Life cycle variation, including origin and development, technology, periodic crises and new directions
- CEO tenure, attributes and background

The relevance of these factors is largely discussed in the literature.

Morgan, Ryu and Mirvis' (2009) benchmark of how 25 companies in five industries are addressing corporate governance structures and systems reveal that:

- Developments in practice are shaped by trends and circumstances external to the firm
- The firm leaders who develop a more advanced citizenship approach adopt structures and processes for efficient activity coordination and performance controlling
- A specific industry with a specific culture faces specific issues that need a particular way of addressing them

Explicating the reason of variance in the governance processes of some economies, Bebchuck and Roe (1999) have introduced the theory of path dependence. They argue that the corporate governance structure that an economy has at any point in time is likely to depend on those that it has had earlier.

Two sources of path dependence have been identified, namely

- Structure-driven dependency concerning the immediate effect of the initial structure of owners on the subsequent structure of owners
- The rule-driven path dependence relative to the influence of the initial ownership structure on the subsequent structure via its effect on the legal corporate rules

However, a probe of corporate governance scholarships has revealed a correlation among the legal system, ownership structure, market type, governance theory, governance model and the type of Board structure (Bhasa, 2004a; Bhasa, 2004b; Mallin, 2004). A discussion of these elements follows.

1. Legal system: Concerning the legal system, Bhasa (2004b) distinguishes (i) socialist democracies, and (ii) capitalist economies. He argues that social democracies would have strong legal systems that protect employees' interests, whereas capitalist economies might have strong investors' protection mechanisms.

2. Ownership structure: Two types of ownership structures are predominant in the literature: (i) concentrated and (ii) dispersed ownership structure. A concentrated shareholding structure is one in which a minimal number of shareholders hold the majority of company shares. Owners in this context include individuals, managers, families, directors, holding companies, banks and other financial corporations. The CIPE (2002) states that, in this structure “majority” shareholders have several ways of influencing or controlling the management of companies.

A dispersed ownership structure has a large number of stockholders, each holding a small number of company shares relative to the total number of shares in which has been invested. This structure reflects a net separation of control from management.

It is important to note that besides their particular advantages and disadvantages, the principles agent problem still prevails in both structures. The ICAEW (n.d.) states that, in a concentrated ownership structure, controlling majority shareholders may expropriate wealth from dispersed investors when the legal environment is weak, while in a dispersed ownership structure the agency problem concerns potential conflicts between the owner and the board of directors.

3. Governance theory: Two governance theories are highlighted in the literature, namely (i) the shareholder theory and (ii) the stakeholder theory. The shareholder theory is the traditional conception of governance that implies that the Board should primarily act in the best financial interest of the company and its shareholders as capital investors, while the stakeholder theory is a communitarian and contemporary governance view, which emphasises the interest of a wide range of stakeholders, including shareholders.

Bhasa (2004a) justifies the stakeholder theory by holding onto the fact that “the physical assets in which individuals invest are not the only assets that create value in the corporation. Human assets, in which the individual invests implicitly, create much more value than what can be estimated in economic terms”.

4. Governance system: Broadly spoken, governance scholars have identified two corporate governance systems, namely (i) the insider system and (ii) the outsider system. An insider system is a system in which an owner monitors, oversees and

controls companies from within. On the other hand, the main corporate governance functions in the outsider system are undertaken by external owners who do not generally involve themselves actively with the management of the company (Barker, 2006).

Some scholars have proposed a third type of governance system. Besides an insider and outsider system Bhasa (2004b) suggests a third type, which he calls the transition system. This refers to a hybrid system applied by Eastern Europe nations in their process of privatisation. An analysis of the system used in these nations shows that the third category added by Bhasa (2004b) is just a means of adopting best practices from both the insider and the outsider systems in order to open up the economy.

5. Board structure: Another spectrum focuses on the Board's structure and role. Mallin (2004:93) states that Board structure is one of the major factors that differentiates governance structures. He identified two types of Boards, namely (i) unitary and (ii) dual boards.

The unitary Board, used in the UK and the USA, is a single Board comprising both executive and non-executive directors. The dual Board, used in Europe, separates supervisory and management roles, and devolves them into separate boards, respectively responsible for the supervision and the management of the company affairs.

By categorising the correlating elements discussed above, two different governance structures are identified. Table 4.2 depicts the elements discussed above, and presents their correlation and mergence within the two structures.

Table 4.2: Governance Structures

No	Element	Governance Structure 1	Governance Structure 2
1	Legal system	Socialist democracies	Capitalist economies
2	Ownership structure	Concentrated	Dispersed
3	Governance theory	Stakeholder theory	Shareholder theory
4	Governance system	Insider	Outsider
5	Board structure	Dual Board	Unitary Board

4.2.5 Existing Standards and Best Practices

An enormous effort has been made internationally and nationally to develop, revise or provide standards, guidelines and codes of best practices for the governance of both public institutions and private businesses. These efforts, regardless of the level at which they have been made, strive for a common purpose: to restore and sustain investor confidence lost during financial crises and corporate scandals, as discussed in previous sections (Mallin, 2004).

From the point of view of the corporation these codes not only restore investor confidence, but they also contribute to Board effectiveness and corporate accountability. In addition, they serve as benchmarks in measuring the conduct of a particular company (Cadbury 2002; Wymeersch, 2006). By doing so, the company ensures that proper corporate practices and policies are implemented and monitored.

However, corporate governance codes do not evolve in a vacuum; they are impacted internationally and nationally by existing laws, principles and best practices; thus, taking into consideration the context of globalisation, which has led to cross-border investors, business institutions and corporations. Among the laws, principles and practices that have a direct impact on corporate governance codes, the GCGF (2005) lists the following:

- International laws (treaties, agreements, directives, legal codes)
- National laws (listing rules, disclosure requirements, accounting standards, the issue and sale of securities, company formation, shareholder rights, proxy voting, merges, acquisitions, contract enforcement)
- Sub-national legislation (state or provincial laws)
- Corporate rules and provisions (company by-laws)
- Organic documents of the corporation (company charter)
- Standards, guidelines and codes of best practice
- Regulations

Wymeersch (2006) considers that governance codes result from a mix of rules and he groups the above into two categories:

- Statutory rules from company laws, which constitute the basis rules for corporate governance codes
- Rules imposed on the company by stock exchange and other internal rules

The variety of rules pertaining to governance codes explicate the existence of a variety of bodies that issue or participate in the development of a code of corporate governance and consecutively, the variety of corporate governance codes (Mallin, 2004).

Different typologies of governance codes are proposed in the literature (Wymeersch, 2006; GCGF, 2005). These typologies vary depending on whether the author's approach is typology based on the code issuing authority or the focus of the code. By combining these two criteria, a broad categorisation has been formulated for the purpose of this research. Two main types of codes are established: (i) international standards and guidelines, and (ii) the corporate governance code of best practice for a particular country. These types of codes are discussed below.

4.2.5.1 International Standards and Guidelines

International standards and guidelines are non-binding and principles-based common standards developed by international organisations, which have an impact on the specific codes of countries (GCGF, 2005).

The aim of such standards varies according to their issuing authorities. It can either serve as providing common ground upon which countries can agree despite their differences, or it can serve as benchmark against which countries can assess their own practices, or it can serve as guidelines to institutional investors (Wymeersch, 2006). These codes are drafted by international organisations such as multilateral and regional organisations. They are directed toward listed companies, state-owned enterprises, institutional investors or a wide range of firms (GCGF, 2005).

Table 4.3 presents the most well-known international standards that serve as cornerstones for many corporate governance codes at national level.

Table 4.3: International Standards of Corporate Governance

No	Organisation	Instrument	Date	Purpose
1	Basel Committee	Enhancing Corporate Governance variance for Banking Organisations	2006	Help ensure the adoption and implementation of sound corporate governance practices by banking organisation worldwide
2	Commonwealth Association for Corporate Governance (ACG)	The Principles for Corporate Governance in the Common Wealth	1999	Board's role and responsibilities
3	European Union	Directive on Minimum Transparency Requirements for Listed Companies	2004	Investor protection; enhance investor confidence and a better functioning of European capital markets
4	European Union Company	Winter Report	2002	Provide comprehensive, dynamic and flexible

No	Organisation	Instrument	Date	Purpose
	Law Experts			frameworks for governance in Europe
5	ICGN	ICGN Statement on Institutional Shareholder Responsibilities	2003	Ensure that investments are managed in the best interests of their beneficiaries
6	OECD	OECD Governance Guidelines for State-owned Enterprises	2005	Company's contribution to ensure efficiency and competitiveness of the economy.
7	World Bank	Corporate Governance Report	-	Assessment of corporate governance framework and practices in individual countries

Besides the above bodies, and their standards and guidelines, other international organisations contribute to the development of codes of best practices for specific countries. Among these organisations one can count the Global Corporate Governance Forum, assisting transition economies in broadening dialogue, exchanging experience, good practices and coordinating activities related to the development of corporate governances.

4.2.5.2 Corporate Governance Code of Best Practice for a Specific Country

The specific legal environment, culture and business context of a certain country demand flexibility from corporate governance conceived internationally. The GCGF (2005) attests that countries have adopted specific codes of best practices as a way to introduce international standards and adapt them to the local environment.

From the above statement corporate governance codes of best practices can be understood as the codes that transform key elements of good corporate governance from the international dimension into principles that apply to the specific cultural

tradition, legal structure, ownership structure, stage of development, business context or specific issues of a country.

Corporate governance codes of best practices are issued by different bodies, ranging from market regulators, professional bodies and stock exchange bodies to academics. They also vary considerably in terms of their origin, scope, legal status and the level of their details.

The GCGF (2005) provides a typology based primarily on the focus of the codes in which it distinguishes:

- **Codes of best practices for generic business activities:** Cover all business activities, and listed and non-listed companies regardless of their size
- **Codes of best practices for listed companies:** Apply to listed companies and act as requirements for any company to be listed on the stock exchange of that particular country
- **Codes of best practices for specific types of companies:** Described as “sector-specific cooperate governance”, it apply to particular types or sizes of companies and address their particular issues
- **Codes focusing on specific aspects of corporate governance:** Result from an improvement process of existing codes and which address identified issues in more details

Wymeersch (2006) presents a typology based on the origin of the code and argues that the origin of the code determines its legal status. He distinguishes four types of codes, presented as follows:

- **Private initiatives:** Developed by academics and are voluntary in nature
- **Listing condition:** Originated with a committee with the stock exchange mandate and has a compliance or explanatory option
- **Code linked with a public authority:** A non-mandatory code initiated by an authority such as a government minister or market player. Such codes can use a “comply or explain” option when a strong link is established with the legislation.

- **Code supervised by a government body:** Considered as statutory law, depending on the level of supervision

The analysis of these two typologies has led the researcher to conclude that the GCGF (2005) typology indicates the main categories under which a given code can fall, while Wymeersch's (2006) typology provides different forms that apply to a code, depending on who has generated the code.

Table 4.4 presents key existing standards, including the Cadbury report (1992), which is the first code of the modern era and has inspired the development of many codes worldwide.



Table 4.4: Country-specific Codes of Best Practices

Country	Name	Date	Issuing body	Scope
Australia	Principles of Good Corporate Governance and Best Practice Recommendations	March 2003	Australian Stock Exchange (ASX) Corporate Governance Council	Listed companies
Belgium	Belgian Corporate Governance Code	December 2004	Corporate Governance Committee (Lippens Committee)	Listed companies
Brazil (1)	Recommendations on Corporate Governance	June 2002	Securities and Exchange Commission of Brazil (CVM)	Listed companies
Brazil (2)	Code of Best Practice for Corporate Governance	May 1999, revised March 2004	Brazilian Institute for Corporate Governance (IBCG), a private sector corporate governance association	Companies
China	Code of Corporate Governance for Listed Companies in China	January 2002	The China Securities Regulatory Commission and the State Economic and Trade Commission: commissions organised by government	Listed companies
France	Promoting better corporate governance in listed companies (Bouton Report)	September 2002	French Private Enterprise Association (AFEP) and French Large Enterprise Association (AGREF)	Listed companies

Country	Name	Date	Issuing body	Scope
Germany	German Corporate Governance Code (Cromme Commission Code)	February 2002, revised in May 2003	Government Commission for the German Corporate Governance Code	Listed companies, but all companies encouraged to comply, as relevant
India	Report of the Committee on Corporate Governance	February 200	Securities and Exchange Board of India (SEBI)	Listed companies
Kenya	Principles for Corporate Governance in Kenya and Samples Code of Best Practice for Corporate Governance	November 1999, revised July 2000	Private Sector Initiative for Corporate Governance: a private-sector, nongovernmental body	Companies
South Africa	King report on corporate governance for South Africa (III)	September 2009	The King committee on corporate governance under the auspices of the institute of directors in South Africa	All entities.
United Kingdom (1)	The combined code	July 1998, revised in July 2003, June 2006, 2008 and	The financial reporting council (FRC)	Listed companies

Country	Name	Date	Issuing body	Scope
		lastly in May 2010		
United Kingdom (2)	Report of the Committee on the Financial Aspects of Corporate Governance (Cadbury Code)	December 1992	The Committee on the Financial Aspects of Corporate Governance Established by the Stock Exchange	Listed companies, but other companies encouraged to comply, as relevant
United States	Principles of Corporate Governance	May 2002, revised April 2003	Business Round Table	Listed companies, but all companies encouraged to comply, as relevant
United States	Sarbanes- Oxley Act	July 2002	One hundred seventh congress of the United States of America	Public accounting firms

4.3 Issues and Developments

4.3.1 General considerations

Section 4.2.2 on the genesis of corporate governance stated that, in the first era, corporate governance stemmed from the need to deal with the impact of the separation of ownership and control, and to find solutions to the resulting agency problems.

The discussion on corporate governance structure has led us to identify two systems, namely insider and outsider systems, which are linked to different

ownership and control structures: dispersed ownership (predominant in the USA and the UK) and concentrated ownership (prevalent in Europe and developing countries).

In today's corporate governance paradigm the agency problem and the way it is being approached in each of the above structures still prevail. It is an emerging issue that needs to be readdressed. The dominant question in the literature is about choosing the structure that better solves the agency problem (Bhasa, 2004a; Murphy & Topyan, 2005).

Nenova (2005) states that both insider and outsider structures, besides their particular advantages and disadvantages, have a common problem: the capability of insider controlling to expropriate majority shareholders. He points out the unchecked corporate power as the principal cause. In order to address the issue, he suggests that major corporate players provide mechanisms that address the issue with particular attention to voting rights, cross-shareholding and shareholding agreements, golden shares, voting caps and pyramids. This can be done via regulations and private enforcement methods.

Another emerging issue, which is being considered as a challenge to global corporate governance, is the convergence of corporate governance codes of best practices, the key factor of this trend being the globalisation of the market.

The CIPE (2002) argues that "globalisation has exposed companies to fierce competition, and to considerable capital fluctuations. National business communities and company managers are learning that in order to expand and be internationally competitive they need levels of capital that exceed traditional funding sources". These resulting cross-border transactions and opportunities force countries to opt for convergence of their corporate governance systems (GCGF, 2005). This implies that countries with weak systems must generalise or import corporate governance systems that have proven to be successful in other countries.

Bolkestein (2004 cited in GCGF, 2005:41) states that "broad convergence not only strengthens shareholders' rights and the protection of third parties such as creditors and employees, it makes it easier for investors to compare investment opportunities". In this context, once national corporate governance codes converge toward best

practice, countries are given the same opportunity to attract investment. But some challenges still need to be addressed for an effective convergence of corporate governance practices.

Bebchuk and Roe (1999) refer to the theory of path dependence, implying that differences such as the political preconditions that have existed among countries at an earlier point in time will remain, even if their economies have otherwise become quite similar. Monks and Minow (2004) consider that the OECD limited itself on providing principles because it faced a knotty problem when trying to harmonise practices among its country members.

Alternatively to convergence Bhasa (2004a) suggests that countries should go for a native model of governance based on their political structure and their inherited path by considering their internal strengths, their particular needs and their culture.

However, the idea of convergence intends to standardise corporate governance practices worldwide, as some countries or regions have succeeded in ensuring investor confidence, while others are still struggling. Major differences are established between developed economies and developing ones. The section below discusses the corporate governance development in these economies.

4.3.2 Developed Countries

The corporate governance debate and its related issues are still prevalent in both developed and developing economies, even if there is a difference regarding the stage at which each economy find itself in addressing these issues. While recognising the existence of additional hurdles for developing economies, McGee (2009) confirms that there are similar issues faced by both economies.

In the early days developed countries had sophisticated and effective governance systems that responded effectively to the needs and business culture (GCGF, 2005). However, at the advent of globalisation countries such as France, the United States of America, Germany and Japan were unable to compete.

Like developing countries, deficiencies in corporate governance affected not only a particular firm but also the functioning of the financial markets in developed economies. The GCGF (2005) points out the case of corporate collapse and under

profit boosting such as Tyco International and the Arthur Anderson audit fraud case. Inflated reports of stock performance performed by independent investment analysts have affected investors, stock markets and economic growth in developed economies.

These facts and several other crises drove the demand for change in corporate governance in developed economies. Monks and Minow (2004) state that these “markets needed global capital, and that meant they needed to adopt standards of governance that global capital understood”.

In their process of establishing sound corporate governance practices, developed economies enjoyed the advantage of having company laws and securities regulations, setting basic principles that irrigate corporate governance practices (CIPE, 2002). These market systems that led to success are of particular importance for developing economies. It is based on these successful market systems that developing countries need to be inspired in developing governance systems that will handle the challenges particular to their economies.

4.3.3 Developing Countries

While developed countries had some sort of corporate system that proved effective in the early days before crises and globalisation, Shleifer and Vishny (1997) state that, in emerging markets and some transition economies, governance mechanisms were practically nonexistent. “It was ignored as a matter of importance and remained virtually invisible” (Oman, 2003).

Monks and Minow (2004) point out the East Asian financial crisis that expanded into Central and South America as the kick-start of substantial efforts to establish and improve governance practices in emerging economies. They report that the Asian crisis revealed that “corporations in developing markets were hopelessly indebted, accounts presented a barely recognisable picture of companies’ financial status, directors lacked training, regulators and courts lacked power, managers were unaccountable, and in many markets the whole corporate edifice was riddled with government interference, corruption and kickbacks”.

While Oman (2003) describes the Asian crisis and its corporate practices broadly as an issue of “crony capitalism” applied in poor local corporate governance environment, the CIPE (2002) establishes a commonality among the Asian crisis, the continuing turmoil in Russia and the experience of the privatisation programme in the Czech Republic. It specifies that these examples all “involve the basic rules of the economy, and the relationship between these rules and the way companies are governed”, which are lacking in emerging markets.

Another factor that has already increased the need for corporate governance in a developing economy is the effect of globalisation, introduced in developing countries by the International Monetary Fund (IMF) and the World Bank via a series of liberalising measures, known as the Structural Adjustment Programme. The programme was used by these financial institutions as a requirement to get loans (Reed, 2002).

It is within this context that corporate governance gained interest in developing countries and some of them individually started putting in place governance structures. Several organisations led the process. The OECD, the World Bank, the International Financial Corporation, the United States Commerce and State Department, and the joint initiative of the OECD and World Bank (known as GCGF), have been supporting countries in their process of reforming and implementing governance practices.

However, the process of instituting governance mechanisms in developing countries has evolved differently. While some countries such as South Africa, Brazil and India have undergone profound restitutions, others still consider corporate governance as an issue concerning most developing countries (Oman, 2003).

With regard to enormous initiatives undertaken internationally, nationally and regionally, which promote governance in developing economies, it is important to assess the effectiveness of these systems in developing countries comparatively to developed countries.

CIPE (2002) states that “in order for governance measures to have a meaningful impact in any economy, a set of core democratic market institutions, including a legal

system to enforce contracts and property rights, needs to be up and running". The effectiveness of a corporate governance system within a country depends on other related regulations and rules of that country.

Considering that organisations do not operate in a vacuum, a set of institutions providing legal and regulatory measures constitute the skeleton within which a sound corporate governance system can operate. Otherwise this will lead to what Mitchell and Wee (2004) described as "establishing an island of good corporate governance in a sea of poor or undeveloped public governance".

Unlike developed countries, developing economies lack political and economic institutions that should define fundamental rules so that corporate governance codes can benefit from a favourable environment (CIPE, 2002). Because of this, emerging markets are exposed to practices such as the violation of property rights, the expropriation of minority shareholders, the violation of contracts, asset stripping and self-dealing, to name but a few.

The CIPE (2002) provides a road map that can be used to address the issue of corporate governance in developing countries. The working group considers the OECD principles as the starting point that needs institutional frameworks for it to work.

Looking at what has to be established for effective corporate governance mechanisms one would agree that it requires strong political will and appropriate resources. If institutional frameworks are subject to political commitment, their existence and effectiveness would be questionable in African countries, as in some of these countries the dream of the head of state can become law the following day.

Another issue that does not let corporate governance codes work in developing countries lies in the similarity of ownership structures in these countries. Literature states that preponderant structures in these countries are state-owned enterprises, foreign-owned, family-owned, and small and medium sized enterprises, of which the shares are not listed on their stock exchanges (Oman, 2003; Saidi, 2004). In this context, applying the corporate governance code imported from developed economy

will lessen its effect, as it will only pertain to the few listed companies, leaving the majority of non-listed enterprises outside the scope.

In order to address this issue, the GCGF (2004) opts for a more generic code with explicit recommendations, particularly to listed companies. It also admits that the enforcement method used in the code plays a critical role in influencing organisations to ensure compliance. The broad approaches to the enforcement methods are discussed below.

4.3.4 Self-regulation versus Statutory Codes

Maassen (2003) defines *self-regulation* broadly as a regulatory regime developed, founded and enforced exclusively by the industry. It can be understood as a private or sectional business initiative that regulates the practices of companies without government intervention.

The Security Market Association in Finland (2009) describes such system as having the following characteristics: It (i) is voluntary, (ii) established in co-operation with industry organisations, (iii) varies in its level of binding force, (iv) is more detailed than legislation, (v) replaces or complements legislation, and (vi) may include control and consequences for violations of the system.

The opposite of self-regulation would be a statutory act whereby explicit government legislation, consisting of acts passed by parliament with a mandatory enforcement through the judicial system, governs the activities of organisations.

Literature differentiates between these systems mostly based on their focus, development, implementation, enforcement, flexibility, evolutionary, comprehension, scope and procedure (GCGF, 2004; Security Market Association in Finland, 2009). These differences are summarised in Table 4.5.

Table 4.5: Self-regulation versus Statutory Codes

No.	Factor	Self-regulation	Statutory Codes
1	Focus	Good or best practice	Minimum standard
2	Development	Faster	Long

No.	Factor	Self-regulation	Statutory Codes
3	Implementation	Faster	Long
4	Enforcement	Voluntary	Enforced
5	Flexibility	Easier	Difficult
6	Evolutionary	First	After
7	Comprehension	Ease of comprehension	Legal precision
8	Scope	Practical	Broad
9	Procedure	Quick	Slow

Table 4.5 shows that a self-regulated code focuses on good or best practices, while a statutory code provide minimum standards with which companies must comply. The development and implementation period for a self-regulated code is faster than a statutory code, as the latter has to follow the legal process which takes longer. This is why self-regulated codes are usually launched first, as they constitute the basis from which a law can be enacted.

While self-regulated codes tend to be self-disciplined by offering a voluntary adherence, statutory codes imply a “must” and stipulate penalties for non-compliance. This voluntary characteristic of self-regulated codes makes them flexible to environmental changes, in contrast to statutory codes which require a legal process before any change can be incorporated.

Despite the impressive growth observed in self-regulation initiatives its effectiveness is still questionable. Finch (1994) states that self-regulation “favours the regulated group, broader public interest; they are designed with large, well-organized, well-resourced enterprises in mind and fail to deal with those who really need to be regulated; their procedures tend to exclude third parties; they are low on accountability; they have anticompetitive effects; they tend not to enjoy public confidence, and their investigative enforcement and sanctioning processes tend to be weak”.

Maassen, Van den Bosch and Volberda (2004) reviewed the European Union's Winter Report and Action Plan. They attested to inconclusive evidence regarding the relationship between the implementation of corporate governance codes and the performance of the corporations in Europe. They then questioned the reasons that led the group to emphasise self-regulation in Europe, while its structures and impacts were questionable.

One of the obvious drawbacks of self-regulation is the enforcement method, which gives a corporation voluntary consent or a choice to comply with or explain approach. De Jong, Dejong, Mertens and Wasley (2005) state that a code that relies on monitoring without enforcement by either exchange or government is unlikely to be successful. Wymeersch (2006) questions the essence of the "comply or explain" approach as shareholders seems to be indifferent to the quality of explanations.

With so much criticism and the evidence that more sophisticated market economies have faced weakness due to the limitations of self-regulation the likelihood of a successful result if such a system has to be applied in developing economies remains questionable.

Berglof and Claessens (2006) declared that for private codes to function, some mechanism of compliance at the level of the state is still needed. This remains challenging in developing countries, as the majority of them lack strong institutional frameworks within which corporate governance can operate.

Moreover, self-initiative relies on non-binding incentives for compliance. These incentives include market pressure, competitive advantage, reputation damage, and media exposure, to name but a few. These incentives will not be successful in developing countries because business ethics, integrity and moral values are still questionable.

A concluding view on the issue of self-regulation would recommend an analysis of the environment in which the initiative has to be applied. This should determine whether self-regulation will be sufficient to promote change when basic institutions exist, or whether legal enforcement is required to fill in the blanks.

The following section analyses a corporate governance code, identifies relevant requirements and determines their implications for IT programme management.

4.4. Analysis of a Corporate Governance Code

4.4.1 Choosing the Sarbanes-Oxley Act (SOX)

Section 4.2.5 has provided a list of corporate governance standards and best practices that are used for the governance of public institutions and private businesses. Among these standards and best practices a choice has to be made on one code for further analysis.

The Sarbanes-Oxley Act (2002) has been chosen as the corporate governance blue print in this study for the following reasons:

- While other codes (self-regulated codes) favour a voluntary enforcement, the Sarbanes-Oxley Act favours the broader public interest, is stricter on accountability and has strong investigation, enforcement and sanctioning processes (Maassen et al., 2004; Wymeersch, 2006).
- The weakness proven in more sophisticated market economies due to the limit of self-regulated codes calls for a statutory code such as the Sarbanes-Oxley Act, particularly in developing economies where strong institutional frameworks, within which corporate governance can operate, are lacking (De Jong et al., 2005; GCGF, 2004).
- Despite the existence of variations in corporate governance models around the world the Sarbanes-Oxley Act remains the most notorious and commonly used act due to its particularities (Muthukumar, 2009).
- The strong influence of the Sarbanes-Oxley Act on IT and its level of authority have made it the benchmark standard (Cuong, 2007).
- The King II Report, which is the corporate governance code of the researcher's country of residence, is being revised from Version 2 to Version 3 at the time of the enquiry. The then used King Report II was due to change because of the new Company Act, Act No. 71 of 2008.

4.4.2 The Advent of the Sarbanes-Oxley Act

The advent of SOX can be linked back to corporate scandals and economic crises discussed in the previous sections. While worldwide reactions took the private initiative approach, the United States of America pursued a statutory approach that led to the enactment of the Sarbanes-Oxley Act in 2002.

SOX was not the first attempt in addressing corporate governance issues in the United States of America. Some initiatives were previously undertaken before the reoccurrence of scandals and crises that prompted the passing of SOX.

Linklaters (n.d.) alludes to the Security Act of 1933 and the Securities Exchange Act of 1934 to be endorsed due to the Great Crash of 1929 as relative reaction to the Sarbanes-Oxley Act. Leech (2003) mentions the non-enacted rules, proposed by the Securities Exchanges Commission (SEC) in 1988, in response to the Treadway Commission's report on fraudulent financial reporting as an initiative that bears striking similarities to SOX, particularly its Sections 302 and 404.

Although the rules suggested by the Treadway Commission were not ratified, Leech (2003) states that the five professional groups sponsoring the Treadway Commission developed an integrated control framework with the intent of helping public corporations, their auditors, advisors and regulators in understanding key elements of an effective control framework. The internal control-integrated framework commonly known as "COSO Framework, was released in 1992. It had a charter to improve the quality of financial reporting through ethics, governance and internal control.

Beside the abovementioned Acts, other security and control-related regulations have significantly contributed to the development of SOX. Among these Acts, Proctor (2003) includes the Foreign Corrupt Practices Act of 1977 and the Federal Deposit Insurance Corporation Improvement Act of 1991.

However, in the wake of the 21st century egregious corporate scandals and bankruptcies involving fraud, greed and breakdowns in internal control reoccurred. Large firms such as Enron, WorldCom, Adelphi Allied Irish Bank, Health South and others collapsed. These massive corporate governance failures and their

subsequent consequences affected not only investors, but also stakeholders, lenders, regulators and the public. Weinstein (2006) attests that these scandals ended in the loss of billions of dollars in stock market value.

Among practices that led to the reoccurrence of these scandals Leech (2003) questions the integrity of senior management, the competency of boards of directors and the integrity of external auditors, lawyers and investment dealers.

In response to these endless corporate failures and misdeeds the US Congress initiated a federal law to regulate the accounting and auditing practices of public trade companies. The Public Accounting Reform and Investor Protection Act, known as the Sarbanes-Oxley Act of 2002, was signed into law by the president on 30 July 2002 (Moeller, 2008). The purpose of the Act is discussed in the section below.

4.4.3 The Purpose of the Sarbanes-Oxley Act

Linklater (n.d.) states that the United States Congress was concerned about the damage caused to investor confidence and its consequences on the future of the security market in the country. It is in this context that the primary purpose assigned to SOX is the restoration of investor confidence.

To achieve this purpose the enacted law had to address the level of disclosure, accuracy and the credibility of corporate financial reporting. Among its provisions are the following:

- The creation of a new regulatory authority that set public accounting auditing standards, the Public Company Accounting Board (PCAOB), which had the responsibility to oversee external auditing and corporate governance issues that impacted the reliability of financial reports
- The increase in responsibilities of corporations to produce reliable financial reports
- The restriction of external auditor activities to increase their independence

Of particular importance in this study is the provision related to the responsibilities of corporations as it falls within the scope of the study. Wilkins and Gupta (2007) commented on the approach by SOX to corporate responsibilities by stating that it

“improves the standard for corporate accountability from the very top (the boards of directors and senior management) to the lowest levels of the company, where business transactions and related activities are performed”. SOX’s provisions related to corporations, particularly those that were susceptible to the impact on managing programmes in organisations constitute the focus of the following section.

4.4.4 The Mandates of the Sarbanes-Oxley Act Relevant to Programme Management

The previous sections retraced the advent of SOX and its purposes. Disclosure, accuracy and credibility of corporate financial reporting are the main focus of the US government Act that has caused quite a stir in corporate America and throughout the world. This report filed quarterly in the form 10-Q, or annually in the form 10-k, provides investors with updated disclosure about companies.

Within the Act numerous provisions are made toward accounting firms, independent auditors and corporations. Among 11 titles that it comprises, some are concerned with particular responsibilities of corporations to improve the quality of disclosure related to their financial conditions.

To ensure compliance with corporation provisions SOX (2002), unlike all preceding US legislation, holds CEOs and CFOs personally accountable for the integrity of the financial statements filed with the Securities and Exchange Commission. It also emphasises management responsibilities regarding the adequacy of internal control over information that ends up on financial statements.

Although officers and management are respectively held accountable and responsible for the quality of disclosure in producing reliable financial information, it must also be recognised that “the data necessary to assemble the disclosures comes from a wide range of sources”; thus, these data sets can be assembled, consolidated and reported at multiple levels of an organisation (Leech, 2003). Thus, SOX provisions extend to the entire organisation. It covers everyone and everything involved in company finances. Weinstein (2006) clarifies that everyone in a company responsible for how money is spent, is affected by SOX.

With this broad understanding of the corporate responsibilities of SOX, it is now important to consider the temporary organisation within which programme

management falls and to identify SOX provisions that are relevant to programme management.

The analysis was done according to the process defined in Section 3.4.2.2 and 3.4.2.3 of chapter 3 (*Research Methodology*).

The Document analysis tool applied through reading identified the Sarbanes-Oxley Act (2002) as a stationary code enacted in order to protect investors by improving the accuracy and reliability of corporate disclosures.

Concepts that needed to be explained in order to provide the research with the right understanding of the SOX requirements are defined in Section 2 of SOX, from page HR 3763-2 to HR 3763-6. This enabled the researcher to understand the immediate context and the long range significance of the Sarbanes Oxley Act.

The result of the document analysis process, which is basically the researcher's familiarity and understanding of SOX and its requirements, has created the basis from which the content analysis activity has been conducted.

The process of content analysis was done using the pre-defined coding categories found in Table 3.2 of Chapter 3. Considering that the coding unit should be a theme, which is a statement fully expressed, each section of the 11 titles of SOX was then appraised and coded only when it had a direct or indirect relevance to a category.

During the first appraisal, which aimed at locating data using deductive reasoning, relevant sections of SOX were highlighted and the categories addressed were mentioned in the margin. This can be uncovered in Appendix B, containing the analysed copy of SOX.

It must be specified that this first appraisal took place directly in the literature piece by reading through the text and manually highlighting the identified sections and noting the categories in the margin.

By illustration, Section 302 titled *Corporate Responsibilities for Financial Reporting* requires the Chief Executive Officer and the Chief Financial Officer to certify and ensure the disclosure of the financial information of their corporation. When considering that corporate financial information would include programme

expenditure as it is discussed in this chapter, Section 302 of SOX on page HR 3763-33 has been highlighted and the disclosure and reporting category in Table 3.2 has been mentioned in the margin. This can be uncovered in Appendix B.

Furthermore, Section 302 of SOX requires that the CEO and CFO establish and maintain internal control for which they are required to disclose any deficiency and fraud. Although this section has already been identified as relevant to disclosures and reporting categories, it also has relevance for the pre-defined coding category called *Policies, Procedures, Processes and Practices*. By applying the coding rules defined in Section 3.4.2.3 of Chapter 3 the category *Policies, Procedures, Processes, and Practices* has also been mentioned in the margin.

The second appraisal consisted of processing or extracting data in order to finalise the content analysis process. The extraction process took place between two documents: The SOX document used in the first appraisal and the coding table (Table 3.3, chapter 3) containing pre-defined coding categories in its left hand side column. The located themes (sections) were then extracted from SOX and coded in the right hand side column of the coding table under the predefined coding category that was mentioned in the margin during the first appraisal.

By illustration Section 302 on page HR 3763-33 of SOX is coded under the *Disclosure and Reporting* category and the *Policies, Procedures, Processes and Practices* category, as it had relevance for both.

It must be specified that other sections of SOX have also been located and coded based on the fact that they provide supporting measures to a section previously coded. For example, Section 401 provides additional requirements to Section 302 by including off-balance sheet transactions among those that must be reported. This is also the case with Section 906, which carries criminal penalties for failure to certify financial reports required in Section 302.

By carefully applying this process during the content analysis of SOX, seven sections that have relevance to programme management have been identified and extracted. The results of the coding are presented in Table 4.6. These results present raw data that has not yet been explained in the context of IT programme

management. For this reason they will be reformatted in order to identify their implications for programme management.

Table 4.6: Results of Content Analysis on SOX

Pre-defined Coding Category	Relevant Requirement Coded
<p>1. Strategic Alignment</p> <ul style="list-style-type: none"> – Organisational strategy – Organisational goals – Constraint and guidance offered by strategic management 	
<p>2. Roles and Responsibilities (Structure)</p> <ul style="list-style-type: none"> – Decision-making Process 	
<p>3. Policies, Procedures, Processes and Practices</p> <ul style="list-style-type: none"> – Project portfolio practices – Programme methodology – Risk management – Issues management – Delivery management – Quality assurance – Benefit management – Change management – Success evaluation – Stakeholder requirements – Developing and documenting assumptions and decisions 	<p>Section 302 and Section 401 Disclosure of corporate financial information (appropriateness of controls and procedures used) Section 906 carries criminal penalties.</p>
<p>4. Monitoring and Controlling Performance</p> <ul style="list-style-type: none"> – Operations 	<p>Section 404 Management assessment of internal control</p>

Pre-defined Coding Category	Relevant Requirement Coded
<ul style="list-style-type: none"> – Delivery of the programme benefit – Project and project progress – Programme outcomes – Organisational investment – Constant application of procedures – Opportunities and threats 	
<p>5. Disclosure and Reporting</p> <ul style="list-style-type: none"> – Approval and reporting mechanism – Progress 	<p>Section 302 and Section 401 Disclosure of corporate financial information</p> <p>Section 906 carries criminal penalties.</p> <p>Section 409 Real-time disclosure of financial condition</p>
<p>6. Compliance</p> <ul style="list-style-type: none"> – Compliance with governance requirements – Compliance with PPPP 	
<p>7. Knowledge Management</p>	<p>Section 802 Information retention.</p> <p>Section 1102 carries criminal penalties for altering documents.</p>

The above sections focus on a content analysis and document analysis of SOX for the purpose of identifying requirements that would have relevance for programme management.

From Table 4.6, the main provisions and their additional recommendations can be grouped into four mandates:

- Disclosure of Financial Information (Section 302, 401 and 906);

- Internal Control (Section 404);
- Real-time Disclosure of Additional Information (Section 409);
- Information retention (Sections 802, and 1102).

The following section discusses each of these mandates that require corporations to ensure adequate compliance with the legislation. The section also elaborates on implications that each of the SOX mandates above have for IT programme management.

The section below discusses the relevance of the above mandates and looks at each in order to determine their implications on IT programme management.

4.4.5 Implications of SOX Mandates for IT Programme Management

4.4.5.1 Disclosure of Corporate Financial Information

The Sarbanes-Oxley Act (2002), in Section 302 entitled “Corporate Responsibility for Financial Report”, requires the Chief Executive Officer (CEO) and Chief Financial Officer (CFO) to certify and ensure timely disclosure of the financial information of the their corporation, as well as the appropriateness of controls and procedures used when recording, processing, summarising and reporting this information.

This personal sign-off requirement holds the CEO and CFO personally responsible for the completeness and reliability of disclosure, and the effectiveness of controls and procedures. They are required to disclose any deficiency and change in their internal controls and denounce any fraud, regardless of materiality.

Section 302 of SOX (2002) covers obligations that fit the definition of liabilities required to be reported on the balance sheet. This leaves out what Moeller (2008) calls a “common tactic” at the time, pro forma financial report, leading to many financial reporting disclosure problems. He states that the pro forma financial reports “were used to present an as-if picture of a firm’s financial status by leaving out nonrecurring earning expenses, thus making an operation loss to become a profit”.

It is in this context that Section 401 of the Sarbanes-Oxley Act (2002) is linked to Section 302 in the study, as it backs up off-balance sheet transactions and activities

that have a material effect on the current or future financial condition of the corporation.

Relative to Section 302, Section 401 requires that off-balance sheet transactions must be disclosed in the quarterly and annual financial reports. Moeller (2008) supports this by referring to the final rules passed after SOX, which require that such arrangement be provided and explained in a separately captioned subsection of the Management's Discussion and Analysis (MD& A) section of the annual form 10-k.

Should the CEO and CFO fail to comply with the above dispositions, besides civil liability provided by Section 302, Section 906 carries criminal penalties going up to twenty years imprisonment and a ten million US dollar fine.

Recall from Chapter 3 that organisations facing the need to cope with changes use projects as a way of accomplishing everything they undertake. Due to limits that arose from the use of straight forward project management, the programme management approach has prevailed to overcome these limits and to establish a link between the overall strategies of the organisation with its portfolio of projects.

It can then be said that the integrated management of interrelated projects and other work that achieve organisational change and deliver benefit, provides an organisation with a mechanism that ensures the accomplishment of its strategy. In doing so, programmes use a considerable amount of organisational resources, if not most, that need to be reflected on the corporate financial report.

It has been shown that Section 302 of SOX requires officers to review and certify the accuracy and fairness of their financial reports comparatively to the financial condition and operation of the company, and that failing to do so expose them to criminal penalties.

Early in this study the researcher established the existence of a permanent organisation and a temporary organisation within a corporation. The temporary organisation comprises projects, programmes and portfolios. PMI (2008a; 2008b; 2008c) holds respectively the project manager, programme manager and portfolio manager responsible for their respective assignments, as are executives for the company. This credits Schulte (2006) who believes that the legal accountability

required by SOX for poor management of these assignments should not rest only on the shoulders of CEOs and CFOs, but their respective managers must also be involved.

Moreover, in relation to compliance requirements of Section 302, Moeller (2008) testifies to the use of an extended sign-off process by corporations whereby staff members at each level signs off what they are submitting before passing it to the next level. This is intended to hold managers at each level responsible of the accuracy of its financial submission and the adequacy of supporting internal control.

4.4.5.2 Internal Control

Section 404 of the Sarbanes-Oxley Act (2002) entitled *Management Assessment of Internal Controls* holds management responsible for setting and maintaining internal control structures and procedures for financial reporting. This implies that management should take ownership of internal controls over financial reporting by assessing and reporting their effectiveness, knowing that external auditors will independently test their assessments.

It is important to note that the certification of disclosures required from CEOs and CFOs, as set out in sections 302 and 401, is based on information for which management is required to ensure effective control in its production chain. This interdependency between officer accountability and management responsibility attracted the researcher's attention.

Glassman, (2002) as cited in Leech (2003), clarifies the intent of these sections by stating that CEOs and boards are expected to make certain that procedures are in place to ensure that they hear bad news, while management has to identify, understand and assess the factors that may cause the news to be fraudulently misstated.

The approach SOX has to improve transparency, accountability and responsibility in governance, accounting and reporting activities does not rely only on financial data; it includes all information required to be submitted to the SEC under the 1934 Act. This is why Linklaters (n.d.) states that internal control to be established should be expanded to integrate all required information.

Moeller (2008) emphasises Linklaters' (n.d.) view by adding that the system of internal control should not be considered as a matter that relates only to the functions of the accounting and financial departments. Proctor (2008) states that the internal control should be understood as a process, which is affected by a company's board of directors, management and employees. Proctor identifies five components of an effective internal control. These components are control environment, risk assessment, control activities, information and communication, and monitoring.

Moeller (2008) states that COSO provides the basis for understanding internal control processes and procedures, while AS5 (Auditing Standard 5) constitutes its auditing standards. Each organisation should then identify appropriate procedures and controls to be established according to its structure, size and complexity (Linklaters, n.d.).

Poor programme management such as mismanagement of the programme budget, cost overrun and other aspects would be considered as crimes to the light of SOX. Besides the fact that each programme delivers benefits, it has been said early in this study that the delivery programme particularly, results in direct inflow of funds to the organisation. The failure of such an undertaking can force the company to run out of business.

To avoid poor programme management, programme managers need to establish and maintain internal control processes and procedures. This is where Section 404 of SOX comes into play in programme management. The delivery time, cost deviation from the plan, material resources, trends and variance must be controlled to ensure that the programme still proceeds in the right direction and that compliance is the name of the game.

At project level, Schulte (2006) establishes a relationship between the internal control requirements and earned value management process to ensure compliance. Programme management goes far beyond the scope of a single project and needs a rigid process that ensures that the programme will provide the intended benefit.

Internal control requirements can also impact on programme management when an organisation undertakes a SOX compliance programme or SOX compliant projects

within a programme. As discussed in Chapter 3, Gray and Bamford (1999) identified among programme type, the platform programme designed to improve the organisation infrastructure or service. If such programme changes the applications that create income statements or balance sheets, the programme manager must make sure that internal control processes and procedures are built in.

4.4.5.3 Real-time Disclosure

The Sarbanes-Oxley Act (2002), in Section 409 entitled *Real-time Issuer Disclosure* requires that besides the quarterly and annual reports, corporations disclose its financial condition or operations in real-time, and on a rapid and current basis.

Wood (2006) states that information systems would provide a means of achieving compliance with this section, as it can provide timely and accurate data related to finance and operations. He emphasises that such systems must be part of the internal control systems assessment required by SOX, Section 404.

According to Moeller (2008), the main purpose of this section is to have investors informed as soon as possible by avoiding traditional slow paper-based reports. The challenge reposes in determining events that fall under the real-time reporting requirement. Rules related to this section give companies the ability to determine events that qualify as real-time material events relative to its activities.

Section 409 of SOX requiring real-time disclosure of additional information that affects the financial conditions of a company and its operations has an impact on programme management. Lester (2004) states that “companies seeking to comply with Sarbanes-Oxley need more than financial reports to understand the material change that can affect their financial conditions”.

Programme management faces issues, risks, market pressures and competition to extend that, if not timely reported, the company will be flying into headwinds or thunderstorms that can affect the whole investment. Real-time reporting will enable smart decisions that keep the programme focused on returning the most value.

4.4.5.4 Information Retention

Section 802 of the Sarbanes-Oxley Act (2002), entitled *Criminal Penalties for Altering Documents* requires corporations to retain relevant records that form the

basis of an audit and its supporting documents. This includes electronic records created, sent or received when these records have an impact on the assets or performance of a corporation.

Moeller (2008) describes Section 802 as a reaction that addresses Arthur Anderson's practices that led to the failure of Enron International. He suggests that corporations must develop and maintain a strong policy for the retention of records. By doing so, they will avoid the hint of a federal investigation or filing for bankruptcy.

The impact of the SOX mandates related to record retention does not have to be proven. The adequacy of record-keeping not only ensures SOX compliance, but it is a sound practice in programme management, as it enables knowledge sharing and lessons learned.

Weinstein (2006) states that even in the case of offshore outsourcing, all documentation must be centralised and tracked by the company systems. By doing so, organisations ensure that they protect and provide controls for intellectual property and access to data.

Table 4.7 summarises the SOX mandates and their implications for IT programme management governance.

Table 4.7: SOX Mandates and Their Implications for IT Programme Management

Mandate	Section	Sarbanes-Oxley Requirement	Implication for IT Programme Management
Disclosure of Corporate Financial Reporting	Section 302 Corporate Responsibility for Financial Report	CEO and CFO are required to: <ul style="list-style-type: none"> – Review and sign the report – Ensure reliability and completeness – Set up and maintain control in the process – Prove the effectiveness 	SOX1 Financial Statement Financial statement related to IT programme management must be certified and reported. This includes all programme activities that have current or future material effect on

Mandate	Section	Sarbanes-Oxley Requirement	Implication for IT Programme Management
		<p>of their internal control</p> <ul style="list-style-type: none"> – Ensure timely and reliable disclosure – Disclose deficiencies that can lead to inaccurate or incomplete information – Disclose any fraud involving management or employees, regardless of materiality – Disclose any change to internal control 	<p>the programme benefit.</p> <p>SOX2 Timely Disclosure Timely disclosure of deficiencies that can lead to inaccurate or incomplete information, any fraud regardless of materiality and any change to internal control</p> <p>SOX3 Accountability and Responsibilities for Financial Reporting Accountability and</p>
	Section 401 Disclosure in Periodic Reports (Off-Balance Sheet Transaction)	Financial reports must include all material off-balance sheet transactions, arrangements, obligations (including contingent obligations) that are reasonably likely to have a current or future effect on the financial condition of the corporation.	<p>responsibilities for financial reporting must be defined. Penalties related to financial reporting extended to the programme accountable authority.</p> <p>SOX4 Responsibility for Certification The signing authority of programme financial statements should</p>
	Section 906 Corporate Responsibility for Financial Report	Require certification similar to Section 302, and carries criminal penalties of up to \$5 million or 20 years imprisonment	<p>be the one accountable for the programme outcome, and must ensure reliability and accuracy of the report.</p>

Mandate	Section	Sarbanes-Oxley Requirement	Implication for IT Programme Management
Internal Control	Section 404 Management Assessment of Internal Controls	<p>There must be a report that:</p> <ul style="list-style-type: none"> – Acknowledges management’s responsibility in setting and maintaining internal control structures and procedures for financial reporting – Contains a recent assessment of the reliability of the controls – States that an external auditor has attested to and reported on the assessment made by management 	<p>SOX5 Internal Control</p> <p>Implement a programme management process that establishes programme control structures and processes to be exercised on all programme activities (financial and non-financial) throughout the programme life cycle</p> <p>Assess the effectiveness of the controls and recommend the use of appropriate product development processes for SOX compliant programmes</p> <p>SOX6 Attesting the Assessment</p> <p>An external auditor should attest to and report on the assessment of internal controls done by management.</p>

Mandate	Section	Sarbanes-Oxley Requirement	Implication for IT Programme Management
Real-Time Disclosure of Additional Information	Section 409 Real-time Issuer Disclosure	Requires a real-time disclose of additional information concerning material changes in the financial conditions or operations of the organisation	<p>SOX7 Additional Information Disclosure Implement a real-time monitoring and reporting process for additional information (risk, issues, internal or external environmental factors, events, legislation, change) to the programme; thus, facilitate timely decision-making</p> <p>SOX8 Benefit Disclosure Disclose any change to the programme benefit</p>
	Section 802 Criminal Penalties for Altering Documents	Requires the retention of relevant records such as work papers, documents that form the basis of an audit or review, electronic records which are created, sent or received in connection with an audit or review and which contain conclusions, opinions, analyses or financial data relating to such an audit or review	<p>SOX9 Information Retention Implement a process for retaining programme-related documents, correspondence, decision documents and analysis documents for both paper-based and electronic records</p>
Information Retention	Section 1102	Carries criminal penalties of up to 20 years for persons	SOX10 Accountability and Responsibility for Records

Mandate	Section	Sarbanes-Oxley Requirement	Implication for IT Programme Management
	Tampering with a Record or otherwise impeding an official proceeding	who corruptly alter, destroy, mutilate or conceal records (including electronic records) and documents	Define responsibilities and accountability for record retention

To conclude, Value-based Project Management (VBPM, 2008) states broadly that programme management, as a means by which everything in corporations is done, provides a better alternative to handle the SOX required process, accountability and visibility. Among the advantages of this approach VBPM (2008) mention

- the alignment of the strategy to the tactical level;
- the provision of functional cost controls;
- the identification and elimination of redundant work;
- the identification and mitigation of risks;
- the establishment and maintenance of reporting requirements; and
- the centralisation of process development and improvement.

The implications of SOX provisions for IT programme management open up questions that need to be addressed in order to ensure that IT programmes are managed in compliance with corporate governance and that they are connected to the decision-making process of the organisation.

Firstly, two sources of financial statements were identified: Financial statements related to the programme budget and those related to the benefit that the programme is expected to deliver. In this context, who should account for each of these financial statements?

Secondly, the control process in programme management would involve a wide range of activities. According to William and Parr (2008), such control should involve the periodic review of a number of predetermined metrics or key performance indicators, and the approval of discrete events or milestones, which usually involves the spending of money or the delivery of a package of work. With so many links between managing the programme work and financial management, who should be involved in setting, maintaining and assessing the control process?

In light of these implications of the SOX mandates on programme management, how would the programme management governance framework be developed to integrate SOX requirements to ensure effective and successful programme management?

4.5 Conclusion

The goal of this chapter was the identification of corporate governance clauses that had relevance for programme management and providing their implications in the context of IT programme management.

The first objective assigned to the chapter aimed at establishing the foundation of corporate governance by delineating concepts, providing the genesis, purpose and key elements, and exploring existing standards. In Section 2 corporate governance and related concepts were defined. Two eras of corporate governance were identified: the early corporations with their issues of separation of ownership from control, and the effects of the Second World War and globalisation. These constitute important stages in the evolution of corporate governance from its early days to its modern day form.

Addressing issues raised in both eras shapes the purpose of corporate governance, which focuses on driving shareholder values by raising standards and driving corporate governance reforms. International standards and country-specific codes of corporate governance were presented.

The second objective of the chapter addressed issues and development within the field. Two major issues were analysed in Section 3. The emerging agency problem, prevalent in both insider and outsider systems; and the need for convergence of

corporate governance codes worldwide were discussed. Different schools of thought were provided.

Section 3 also compared developments in corporate governance between developed and emerging markets. While similar issues were found in both markets, differences in the quality of corporate governance practices between the two markets were evident. Particular challenges that developing economies must address in order for them to raise the standard were also provided.

Of particular importance for this study is the third objective, which intended to analyse a corporate governance standard and identify its implication for IT programme management. Used as the blue print of corporate governance in this study, SOX mandates that were relevant to IT programme management were identified.

Their implications were discussed in Section 4. Disclosure of corporate financial information (balance sheet and off-balance sheet transactions), management assessment of internal controls, real-time reporting and document retention were SOX provisions that pertained to the management of programmes.

In closing this chapter it must be remembered that programme management constitutes a means by which organisations achieve almost everything they undertake. As investors invest in companies, and demand transparency and accountability in return for their capital, so as to establish confidence, organisations invest in programmes and demand proper management of these investments in order to ensure the delivery of the expected benefit.

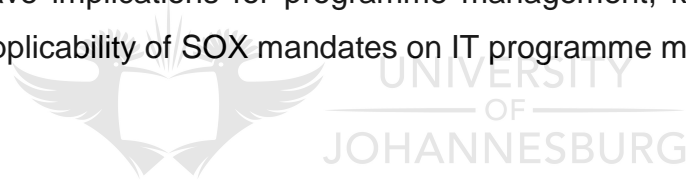
Considering that the investments placed in organisations are, in turn, mostly driven as programmes for which the outcome should guarantee a return on investment and attainment of strategic objectives, an organisation would not ensure SOX compliance if SOX provisions did not pertain to the management of programmes.

It can be deducted that an organisation can declare SOX compliance when the management of its programme ensures SOX compliance, as it constitutes the major source of risk for investors.

From a programme management point of view, key to enhancing compliance with SOX provisions related to particular responsibilities of a corporation for improving the quality of disclosure of their financial conditions are the following aspects:

- A clearly defined accountability and responsibility framework over programme financial statements and other events that have material effect on the programme outcome
- A framework that establishes and maintains internal control throughout the programme life cycle
- A process that monitors and discloses additional information of a programme to ensure real-time decision-making
- A well-established framework for information retention within the programme organisation

The next chapter focuses on IT governance. Its goal is to identify IT governance mandates that have implications for programme management, knowing that it can also lighten the applicability of SOX mandates on IT programme management.



Chapter 5

Information Technology Governance

5.1 Introduction

5.1.1 Context

The previous chapter analysed corporate governance and established its links to programme management governance. By using the Sarbanes-Oxley Act (2002) as the blue print for corporate governance frameworks, corporate governance requirements that are relevant to IT programme management governance were identified and their implications determined.

Considering that the researcher is to develop an IT programme management governance framework, it should benefit all the governance layers of any organisation. This chapter serves as the second step in the process of identifying relevant governance requirements from existing standards, as it focuses on information technology governance. According to Robinson (2005), the latter constitutes an integral part of the overall corporate governance.

It must be clarified that corporate governance does not constitute the sole governance layer of an organisation. While Wood (2005) stipulates that the Sarbanes-Oxley Act (2002) reach from the boardroom to the computer room, Robinson (2005) specifies that its implicit mandate on transparency, clear accountability and rigorous control highlight the importance of both corporate and IT governance as vital oversight apparatus for an organisation.

5.1.2 Goal

The goal of this chapter is the understanding of information technology governance, and the identification and establishment of its links to IT programme management governance.

5.1.3 Objectives

In order to attain the goal mentioned above, some objectives must first be met. These objectives are as follows:

- The first objective is to establish the foundation of information technology governance, to provide its genesis, purpose and key elements, and explore existing standards.
- The second objective is to discuss issues and developments within the field of information technology governance.
- The third objective is the analysis of an international standard of information technology governance, retained as the IT governance blue print in this study.

5.1.4 Layout

The first section elaborates on the overview of information technology governance. It provides the definition, purpose, advent and key elements of information technology governance. It also includes an inventory of existing key standards.

The second section discusses issues and developments in the field of information technology governance.

The third section analyses an IT governance framework. This covers the advent, purpose, relevance and implication of the retained IT governance framework for IT programme management governance.

5.2 Overview of Information Technology Governance

5.2.1 Defining *Information Technology Governance*

Literature suggests numerous definitions for the concept of *information technology governance* (Sallé, 2004). As evidence, a simple search of the concept on the Internet results in a variety of answers. Broadbent (2003), as cited in Bowen, Cheung and Rohde (2007) and Van Grembergen et al. (2004) state that besides the fact that IT governance has been largely discussed by numerous authors, the Information Systems Control and Audit Committee still find it difficult to develop a clear and commonly accepted definition.

Despite the existence of multiple and diverse views on IT governance Van Grembergen (2004) argues that definitions for *IT governance* share a common theme. They all recognise that the effectiveness of IT governance relies on assuring

that investments in IT generates business value and mitigates risks associated with IT implementation.

The IT Governance Institute (ITGI, 2005) states that as the business strategy or business model of an organisation relies on IT, the organisation cannot afford to apply to it anything less than the same level of commitment devoted to financial supervision and overall enterprise governance. By considering IT as one of the key assets through which enterprises accomplish their strategies and generate business value (Weill and Ross, 2004:6), defining *IT governance* has been driven by conceptualising the corporate governance concept at the IT level. Weill (2004) emphasises this view by stating that good IT governance draws on corporate governance principles to manage and use IT to achieve corporate performance goals.

This section analyses recurrent definitions and ends with a more ranging one, which emphasises essential characteristics in line with corporate governance largely discussed in the foregoing chapter.

The ITGI (2003) suggests “IT governance is the responsibility of the board of directors and executive management. It is an integral part of enterprise governance, and consists of the leadership and organisational structures and processes that ensure that the organisation’s IT sustains and extends the organisation’s strategy and objectives”.

This view is shared by Calder and Watkins (2005:3) who consider that leadership, organisational structure and business processes should be defined within a framework to which a company must comply. This definition entails that governing IT is all about making sure that the organisation investment in IT enables the business.

In their executive guide to information technology, Baschab and Piot (2007:605) emphasise the above conception and establish a strong relationship between the strategy and technical goal of a company with IT strategy and operating philosophy. They define *IT governance* as “a set of methods corporate management and the CIO employ to ensure that the IT department successfully execute an IT strategy and operating philosophy that supports the company strategy and tactical goals”.

Both the ITGI (2003) and Baschab and Piot (2007), point out the alignment of IT with business strategy. It is in this context that Robinson (2005) qualifies *IT governance* as the “sextant that guides companies through the galaxy of technological complexities and business challenges. Thus, the effectiveness of such a framework enables IT to become a valued asset, inseparable from the business and regarded much more as an investment than a cost”.

Another view on these definitions reveals the indirect implications IT governance has for shareholder demand and expectations. The ITGI (2005:165) recognises that business enablement presents the extreme of both very large investments and critical, potentially crippling risks when using IT. At the same time, it offers exceptional opportunities for growth and renewal. Simply put, it has a role and an impact on the entire enterprise and consequently on shareholder values. Thus, it has to be managed within defined constraints that provide assurance.

Brand and Boonen (2007) take the complete view of corporate governance as described by OECD (2004), and resize it at IT level. They define *IT governance* as “the system by which IT within enterprises is directed and controlled. The IT governance structure specifies the distribution of rights and responsibilities among different participants, such as the board, business and IT, and spells out rules and procedures for making decisions on IT. By doing this, it also provides the structure through which the IT objectives are set and the means of attaining those objectives and monitoring performance”.

Besides the fact that the definition implies the application of corporate governance mechanisms of directing and controlling companies, at one level below, it sheds light on what should be expected from an IT governance framework. Their definition articulates around three fundamental dimensions of IT governance advocated by Bowen et al. (2007). These dimensions are:

- The structure consisting of organisational units and roles responsible for making IT-related decisions
- The process that entails the implementation of IT management techniques and procedures in compliance with established IT strategies and policies

- The outcome metrics comprising the mechanisms used to assess the effectiveness of IT governance and to identify improvement opportunities.

The key IT governance characteristics covered in the above definitions stipulate that IT governance:

- Aligns IT with business strategy
- Delivers value
- Determines the system by which IT within an enterprise is directed and controlled
- Comprises structure, process and outcome control.

By grouping these key IT governance characteristics together, a more wide-ranging definition of *IT governance* can be formulated. Therefore, it is plausible to define *IT governance* as the system by which IT within an enterprise is directed and controlled. It comprises firstly the structure that defines the mechanisms for decision-making, direction-setting and cascading policies. Secondly, the process that embeds accountability into the organisation. Lastly, the outcome metrics that assess both IT governance structure and processes to ensure that the desired results are being obtained and that the IT strategy remains aligned with business strategy.

5.2.2 The Advent of Information Technology Governance

Although the term *IT governance* has become prominent in the literature only over the last few years (Best Price Computer, n.d.), fundamental concepts relating to it were addressed through the decades. The need for strong IT governance and necessary frameworks has been established since the advent of IT (Political Information.com, n.d.).

From an historical perspective Brown and Grant (2005) point out Garrity's (1963) study of the organisational factors leading to increased return on technology investment as the earliest attempt in addressing issues related to the current notions of IT governance. They consider that his effort to answer questions such as "Who is responsible for IT investment activities?", "Who provides input into IT investment activities?" and "What controls are in place to ensure IT investment activities are carried out positively?" are still prevalent in the current IT governance sphere.

From the late 1990s IT governance has become one of the most popular buzzwords in company boards and among IT executives, attracting enormous debate and interest among corporate players (Pevzner, 2005). The Political Information.com (n.d.) qualifies this rising interest in IT governance as the result of the natural maturing of the information technology sector.

As IT has evolved through the ages, attention should be paid to its use within organisations. Table 5.1 depicts the emergence of IT from its primary goal of efficiency to value creation, as presented by Pearlson and Saunders (2004).



Table 5.1: The Evolution of IT Goals

	1960s	1970s	1980s	1990s	2000+
Primary Role of IT	Efficiency	Effectiveness	Strategic	Strategic	Value Creation
	Automate Processes	Solve Problems and Create Opportunities	Increase Group and Individual Effectiveness	Transform Industry/ Organisation	Create Collaborative Partnerships
Justification	RIO	Productivity	Competitive Position	Competitive Position	Adding Value
Target of Systems	Organisation	Individual or Group	Individual Manager	Business Processes	Customer, Supplier, Ecosystem
Informational Model	Application Specific	Data-driven	User-driven	Business-driven	Knowledge-driven
Dominant Technology	Mainframe	Minicomputer	Microcomputer	Client Server "Distributed Intelligence"	Internet "Ubiquitous Intelligence"

Source: Pearlson and Saunders, 2004

The move of IT from efficiency and productivity gains toward value creation and business effectiveness has made it to become an integral part of the business. Brandenburger and Nalebuff (2000), as cited in Brown (2006), state that the capability of IT to ensure time to market, speed of competitive advantage and superior customer service enable it to successfully drive a corporate strategy. Sohal and Fitzpatrick (2002) note that, organisations rely on IT for success. Sallé (2004) specifies that organisations ignoring IT have difficulty functioning and succeeding.

Due to the critical role IT plays within an organisation as shown above, it is believed that the rising need for IT governance stems from the need to implement an effective and sound corporate governance practice. Calder and Watkins (2005:3) consider it is “this need that has led to the emergence of IT governance as a specific and pervasively important component of an organisation’s total governance posture”. It is in this context that Brand and Boonen (2007) advise that organisations that pay attention to corporate governance should increase their attention to IT governance by ensuring that they adequately control the IT used for supporting their business processes.

Robinson (2005), and Baschab and Piot (2007) identify two factors as the main drivers of the increased interest in IT governance. These are: (i) the lacklustre of IT performance and (ii) the compliance requirement of enacted regulations.

As lacklustre of IT performance, Robinson (2005) names failed or aborted projects, missed deadlines, budget overruns and poor returns on investment. Baschab and Piot (2007) add the heterogeneous costly environment, unhappy business users, low morale in IT, poorly run operations and applications, and improper use of scarce corporate resources.

Concerning the compliance requirement, the ITGI (2003:7) and (2005:95) states that governance developments have evolved from their primary focus on the transparency of enterprise risks and protection of shareholders value to include a specific focus on IT governance. Current regulations address transparency, awareness and accountability from Board level to the computer room (Wood, 2005).

Both the lacklustre of IT performance and compliance requirement shine a spotlight on the need for IT governance.

5.2.3 The Purpose of Information Technology Governance

The ITGI (2003:7) and Trites (2006) agree that boards and management expect their enterprise IT to deliver business value. In practice, expectations and reality often do not match. Instead, organisations find themselves facing numerous issues that affect both performance and compliance requirements, as discussed in the preceding section. Considering the strategic importance of IT, these issues must be dealt with so that the enterprise can sustain its operations and extend its activities as it moves into the future.

For an organisation to do so, Rau (2004:34) stipulates that senior management and IT leaders should interact and communicate in such a way that they ensure that technology investments enable the achievement of business strategies in an effective and efficient manner. Robinson (2005) considers that the creation of a control environment, which favours desirable actions to drive the effective, efficient and secure use of information technology, should be the goal that IT governance must strive to achieve.

Therefore, governing IT can be framed by two overarching goals: (i) generation of business value, driven by the strategic alignment of IT with business, and (ii) control and mitigation of IT-related risks, driven by embedding accountability into the enterprise. Moreover, in order for an organisation to attain these overarching objectives, it is evident that the necessary resources should be provided and managed accordingly. As a means of seeking assurance and improvement opportunities performance must be measured (ITGI, 2003).

This view has led the ITGI (2005:97) to provide a detailed purpose of IT governance in which IT governance objectives or responsibilities are specified. It states that the aims of IT governance are to direct IT initiatives and ensure that IT performance attains the following objectives:

- IT activities are aligned with the business strategy and deliver the promised benefit

- IT resources are used responsibly
- IT performance is measured, as it is essential for the appropriate management of the above factors
- IT acts as an enabler to business by exploiting opportunities and maximising benefit
- Business and IT-related risks are managed appropriately

Each one of IT governance objectives leads to an IT governance domain or focus area and which are all driven by stakeholder values (ITGI, 2005; Pevzner, 2005). This is depicted in Table 5.2 below.

Table 5.2: Linking IT Governance Objectives to IT Governance Domains

No	IT Governance Objective	IT Governance Domain or Focus Area
1	IT activities are aligned with the business strategy and deliver the promised benefit.	Strategic Alignment
2	IT resources are used responsibly.	Resource Management
3	IT performance is measured, as it essential for the appropriate management of all these factors.	Performance Measurement
4	IT acts as an enabler to business by exploiting opportunities and maximising benefit.	Value Delivery
5	Business and IT-related risks are managed appropriately.	Risk Management

These domains or focus areas, which an IT governance framework should cover, are discussed in the following section.

5.2.4 Key Elements of Information Technology Governance

5.2.4.1 Information Technology Governance Domains

The previous discussion on the advent of IT governance identified drivers that have led to the need for strong and effective IT governance mechanisms: the lacklustre of IT performance and the compliance requirement of enacted regulations.

As a means of addressing issues related to these drivers, two IT governance overarching goals or concerns have been identified. These concerns are the generation of business value, and the control and mitigation of IT-related risks.

The breaking down of the two IT governance concerns have led to five IT governance objectives. Section 5.2.3 has concluded that IT governance objectives are framed into five IT governance focus areas or domains, all driven by stakeholder value. The ITGI (2003) states that three of these domains are drivers and two are outcomes. The drivers are strategic alignment, resource management and performance measurement. The outcomes are value delivery and risk management.

The ITGI (2007) defined these IT governance domains as follows:

Table 5.3: IT Governance Domains Defined

IT Governance Domain		Description
Drivers	Strategic Alignment	It focuses on ensuring the linkage of business and IT plans; defining, maintaining and validating the IT value proposition; and aligning IT operations with enterprise operations.
	Resource Management	It is about the optimal investment in and the proper management of critical IT resources: applications, information, infrastructure and people. These are key issues related to the optimisation of knowledge and infrastructure.
	Performance Measurement	It tracks and monitors strategy implementation, project completion, resource usage, process performance and

IT Governance Domain		Description
		service delivery by using, for example, balanced scorecards that translate strategy into actions to achieve goals measurable beyond conventional accounting.
Outcomes	Value Delivery	It is about executing the value proposition throughout the delivery life cycle, thereby ensuring that IT delivers the promised benefits against the strategy while concentrating on optimising cost and proving the intrinsic value of IT.
	Risk Management	It requires risk awareness by senior corporate officers, a clear understanding of the enterprise appetite for risk, understanding of compliance requirements, transparency about the significant risks to the enterprise and embedding of risk management responsibilities into the organisation.



It must be noted that IT governance focus areas constitute the topics that executive management should address in order for them to ensure proper governance of IT within their enterprises (ITGI, 2003; Hardy, 2006). These should be regular items on their agendas, as they play a critical role in creating and sustaining effective IT governance practices (ITGI, 2007; Robinson, 2005; Trites, 2004).

Effective IT governance practices will be ensured via a continuous life cycle in which only four of the IT governance domains constitute the stages, as the resource management domain overlays all of them. The order in which the life cycle is entered does not matter but usually the strategic alignment serves as the starting point. As implementation occurs, business value will be generated and risk mitigated while strategic changes are monitored, results measured and reported, and the necessary actions taken (ITGI, 2003: 19).

This is depicted in Figure 5.1.

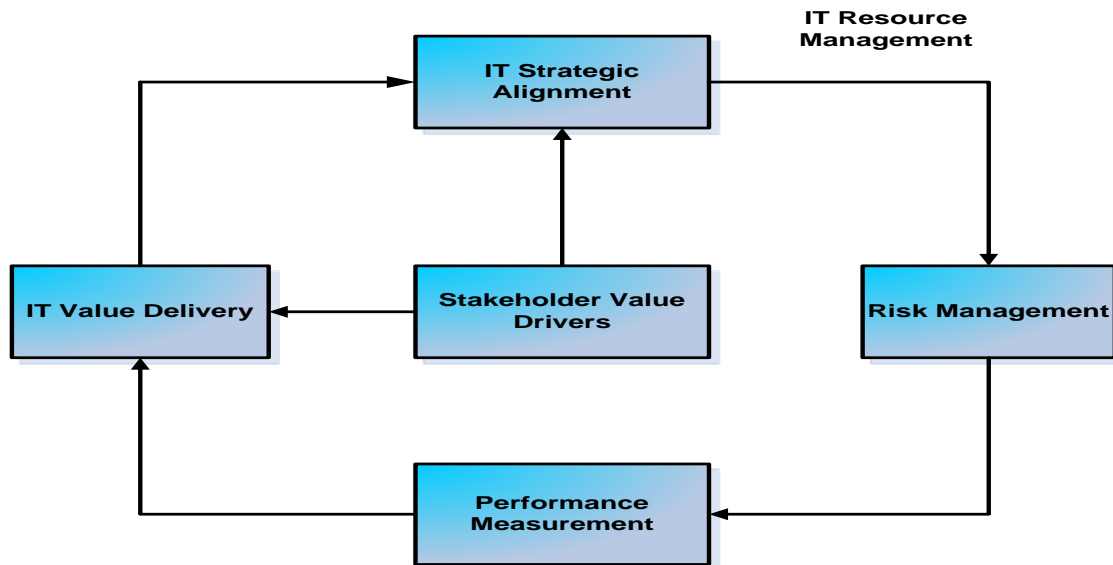


Figure 5.1: IT Governance Domains Through the Governance Life Cycle

Source: ITGI, 2003

Weil and Ross (2004) state that governance domains are best practice goals; thus, organisations that manage the five domains effectively will ensure effective management of their IT environment.

The IT governance domains establish the framework within which IT should be governed but it does not get the Board to actively govern IT. For a Board to ensure on-the-go IT governance practices in their organisations fundamental IT governance decisions should be made (Robinson, 2005). These decisions are discussed below.

5.2.4.2 Key IT Governance Decisions

According to Harris, Herron and Iwanicki (2008), IT governance decisions are high-level statements about how IT will be used in the business and constitute the starting point for an IT governance model.

The study conducted by Weill and Ross (2004) on how top performing firms govern IT suggested five major IT decisions to be made for the effective management of IT.

These decisions are IT principles, IT architecture, IT infrastructure strategies, business application needs, and IT investment and prioritisation. These are represented in Table 5.4.

Table 5.4: Fundamental IT Governance Decisions

No	Decision	Description
1	IT Principles	High-level statement about how IT is used in the business
2	IT Architecture	An integrated set of technical choices to guide the organisation in satisfying business needs. The architecture is a set of policies and rules for the use of IT, and plots a migration path to the way in which business will be done (It includes data, technology and applications).
3	IT Infrastructure Strategies	Strategies for the foundation of budgets for IT capabilities (both technical and human) shared throughout the firm as reliable service and centrally coordinated (e.g. networks, help desks, shared data)
4	Business Application Needs	Specifies the business need for purchased or internally developed IT applications
5	IT Investment and Prioritisation	Decisions about how much and where to invest in IT, including project approvals and justification techniques

Source: Weill and Ross, 2004

It should be noted that the above IT key governance decisions are broader than decisions that management makes from day-to-day. Therefore, they should not be left solely in the hands of IT management, as they, according to Tate (2009), are guided by the broader-based business knowledge than by technology expertise only.

Moreover, not only boards and IT managers are concerned about IT decisions. Other stakeholders such as internal customers, and in particular, departments such as finance should have the necessary input right into the decision-making process (Harris et al., 2008).

5.2.5 Existing Frameworks

The chapter on corporate governance showed an emergence of corporate governance principles and standards aimed at restoring and sustaining investor confidence lost during financial crises and corporate scandals around the world. These developments, whether statutory or self-regulated, led to the existence of numerous international standards, guidelines and corporate governance codes of best practices.

According to the ITGI (2003), reports on corporate governance since the 1990s have emphasised common themes for effective governance by boards and executive managements. These are transparency of risks, internal control and shareholder values.

Considering the critical dependency of business on IT, the need to extend governance exercised over the enterprise to the realm of IT has also led to the development of a number of IT governance standards, best practices and guidelines that help organisations to meet their IT governance requirements and objectives. These frameworks provide the foundation for creating the governance structure from which an organisation can focus its efforts to embed IT governance into its practices (Robinson, 2005).

Although IT governance frameworks and best practices share similarities in terms of concepts, they have evolved as uncoordinated mechanisms or initiatives. As a result loosely connected governance silos have been reactively developed to address a particular need; thus, patching up problems as they arise (Pevzner, 2005; Well & Ross, 2004). Examples of such silos include information security governance, project governance, governance around change, outsourcing governance, architecture governance, data security and access governance and IT programme management governance developed within this research.

Some criticisms are formulated around these governance silos. Despite the general weakness of such defensive tactics, Wood (2005) points out the lack of a single standard that deals with all the functional components of IT. Instead, each single governance silo is marketed under the umbrella of a general IT governance framework (Pevzner, 2005). It is in this context that initiatives are undertaken to harmonise and integrate leading frameworks to achieve greater compatibility, by looking at the strengths and idiosyncrasies each one can have compared to its equivalent (Robinson, 2005).

It is important to note that despite the difference in the purpose of IT governance and IT management, the first answering the question of what must be arranged for the organisation to profit from IT synergy, and the second deciding how IT should be operated for its effective and efficient use, they can be inclusive. Sallé (2004) attests that “IT governance and IT management are not mutually exclusive and could be combined to provide a powerful IT service management”.

This is the case with CobiT, which comprises both an IT governance component and a management guideline component that respond to management’s need for control and measurability of IT (ITGI, 2003).

Therefore, far from presenting an exhaustive list of IT governance standards and best practices, Table 5.5 below contains major IT governance frameworks, among which some are known as IT management frameworks.

Table 5.5: IT Governance Frameworks

Standard	Issuer	Goal of the Guidance	Target Audience
COSO	COSO, a voluntary private-sector organisation	Improve the ways of controlling enterprise by defining an integrated control system	Senior management, board of directors, internal auditors, every individual in the organisation

Standard	Issuer	Goal of the Guidance	Target Audience
CobIT	The Information Systems Audit and Control Foundation; then ITGI.	Provide an international set of generally accepted information technology control objectives for day-to-day management of IT	All types of organisations: public, private companies and external assurance professionals
ITIL	The Central Computer and Telecommunications Agency (CCTA)	The development of a vendor-independent approach to service management	People responsible for IT service management
FIPS PUB 200	Computer Security Division of the National Institute of Standards and Technology (NIST)	Specification of minimum security requirements for US federal information and information systems	US federal government information systems and information systems designed as US national security systems
ISO/IEC TR 13335	ISO and IEC, which established the joint technical committee	Provide guidance on aspects of IT security management	The report is applicable to all types of organisations.
TICKIT	TICKIT is published and maintained by the TICKIT office	Provide a framework for the management of software development that enables efficient	Organisations in which software development adds significant value to the products or services of the organisation

Standard	Issuer	Goal of the Guidance	Target Audience
		certification of quality management systems	
IT Baseline Protection Manual	German BSI (Federal Office for Information Security)	Define and achieve a security level for IT systems	Public authorities and companies aiming to implement IT security concepts
ISO/IEC 15408:2005	ISO/IEC JTC 1 working group in collaboration with the Common Criteria Project	Define criteria as the basis for a common and comparable evaluation of IT security	Consumers, developers and evaluators
NIST 800-14	Computer Security Resource Centre (CSRC)	Provide a baseline for establishing or reviewing IT security programmes	Management, internal auditors, users, system developers and security practitioners

The existence of a large number of IT governance frameworks and the speedy development of new methods and practices bundled into standards present the challenge to the CIOs of becoming learned and keeping himself up to date (Wood, 2005).

5.3 Issues and Developments

5.3.1 General Considerations

In a broader context, issues related to IT governance can be linked to the overall enterprise effort to ensure the effectiveness of IT governance mechanisms within the organisation. According to the ITGI (2005), such efforts should focus on finding

appropriate answers to fundamental questions that arise from the management of IT by considering both the organisational component and the technology component.

Bowen et al. (2007) and the ITGI (2003) provide an IT governance framework that an organisation can deploy for effective governance of IT. The process entails that the “governance over IT should start by providing IT with direction, setting business strategy and performance goals, then developing and resourcing IT investment projects that align with these strategies. A continuous loop should finally be established to measure performance and compare these measurements to objectives, resulting in redirection of activities or change to objectives as appropriate”. The framework is completed as indicated in the following figure.

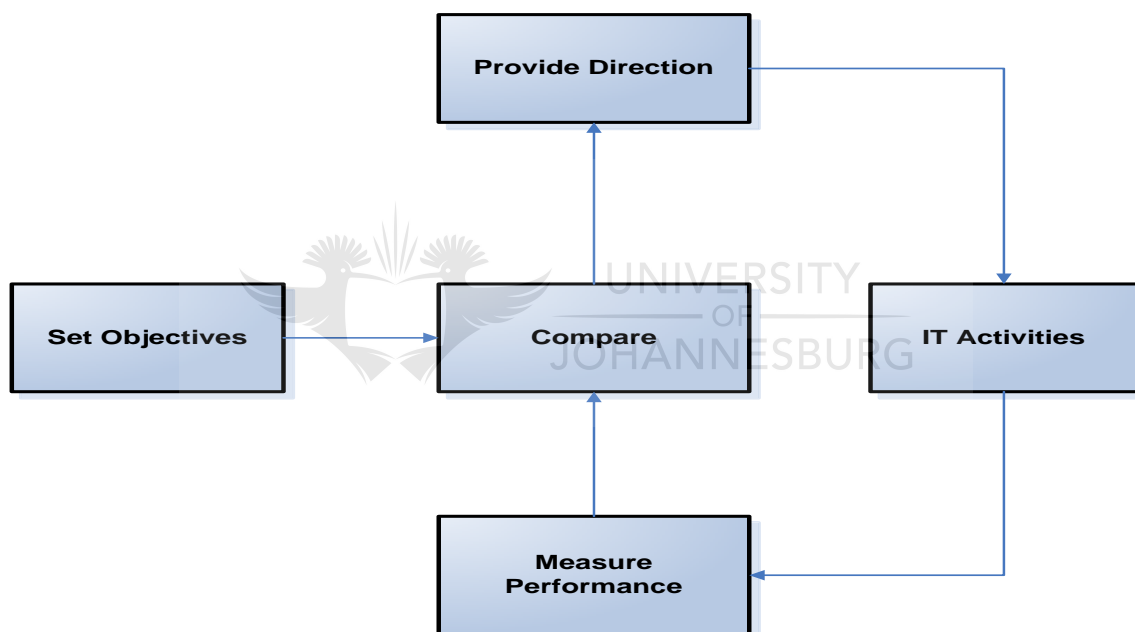


Figure 5.2: IT Governance Process

Source: ITGI, 2003

Considering that the above framework will be deployed in an environment that is exposed to both internal and external influences, success can only be achieved if adequate answers are provided to issues that arise.

Among these issues the ITGI (2003) have included the following:

- The strategy and its integration throughout the enterprise
- The manner in which IT investment improves the quality of service
- Proper investment in IT and allocation of IT resources
- Policies and procedures for IT risk management
- Learning from failures and success

The ITGI (2003) maps the above issues to five IT governance focus areas. It states that any enterprise that has effectively addressed the five IT governance domains discussed earlier will have bypassed these issues.

Using the IT governance life cycle presented in Figure 5.1, the mapping of IT governance domains and issues can be represented as follows:

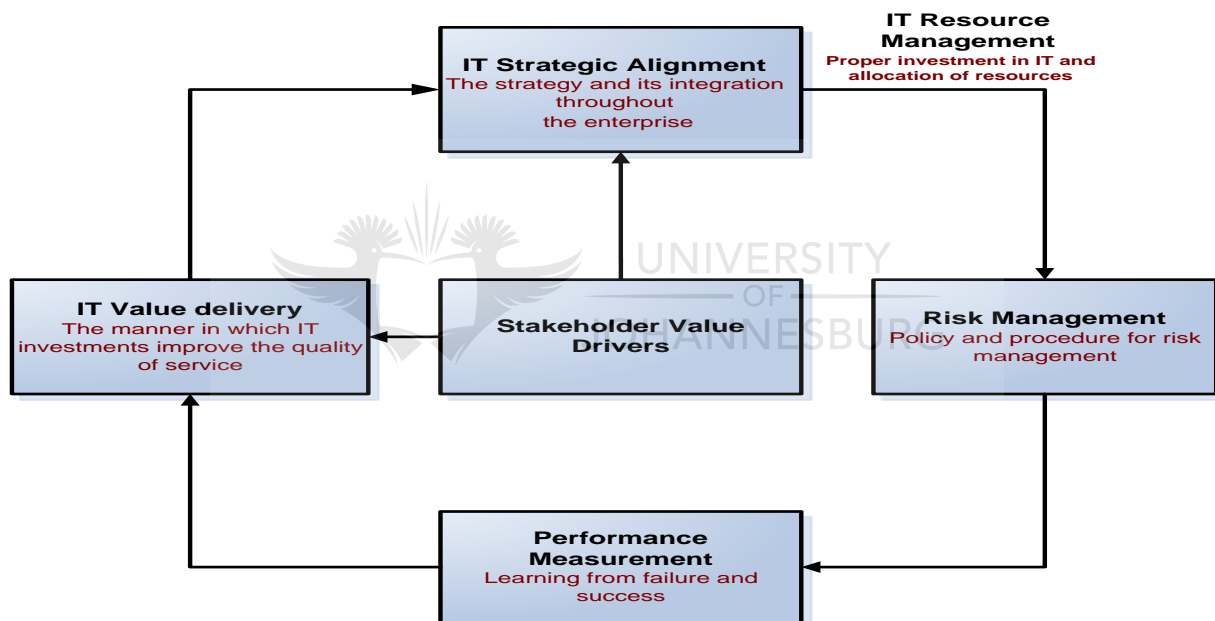


Figure 5.3: Mapping of IT Governance Issues with IT Governance Domains

Besides the general issues discussed above, some particular issues have evolved within the literature. Their discussion follows below.

5.3.2 Particular Issues

5.3.2.1 The Critical Role Played by Senior Management in Ensuring Success

It has been stated earlier in this research that the strategic alignment of IT with business constitutes the main concern of IT governance. Williams (2001), as cited in

Fletcher (2006), emphasises that the strategic application of IT is the deciding factor between survival and extinction. IT will successfully contribute to the achievement of the enterprise strategy only when the general enterprise strategy is tailored into the IT strategy and when IT operations support business operations.

For an organisation to achieve a clear and comprehensive image of the connection between business and IT, various stakeholders must provide input about both strategic business needs and technological capabilities (Bowen et al., 2007). Among stakeholders, they include the board of directors who has the final responsibility of the overall governance of the company's affairs.

It was observed in practice that for years IT was the sole domain of IT departments, which operated separately from other business units. This resulted in a complete divorce between IT goals and the broader business strategy of the company (Hardy, 2006).

This approach is known as "traditional management practice". It leaves a great chasm between the boardroom and the technical staff. It has led to disappointing outcomes, as boards and executives could only be kept informed via occasional vague progress reports. They remained in the dark and could no longer provide leadership when it came to IT strategy and governance (Fletcher, 2006).

The issue that has been addressed in this context by both academic and commercial practitioners is the critical role that senior management has to play in the successful governance of IT (Sohal & Fitzpatrick, 2002).

Adam (1972) and Nath (1989), as cited in Sohal and Fitzpatrick (2002), respectively declare that an informed involvement of executive management is key to the successful use of IT, and that the misalignment of IT and the business strategy is due to the lack of executive involvement.

Consecutively to the above statements is some IT governance research that has provided similar results. Jarvenpaa and Ives (1991), as cited in Sohal and Fitzpatrick (2002), surveyed 55 chief executive officers and found that companies that had CEOs participating in the management of IT enjoyed more progress and advancement in the use of IT and the positive impact it had on the business. Sohal

and Fitzpatrick (2002) established that “the more involved senior management is in IT, the more likely they are to accept the role of IT in the success of their organisation”.

Among factors associated with effective IT governance, Weill and Ross (2004) include the percentage of senior management who engage more often and more effectively in IT governance, and the direct involvement of senior leaders in IT governance.

It is recognised that IT management can no longer be left in of in the hands of a particular group. Its governance has to be shared among all stakeholders. An illustrative way of conceptualising this approach is the creation of an IT steering committee, which brings together stakeholders from diverse backgrounds and organisational roles.

To ensure the effectiveness of IT governance Bowen et al. (2007) suggest that members of such committees share their understanding of IT and business objectives. They should participate actively in IT governance processes with a balanced representation from senior business and IT management alike.

5.3.2.2 Information Technology Control

Section 5.2.2 on the advent of IT governance included among the drivers of the IT governance approach, compliance with legal and regulatory requirements. In today’s business environment more legislation in broader contexts impacts on the corporate freedom of action by imposing strict regulations on management in general, but with consecutive effects on the management of IT in particular.

One of these regulatory legislation pressures is the Sarbanes-Oxley Act (2002) that requires corporate executives to establish, evaluate and monitor the effectiveness of internal controls over financial reporting, and expose these executives to financial and legal repercussions if they did not do so. The ITGI (2006) links these requirements to IT, as IT systems are deeply involved in initiating, authorising, recording, processing and reporting financial transactions.

The issue concerning the internal control requirement relates to the person who should be responsible for ensuring the existence of good systems of internal control (Trites, 2004).

According to ITGI (2006), the responsibility of ensuring compliance with the SOX internal control requirement reposes on IT professional hands, especially those in executive positions. Berghout and Fairchild (2005) argue that attributing these responsibilities to eligible executives such as the CIO or CFO will overlap their ordinary responsibilities, as the CIO has to deal with the overall IT function and the CFO is responsible for the financial function.

To address the issue of internal control responsibilities Trites (2004) suggests that boards must consider assigning subcommittees to handle these responsibilities or as a minimum, assign a specific director to monitor this area and report to the whole Board. Berghout and Fairchild (2005) support this view and suggest that these responsibilities be assumed by an IT control officer who reports to the board of directors and acts as a function of the technological dynamics in the organisation. They also confirm that “internal control will increase through the establishment and the seniority of the IT control officer and through positioning this person outside the IT organisation and closer to the Board”.

The next section analyses an IT governance framework, identifies relevant requirements and determines their implications for IT programme management.

5.4 Analysis of an IT Governance Framework

5.4.1 Choosing Control Objectives for Information and Related Technology

Numerous sources provide IT governance and some of them are even considered frameworks of choice in particular organisations. Many drivers have influenced the researcher’s choice of analysing CobiT 4.1 (2007). These reasons and their supporting literature follow.

CobiT 4.1 (2007):

- ***Provides a framework for overseeing all aspects of IT (Wood, 2005)***

The four aspects of IT are fully covered by CobiT with clearly defined control objectives for each. These aspects fit into the four domains of CobiT: (i) strategic (planning and organising); (ii) operations (acquiring and monitoring); (iii) reporting (delivery and support); and (iv) compliance (monitoring and evaluating).

- ***Addresses the full spectrum of IT governance duties and can be used to integrate all other standards (ITGI, 2007)***

The generic process model provided by CobiT covers all processes found in IT. By mapping this process to IT governance focus areas, CobiT 4.1 (2007) provides an integral and connected view of what operational managers need to execute and what executives have to govern. As all governance requirements, IT processes and IT control are addressed at a higher level, CobiT integrates detailed IT standards and good practices by summarising key control objectives under one umbrella framework.

- ***Supplements COSO and supports SOX requirements (Tuttle & Vandervelde, 2007)***

The ITGI (2006) states that COSO does not provide a great deal of guidance on how companies should fulfil the requirements for the IT control environment. On the other hand, the Sarbanes-Oxley Act requirements emphasise the need for internal control over financial reporting. CobiT provides a means of complying with these requirements, as it conceptualises the important aspects of internal control within an IT context in a complete and logically consistent manner (Tuttle & Vandervelde, 2007).

- ***Is an authoritative source of IT governance***

The authoritative consideration of CobiT does not have to be proven. Truttle and Vandervelde (2007), and Abu-Muso (2009) state that CobiT is used by both internal and external auditors for financial statement audits as well as operational and compliance audits because of its strong control focus. This is supported by its wide use in the private industry, public accounting firms, government and academia. It is recommended by heads of government

organisations, boards of directors, audit committees, chief executive officers, chief information officers, information systems auditors, security managers and researchers (Hardy, 2006).

5.4.2 The Advent of Control Objectives for Information and Related Technologies

The advent of CobiT can be linked to the process of addressing corporate scandals that have affected the global economy in the 1980s. As discussed in Chapter 4 on corporate governance, several initiatives were undertaken to prevent similar problems from reoccurring. These initiatives included the Treadway Commission that, in 1992, developed the well-established and integrated control framework, known as COSO, with a charter to improve the quality of financial reporting through ethics governance and internal control.

Numerous criticisms were formulated around the COSO framework. Van Bon and Verheijen (2006:104) assert that the internal control mechanisms provided by the COSO framework were more business process oriented and did not provide enough guidance where IT was involved. Furthermore, Tuttle and Vandervelde (2007) consider the COSO framework to be highly conceptual and general in nature; to such an extent that it fails to identify control objectives at a level of specificity sufficient to design detailed audit tests. It does not address complexities and special risks inherent to IT either. They conclude that organisations need a framework to address technology to be functional in today's audit environment.

As a response to the need for a more comprehensive and focused control framework for IT, the control objective for information and related technology (CobiT) was developed.

According to Van Bon and Verheijen (2006:104), the original CobiT was developed based on the Electronic Data Processing Act of 1977, titled *Control Objective*. This control objective went through a process of improvements and harmonisation to produce the first version of CobiT in 1996 with the initial purpose of assisting auditors in performing their work.

Since then the CobiT framework has been expanded and enhanced; thus, evolving from Version 1 in 1996 to subsequent versions in 1998, 2000, 2005 and 2007. Brand

and Boonen (2007) note a changing emphasis of these versions from control frameworks toward IT governance frameworks with

- CobiT 1 focusing on audit guidelines,
- CobiT 2 adding new or modified control objectives,
- CobiT 3 adding management guidelines,
- CobiT 4 elaborating on governance and
- CobiT 4.1 dealing with every aspect of IT and addressing the complete life cycle of IT investment (ISACA, 2009).

While CobiT versions have evolved in terms of enrichment and its content, organisations that create these frameworks have also been subject to transformation. ISACA (2009) retraced that the EDPA, which had been created in 1969, was the starting organisation, which became ISACA in 1994 with a branch called “The Information Systems Audit and Control Foundation” (ISACF) that developed the first and second versions of CobiT. The ITGI, founded in 1998, took over from the ISACF and developed the third version of CobiT. The ISACF and ITGI finally became one entity in 2003, and released Version 4 in 2005 and Version 4.1 in 2007.

Actually, the CobiT publications fall under the responsibility of the CobiT steering committee, which comprises international representatives from industry, academia and government as well as the IT governance, assurance, control and security professions.

5.4.3 Purpose of Control Objectives for Information and Related Technologies

Earlier in this chapter the purpose of IT governance was discussed and a converging view generated. It was stated that IT governance struggled for two fundamental concerns, which were performance and compliance requirements. As per deduction, an IT governance framework should strive to attain these objectives; thus fulfilling the purpose of IT governance.

According to ISACA (2009), the purpose of CobiT is to “provide management and business process owners with an information technology governance model that

helps in delivering value from IT, and understanding and managing the risk associated with IT”.

Building from the premise that IT should deliver the information the enterprise requires attaining its objectives, CobiT provides an IT governance instrument that allows managers to bridge the gap between business risks, control needs, value creations and technical issues. The aim is to communicate that level of control to stakeholders to ensure that the needs for IT governance are met (Abu-Muso, 2009; Brand & Boonen, 2007; ISACA, 2009).

Enormous benefits are associated with the implementation of CobiT as a governance framework over IT. These benefits include, among others:

- Better alignment, based on a business focus (ITGI, 2009)
- A view understandable to management of what IT does (ITGI, 2009)
- Clear ownership and responsibilities, based on process orientation (ITGI, 2009)
- General acceptability with third parties and regulators (Abu-Muso, 2009)
- A common understanding and language among shareholders (Hardy, 2006)
- A support tool for the fulfilment of the COSO requirements for the IT control environment, compliance with the Sarbanes-Oxley Act and many other global standards (Hardy, 2006; Moeller, 2008; Tuttle & Vandervelde, 2007)
- Tools that heighten competitive advantage, productivity, profitability and customer satisfaction (Hardy, 2006)

Moreover, ITGI (2007:7) states that the CobiT model has been mapped to the IT governance focus areas; thus, providing a bridge between what operational managers need to execute and what the executives need to govern.

The CobiT framework reduces IT-related risks, maximises the benefit of technology investment, increases the value attained from IT and ensures compliance, continuity, security and privacy. It also provides good practices organised around a systems life cycle approach similar to the management cycle suggested by Hopstaken and Kranendonk in 1988 (Brand & Boonen, 2007).

The cycle consists of four domains: Plan and Organise, Acquire and Implement, Deliver and Support, and Monitor and Evaluate. These domains are divided into 34 processes or high-level control objectives that an organisation must address in order to achieve detailed and specific IT-related control objectives.

The CobiT framework also relates each CobiT process to information criteria (efficiency, availability, integrity, confidentiality, reliability and compliance) and IT resources (people, application, information and infrastructure) that the process affects in order to support the business requirement.

These three interrelated viewpoints fit into what is called the “CobiT Cube”, which is similar to the COSO internal control model and the COSO risk model with little difference in classification and terminology (Moeller, 2008).

The above interrelations provide auditors with a means of directly assessing specific controls for their effect on the quality of information, regardless of whether the audit is operational, financial or compliant in nature (Tuttle & Vandervelde, 2007).

A conclusive view on the purpose of CobiT can be drawn from Van Bon and Verheijen (2006) who state that “the CobiT framework drives an organisation towards understanding what is sufficient for the business to be successful, and allows the organisation and the staff to determine how best to arrange and perform the activities necessary for the business to succeed”.

5.4.4 CobiT Control Objectives Relevant to IT Programme Management

The previous sections retrace the advent of CobiT and discuss its purpose. Domains comprising processes, high-level control objectives and detailed control objectives are related to information criteria and information resources to provide a framework for the effective governance of IT. This section identifies control objectives that are relevant to IT programme management.

The document analysis applied through reading identifies CobiT as a comprehensive and focused framework, which deals with every aspect of IT and addresses the complete life cycle of IT investments.

The 28 introductory pages of CobiT provide an understanding of the framework by describing its components (content) while explaining their purposes and interrelations. Through the document analysis the researcher realised that the CobiT framework is broad and deep. It has governance requirements, management guidelines and maturity models framed into 34 higher-level processes and 210 detailed control objectives that serve its diverse audience.

In order to remain focused on the purpose of this research during the content analysis process and to provide a result that is relevant to the context of IT programme management, some decisions had to be made. Through the analysis of CobiT the researcher has considered that:

- The content analysis process must be applied only to the process description (higher-level statement) and its detailed control objectives; thus, excluding management guidelines and maturity models. This is because process descriptions and control objectives contain governance requirements.
- Control objectives that emphasise ordinary software development practices are disregarded. It is believed that software development practices are covered at project level.
- The programme management infrastructure established for the management of a particular programme will be managed by following IT governance principles applied to the management of any IT infrastructure, as specified by CobiT. Therefore, none of these control objectives will be coded on this basis.
- Requirements related to on-going programme activities in the context of product-oriented organisations will also be disregarded, as organisations diverge on the extent to which these activities bypass the boundaries of projects.

With the above guidelines, it was then possible to proceed with a content analysis. Based on the predefined coding categories in Table 3.2 of Chapter 3, the first appraisal was launched. It consisted of reading through the CobiT document and analysing each control objective in order to identify its relevance for a category.

Whenever a statement relevant to IT programme management was found, it was manually highlighted and the category addressed was mentioned in the margin.

For example, the control objective *PO1.6 IT Portfolio Management* of the process *PO1 Define a Strategic IT Plan* requires the active management of IT-enabled investment programmes with the business. This entails that the IT programme required for the attainment of a specific strategic objective be identified, defined, evaluated, prioritised, selected, initiated, managed and controlled by clarifying the business outcomes and ensuring that the programme objectives support the achievement of those business outcomes.

Using deductive reasoning, the control objective PO1.6 has been considered relevant to IT programme management. Therefore, it has been highlighted and the *Strategic Alignment* category from Table 3.2 of Chapter 3 has been mentioned in the margin. This can be seen in Appendix C, which contains an extract of CobiT 4.1.

The second appraisal of CobiT consisted of extracting data and coding them under their relevant categories. This was done by using the coding table (Table 3.3 of Chapter 3) and the CobiT document in Appendix C, used in the first appraisal. Based on this document (Appendix C) highlighted control objectives were cut and pasted into Table 3.3 in the right hand side column of the category mentioned in the margin.

Using the previous example, the control objective *PO1.6 IT Portfolio Management* has been cut from the CobiT document and pasted in the right hand side column of the *Strategic Alignment* category in Table 3.3. This can be found in Table 5.6.

The qualitative content analysis, combined with the document analysis conducted on CobiT's processes, has identified nine higher-level control objectives. These either directly address the governing of IT programme management or have an indirect impact on IT programmes. These control objectives are listed below.

Plan and Organise

- PO1 Define a Strategic IT Plan
- PO4 Define the IT Processes, Organisation and Relationships
- PO5 Manage the IT Investment
- PO6 Communicate Management Aims and Direction

- PO8 Manage Quality
- PO10 Manage Projects

Acquire and Implement

- AI1 Identify Automated Solutions

Monitor and Evaluate

- ME1 Monitor and Evaluate IT Performance
- ME4 Provide IT Governance

Table 5.6 represents the result of content analysis, which codes these higher-level control objectives, including their detailed control objectives concerned.

Table 5.6: Content Analysis of CobiT

Predefined Coding Category	Relevant Requirement
<p>1. Strategic Alignment</p> <ul style="list-style-type: none"> – Organisational strategy – Organisational goals – Constraints and guidance offered by strategic management 	<ul style="list-style-type: none"> - PO1 Define a Strategic IT Plan. Plan to manage and direct all IT resources in line with the business strategy and priorities. Specific programme requirements on PO1.6 Portfolio Management - PO6 Communicate Management Aims and Direction requires that the programme team be kept aware of business needs, the programme objectives and subsequent risks. Specific programme requirements on PO6.5 Communication of IT Objectives and Direction - AI1 Identify Automated Solutions implies that capabilities that contribute to the realisation of the programme benefit must be identified, prioritised, specified and agreed upon to ensure business requirements will be met. Specific programme

Predefined Coding Category	Relevant Requirement
	<p>requirements on</p> <p>AI1.1 Definition and Maintenance of Business Functional and Technical Requirements</p> <p>AI1.2 Risk Analysis Report</p> <p>AI1.3 Feasibility Study and Formulation of Alternative Courses of Action</p> <p>AI1.4 Requirements and Feasibility Decision and Approval</p>
<p>2. Roles and Responsibilities (Structure)</p> <p>– Decision-making Process</p>	<ul style="list-style-type: none"> - PO1 Define a Strategic IT plan requires the assignment and monitoring of accountability for benefit on PO1.1 IT Value Management - PO4 Define the IT Processes, Organisation and Relationships requires the establishment of a committee to oversee investment in the programme. Programme related requirements on PO4.2 IT Strategy Committee PO4.3 IT Steering Committee - AI1 Identify Automated Solutions includes roles and responsibilities on AI1.3 Feasibility Study and Formulation of Alternative Courses of Action AI1.4 Requirements and Feasibility Decision and Approval - PO10 Manage Projects includes roles and responsibilities on PO10.5 Project Scope Statement PO10.6 Project Phase Initiation

Predefined Coding Category	Relevant Requirement
<p>3. Policies, Procedures, Processes and Practices</p> <ul style="list-style-type: none"> – Project portfolio practices – Programme methodology – Risk management – Issues management – Delivery management – Quality assurance – Benefit management – Change management – Success evaluation – Stakeholder requirements – Developing and documenting assumptions and decisions 	<ul style="list-style-type: none"> - PO5 Manage the IT Investment requires that a framework for IT-enabled investment programmes encompassing cost and benefit must be established and maintained, and specify what should be included. Specific programme requirements on <ul style="list-style-type: none"> PO5.1 Financial Management Framework PO5.2 Prioritisation Within IT Budget PO5.3 IT Budgeting - PO10 Manage Projects requires project and programme management frameworks. Detailed control objectives include <ul style="list-style-type: none"> PO10.1 Programme Management Framework PO10.2 Project Management Framework PO10.3 Project Management Approach PO10.4 Stakeholder Commitment PO10.5 Project Scope Statement PO10.6 Project Phase Initiation PO10.7 Integrated Project Plan PO10.8 Project Resources PO10.9 Project Risk Management PO10.10 Project Quality Plan PO10.11 Project Change Control PO10.12 Project Planning of Assurance Methods PO10.14 Project Closure - PO1 Define a Strategic IT Plan includes requirements related to the programme business case and the measuring of success on <ul style="list-style-type: none"> PO1.1 IT Value Management PO1.4 IT Strategic Plan 1

Predefined Coding Category	Relevant Requirement
	<ul style="list-style-type: none"> - PO8 Manage Quality requires the maintenance of quality standards for all developments and acquisition. Relevant programme requirement on PO8.3 Development and Acquisition Standards
<p>4. Monitoring and Controlling Performance</p> <ul style="list-style-type: none"> - Operations - Delivery of the programme benefit - Project and project progress - Programme outcomes - Organisational investment - Constant application of procedures - Opportunities and threats 	<ul style="list-style-type: none"> - PO5 Manage the IT investment requires that a framework for IT-enabled investment programmes encompassing cost and benefit must be established and maintained and include control requirements on cost and benefit. Specific control objective: <ul style="list-style-type: none"> PO5.4 Cost Management PO5.5 Benefit Management - PO6 Communicate Management Aims and Direction requires that the programme team be kept aware of business needs, the programme objectives and subsequent risks. It has requirements regarding the programme control environment. Specific requirements: PO6.1 IT Policy and Control Environment - PO10 Manage Projects includes requirements related to control of project performance. Specific control objective: <ul style="list-style-type: none"> PO10.13 Project Performance Measurement, Reporting and Monitoring - ME4 Provide IT Governance requires providing an effective governance framework by ensuring that IT investment is aligned and delivered in accordance with enterprise strategic objectives. Specific programme requirement:

Predefined Coding Category	Relevant Requirement
	ME4.3 Value Delivery
5. Disclosure and Reporting <ul style="list-style-type: none"> – Approval and reporting mechanism – Progress 	<ul style="list-style-type: none"> - PO1 Define a Strategic IT Plan has requirements that specify what needs to be reported. Specific control objectives: PO1.1 IT Value Management PO1.5 IT Tactical Plans - ME1 Monitor and Evaluate IT Performance requires timely reporting of programme performance. Specific control objective: ME1.5 Board and Executive Reporting
6. Compliance	No relevance
7. Knowledge Management	No relevance

It must be acknowledged that the structure of the CobiT framework presented numerous challenges during the coding activity. These challenges and the way in which they were dealt with are discussed below.

Firstly, a higher-level control objective might not reflect any relevance to programme management by the way it is labelled but by analysing its detailed control objectives critically, specific requirements addressing the management of an IT programme were identified.

For example, the process *PO1 Define a Strategic IT Plan* does not contain a requirement that addresses the management of a programme. However, its detailed control objectives such as *PO1.1 IT Value Management*, *PO1.4 IT Strategic Plan*, *PO1.5 IT Tactical Plan* and *PO1.6 IT Portfolio Management* contain statements that address the management of IT programmes, although they are primarily addressing other IT management and governance issues.

Secondly, while a broad statement of a higher-level control objective would imply its coding under one specific category, the detailed control objectives it comprises do not necessarily relate to the same category.

This is the case with *PO10 Manage Projects*, which requires the establishment of a programme and a project management framework for all IT initiatives. While it would make sense that detailed control objectives be coded under the *Policies, Procedures, Processes and Practices* category, the detailed control objective *PO10.13 Project Performance Measurement, Reporting and Monitoring* is coded under the *Controlling and Monitoring Performance* category to which it had direct relevance.

In dealing with these challenges the researcher had to consider the following:

Firstly, the reasonable unit of the CobiT framework that corresponds with the coding unit defined in Section 3.4.2.3 of Chapter 3 is a detailed control objective, as it contains a requirement fully expressed.

On the other hand, it is of no value to code a detailed control objective directly under a category without considering the broader context of the higher-level control objective (process) into which it fits. It was important to bring them together to acquire a complete view of the control requirement.

By applying the coding rule (Section 3.4.2.3, Chapter 3) that states that one theme can be coded under more than one category as long as it has relevance for these categories, the researcher has coded such a higher-level control objective under each category for which it has relevance, and specified detailed control objectives that apply to the category.

A broad discussion of the relevance of the CobiT control objectives coded in Table 5.6 and their implications for IT programme management follows.

5.4.5 Implications of the CobiT Control Objectives for IT Programme Management

The nine higher-level control objective coded have provided in total 34 detailed control objectives that include in their requirements specific statements related to programme management. Due to their numbers, this section is limited in providing a

broad discussion of the relevance of these control objectives. Their detailed implications for IT programme are presented in Appendix D.

5.4.5.1 P01 Define a Strategic IT Plan

CobiT 4.1 (2007) requires an IT strategic plan to manage and direct all IT resources in line with the business strategy and priorities. The process holds the IT function and business stakeholders responsible for ensuring that projects and the service portfolio will generate optimal value.

Such plans, according to CobiT 4.1(2007), offer many advantages, including the understanding of IT opportunities and limitations, the assessment of current performance, the identification of capacity and human resource requirement, and the clarification of the required level of investment.

The requirements of a strategic plan have implications for IT programme management. Programmes, as a grouping of interrelated projects and other work, which use organisational resources, including IT resources for their management should be directed and managed in line with the enterprise strategy and priorities.

It has been noted earlier in this study (Chapter 2) that programme management strives to attain two fundamental goals:

- Business focus, and
- Efficiency and effectiveness.

The control requirements of strategic planning will provide in the context of programme management the means of ensuring business focus by aligning projects with the organisational goals vision and strategy. From the efficiency and effectiveness goal, the strategic plan ensures the optimal management of coordination and dependencies among projects, a more effective use of resources, a greater senior management visibility and the delivery of the expected benefit.

Detailed control objectives related to this process provide numerous activities, among which some are particularly for addressing the management of programmes. These detailed control objectives and requirements are listed below.

- The existence of a strong business case for each programme

- The process of providing effective and efficient delivery of the IT components programme, early warning of any deviation from the plan (cost, schedule, functionality) which can have an impact on the programme outcome
- Assignment of accountability for benefit achievement and cost control while monitoring practices
- The way in which programme objectives will be attained, the subsequent measures to be used and procedure to be followed for final sign-off
- Budget, finding sources, sourcing strategy, acquisition strategy, and legal and regulatory requirements must be specified
- A description of the required IT initiatives and resources must be provided, including the means of monitoring and managing the use of these resources and the achievement of the benefit.
- Project management plans must be defined.

Within the management of programmes, which fall under the management of a portfolio described in the control objective P01.6, the CobiT 4.1 (2007) framework states the following requirements for programme management:

- Clarification of the business outcome that the programme requires
- Assignment of clear accountability with supporting measures
- Understanding the full scope of effort that the programme requires
- Definition of projects within the programme
- Allocation of resources and funding
- Delegation of authority
- Commissioning of required projects at the programme launch

5.4.5.2 P04 Define the IT Processes, Organisation and Relationships

CobiT4.1 (2007) requires that an IT organisation be defined by considering requirements for staff, skills, functions, accountability, authority, roles, responsibilities and supervision.

Roles, accountabilities and responsibilities are key in establishing a governance mechanism. As a temporary organisation that acquires resources from the parent organisation, a programme must be organised in such a way as to ensure that the

Board has oversight, the organisations that supply resources have input in the prioritisation of these resources, and that processes, policies and procedures are defined in line with the main organisation.

The control objective PO4 of CobiT 4.1 (2007) includes among its detailed control objectives PO4.2 and PO4.3 that require the establishment of a committee that:

- Oversees major investments on behalf of the full Board
- Determines prioritisation of IT-enabled investment programmes in line with the business strategy and priorities
- Tracks the status of projects and resolve resource conflict

5.4.5.3 P05 Manage the IT Investment

CobiT4.1 (2007) requires that a framework for the management of an IT-enabled investment programme be established and maintained. This framework should include specifications regarding costs, benefits, budget prioritisation, the budgeting process and management against the budget.

It is recognised that formal project management and programme methodology are key to the success of these endeavours. In light of this process, applying such a framework to the management of IT programmes entails that:

- Budgets for individual programmes be developed with specific emphasis on the IT components of those programmes and a refining process before the final approval
- A financial framework for the management of a programme be established and maintained
- A decision process for the prioritisation and allocation of resources among programme work be implemented
- A cost management process to compare and manage variance between actual cost and the budget be implemented. This should include a timely identification of deviations so that appropriate actions can be taken in consultation with the programme business sponsor
- A process for monitoring benefit and updating the business case in case of change to the benefits or to the outcome be implemented

5.4.5.4 P06 Communicate Management Aim and Direction

CobiT4.1 (2007) requires an on-going communication programme, which articulates management aims and direction. This ensures awareness and understanding of the business.

Considering that programme management is a delivery mechanism of the enterprise overall strategy, it is important that the programme team be kept aware of business needs, the programme objectives and subsequent risks. By doing so, any environmental change will be considered to ensure that the programme outcomes comply with relevant laws and regulations.

A detailed control objective relevant to the programme requires defining the control environment. This includes elements such as appetite for risk, accountability and responsibility, staff competence and integrity.

5.4.5.5 P08 Manage Quality

CobiT 4.1 (2007) requires the management of quality by developing and maintaining a quality management system, which includes proven development and acquisition processes and standards.

Programme management provides capabilities or deliverables that must comply with quality requirements. The CobiT 4.1 (2007) requirements of quality for an IT system should be extended to programme management, as today it is used as a means of developing a completely new system, infrastructure or service. It is in this context that PMG plc (n.d.) states that a quality strategy must be used at both programme and project level.

In addition, PMI (2008b) specifies that the required quality for programme deliverables should be planned, assured and controlled based on existing quality expertise and methodology within the programme domain.

It must be clarified that requirements related to managing quality at programme level do not replace quality management required at project level. In the context of programme management such effort of compliance will focus on cross-programme, inter-project and non-project activities, including the service management activities of the programme and the overarching quality needs of the customers (PMI, 2008b).

However, programme management governance still has to enforce quality within its components. The quality of the final outcome will depend enormously on the quality of each single project that has contributed to the outcome.

5.4.5.6 P10 Manage Projects

CobiT 4.1 (2007) requires the adoption of programme and project management frameworks. It also elaborates on what should be included in such a framework.

Advantages of complying with CobiT 4.1 (2007) include:

- The reduction of risks related to unexpected costs and project cancellation
- The improvement of communication to and involvement of business and end users
- Providing value and quality of project deliverables
- The maximisation of the project contribution to IT-enabled programme investment

All detailed control objectives under PO10 relate to programmes or projects within an overall programme. Because they are explicit and address IT programme management governance directly, they will be applied within this study, as specified in the CobiT framework. This will avoid any biases that might result from an attempt to re-elaborate on them.

5.4.5.7 AI1 Identify Automated Solutions

CobiT 4.1 (2007) requires the analysis of the need for new applications or functions before acquisition or creation and the assurance that business requirements will be satisfied in an effective and efficient manner.

Activities to be covered within this process are the definition of the needs, considerations of alternative sources, a review of the technological and economic feasibility, the execution of a risk analysis and a cost-benefit analysis, and finally deciding on whether to make or buy.

Within the framework of programme management, capabilities that will contribute to the realisation of the programme benefit are either acquired or created. These capabilities must be identified, prioritised, specified and agreed upon. By complying

with the AI1 requirement, the cost of acquiring and implementing these initiatives will be minimised whilst ensuring that they enable the programme to achieve its objectives, regardless of whether the capabilities are to be used for replacing or modifying the internal system or to be delivered to an external customer.

5.4.5.8 ME1 Monitor and Evaluate IT Performance

CobiT 4.1 (2007) requires a monitoring and evaluation process, which includes defining relevant performance indicators, systematic and timely reporting of performance, and prompt acting upon deviations to ensure that the correct direction and policies are followed.

IT performance, according to CobiT 4.1 (2007), includes the performance of IT-enabled investment programmes. Considering that IT programmes can have a huge impact on the corporation, CobiT 4.1 (2007) particularly in the detailed control objective ME15, reckons that the report to be transferred to senior management on IT contributions to the business must include the following information relating to the programme:

- The solution and service deliverable performance for each programme
- The extent to which planned objectives have been attained
- Budgeted resources used
- Set performance target met
- Identified risk mitigated
- Suggestions of remedial actions for major deviations

This information should be provided by the programme organisation.

5.4.5.9 ME4 Provide IT Governance

CobiT 4.1 (2007) requires providing an effective governance framework by ensuring that IT investments are aligned and delivered in accordance with enterprise strategic objectives. The framework must include an organisational structure, processes, leadership, roles and responsibilities.

Among IT investments, the process ME4 includes IT programmes. Detailed control objectives include the following requirements for IT investment programmes:

- Co-responsibility between business and IT for making strategic decisions and obtaining benefit from IT-enabled investment programmes
- Effective management of IT programmes to ensure that they deliver the greatest possible value in supporting the business strategy
- Understanding of the programme benefit and the full scope of effort required for its achievement
- Creation of comprehensive and consistent business cases and their approbation by stakeholders
- The effective management of assets through the programme life cycle
- Active management of the realisation of the benefit
- A disciplined approach to programme and project management
- Optimisation of the cost of delivering capabilities

The discussion above has focused on higher-level control objectives. It is now important to look at each detailed control objective that has been retained and determine its implication for IT programme management. This is done in Appendix D.

5.5 Conclusion

This chapter sought to identify IT governance clauses that have relevance in the context of programme management and to provide their implications for IT programme management.

The first objection was, therefore, aimed at establishing the foundation of IT governance. This was done in Section 2 by defining *IT governance*, providing its genesis, purpose, key element and major sources.

Two main drivers of IT governance were identified: the lacklustre of IT performance or effectiveness and the compliance requirement of enacted regulations.

Concerning the purpose of IT governance, two overarching objectives were delineated. These are: (i) the generation of business value, driven by the strategic alignment of IT with business, and (ii) the control and mitigation of IT-related risks, driven by embedding accountability into the enterprise.

Performance measures covered the above goals as a means of assurance and improvement. Within the section concerning the IT governance focus area, key decisions and archetypes were also provided.

The second objective aimed at identifying issues and development within the field. Apart from general issues relating to the effectiveness of IT governance mechanisms, which can be bypassed by addressing the five IT governance focus areas, two particular issues were analysed within Section 3. They were the critical role played by senior management in ensuring success, and the effective way of embedding responsibility over Information Technology control within an organisation. The aim of this is to ensure compliance with SOX requirements of internal control. Views have been shared and suggestions formulated based on current literature.

The third objective intended to analyse CobiT and identify its implications for IT programme management. Within the CobiT domains, controls and objectives that have relevance to IT programme management have been discussed in Section 4.

As could be noticed throughout the chapter, CobiT provides enormous control objectives for effective management of IT. These control objectives cover the complete life cycle of IT systems. It is also true that these IT systems covered by CobiT are mostly produced in the context of programme management.

Control objectives for information and related technology impede largely on IT programme management. Due to the wide scope of programme activities, programme management tends to embrace each single control objective. By excluding governance requirements that fall within the boundaries of software practices and the day-to-day management of the programme infrastructure, high-level control requirements that address the overall management of programme activities provide sufficient details that must be integrated with corporate governance requirements linked to programme management.

Despite the temporary aspect of programmes and permanent aspect of IT, their interdependency remains critical for the attainment of the strategic objectives of the organisation, as they share the same resources in most of the cases.

By extending IT control objectives to programme management, organisations will ensure that IT governance focus areas are addressed. These objectives constitute the main concerns of executive officers.

The following chapter focuses on project governance. Its goal is to identify project governance requirements that can be upgraded to the programme dimension.



Chapter 6

Project Governance

6.1 Introduction

6.1.1 Context

In the previous chapter IT governance was analysed as well as its relation to IT programme management governance. This included an overview of IT governance, and issues and developments within the field.

The CobiT framework, considered the authoritative source for IT governance, was analysed by identifying its relevance to IT programme management and discussing its possible implications.

Considering that corporate governance and IT governance are the vital oversight apparatus of any organisation (Robinson, 2005), the analysis of corporate governance and IT governance fulfil the need to establish the links to IT programme management governance from the permanent organisation. It is now time to turn to the temporary organisation, as the IT programme management governance framework, which is to be developed should benefit from existing standards from both temporary and permanent organisations.

Within Chapter 1, the review of literature identified three layers within the temporary organisation: (i) portfolio, (ii) programme and (iii) project. It specified that the project layer is the sole in which the need for governance mechanisms has been fulfilled. This chapter focuses on project governance and serves as the first and only step from the temporary organisation but as the third and final step in the process of identifying governance requirements from existing standards.

6.1.2 Goal

The goal of this chapter is the understanding of project governance, and the identification and establishment of its links to IT programme management governance.

6.1.3 Objectives

In order to reach the goal mentioned above, objectives must be derived from the goal and met. These objectives are:

- The first objective is to establish the foundation of project governance, provide its genesis, purpose, key elements and explore existing standards.
- The second objective is to discuss issues and developments within the field of project governance.
- The last objective is the analysis of an international standard of project governance, retained as the project governance blue print in this study.

6.1.4 Layout

The chapter comprises three sections presented as follows:

The first section elaborates on the overview of project management. This includes the definition, purpose, advent and key elements of project governance. It concludes with an inventory of existing standards.

The second section discusses issues and developments in the field of project governance.

The third section analyses a project governance framework, and covers the advent, purpose and implications of the retained project governance framework for IT programme management.

6.2 Overview of Project Governance

Early in this study (Chapter 2) the concept of a project and its management were discussed. Some definitions were analysed before formulating wide-ranging definitions for each. It is important to recapitulate some of them before commencing this section, as they relate to project governance.

Chapter 2 states that an activity, task or assignment will be considered a project when it is unique and temporary; it is multifunctional oriented; uses human and non-human resources within a defined scope, schedule and cost; and complies with quality standards.

Furthermore, the management of such an activity, task or assignment is defined as “the fascinating system approach of the planning, organising, monitoring and controlling of all project activities, using a methodology to meet the project goal within the boundaries of time, cost, scope and quality”.

Having defined *project* and *project management*, it is now time to define the concept of *project governance*.

6.2.1 Defining Project Governance

According to Miller and Hobbs (2005) project governance has become an issue of importance only recently when the project management community and literature started assessing the need to fill the gap in governing the surveillance of project activities.

While organisations are realising the necessity of governing their overall project management activities, Bekker and Steyn (2007) mention that confusion exists about the definition of the concept of *project governance*. It varies from project governance as the process of risk allocation, project control or function of a project steering committee, to project governance as an all-embracing term that includes all aspects of project management.

More confusing is the split of the concept into two broad categories: project governance relating to corporate governance principle applied to a single project and governance of project management referring to the infrastructure through which all projects are managed (Dinsmore & Cooke-Davies, 2006:177-178).

Patel (2007) adds that the newly introduced concept of *project governance* inherits negative meanings from cultural and societal perceptions, which constitutes a dilemma for its adoption. As to clarify its meaning, some definitions of the concept *project governance* are analysed and a wide-ranging definition formulated at the end.

It must also be specified that within this research, the concepts *project governance* and *governance of project management* will be used interchangeably to emphasise a broad and inclusive view. This is supported by PMIS Consulting Ltd (n.d.) by stating that “project governance extends the principle of governance into both the

management of individual projects via governance structures, and the management of projects at the business level”.

According to Lambert (2003) project governance is “the structures, system and processes around the project that assure the effective delivery of the project through the full utilisation and benefits realisation by the business”. Raterman (2003) supports this definition by specifying that project governance processes should be elaborated in such a way that it ensures that projects and their related business benefits are delivered as planned.

Viewing project governance from the above perspective relates to what Williams, Klakegg, Magnussen and Glasspool (2009) refer to as the “governance of project” which relates to the framework established around the project execution. Such an approach focuses on the project performance aspect, as the efficient delivery will help to avoid wasting organisational resources.

APM (2004) takes an inclusive view by placing project governance in the context of corporate governance. It states that “governance of project management concerns those areas of corporate governance that are specifically related to project activities. Effective governance of project management ensures that an organisation’s projects portfolio is aligned to the organisation’s objectives, is delivered efficiently and is sustainable”. This can be done by setting the project objectives, providing the means of attaining these objectives and the means of monitoring their performance (Turner, 2006).

Important to be mentioned from the APM (2004) definition is the contextualisation of project governance in corporate governance. As this is discussed later in this chapter, project governance constitutes the linking pin between corporate governance and project management. It is in this context that Renz (2007) accentuates that a project governance system ensures that projects are strategically directed, integratively managed and holistically controlled.

From the APM (2004) definition, it is clear that both *governance of project* and *governance through project* advocated by William et al. (2009) are covered. Although no mention has been made of IT projects in the above definitions, it is to be assumed

that they are included, as these definitions are broad. Therefore, they apply to all types of projects.

Three important characteristics can be derived from the above discussion. These characteristics are:

- Project governance is a subset of corporate governance.
- Project governance sets a structure, a system and processes around project activities.
- Project governance ensures strategic alignment, effective delivery and sustainability of projects.

By grouping the above characteristics, *project governance* is defined within this study as “a subset or integral part of corporate governance comprising structure, system and processes that ensure strategic alignment, efficient delivery and sustainability of projects”.

With a definition of *project governance* now in place, it is time to look at factors that have led to its emergence.

6.2.2 The Advent of Project Governance

Earlier in this study it has been acknowledged that the use of the terms *project* and *project management* has grown in society since before the days of great pyramids. Simultaneously the growth in tools, technologies and approaches to project management has been mentioned.

In today's business environment, projects have become a way through which organisations accomplish almost everything they undertake (Meredith & Mantel, 2003). Patel (2007) qualifies this organisational development as “project mindset” which has come to permeate all aspects of business, generating increased efficiency and effectiveness in cross-functional initiatives. Smith and Winter (2004) use the term *projectification* to describe the increasing amount of work being organised through projects.

While the terms *project* and *project management* enjoy huge popularity, Patel (2007) states that the increased competition from the global markets, regulatory scrutiny,

expedited innovation cycles and more demanding customers are forcing organisations to question the reliability of their project management practices.

From an IT perspective, IT Governance Ltd (n.d.) notes that the intensity of information and knowledge, networking and connectivity prevalent in the global information economy demand attention, as “a failed project can place an organisation at a strategic disadvantage to its competitors”.

Weaver (2007) states that, although the concept of *project governance* has only recently appeared in the literature, the need for such a mechanism has been felt since the early days of project management. He asserts that from the building of the pyramids in ancient Egypt, delivering the project product, service or result timely and efficiently has been always a concern for sponsors or initiators. Bekker’s (2008) research on large capital projects demonstrates that approaches applied to these initiatives were generating the same kind of failure in the 1700s. This prompted the need for different institutional arrangements.

However, two main drivers are pointed out in the literature as factors that have influenced the actual emergence of the concept of *project governance* (Dinsmore & Cooke-Davies, 2006; Patel, 2007; Renz, 2007). These drivers are: (i) compliance to corporate governance requirement, and (ii) the need to improve project performance. Their discussions follow.

6.2.2.1 Compliance Driver

The compliance driver for project governance stems from the need to comply with corporate governance requirements, which hold the board of directors responsible and accountable for directing and controlling the company affairs (Patel, 2007; PMIS Consulting Ltd, n.d.).

The previous debate on corporate governance in this study, proved the existence of a new breed of legislation and regulations enacted worldwide, and their effect on corporations. From the project governance perspective, the compliance driver refers to the extent to which corporate governance requirements are applied throughout the organisation.

PMI Consulting Ltd (n.d.) confirms that “government and regulatory authorities have amended laws and strengthened codes to make responsibility of governance more explicit and to introduce new requirements and standards relating to the production of financial and other data. This will include project data, creating a direct link between key project management information and corporate governance”.

This is more evident with legislation such as the Sarbanes-Oxley Act and its mandate pertaining to corporations on disclosure of corporate financial information, real-time disclosure, internal control and information retention discussed in Chapter 4 on corporate governance.

Crawford, Cooke-Davies, Hobbs, Labuschagne, Remington and Chen (2008) consider that a project, as a part of the temporary organisation (including programmes and portfolios) established within the framework of the permanent organisation, should also be assigned the same level of control and visibility required from the permanent organisation.

Bekker (2008) adds that the temporary characteristic of the project organisation makes the project management practice immature in comparison to well-researched and established corporate management concepts. It also constitutes a reason for which project management has to learn from the permanent organisation if there is an intention of improving practices.

Renz (2007) uses the theory of governance gap to illicit how governance concerns should be implemented throughout the organisation. He uses the management layers of an organisation (upper, middle and lower) and leadership functions (normative, strategic and operational). Within these layers he identifies the gap between corporate governance at the top and operational project management at the bottom. This is illustrated in Figure 6.1.

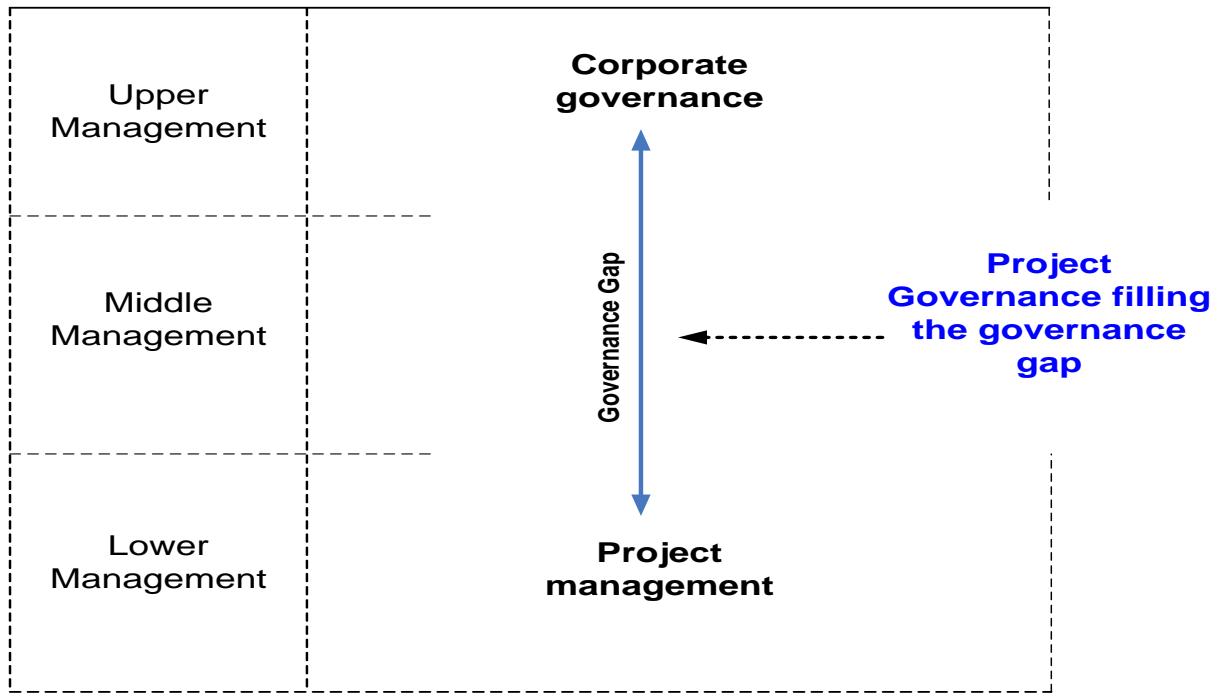


Figure 6.1: Positioning Project Governance

Source: Renz, 2007



Figure 6.1 demonstrates that project governance closes the gap created by the interface between corporate governance and project management. Bridging the gap is a requirement for responsible practice (APM, 2004). This ensures that projects contribute substantially toward corporate targets (Dinsmore & Cooke-Davies, 2006).

Project governance encourages preventative behaviours from the Board in their effort to ensure compliance with the corporate governance requirement. Renz (2007) illustrates this by stating that it is based on such a system that the Board will make sure that the projects undertaken are not “the tail that wags the dogs, and that no uncontrollable self-dynamic develops within the project”. With such a system the issue of knowledge asymmetries would be resolved as it will bring together the operational and governance level in a number of responsibilities and processes”.

It is important to mention that establishing project governance as compliance mechanism for corporate governance is not the ultimate goal that must be attained (Weaver, 2005). This conforms to corporate governance requirements should be

considered a step toward creating a sound system that delivers real benefit from projects and thus avoids failures. It is in this context that project performance discussed below constitutes the second driver of project governance.

6.2.2.2 Performance Driver

It has been stated earlier in this study (Chapter 1) that despite the developments in project management methodology, tools and technique, projects are still failing. Dinsmore and Cooke-Davies (2006), and Oakes (2008) demonstrate that project performance fails to keep up with the wealth and growth of project management methods, bodies of knowledge, accreditation and maturity models that have emerged in the profession.

Numerous comprehensive research and statistics bring to the forefront the evidence of continuous patterns of poor project performance (Davis & Pharro, 2003). Before discussing their findings, it is important to determine the context in which a project can be considered a success.

1. Project Performance Metrics

Project success and metrics used for measuring are differently defined in the literature. Dinsmore and Cooke-Davies (2006) claim that the definition of *project success* is far from straightforward. Project success has even turned out to be a fuzzy topic. Bekker (2008) reviews numerous definitions of *success* and concludes that the success topic tends to be time-based and fashionable, and that success factors vary across the phases of the project life.

Labuschagne and Marnewick (2009), who acknowledge the existence of diverse opinions as to what success means, recommend that organisations provide clear guidance on how to measure the outcomes of their projects.

However, Baccarini (1999) provides a more comprehensive definition of *project success* with two components: (i) product success and (ii) project management success. His definition (presented in Table 6.1) will be used, as it covers both the governance through project and the governance of project, as discussed in the definition of *project governance*.

Table 6.1: Components of Project Success

Project Success Factors		
No.	Project Management Success	Product Success
1	Meeting time, cost and quality objectives	Meeting the project owner's strategic organisational objectives
2	Quality of the project management process	Satisfaction of user needs
3	Satisfying project management needs with respect to the project management process	Satisfying stakeholders' needs when they relate to the product

According to Abednego and Ogunlana (2006), it appears in practice that the project product can be a success when the agreed scope, time and budget have been met, while the management processes employed may be a failure.

By combining success criteria of the product being developed and the success of the management of all activities surrounding the production of the intended product, Baccarini (1999) gives an inclusive view of what an effective project governance model should address.

It must also be acknowledged that projects do not always succeed. At any given state during the run or upon completion a project can whether be challenged or fail. By utilising the success definition retained above, challenged project and failed project can also be defined. Within this research, a challenged project is defined as the one that partially meets the 2 components of project success and failed project is defined as the one that does not meet these 2 components at all.

2. State of Project Performance

Numerous stories about failure are discussed in the literature (Cuthbertson & Sauer, 2003; Labuschagne & Sonnekus, 2003; Marnewick & Labuschagne, 2009; Standish Group, 2009). Here the researcher presents some findings from well-known organisations that research and compile statistics related to project performance.

The aim is to illicit how poor performance of project management has emphasised the need for governing the activities of project management.

Table 6.2: Standish Group: Chaos Report

Year	Failed	Challenged	Successful
1994	31%	53%	16%
1996	40%	33%	27%
1998	28%	46%	26%
2000	23%	49%	28%
2002	15%	51%	34%
2004	18%	53%	29%
2006	19%	46%	35%
2009	24%	44%	32%

Source: Dominguez, 2009

Table 6.2 indicates that the rate of successfully completed projects has decreased or increased from year to year. The 2009 result represents two negatives metrics: the decrease in success and the increase in failure.

Table 6.3: UK: The State of IT Project Management

Year	Failed	Challenged	Successful
2003	9%	75%	16%

Source: Cuthbertson and Sauer, 2003

Table 6.3 shows that the UK has a very low rate of success and a very high rate of challenged projects. With such low performance, action needs to be taken.

Table 6.4: South Africa: The Prosperus Report

Year	Failed	Challenged	Successful
2003	22%	35%	43%
2008	27%	36%	37%

Source: Marnewick & Labuschagne, 2009

Table 6.4 represents a downturn in the success rate and an increase in both challenged and failed projects in comparison with the 2003 results. This confirms the continuous pattern of poor project performance. Among the reasons for poor performance, the report highlights the lack of control over project activities.

In the following section, the researcher calculates the averages of failed, challenged and successfully completed projects per country in order to compare the performance of project management among countries. The results are provided in Table 6.5.

Table 6.5: Performance Comparison (Average/Country)

Country	Failed	Challenged	Successful
UK 2003	9%	75%	16%
SA 2003-2008	24.5%	35.5%	40%
US 1994-2009	24.75%	46.875%	28.375%

The comparison of these reports shows that, despite the ranking difference among countries, projects are still failing. All reports analysed above demand action for project performance to be improved. Muller (2009) confirms that “the frequency of projects failing to meet these corporate objectives has focused attention firmly on the process of project governance”.

This view is shared by Bekker (2008) who argues that the multi-billion dollars invested in failed or challenged projects call for a governing environment that can handle the challenge of present opportunism, corruption, greed and misconduct. Senigen (2005) advises that people should “govern (their) organisation before the authorities decide to govern it for (them)”.

By considering project performance as one of the drivers of project governance, it is important to answer a recurring question on the need for project governance besides worthy project management approaches adopted in all industries. Answering this question brings together the two drivers of project governance discussed in this section.

According to Renz (2007), project management focuses on the day-to-day management of project activities but strategic orientation and constitutional questions fall beyond its scope. Weaver (2007) states that the governing body needs to “apply surveillance to the activity of the organisation’s manager to ensure that appropriate best practices are applied”. This relates to the governance gap referred to earlier in this chapter.

From the performance perspective, Patel (2007) states that project governance is the “backdrop in which successful projects can be realised”. He considered that by established project governance, an organisation must provide its project management methodology with the space and context within which day-to-day project activities will occur, and arising issues will be escalated and resolved.

6.2.3 The Purpose of Project Governance

The previous discussion has highlighted two drivers that have led to the development of project governance, namely project performance and corporate governance compliance requirement. Therefore, one can deduct that the purpose of

project governance is to address the need to improve project performance as well as the need to comply with corporate governance requirements.

Weaver (2007) and PMIS Consulting Ltd (n.d.) give a purpose of project governance tailored to the two needs stated above. According to them, project governance should firstly be directed toward eliminating project failure by “doing the right projects, doing them right time after time”. Secondly, because the project product and issues surrounding its development would have an impact on the organisation as a whole, project governance has to monitor and forecast the impact of projects on the corporation to ensure that corporate governance requirements are complied with across all enterprises and that corporate resources are not wasted.

Coming to the IT industry, which is the particular focus of this research, IT project governance is considered a subset of IT governance. Many of the IT governance objectives pertain to IT project governance (Turbit, 2005).

Leganza (2003) and ITGI (2005-2007) provide five primary objectives of IT project governance. These objectives are:

- Business value by aligning projects with business
- Resource maximisation
- Uniform application of best practices
- Cost control via centralisation
- Risk management

By comparing IT governance objectives (Chapter 5, Section 5.2.3, Table 5.2) and IT project governance objectives, it appears that IT project governance objectives are either direct subsets of IT governance objectives or they constitute a major input to the related IT governance objective. A comparison of IT governance objectives with IT project governance objectives and the IT governance domains is depicted in Table 6.6.

Table 6.6:

Comparison of IT Project Governance Objectives with IT Governance Objectives and IT Governance Domains

No.	IT Project Governance Objective	Relation Type	Related IT Governance Objective	Related IT Governance Domain
1	Business value by aligning projects with business	Direct subset	IT activities are aligned with business strategy and deliver the promised benefit.	Strategic Alignment
2	Resources maximisation	Direct subset	IT resources are used responsibly.	Resource Management
3	Uniform application of best practices	Provide input	IT performance is measured, as it essential for appropriate management of all these factors.	Performance Measurement
4	Cost control via centralisation	Provide input	IT acts as an enabler to business by exploiting opportunity and maximising benefit.	Value Delivery
5	Risk management	Direct subset	Business and IT-related risks are managed appropriately.	Risk Management

While Objectives 1, 2 and 5 are direct subsets of their related IT governance objectives, Objective 4 (cost control), which would make a difference in the way in which projects are funded (Leganza, 2003), contributes toward the IT governance aim of optimising cost and providing the intrinsic value from IT. Objective 3 (uniform application of best practices) establishes the foundation through which performance can be measured. This objective would provide processes, methodology, techniques and metric to be used (Leganza, 2003).

However, objectives or goals are the final results that need to be achieved. This can only be done through appropriate project governance mechanisms. Due to the lack of a universally agreed project governance mechanism, the following section discusses some key elements that facilitate the governance of projects throughout the project life cycle.

6.2.4 Key Elements of Project Governance

Relative to the two main goals of project governance (improving project performance and ensuring compliance to corporate governance requirement) two key role players recurring in the literature are more related to the effort of attaining these goals (Muller, 2009). These key roles (project sponsor and the project management office) are discussed below.

6.2.4.1 Project Sponsor

The concept of *project sponsor* and related formal and informal responsibilities are approached differently in the literature. The research avoids expanding on these discussions, as they fall outside the scope of the study. Thus, the research relies on some conclusive views.

Lechtman (2005) draws on a review of literature and defines the project sponsor as “a senior executive manager who, from project conception to benefit realisation, is in a position of considerable political and financial power to ensure that projects meet business objectives and support business strategy”. The sponsor should be capable of ensuring the delivery of real value from the project.

More clarifying is the study done by Crawford et al. (2008), which reviews literature and studies practical cases. They conclude that the sponsor provides the means by which corporate and project governance are linked. This has been admitted by Oakes (2008) who confirms that the position of the project sponsor within the organisation bridges the gap between steering and implementation, and between the project team and the entire organisation.

Crawford et al. (2008) also agreed with Dinsmore and Cooke-Davies (2006) that effectiveness sponsorship is a key factor to the success of a project. Therefore, the sponsor should own the business cases, takes responsibility for benefit delivery,

governs the project, keeps up with the project manager and leads the change about to happen.

From this description it can be concluded that effective sponsorship addresses both the need to comply with corporate governance requirement and the need to improve project performance.

6.2.4.2 Project Management Office

Although the concept of PMO can be labelled differently (programme management office, portfolio management office, project office, programme office, project support office, project control project management support office, project management centre of excellence), most organisations refer to it as a project management office with an overall goal of adding value to business (Dinsmore & Cooke-Davies, 2006).

The project management office is an organisational body composed of experts who have to ensure that projects stay on course and that it ultimately contributes to the attainment of the strategic objectives of the organisation.

While recognising that an organisation has to determine the correct approach of how its PMO should perform (Rollins & Lanza, 2005), the general purpose of a PMO is to make sure that there is enough internal support for the project, and the work is carried out in a systematic and effective way.

An effective way of capturing this need is to ensure that recognised best practices are followed, a standard project management methodology is in place and information flows in a logical and efficient manner (Dinsmore & Cooke-Davies, 2006; Weaver, 2007). The particular PMO's role of importance in this study is its capacity to boost project performance and to enable compliance to corporate governance requirements.

Dinsmore and Cooke-Davies (2006) notice that since its introduction in the 1990s, project management office has always been used as an approach for improving project management performance. KMPG (2003) and Weaver (2007) support this view by linking project success to the maturity of the PMO. Not all PMOs will lead to project success, but a well-conceived, strategically implemented, and competently

managed, adaptable to changing situations will definitely lead to success (Dinsmore and Cooke-Davies, 2006).

From a governance perspective, Oakes (2008) states that the role a PMO can play in governing projects depends on the level at which it operates in the strategic scope. These levels are upper management, middle management and lower management. This relates to what Dai and Wells (2005), as cited in Lechtman (2005), have described as supervisory PMO, facilitating PMO and supportive PMO. Figure 6.2 illustrates these levels.

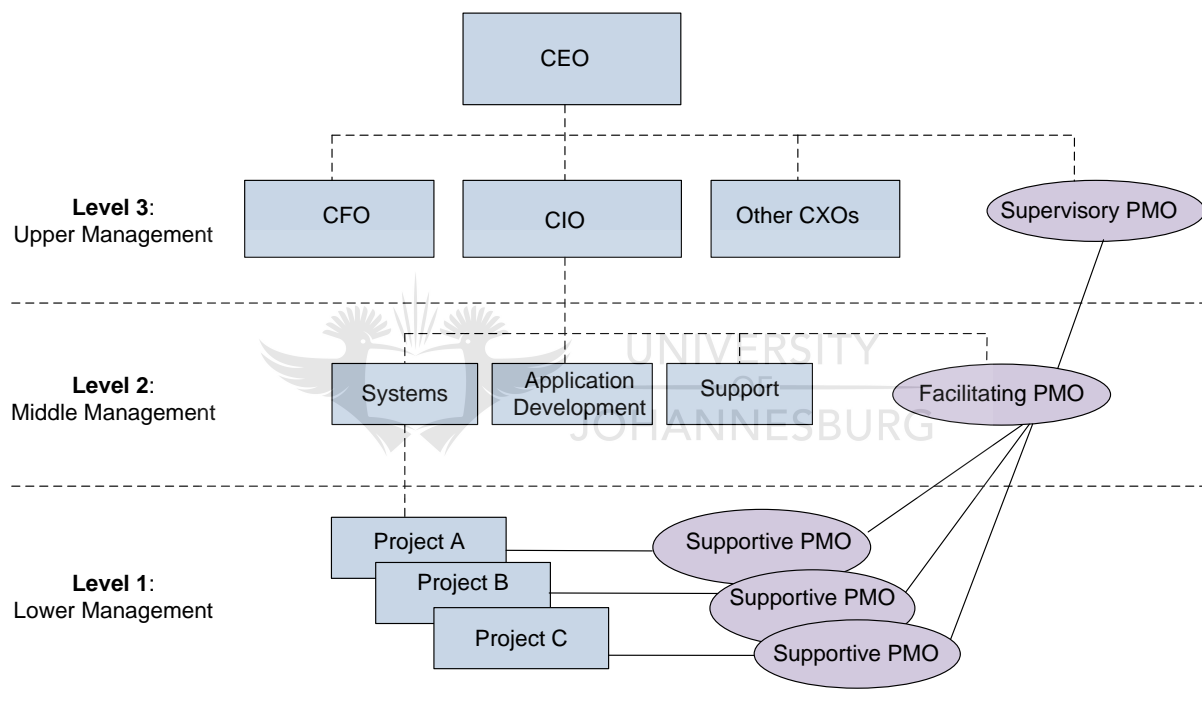


Figure 6.2: PMO Roles and Organisational Levels

Source: Lechtman, 2005

The level at which a PMO operates determines the level of authority that the Board has to ensure governance over projects across the organisation.

6.2.5 Existing Frameworks

The previous section has shown that project governance plays a critical role in ensuring corporate governance compliance and improving project performance. The role of the project sponsor and the project management office in ensuring the attainment of these objectives were also discussed.

It is now important to discuss current project governance frameworks, as they provide the structures and rules that make the governance of projects possible and effective.

Contrary to corporate governance and IT governance that have various frameworks, the project environment still lacks a common framework that regulates project affairs and reaches consensus among practitioners. This has led organisations to develop custom-made project governances that respond to their particular needs, according to their degree of projectisation, project size and their particular context (Lechtman, 2005; Muller, 2009).

Project governance frameworks diverge even when they relate to the same industry and are applied in the same country for the same purpose. This is proven in a comparison done by Klakegg et al. (2008) on governance frameworks developed in the UK and Norway for large public projects. This indicates numerous differences even though both countries were striving for the same purpose, namely ensuring best practices in the planning and execution of projects.

Other divergences among project governance frameworks result from the need to accommodate a particular project management methodology. This is the case with agile project governance frameworks, which not only address the particularity of agile developments, but also ensure the realisation of agile developments' value added to business (Thomsett, 2006).

Despite the actual divergences among project governance frameworks, literature argues in favour of creating a generic model of project governance frameworks within which specific instruments and processes are defined. The model should be generally valid and flexible enough to accommodate projects of all sizes, content, types and complexities (Bekker, 2008; Klakegg et al., 2008; Renz, 2007).

The problem with this view relates to how such a generic model would be applied effectively in a particular organisation when considering the uniqueness of each project and the particular challenge that it can be facing (Oakes, 2008).

Solving such a problem has been the subject of different views and opinions. Dismukes (n.d.) and Patel (2007) agree on three steps where (i) the expectations are set realistically, (ii) the model is then right sized to the particular organisation, and (iii) culture implications are considered to promote accountability and transparency.

Muller (2009) suggests a model that has three incremental steps through which an organisation migrates by considering at each step the three forces impacting the quality of project management, namely economic pressure, education and management demand.

It is important to note that arguments against a generic model hold on the particularities of projects in terms of type, complexity and size. It can then be argued that the adaptability of a generic model to a particular organisation will largely depend on the organisational setup, the culture and the way it handles change (Dismukes, n.d.; Patel, 2007).

However, the Association for Project Management (APM) that provides guidance in project management has published three guides that are related to project management. These guides are:

- *Directing Change: A Guide to Governance of Project Management* (APM, 2004) is applicable to all types of organisations in all sectors. The guide bridges the gap between corporate governance and project management processes by providing excellent practices for the governance of project and programme activities.
- *Co-directing Change: A Guide to the Governance of Multi-owned Projects* (APM, 2007) provides organisations with governance mechanisms that enable them to benefit from their engagement in multi-owned projects.
- *Sponsoring Change: A Guide to the Governance Aspect of Project Sponsorship* (APM, 2009a) aims to improve the performance of sponsorships.

It provides the sponsorship role and critical attributes, and discusses practical issues.

These guides, according to APM (2009b), contribute to the improvement of the quality of project management oversight and performance.

6.3 Issues and Developments

Numerous reports have been written about issues surrounding project governance, and credible organisations have from time to time surveyed and reported on the reasons for project failure as well as the reasons for project success (Oakes, 2008; Standish Group, 2009). Of importance for this study are the reasons for project failure. They need to be adequately addressed in order to ensure the successful completion of projects.

Oakes (2008) consolidates the failure factor presented by the Standish Group and the UK's OGC as from 2002 to 2006. PMIS Consulting Ltd (2009) has also published a list of top results ranked according to participants. Table 6.7 presents these two lists according to their respective rankings. In order to indicate how they affect the governance of projects, failure factors that refer to compliance goals are coloured in blue, while those that relate to performance goals are coloured in black.

Table 6.7: Failure Factors

No.	Oakes 2008	PMIS Consulting Ltd (2009)
1	The link between project and organisational objectives is unclear or has become broken.	Unclear goals and objectives are present.
2	Success criteria, scope and requirement are unclear and unrealistic.	There is a lack of alignment to project goals among the stakeholders.
3	Senior management fails to take ownership or to provide leadership.	There are no participative sponsors and stakeholders or users.

No.	Oakes 2008	PMIS Consulting Ltd (2009)
4	The project team fails to engage with users and stakeholders.	Poor communication of objectives across the team
5	There is a lack of key skills or resources.	Unofficial scope creep
6	They schedule and plan unrealistically.	There is a lack of measure or information on the project performance.
7	The project team fails to operate as a cohesive unit with clear roles and responsibilities.	There is unclear responsibility across the project.
8	The capability of the suppliers, technology and tools are estimated incorrectly.	Poor quality planning and resource planning occur.
9	Failure to perform key processes exists.	Poor supplier integration is present.
10	Failure to break the project down into manageable steps exists.	There is a lack of commitment or team working.
11	Failure to track progress and intervene when the project gets off course exists.	There is a lack of ownership

It can be concluded from Table 6.7 that appropriate actions need to be taken, as these reasons play a critical role in project success. By looking at the role of sponsors and PMO discussed earlier in this study, it can be concluded that effective sponsorship and functioning of a PMO are the correct remedies to the reasons for project failure.

Muller (2009) confirms that the effective implementation of a project governance framework requires these two key roles, which should be carefully staffed.

Table 6.8 groups the above failure factors according to the project governance driver that they affect, as to provide a clear view of how project sponsors and project management offices are key role players in ensuring the effective governance of projects.

Table 6.8: Links Between Failure Factors, Project Governance Drivers and the Two-Project Governance Key Role Players

Oakes (2008)	PMIS Consulting Ltd (2009)	Related Driver	Key Role
The link between project and organisational objectives is unclear or becomes broken.	Unclear goal and objectives	Compliance Driver	Project Sponsor
Senior management fails to take ownership or to provide leadership.	Lack of alignment to project goals among stakeholders		
Project team fails to operate as a cohesive unit with clear roles and responsibilities	No participative sponsors and stakeholders or users		
Failure to track progress and intervene when the project gets off course	Lack of measure or information on project performance		
	Unclear responsibility across the project		
	Lack of ownership		

Oakes (2008)	PMIS Consulting Ltd (2009)	Related Driver	Key Role
Success criteria, scope and requirement are unclear and unrealistic.	Poor communication of objectives across the team	Performance Driver	Project Management Office
The project team fails to engage with users and stakeholders.	Unofficial scope creep		
Lack of key skills or resources	Poor quality planning, resource planning		
Schedule and plans unrealistic	Poor supplier integration		
The capability of the suppliers, technology and tools are miss-estimated	Lack of commitment or team work		
Failure to perform key processes			
Failure to break the project down into manageable steps			

Table 6.8 indicates that reasons that fail under the compliance goal match the common responsibility of the project sponsor who operates as the chairman of the project board. Those related to the performance goals would be eradicated if the PMO has been successfully defined and implemented in the organisation, as it plays a key role in ensuring the efficiency and effectiveness of project management.

The following section analyses a project governance framework, identifies relevant requirements and determines their implications for IT programme management.

6.4 Analysis of a Project Governance Framework

6.4.1 Choosing the Guide to Governance of Project Management

As discussed in Section 6.2.4, there are many custom-made project governance frameworks that address individual industries or projects. The *Guide to Governance of Project Management* is believed to be the sole guide that provides a broad view of a project governance framework. Bekker (2008) considers the GoPM as the first and major advancement towards establishing a framework for project governance.

Because of these particularities, the fact that the publisher is a recognised body and the popularity reached with over 60 000 copies currently in circulation (APM, 2009b), the GoPM has been chosen as the project governance blueprint for this study.

6.4.2 The Advent of the Guide to Governance of Project Management

The advent of the *Guide to Governance of Project Management* can be linked back to the need for a project governance mechanism.

The pressure of legislation changes requiring those governing organisations to ensure accountability and responsibility throughout all their operations presented a dilemma to directors when it came to overseeing the management of projects (Weaver, 2005). It is in this context that the Association for Project Management (UK) decided to investigate dominant legislation changes, with the ultimate goal of providing boards with an effective standard that will guide them through their duties of overseeing project activities (APM, 2009a).

With this guide, the gap that exists between corporate governance and project management processes has been eliminated. Coherence has been established and information asymmetry resolved (APM, 2004).

6.4.3 The Purpose of the *Guide to Governance of Project Management*

According to the APM (2004), the purpose of the GoPM is “to influence directors and others to adopt excellent practice regarding the governance of programme and project management activities”. Within the guide responsible practices are considered to be those that lead to the elimination of the governance gap.

Advantages of using the GoPM include improving performance, reducing shocks at boardroom level and avoiding hardship to stakeholders (APM, 2004; Weaver, 2007).

The guide comprises 11 principles, which are entirely consistent with their related section in the UK listing authority's combined code (2002) and the Sarbanes-Oxley Act (2002). These principles listed in the table below are standards and can be applied to every project of the organisation (Weaver, 2007).

Table 6.9: Project Governance Principles

No.	Governance of Project Management Principles
1	The Board has overall responsibility for the governance of project management.
2	The roles, responsibilities and performance criteria for the governance of project management are clearly defined.
3	Disciplined governance arrangements, supported by appropriate methods and controls, are applied throughout the project life cycle.
4	A coherent and supportive relationship is demonstrated between the overall business strategy and the project portfolio.
5	All projects have an approved plan containing authorisation points at which the business case is reviewed and approved. Decisions made at authorisation points are recorded and communicated.
6	Members of delegated authorisation bodies have sufficient representation, competence, authority and resources to enable them to make appropriate decisions.
7	The project business case is supported by relevant and realistic information that provides a reliable basis for making authorisation decisions.
8	The Board or its delegated agents decide when independent scrutiny of projects and project management systems is required, and implement such scrutiny accordingly.

No.	Governance of Project Management Principles
9	There are clearly defined criteria for reporting project status and for the escalation of risks and issues to the levels required by the organisation.
10	The organisation fosters a culture of improvement and of frank internal disclosure of project information.
11	Project stakeholders are engaged at a level that is commensurate with their importance to the organisation and in a manner that fosters trust.

Relative to these principles the guide provides 44 questions shared among four main components. These components are:

- Portfolio direction
- Project sponsorship
- Project management - effectiveness and efficiency
- Disclosure and reporting

By answering positively the 44 questions, the organisation ensures that the 11 principles of the GoPM are applied, and thus corporate governance requirements pertaining to projects are complied with.

6.4.4 GoPM Components Relevant to Programme Management

The previous section retraces the advent of the GoPM and discusses its purpose. The 11 principles, grouped into four components, are supported by practical questions that help to identify actions to be taken in order to ensure component compliance.

This section identifies the GoPM requirements that are relevant to programme management. Principles do not get one actively ensure compliance. It is important to look at the four components that must be implemented so that the organisation can bridge the governance gap and avoid common causes of project failure.

During the document analysis done by reading throughout the GoPM framework, the 44 questions were analysed to fully understand the logic beyond the four components that require compliance.

With a clear understanding of what the components of project governance entail, it was then possible to analyse the content of the framework. The process was applied as follows:

During the first appraisal the predefined coding categories in Table 3.2 of Chapter 3 were used as the basis of the analysis. Through the reading of GoPM, based on a deductive reasoning, a component that addressed a category was manually highlighted and its corresponding category mentioned in the margin.

By illustration the component *Project Sponsorship* (Appendix E, p9) requires the sponsor to own the business case, make decisions, direct and represent accountability. APM (2009a) considers that, in the context of programmes, the programme manager sponsors all the projects within the programme. In this context it can be deduced that the programme manager is required to own all the business cases of the project, to make decisions, direct and represent accountabilities. This defines the role and responsibilities of the sponsor.

Besides the relevance to the roles and responsibilities category, the project sponsor component also has relevance for the policies, procedures, processes and practice component as well as the monitoring and controlling performance component. This relevance is established based on component related questions, which require the appropriate closure of projects and the appraisal of projects by independent advice.

Based on the above understanding, the first appraisal of the GoPM framework for this example has resulted in highlighting the project sponsorship component and mentioning the three categories addressed in the margin. This is indicated in Appendix F, page 9.

The second appraisal consists of extracting located data from the analysed GoPM framework and coding them in coding table 3.3, while observing coding rules defined in Section 3.4.2.3 of Chapter 3. This can be seen in Table 6.10 where, by illustration, the component *Project Sponsor* has been coded under the three categories mentioned above.

The qualitative content analysis and document analysis carefully conducted in the GoPM framework has identified three components that are either directly addressing

the governance of IT programmes or have an indirect impact on IT programmes. These components are:

- Project sponsorship
- Project management – effectiveness and efficiency
- Disclosure and reporting

The result of the analysis is depicted in Table 6.10.

Table 6.10: Results of Content Analysis on Project Governance (GoPM)

Topic	Relevant Requirement
<p>1. Strategic Alignment</p> <ul style="list-style-type: none"> – Organisational strategy – Organisational goals – Constraint and guidance offered by strategic management 	<p>No relevance</p>
<p>2. Roles and Responsibilities (Structure)</p> <ul style="list-style-type: none"> – Decision-making process 	<p>Project Sponsorship requires that the project sponsor provide the link between corporate management and project management. It then provides key responsibilities and accountability to the sponsor.</p> <p>Project Management Effectiveness and Efficiency calls for the accountability of the sponsor and the Board in the assessment of the effectiveness of this component. It requires key governance roles and responsibilities, and the right delegation of authority.</p> <p>Disclosure and reporting recommend the Board to seek independent verification of projects and portfolio information, ensure the quality of</p>

Topic	Relevant Requirement
	information it receives, and be aware of significant risks.
<p>3. Policies, Procedures, Processes and Practices</p> <ul style="list-style-type: none"> – Project portfolio practices – Programme methodology – Risk management – Issues management – Delivery management – Quality assurance – Benefit management – Change management – Success evaluation – Stakeholder requirements – Developing and documenting assumptions and decisions 	<p>Project Sponsorship requires the appropriate closure of projects, the alignment of stakeholder interest with project success, and the competency of the sponsor.</p> <p>Project Management Effectiveness and Efficiency recommend the use of appropriate practices for issues, risks, changes and contingency management, the improvement of project outcome criteria to be used for the evaluation of the success of projects, the providence of resources by service departments and supplies.</p> <p>Disclosure and reporting elaborate on the distinction between forecast, commitment and expected projects outcomes.</p>
<p>4. Monitoring and Controlling Performance</p> <ul style="list-style-type: none"> – Operations – Delivery of the programme benefit – Project and project progress – Programme outcomes 	<p>Project Sponsorship recommends the appraisal of projects by independent advice.</p>

Topic	Relevant Requirement
<ul style="list-style-type: none"> – Organisational investment – Constant application of procedures – Opportunities and threats 	
<p>5. Disclosure and Reporting</p> <ul style="list-style-type: none"> – Approval and reporting mechanism – Progress 	<p>Disclosure and reporting require a reporting process that ensures the providence of timely, relevant and reliable information that supports the organisational decision-making processes. It specifies information that must be timely reported, and emphasise business culture, policy and reporting requirements that will enable the effectiveness of this component.</p>
<p>6. Compliance</p> <ul style="list-style-type: none"> – Compliance with governance requirements – Compliance with PPPP 	<p style="text-align: center;">UNIVERSITY OF JOHANNESBURG</p> <p style="text-align: center;">No relevance</p>
<p>7. Knowledge Management</p>	<p style="text-align: center;">No relevance</p>

The relevance of these components in the context of programme management and their implications are discussed below.

6.4.5 Implications of the GoPM Components for IT Programme Management

6.4.5.1 Project Sponsorship

This component requires that the project sponsor provide the link between corporate management and project management. It describes the sponsor as the “route though which project managers report directly, and from which project managers obtain their formal authority, remit and decisions”. They are required to own the business case, make decisions, direct and represent accountabilities.

The role of the sponsor has been discussed in the previous section. It is also one of the roles that various project management standards have defined well, relative to its interaction with the project, programme and portfolio manager (Weaver, 2007).

While the efficiency and effectiveness of sponsorships in an individual project fall beyond the scope of this research, the sponsorship of projects undertaken in the context of programmes has direct implications for programme management.

The APM (2009a), in its guide pertaining to the governance aspect of project sponsorship, states that in the context of programmes, projects may have different sponsors with delegated authority from the programme managers, or the programme managers could sponsor all of the programme constituent projects. This is illustrated in Figure 6.3.

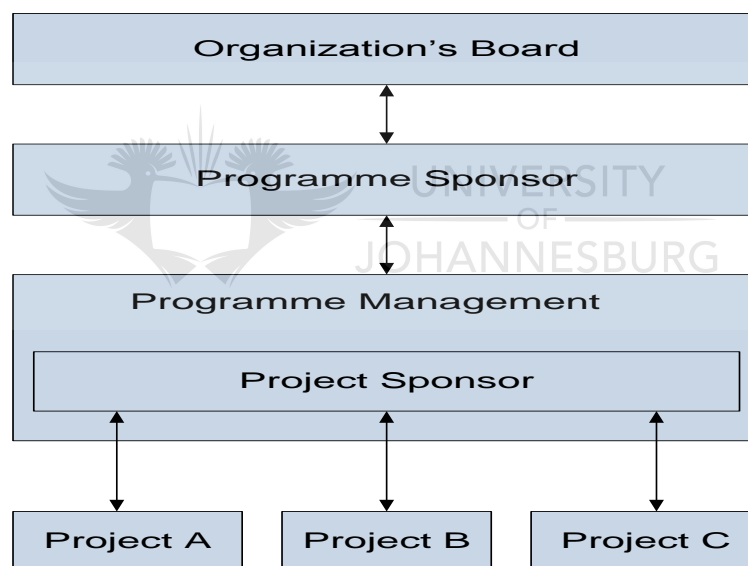


Figure 6.3: Programme and Project Sponsorship

Source: APM, 2009a

With this in mind, it is then clear that the programme management governance framework to be developed must provide appropriate answers to questions related to this component to ensure that its requirements are complied with.

If the programme manager takes up the sponsorship role for the projects within the programme, he is then required to provide the link between the corporate body and the project management body. If the programme manager does not take up the sponsoring role, then each project should have a sponsor with delegated authority from the programme manager (APM, 2009a).

Although the programme manager can delegate his sponsoring responsibilities of projects to another person, he remains accountable for the sponsoring of the constituent projects of the programme. It can be deduced that the requirements of the component of *Project Sponsorship* have an impact on the management of programmes, as they call upon the responsibility and accountability of the programme manager.

In order to provide the implications of this component for programme management, its related questions have been reformulated in requirement format. These requirements are ipso facto implications for programme management. This is depicted in Table 6.11.



Table 6.11: Project Sponsorship

Key Question	Requirement/ Implication
PS1 <i>Do all major projects have competent sponsors at all times?</i>	PSR1 Sponsors Competency All projects must have competent sponsors all the time.
PS2 <i>Do sponsors devote enough time to the project?</i>	PSR2 Sponsors Time Management Sponsors must devote enough time to the project.
PS3 <i>Do project sponsors hold regular meetings with project managers and are they sufficiently aware of the project status?</i>	PSR3 Sponsors, Project Status and Meetings Project sponsors must hold regular meetings with project managers and they must be sufficiently aware of the project status.

Key Question	Requirement/ Implication
PS4 Do project sponsors provide clear and timely directions and decisions?	PSR4 Sponsors, Direction and Decisions Project sponsors must provide clear and timely direction and decisions.
PS5 Do project sponsors ensure that project managers have access to sufficient resources with the right skills to deliver projects?	PSR5 Sponsors, Resources and Skills Project sponsors must ensure that project managers have access to sufficient resources with the right skills to deliver projects.
PS6 Are projects closed at the appropriate time?	PSR6 Projects Closure Projects must be closed at the appropriate time.
PS7 Is independent advice used for the appraisal of projects?	PSR7 Projects Appraisal Independent advice must be used for the appraisal of projects.
PS8 Are sponsors accountable for and do they own and maintain the business case?	PSR8 Sponsor Accountability for Business Case Sponsors must be accountable for, own and maintain the business case.
PS9 Are sponsors accountable for the realisation of benefits?	PSR9 Sponsor Accountability for Benefit Sponsors must be accountable for the realisation of the benefit.
PS10 Do sponsors adequately represent the project throughout the organisation?	PSR10 Sponsors and Project Representation Sponsors must represent the project throughout the organisation.
PS11 Are the interests of key project stakeholders, including suppliers, regulators and providers of finance, aligned with project success?	PSR11 Stakeholder Interests and Project Success The interests of key stakeholders, including suppliers, regulators and providers of finance, must be aligned with project success.

6.4.5.2 Project Management: Effectiveness and Efficiency

The GoPM (2004) requires that the teams responsible for the project must be capable of attaining objectives assigned to the project at the approval stage. Among drivers of such capability, the GoPM (2004) includes skills and experience of project leaders, resources made available, tools and processes.

Project team capabilities and their drivers can be linked to the role of the PMO discussed earlier in this chapter. All drivers for team capabilities fall under the role of the PMO. As stated before, the PMO should assess and improve overall project management maturity; thus, linking the project to strategic objectives and improving its performance.

In the context of programme management, the author's thought is that there should be a facilitating PMO who functions at programme level and a supportive PMO who functions at project level. The definition of the interaction between the two PMOs would be of significant value.

The project sponsor and the Board are held accountable for the assessment of the effectiveness of this component, and the identification of improvement opportunities (APM, 2004).

However, two factors are to be considered from this component:

- Project management, inclusive of programme and project management
- The responsibility of the Board and the sponsor

Project Management, Inclusive of Programme and Projects

It is important to specify that APM (2004) uses the concept *project management* inclusive of the management *of programme and projects* for brevity reasons. This implies that the component *Project Management - effectiveness and efficiency* address both projects and programmes (Lecthman, 2005:109). It is in this context that Patrick Weaver (2007:4) reformulates this component and identifies it as *Project and Programme Management Effectiveness and Efficiency*.

The Responsibility of the Board and The sponsor

In the context of programme management, the Board and the project sponsor with delegated authority from the programme manager or the programme manager sponsoring projects have to assess the effectiveness of the project team and identify improvement opportunities.

Questions related to this component have been reformulated in requirement format. These requirements are ipso facto implications for programme management. Particularly for this component, the researcher has bypassed the reason that held the APM (2004) to brevity by including “programme” wherever “project” has been referred to. This is depicted in Table 6.12.

Table 6.12: Project Management – Effectiveness and Efficiency

Key Question	Requirement/ Implication
PM1 <i>Do all projects have clear critical success criteria and are they used to inform decision-making?</i>	PMR1 Success Criteria All projects and programmes must have clear critical success criteria and these criteria must be used to inform decision-making.
PM2 <i>Is the board assured that the organisation’s project management processes and project management tools are appropriate for the projects that it sponsors?</i>	PMR2 Board, Project Management Processes and Project Management Tools The Board must be assured that the organisation’s project and programme management processes, and project and programme management tools are appropriate for the projects it sponsors.
PM3 <i>Is the Board assured that the people responsible for project delivery, especially the project managers, are clearly mandated, sufficiently competent and have the capacity to achieve satisfactory</i>	PMR3 Board and Project Delivery The Board must be assured that the people responsible for project and programme delivery, especially the project and programme managers, are clearly mandated, sufficiently competent and have the capacity to achieve satisfactory project and programme outcomes.

Key Question	Requirement/ Implication
<i>project outcomes?</i>	
PM4 <i>Are project managers encouraged to develop opportunities for improving project outcomes?</i>	PMR4 Project Outcome Project and programme managers must be encouraged to develop opportunities for improving project and programme outcomes.
PM5 <i>Are key governance of project management roles and responsibilities clear and in place?</i>	PMR5 Roles and Responsibilities Key governance of project and programme management roles and responsibilities must be clear and in place.
PM6 <i>Are service departments and suppliers able and willing to provide key resources tailored to the varying needs of different projects, and to provide an efficient and responsive service?</i>	PMR6 Service Departments and Supply Competency Service departments and suppliers must be able and willing to provide key resources tailored to the varying needs of different projects and programmes, and to provide an efficient and responsive service.
PM7 <i>Are appropriate issue, change and risk management practices implemented in line with adopted policies?</i>	PMR7 Issues, Changes and Risk Management Appropriate issue, change and risk management practices must be implemented in line with adopted policies.
PM8 <i>Is authority delegated to the right levels balancing efficiency and control?</i>	PMR8 Authority Delegation Authority must be delegated to the right levels, balancing efficiency and control.
PM9 <i>Are project contingencies estimated and controlled in accordance with delegated powers?</i>	PMR9 Project Contingency Project and programme contingencies must be estimated and controlled in accordance with delegated powers.

6.4.5.3 Disclosure and Reporting

The GoPM (2004) requires that the content of the project report provide timely, relevant and reliable information that supports the decision-making process of the organisation. The report must include key drivers of success and key indicators of success. These must be disclosed to all stakeholders.

The GOPM (2004) requires a culture of open and honest disclosure, which enables independent verification of information when there is a threat to effective reporting.

In the context of programme management it must be noted that the project sponsorship component of the GoPM (2004) states that the project sponsor (who is indeed the programme manager) is required to provide the link between the corporate body and the project body.

PMI (2008b) specifies that it is the programme manager's responsibility to collect information from components, projects and other work, to consolidate them and then to report to the programme stakeholders, and the internal and external audience.

With so much responsibility rests on the programme manager acting as the project sponsor regarding the disclosure and reporting of project information, it means that requirements related to this component must be applied to programme management.

The GOPM requirement of effective and efficient disclosure and reporting can be linked to the Sarbanes-Oxley mandate related to disclosure of financial information, internal control and real-time disclosure.

Chapter 4, which deals with corporate governance identified programme management responsibilities in ensuring compliance with the Sarbanes-Oxley mandate referred to above. A framework for IT programme governance should ensure the effectiveness and efficiency of disclosure and reporting at all its component levels if it seeks compliance with corporate governance.

Alike the preceding component, questions related to this component have been reformulated in requirement format, and are ipso facto implications for programme management. This is presented in Table 6.13 below.

Table 6.13: Disclosure and Reporting

Key Question	Requirement/ Implication
<i>DR1 Does the Board receive timely, relevant and reliable information of project forecasts, including those produced for the business case at project authorisation points?</i>	DRR1 Timely Reporting Forecast Relevant and reliable information of project forecasts, including those produced for the business case at project authorisation points must be timely reported to the Board.
<i>DR2 Does the Board receive timely, relevant and reliable information of project progress?</i>	DRR2 Timely Reporting Progress Relevant and reliable information of project progress must be reported to the Board.
<i>DR3 Does the Board have sufficient information on significant project-related risks and their management?</i>	DRR3 Risk Information The Board must have sufficient information on significant project-related risks and their management.
<i>DR4 Are there threshold criteria that are used to escalate significant issues, risks and opportunities through the organisation to the board?</i>	DRR4 Threshold Criteria There must be threshold criteria that are used to escalate significant issues, risks and opportunities through the organisation to the Board.
<i>DR5 Does the organisation use measures for both key success drivers and key success indicators?</i>	DRR5 Success Drivers and Indicators The organisation must use measures for both key success drivers and key success indicators.
<i>DR6 Is the organisation able to distinguish between project forecasts based on targets, commitments and expected outcomes?</i>	DRR6 Forecasts, Commitment and Outcomes The organisation must be able to distinguish between project forecasts based on targets, commitments and expected outcomes.
<i>DR7 Does the Board seek</i>	DRR7 Independent Verification

Key Question	Requirement/ Implication
<i>independent verification of reported project and portfolio information as appropriate?</i>	The Board must seek independent verification of reported project and portfolio information as appropriate.
DR8 <i>Does the Board reflect the project portfolio status in communication with key stakeholders?</i>	Not applicable
DR9 <i>Does the business culture encourage open and honest reporting?</i>	DRR9 Reporting The business culture must encourage open and honest reporting.
DR10 <i>Where responsibility for disclosure and reporting is delegated or duplicated, does the Board ensure that the quality of information that it receives is not compromised?</i>	DRR10 Quality of Information Where responsibility for disclosure and reporting is delegated or duplicated, the Board must ensure that the quality of information that it receives is not compromised.
DR11 <i>Is a policy supportive of whistleblowers effective in the management of projects?</i>	DRR11 Whistle-blowers A policy supportive of whistleblowers must be effective in the management of projects.
DR12 <i>Do project processes reduce reporting requirements to the minimum necessary?</i>	DRR12 Reporting Requirements Project processes must reduce reporting requirements to the minimum necessary.

6.5 Conclusion

The goal of this chapter was to identify project governance requirements that have an implication for programme management, and to provide their relevance in the context of IT programme management governance.

The first objective of this chapter was to establish the foundation of project governance by defining concepts, retracing the genesis, providing the purpose and key elements, and exploring current project governance standards.

In Section 2, the concepts of *project*, *project management* and *project governance* were defined. Two factors have been identified as the drivers of the emergence of the *project governance* concept, namely (i) the need to ensure compliance with corporate governance requirements by closing the governance gap between corporate governance and project management and (ii) the need to improve project performance, which fails to keep up with the wealth of methodologies, tools and techniques.

Relative to the two-project governance drivers, two goals were provided as the purpose of project governance, namely (i) eliminating project failure, and (ii) monitoring and forecasting the impact of projects on the corporation to ensure compliance with corporate governance requirements. The project sponsor and project management office were identified as key role players in attaining these goals.

Due to a lack of a common project governance framework that enjoys the consensus of practitioners, a broad discussion has been provided on the diversity of views. The discussion either favoured the development of a generic project governance framework or pleaded for customer-made project governance framework responsive to particular needs.

The second objective of the chapter was the discussion of issues and developments within the field. Section 3 discussed reasons for project failure. These project failures reasons were then grouped based on the project governance driver that they affect, and then linked back to the two key role players.

Of particular importance for this research is the third objective, which sought to analyse a project governance framework and identify its implications for IT programme management.

Section 4 retained the *Guide to Governance of Project Management* as the blueprint of the study. Project sponsorship, project management effectiveness and efficiency, and disclosure and reporting were identified as project governance components that have implications for IT programme management.

As we close this chapter it must be recalled from Chapter 2 that the field of programme management grew from the field of project management. The programme management approach has been favoured to overcome the limitations of the straightforward project management or project-by-project approach.

Therefore, programme management should provide appropriate answers to limitations and issues surrounding project management if it is to be of value to organisations.

Considering that project governance strives to ensure compliance with corporate governance requirements and improve project performance, programme management, which is a group of related projects and other works, should ensure that each of its single components is being driven successfully and that it is managed in accordance with corporate governance requirements.

From the analysis of the GoPM, important elements to consider for the development of the IT programme management governance framework are the following aspects:

- An effective sponsorship that provides direct links between corporate and project management bodies, regardless of whether the programme manager directly sponsors all the projects or exercises the sponsorship by delegation
- An effective and efficient mechanism that establish practices and assess their effectiveness
- An effective and disclosure and reporting process that provide timely and reliable information from all programme's components

The next chapter focuses on the development of the IT programme management governance framework. Its goal is to integrate the links to programme management that have been identified from corporate governance, IT governance and project governance. By consolidating these links, the researcher will develop an integrated view of overseeing the management of IT programmes.

Chapter 7

The IT Programme Management Governance Framework

7.1 Introduction

7.1.1 Context

From the review of the literature, a gap was established in the governing of programme activities within organisations. By considering the increasing investments in programme activities within organisations, the risks involved and the consequences that a failure of such an endeavour can have on the corporation, it became evident that the need to fill this gap was more than a necessity.

The previous three chapters on Corporate Governance, IT Governance and Project Governance set out to analyse governance standards on corporate, IT and project level, identify their links to IT programme management, and discuss their implications and relevance in the context of IT programme management governance.

The Sarbanes-Oxley Act (2002), Control Objective for Information and Related Technologies (2007) and the Guide to Governance of Project Management (2004) used respectively as blueprints of corporate governance, IT governance and project governance standards provided numerous requirements that have either direct or indirect implications for IT programme management.

This chapter provide an answer to the question related to how the implications from the three previous chapters can be consolidated to create an effective mechanism of overseeing the management of programme activities.

7.1.2 Goal

The goal of this chapter is to devise an IT programme management governance framework by consolidating requirements generated from the content analysis of corporate governance, IT governance and project governance to provide organisations with an integrated view of overseeing the management of IT programmes.

7.1.3 Objectives

In order to attain the goal mentioned above, some objectives must first be met:

- The identification of components of an IT programme management governance framework, and the description and providence of their purposes is the first objective.
- Detailed mapping of SOX, CobiT and GoPM implications for programme management with the components of the framework to facilitate their integration later is the second objective.
- The third objective is the integration and consolidation of SOX, CobiT and GoPM implications for IT programme management.
- Finally, populating the components of the programme governance framework with the consolidated implications, deciphering interrelations among components and providing a graphical representation form the fourth objective.

7.1.4 Layout

The first section of this chapter identifies the components of the framework and provides their purposes.

The second section maps separately detailed requirements of each standard to the component of the framework identified in the first section; thus, setting the basis for their future integration.

The third section integrates implications from the three analysed standards, consolidates them and provides new names for their use in the framework.

The fourth section populates the components of the framework for programme management governance, deciphers their interrelations and provides a graphical representation.

7.2 Framework Components and Description

7.2.1 Identification of Components

Recall from Chapter 3 that it has been decided to use modelling-by-design as approach to the development of the IT programme management governance framework. At the identification of components stage, categories generated from content analysis should be benchmarked with components identified from modelling-by-design. Martin (2007) argues that this process allows for harmonisation and deciphering of interrelations among components.

The purpose of combining these two approaches is to establish consistency in component identification by comparing and harmonising the result.

It must be noted that Olivier (2009) advises that for a model to be accepted it has to respond to the criteria of simplicity, comprehensiveness, generality, exactness and clarity.

Simplicity entails that a simple model makes it possible to comprehend the essence of the modelled concept. Comprehensiveness refers to the fact that the more (all or most) aspects of a problem the model addresses, the better. Generality relates to the fact that the more variations of a problem the model covers, the better. Exactness demands that the model fits the perceived problem closely in order to be accepted. Clarity requires that the purposes of all components, the operation or use of each, and the interaction or flow between them be evident.

The above characteristics are considered when identifying components.

7.2.1.1 Deriving Components from Modelling-by-design

According to Olivier (2009), the modelling approach entails (i) the identification of the major components of a system to accomplish the goals of the model and (ii) the use of these components as the components of the model.

The following section discusses governance objectives that would constitute the components of the framework to be developed.

Reiss et al. (2006:182) state that “programme governance consists of the leadership and organisational structures and processes to ensure that the programme sustains

and extends the organisational strategies and objectives”. This provides two elements of programme governance, namely (i) the structure and (ii) the processes that must be led to meet the organisational objectives.

OGC (2007:246) expanded on the two elements provided by Reiss et al. (2006:182) by providing their purposes as well. It explains that programme governance is the functions, responsibilities, processes and procedures that define how a programme is set up, managed and controlled.

Two dimensions shape Reiss et al. (2006) and OGC’s (2007) perception of programme governance, viz. (i) the structure, which would include functions and responsibilities, and (ii) the processes and procedures that must be applied.

Pellegrinelli (2008:196) provides a more elusive description that captures these two dimensions. He distinguishes two broad spheres of programme governance as being (i) the policies, guidelines and principles that underpin the management of projects or programmes, and (ii) the organisational arrangements to support, direct and control this process. He focuses on a broad view but still does not make explicit the functions of programme governance.

A broad and theoretical definition of *programme governance* will not enable the identification of components. In the context of this study, it is important to look at a more detailed, tactical and pragmatic description of *programme governance* to identify the components of the framework.

Williams and Parr (2008) split the above governance spheres into more detailed and pragmatic functions of programme governance. They state that governance strives to fulfil five key functions. These functions are:

- **Facilitate timely decision-making:** *Decision* in the context of programme, for example, allowing a programme to move to the next stage, prioritisation of resources or funding
- **Provide direction and leadership to programme teams:** The direction is needed to ensure strategic alignment to the strategic vision and enable the understanding of the reasons for which the programme is being undertaken.

- **Exercise control:** This would involve things such as the periodical review of a number of predetermined metrics, key performance indicators and the approval of discrete milestones or events, usually involving the spending of money or delivery of a package of work.
- **Ensure consistency:** The consistent application and interpretation of policies and practices ensure quality across the programme and project delivery.
- **Provide support and facilitate issues resolution:** Various issues discovered when proceeding with the governance review require the reviewer to take action in order to remove a deadlock of some description.

PMI (2008b) focuses on the front-end and gives a better understanding of what should be expected from a programme governance framework. It states that effective governance ensures:

- Strategic alignment and realisation of the promised value
- Appropriate communication with all stakeholders, and their awareness about issues and progress
- Use of appropriate tools and processes in the programme
- Decisions made rationally and with justification
- Clear definition and application of responsibilities and accountabilities

For the purpose of ensuring comprehensiveness (more aspects of the problem), generality (more variation of the problem) and exactness (close fit of the problem) the above functions must be compared and combined to provide an exhaustive list of programme governance functions that will constitute the components of the framework.

By comparing Williams and Parr (2008) with the PMI (2008b) programme governance functions, it appears that they have three similar functions and two other that differ from each other. This is depicted in Table 7.1.

**Table 7.1: Comparison of Programme Governance Functions
Between Williams and Parr (2008), and PMI (2008b)**

	Williams and Parr (2008)	PMI (2008)
Similar Functions	Provide direction and leadership to programme teams: The direction is needed to ensure strategic alignment to the strategic vision and to enable the understanding of why the programme is being undertaken.	Strategic alignment and realisation of the promised value
	Ensure consistency: Consistent application and interpretation of policies and practices ensure quality across the programme and project delivery.	Use of appropriate tools and processes in the programme
	Facilitate timely decision-making: <i>Decision</i> in the context of programmes, for example, allowing a programme to move to the next stage, prioritisation of resources or funding.	Appropriate communication with all stakeholders and their awareness about issues and progress
Non-similar Functions	Exercise control: This would involve things such as the periodical review of a number of predetermined metrics, key performance indicators and the approval of discrete milestones or events, usually involving the spending of money or delivery of a package of work.	
	Provide support and facilitate issues resolution: Various issues discovered when proceeding with the governance review require the reviewer to take action to remove a deadlock of some description.	

	Williams and Parr (2008)	PMI (2008)
		Decisions are made rationally and with justification.
		Clear definition and application of responsibilities and accountabilities

Based on the approach engaged for component identification, the three similar functions are retained as components of the framework. The four functions that differ will be assessed to determine their inclusion among components. The clarity characteristic suggested by Olivier (2009) will lead the assessment of these components to avoid ambiguity.

The additional functions provided by Williams and Parr (2008) are (i) exercise control and (ii) provide support and facilitate issues resolution.

By analysing Williams and Parr (2008) description of these two functions it is clear that “providing support and issues resolution” would be the direct outcome of “exercise control”. This is justified by the fact that the purpose of control is to identify trends, variances, issues and problems that must be addressed or corrected. PMI (2004) states clearly that control is checking actual performances comparatively with planned performances, assessing trends and variances, evaluating alternatives and putting in place corrective actions.

PMI (2008b) provides two extra functions of programme governance, namely (i) accountability and responsibility, and (ii) decisions made rationally and with justification. It is also clear that the second function is much more an outcome of the first than a function on its own. Defining roles and responsibilities considers who makes decisions, which decisions have to be made, and when and how decisions are made (Capital Ambition, 2009).

In order to ensure exclusivity among components, thus complying with the clarity characteristic suggested by Olivier (2009), and Williams and Parr's (2008) extra functions of a programme [(i) exercise control and (ii) provide support and facilitate issues resolution)] will be combined into one, namely control and resolve issues.

This also applies to the PMI (2008b) extra functions of the programme [(i) accountability and responsibility, and (ii) decisions made rationally and with justification], combined into accountability and responsibility for rational decision-making.

By bringing these two functions back to the programme governance functions in Table 7.1 to get an exhaustive list of functions, the components of the programme governance framework are identified.

Table 7.2:

Framework Components from Williams and Parr (2008), and PMI (2008b)

	Williams and Parr (2008)	PMI (2008)	Identified Component
Similar Functions	Provide direction and leadership to programme teams: The direction is needed to ensure strategic alignment to the strategic vision and to enable the understanding of why the programme is being undertaken.	Strategic alignment and realisation of the promised value	Strategic alignment by providing direction and leadership
	Ensure consistency: Consistent application and interpretation of policies and practices ensure quality across the programme and project delivery.	Use of appropriate tools and processes in the programme	Constant application of tools, policies, practices and processes

	Williams and Parr (2008)	PMI (2008)	Identified Component
	Facilitate timely decision-making: <i>Decision</i> in the context of programmes, for example, allowing a programme to move to the next stage, prioritisation of resources or funding.	Appropriate communication with all stakeholders and their awareness about issues and progress	Appropriate communication to facilitate timely decision-making
Non-similar Functions	Exercise control: This would involve things such as the periodical review of a number of predetermined metrics, key performance indicator, and the approval of discrete milestone, or event usually involving the spending of money or delivery of a package of work.		Control and support
	Provide support and facilitate issues resolution: Various issues discovered when proceeding with the governance review require the reviewer to take action to remove a deadlock of some description.		
		Decisions are made rationally and with justification.	Accountability and responsibility
		Clear definition and application of responsibilities and accountabilities	for rational decision-making

From Table 7.2 it can be concluded that identifying components from the modelling-by-design approach leads to five components. These components are the functions that have to be fulfilled by the programme governance framework to be developed. It is now worthwhile to identify components from content analysis and then compare the two sets for harmonisation.

7.2.1.2 Deriving Components from Content Analysis

An alternative to the modelling-by-design approach is the use of categories generated from the content analysis as the main components for the development of the framework (Martin, 2007).

From the content analysis, the deductive category development process used, based on a priori coding approach, provide seven main categories, each containing sub-categories. These main categories are:

- **Strategic Alignment:** This includes the organisational strategy, goals, constraints and guidance from strategic management.
- **Role and Responsibilities:** This includes the organisational structure, authority and responsibility for decision-making.
- **Policies, Procedures, Processes and Practices:** This includes programme and project management methodologies, risk and issue management, change management, benefit and delivery management, quality management, success evaluation, stakeholder management, audit and review, and financial management.
- **Monitoring and Controlling:** This includes the monitoring and control of the organisational investment, delivery of the programme benefit, project and project progress, operations, constant application of policies, processes, procedures and practices as well as opportunities and threats.
- **Disclosure and Reporting:** This includes all relevant information.
- **Compliance with Governance Requirements**
- **Knowledge Management**

Based on Martin's (2007) view, the above categories are ipso facto the components of the framework. The next step is to compare the set of components derived from both approaches for harmonisation.

7.2.1.3 Consolidating Components

The reader will recall the components of the programme governance framework originally from modelling-by-design in Table 7.2, and from the content analysis in section 7.2.1.2.

It is the researcher's view that a component should be retained in the final list of components of the framework only when its relevance has been proven from both approaches, modelling-by-design and content analysis.

Table 7.3 compares both sets of components and provides the final list by suggesting, where necessary, a new name.

Table 7.3: Component Comparison and Final Components of the Framework

Modelling-by-design	Content Analysis	Framework's Final Components
1 Strategic alignment by providing direction and leadership	1 Strategic Alignment	Strategic Fit
2 Constant application of tools, policies practices and processes	3 Policies, Processes, Procedure and Practices	Tools, Policies, Processes, Procedure and Practices
3 Appropriate communication to facilitate timely decision making	5 Disclosure and Reporting	Disclosure and Reporting
4 Control and Take actions	4 Monitoring and Controlling	Control and Support

Modelling-by-design	Content Analysis	Framework's Final Components
5 Accountability and responsibility for rational decision-making	2 Roles and Responsibilities	Roles and Responsibilities
	6 Compliance	
	7 Knowledge Management	

As Table 7.3 illustrates, there are five components from modelling-by-design and the content analysis that are similar. These components have been renamed to provide an inclusive view of both approaches.

Strategic fit has been preferred for its short form and to specify that it is not a mutual alignment between the strategy and the programme but rather a strict fit of the programme into the organisational strategy. Tools have been added to policies, processes, procedures and practices to provide a complete picture.

Control and Support has been chosen instead of *Monitoring and Controlling*. As it will be seen later in the framework, monitoring would be a common tool that both components *Control and Support* and *Disclosure and Reporting* need to fulfil their purposes.

Bartle (2010) defines monitoring as “the regular observation and recording of activities taking place in a project or programme. It is a process of routinely gathering information on all aspects of the project”. It can be done for the purpose of giving feedback to stakeholders or correcting any deviation to improve performance.

Roles and Responsibilities has been retained because it constitutes the structure through which accountability and responsibility for decision-making is framed.

Two extra components (compliance and knowledge management, derived from *Content Analysis*) have no relevance from modelling-by-design and are therefore

not retained among the components of the framework. This can be justified as follows:

Knowledge Management, in the context of IT programme management, includes the context, best practices and lessons learned. It also requires an on-going process of collecting, collating, controlling and distributing knowledge throughout the programme life cycle (Reiss et al., 2006). It is in this context that PMI (2008b) considers it a practice that needs to be defined and applied similarly to practices related to risks, issues and benefit.

By considering knowledge management as a practice similar to risk management, issues management and benefit management, it is important to note that knowledge management forms part or is an element of the component *Tools, Policies, Procedures, Processes and Practices*. This is supported by the fact that requirements related to knowledge management were recorded under *Content Analysis* under both categories.

Regarding the compliance category, PMI (2008b) states that, all the efforts of governing programme activities strive to ensure that the management of programmes remain compliant with policies and standards of the parent organisation. It can be said that compliance is much more an outcome or the overall goal of the framework than one of the components of the framework. In fact, the content analysis done on corporate, IT and project governance did not identify any requirement fitting the compliance category.

7.2.2 Component Description

From the above discussion and the table comparing components (Table 7.3) the reader will retain the following as the components of the framework:

Table 7.4: Final Components of the Framework

Final Components of the Framework	
1	Strategic Fit
2	Roles and Responsibilities
3	Tools, Policies, Processes, Procedure and Practices
4	Control and Support
5	Disclosure and Reporting

These components are described and their purposes provided.

7.2.2.1 Component 1: Strategic Fit

The importance of a programme depends on the extent to which it supports the strategic objectives of the organisation. OGC (2007) includes among elements of this component a vision of the future, leadership, direction, the value to be added and the transformational change to be achieved, while also considering the volatile characteristic of the organisational strategy. Therefore, the first step of governing a programme is to ensure its fit into the organisational strategy.

The strategic fit component strives for the providence of guidance, direction, approval, over-sight and leadership to ensure that the programme remains aligned to the strategic vision. This equals the benefit and value it entails to provide retained relevancy to the strategic context. Hanford (2005) states that programmes need a mechanism that will maintain the link between the programme and the business strategy throughout its planning and execution. It is in this context that PMI (2006) describes a programme and programme management as the strategy implementation vehicles.

7.2.2.2 Component 2: Roles and Responsibilities

Despite the uniqueness of each programme and organisation, which, in turn, requires a unique structure, literature accentuates the need to organise a programme by providing the right combination of an effective structure, the right

individuals, and their roles and responsibilities (Reiss et al., 2006; PMI, 2008b; Capital Ambition, 2009).

Hanford (2004) states that “a poorly articulated management structure, overlapping roles and decision-making authorities and roles filled by the wrong people can prevent a programme from achieving sustained momentum or bog it down with endless attempts to achieve consensus on every decision”.

Therefore, the purpose of this component is to define clear roles and assign well-understood responsibilities to ensure that there is a clear source of authority and decision-making; that there is effective oversight and management; and that the need for direction and decision are all addressed.

7.2.2.3 Component 3: Tools, Policies, Processes, Procedures and Practices

This component seeks to ensure that the programme teams are enabled to attain the programme goal by providing them with tools, policies, processes, procedures and practices that must be deployed intelligently and constantly to the programme activities.

The outcome of this component can be linked to what Pellegrinelli (2008), and Williams and Parr (2008) refer to as “the consistent application and interpretation of standards, guidelines and principles”. This will finally ensure that there is a well-defined approach, which is understood and agreed upon by all parties (Girling, 2009).

This component includes elements such as project and programme methodologies, benefit and value management, risk issue and change management, financial management, quality management and success evaluation.

Although the above elements sound more programme management-related than programme governance-related, it must be specified that there is a difference between the two on how these elements are addressed. This might bring about some confusion.

At the highest level, *governance* defines what must be done for each of the above elements, while *management* refers to how it should be done by providing details on

their development and implementation (Sohal & Fitzpatrick, 2002; Brown, 2006; Stretton, 2010).

7.2.2.4 Component 4: Control and Support

WebFinance Inc (2010) defines *control* as the “management process in which the (i) actual performance is compared with planned performance, (ii) difference between the two is measured, (iii) causes contributing to the difference are identified, and (iv) corrective action is taken to eliminate or minimise the difference”.

In the context of programme governance and after defining the rules, policies, processes, procedures and practices, an effective system of control and support needs to be in place. This system will seek to identify and predict trends and variances, and help in implementing corrective actions as soon as they are needed.

The purpose of this component is to identify performance gaps, acknowledge issues, and develop support and resources for effective correctives actions. By doing so, this component will maintain compliance with organisation rules and policies.

7.2.2.5 Component 5: Disclosure and Reporting

Governing a programme requires that appropriate decisions must be made at the exact time, based on accurate information. This component seeks to ensure that timely, relevant, accurate and reliable information is provided to programme stakeholders for effective decision-making.

After describing the components of the programme governance framework, it is now important to map the programme governance implications from SOX, CobiT and the GoPM with the components of the framework. This will facilitate their manipulation later, as the integration will be done by comparing implications from different standards within the same component.

7.3 Detailed Mapping of Governance Implications with Components

From the analysis of corporate governance frameworks (SOX), IT governance frameworks (CobiT) and project governance frameworks (GoPM) requirements that are relevant to programme management were identified and their implications determined. The results of the analysis, which can be found in the respective chapters, are summarised in the following Table 7.5:

Table 7.5: Number of Implications Identified per Standard

	Sarbanes-Oxley	CobiT 4.1	GoPM
Number of Relevances	7 sections	9 processes	3 components
Number of Implications	10	41	31

These implications are mapped with the components of the programme governance framework by following a process of deductive reasoning, based on the purpose of each component.

7.3.1 Detailed Mapping of the Sarbanes-Oxley Implications

The Sarbanes-Oxley implications on programme management (from Table 4.7, Chapter 4) are mapped with the components of the programme framework below.



Table 7.6: Detailed Mapping of SOX Implications with Components

Component	Implication
Strategic Fit	No implications
Roles and Responsibilities	<p>SOX3 Accountability and responsibility for financial reporting Accountability and responsibilities for financial reporting must be defined. Penalties related to financial reporting must be extended to the accountable programme authority.</p> <p>SOX4 Responsibility for certification The signing authority of programme financial statements should be the person who has accountability over the programme outcome, and who must ensure reliability and accuracy of the report.</p> <p>SOX6 Attesting the assessment An external auditor should attest to and report on the assessment of internal control done by management.</p> <p>SOX10 Accountability and responsibility for record Define responsibilities and accountability for the retention of records.</p>
Tools, Policies, Procedures, Processes and Practices	<p>SOX9 Information retention Implement a process for retaining programme-related documents, correspondence, decision documents and analysis documents for both paper-based and electronic records.</p>

Component	Implication
<p align="center">Control and Support</p>	<p>SOX5 Internal control</p> <p>Implement a programme management process that establishes programme control structures and processes to be exercised on all programme activities (financial and non-financial) throughout the programme life cycle. Assess the effectiveness of the control and recommend the use of appropriate product development processes for SOX compliant programmes.</p>
<p align="center">Disclosure and Reporting</p>	<p>SOX1 Financial statement</p> <p>Financial statements related to IT programme management must be certified and reported. This includes all programme activities that have current or future material effect on the programme benefit.</p> <p>SOX2 Timely disclosure</p> <p>Timely disclosure of deficiencies that can lead to inaccurate or incomplete information, any fraud regardless of materiality and any change to internal control</p> <p>SOX7 Additional information disclosure</p> <p>Implement a real-time monitoring and reporting process for additional information (risk, issues, internal or external environmental factors, events, legislation changes) to the programme; thus, facilitate timely decision-making.</p> <p>SOX8 Benefit disclosure</p> <p>Disclose any changes to the programme benefit.</p>

7.3.2 Detailed Mapping of CobiT Implications

CobiT implications for programme management from Chapter 5 can be found in Appendix D. They are mapped with the components of the programme framework below.

Table 7.7: Detailed Mapping of CobiT Implications with Components

Component	Implication
Strategic Fit	<p>PO1.6 IT Portfolio Management Actively manage with the business the portfolio of IT-enabled investment programmes required to attain specific strategic business objectives by identifying, defining, evaluating, prioritising, selecting, initiating, managing and controlling programmes. This should include clarifying desired business outcomes; ensuring that programme objectives support the attainment of the outcomes; understanding the full scope of effort required to attain the outcomes; assigning clear accountability with supporting measures; defining projects within the programme; allocating resources and funding; delegating authority; and commissioning required projects at programme launch.</p> <p>PO6.5 Communication of IT Objectives and Direction Awareness and understanding of business objectives, and IT objectives and direction must also be communicated to IT programme stakeholders.</p> <p>AI1.1 Definition and Maintenance of Business Functional and Technical Requirements Identify, prioritise, specify and agree on business functional and technical requirements covering the full scope of all initiatives required to attain the expected outcomes of the IT-enabled investment programme.</p> <p>AI1.2 Risk Analysis Report Identify, document and analyse risks associated with the business requirements and solution design as part of the organisational process for the development of requirements.</p> <p>AI1.3 Feasibility Study and Formulation of Alternative</p>

Component	Implication
	<p>Courses of Action (1)</p> <p>Develop a feasibility study that examines the possibility of implementing the requirements. Business management, supported by the IT function, should assess the feasibility and alternative courses of action, and make a recommendation to the business sponsor.</p> <p>AI1.4 Requirements and Feasibility Decision and Approval (1)</p> <p>Verify that the process requires the business sponsor to approve and sign off on business functional and technical requirements as well as feasibility study reports at predetermined key stages. The business sponsor should make the final decision with respect to the choice of solution and acquisition approach.</p>
<p>Roles and Responsibilities</p>	<p>PO1.1 IT Value Management 3</p> <p>Assign and monitor accountability for achieving benefits and controlling the cost.</p> <p>PO4.2 IT Strategy Committee</p> <p>Establish a committee that oversees investments in programmes on behalf of the full Board.</p> <p>PO4.3 IT Steering Committee</p> <p>The Committee required on PO4.2 should:</p> <ul style="list-style-type: none"> – Determine prioritisation of IT-enabled investment programmes in line with the business strategy and priorities of the enterprise – Track status of projects and resolve resource conflict <p>AI1.3 Feasibility Study and Formulation of Alternative Courses of Action (2)</p> <p>Business management, supported by the IT function, should assess the feasibility and alternative courses of action for the implementation of requirements, and make a recommendation</p>

Component	Implication
	<p>to the business sponsor.</p> <p>AI1.4 Requirements and Feasibility Decision and Approval (2)</p> <p>The business sponsor must approve and sign off on business functional and technical requirements as well as feasibility study reports with respect to the choice of solution and acquisition approach.</p> <p>PO10.5 Project Scope Statement (2)</p> <p>Programme sponsors and project sponsors must approve the definition of the project scope and its relation to other projects within the programme.</p> <p>PO10.6 Project Phase Initiation (2)</p> <p>Programme sponsors and project sponsors must approve the initiation of each major project phase. In the case of overlapping project phases, they must establish an approval point.</p>
<p>Tools, Policies, Procedures, Processes and Practices</p>	<p>PO10.1 Programme Management Framework</p> <p>Maintain the programme of projects related to the portfolio of IT-enabled investment programmes by identifying, defining, evaluating, prioritising, selecting, initiating, managing and controlling projects. Ensure that the projects support the programme objectives. Co-ordinate the activities and interdependencies of multiple projects, manage the contribution of all the projects within the programme to expected outcomes and resolve resource requirements and conflicts.</p> <p>PO10.2 Project Management Framework</p> <p>Establish and maintain a project management framework that defines the scope and boundaries of managing projects as well as the method to be adopted and applied to each project undertaken. The framework and supporting method should be</p>

Component	Implication
	<p>integrated with the programme management processes.</p> <p>PO10.3 Project Management Approach Establish a project management approach to commensurate with the size, complexity and regulatory requirements of each project. The project governance structure can include the roles, responsibilities and accountabilities of the programme sponsor, project sponsor, steering committee, project office and project manager, and the mechanisms through which they can meet those responsibilities (such as reporting and stage reviews). Make sure all IT projects have sponsors with sufficient authority to own the execution of the project within the overall strategic programme.</p> <p>PO1.1 IT Value Management 1 Develop solid business cases for the programme. Establish fair, transparent, repeatable and comparable evaluation of business cases, including financial worth, the risk of not delivering a capability and the risk of not realising the expected benefits.</p> <p>PO5.1 Financial Management Framework A financial management framework must be established and maintained to manage an IT programme.</p> <p>PO5.2 Prioritisation Within IT Budget A decision-making process must be implemented in an IT programme to prioritise the allocation of IT resources among projects.</p> <p>PO5.3 IT Budgeting Develop the programme budget with specific emphasis on the IT component of the programme. The practice should allow for review, refinement and approval.</p>

Component	Implication
	<p>PO10.4 Stakeholder Commitment</p> <p>Obtain commitment and participation from the affected stakeholders in the definition and execution of the project within the context of the overall IT-enabled investment programme.</p> <p>PO10.5 Project Scope Statement (1)</p> <p>Define and document the nature and scope of the project to confirm and develop amongst stakeholders a common understanding of project scope and how it relates to other projects within the overall IT-enabled investment programme. The definition should be formally approved by the programme and project sponsors before project initiation.</p> <p>PO10.6 Project Phase Initiation (1)</p> <p>Approve the initiation of each major project phase and communicate it to all stakeholders. Base the approval of the initial phase on programme governance decisions. Approval of subsequent phases should be based on review and acceptance of the deliverables of the previous phase, and approval of an updated business case at the next major review of the programme. In the event of overlapping project phases, an approval point should be established by programme and project sponsors to authorise project progression.</p> <p>PO10.7 Integrated Project Plan</p> <p>Establish a formal, approved, integrated project plan (covering business and information systems resources) to guide project execution and control throughout the life of the project. The activities and interdependencies of multiple projects within a programme should be understood and documented. The project plan should be maintained throughout the life of the project. The project plan, and changes to it, should be approved in line with the programme and project governance framework.</p>

Component	Implication
	<p>PO10.8 Project Resources</p> <p>Define the responsibilities, relationships, authorities and performance criteria of project team members, and specify the basis for acquiring and assigning competent staff members and/or contractors to the project. The procurement of products and services required for each project should be planned and managed to attain project objectives, using the organisational procurement practices.</p> <p>PO10.9 Project Risk Management</p> <p>Eliminate or minimise specific risks associated with individual projects through a systematic process of planning, identifying, analysing, responding to, monitoring and controlling the areas or events that have the potential of causing unwanted change. Risks faced by the project management process and the project deliverable should be established and centrally recorded.</p> <p>PO10.11 Project Change Control</p> <p>Establish a change control system for each project so that all changes to the project baseline (e.g. cost, schedule, scope, quality) are appropriately reviewed, approved and incorporated into the integrated project plan in line with the programme and project governance framework.</p> <p>PO8.3 Development and Acquisition Standards</p> <p>Adopt and maintain standards for all developments and acquisitions that follow the life cycle of the ultimate deliverable. Include sign-off at key milestones, based on agreed-upon sign-off criteria. Consider software coding standards; naming conventions; file formats; schema and data dictionary design standards; user interface standards; interoperability; system performance efficiency; scalability; standards for development and testing; validation against requirements; test plans; and unit,</p>

Component	Implication
	<p>regression and integration testing.</p> <p>PO10.10 Project Quality Plan Prepare a quality management plan that describes the project quality system and how it will be implemented. The plan should be formally reviewed and agreed to by all parties concerned, and then incorporated into the integrated project plan.</p> <p>PO10.12 Project Planning of Assurance Methods Identify assurance tasks required to support the accreditation of new or modified systems during project planning, and include them in the integrated project plan. The tasks should provide assurance that internal controls and security features meet the defined requirements.</p> <p>PO1.4 IT Strategic Plan Define how programme objectives will be met, the measures to be used and the procedure to obtain formal sign-off from the stakeholders. Programme budget, funding sources, sourcing strategy, acquisition strategy, and legal and regulatory requirements must be defined.</p> <p>PO10.14 Project Closure At the end of each project require that the project stakeholders ascertain whether the project delivered the planned results and benefits. Identify and communicate any outstanding activities required to achieve the planned results of the project and the benefits of the programme. Identify and document lessons learned for use on future projects and programmes.</p>
	<p>PO6.1 IT Policy and Control Environment Define elements of the control environment for programmes in terms of expectations/requirements regarding delivery of value from the programme, appetite for risk, integrity, ethical values,</p>

Component	Implication
<p>Control and Support</p>	<p>staff competence, accountability and responsibility, based on a culture that supports value delivery whilst managing significant risks.</p> <p>PO5.4 Cost Management</p> <p>Implement a cost management process comparing actual costs to budgets. Costs should be monitored and reported. Where there are deviations, these should be identified in a timely manner and the impact of those deviations on programmes be assessed. Together with the business sponsor of those programmes, appropriate remedial action should be taken and, if necessary, the programme business case updated.</p> <p>PO5.5 Benefit Management</p> <p>Implement a process to monitor the benefits from providing appropriate IT capabilities. The contribution to the business of the component of IT programmes should be identified and documented in a business case, agreed to, monitored and reported. Reports should be reviewed and, where there are opportunities to improve the programme contribution, appropriate action should be defined and taken. Where changes in programme contribution affect the programme or where changes to other related projects impact the programme, the programme business case should be updated.</p> <p>PO10.13 Project Performance Measurement, Reporting and Monitoring</p> <p>Measure project performance against key project performance scope, schedule, quality, cost and risk criteria. Identify any deviations from the plan. Assess the impact of deviations on the project and the overall programme, and report results to key stakeholders. Recommend, implement and monitor remedial action, when required, in line with the programme and project</p>

Component	Implication
	<p>governance framework.</p> <p>ME4.3 Value Delivery</p> <p>Manage IT-enabled investment programmes to ensure that they deliver the greatest possible value in supporting the strategy and objectives of the enterprise. Ensure that the expected business outcomes of IT-enabled investments and the full scope of effort required to attain those outcomes, are understood; that comprehensive and consistent business cases are created and approved by stakeholders; that assets and investments are managed throughout their economic life cycle; and that there is active management of the realisation of benefits, such as contribution to new services, efficiency gains and improved responsiveness to customer demands.</p> <p>Enforce a disciplined approach to portfolio, programme and project management, insisting that the business takes ownership of all IT-enabled investments and IT ensures optimisation of the costs of delivering IT capabilities and services.</p>
<p>Disclosure and Reporting</p>	<p>PO1.1 IT Value Management 2</p> <p>Report early any deviation from plans, including cost schedules or functionality that might impact the expected outcome of the programme.</p> <p>PO1.5 IT Tactical Plans</p> <p>Describe and report resource requirements for the programme, and the way in which the use of resources and the achievement of benefit will be monitored and managed.</p> <p>ME1.5 Board and Executive Reporting</p> <p>Develop a report on the performance of the enterprise portfolio, IT-enabled investment programmes, and the solution and service deliverable performance of individual programmes.</p>

Component	Implication
	Include in status reports the extent to which planned objectives have been attained, budgeted resources used, set performance targets met and identified risks mitigated. Anticipate senior management's review by suggesting remedial actions for major deviations. Provide the report to senior management and solicit feedback from management's review.

7.3.3 Detailed Mapping of the GoPM Implications

The GoPM implications on programme management from Table 6.11, Table 6.12 and Table 6.13 (Chapter 6) are mapped with the components of the programme framework below:



Table 7.8: Detailed Mapping of GoPM Implications with Components

Component	Implication
Strategic Fit	
Roles and Responsibilities	<p>PSR2 Sponsors Time Management Sponsors must devote enough time to the project.</p> <p>PSR3 Sponsors, Project Status and Meetings Project sponsors must hold regular meetings with project managers. They must be sufficiently aware of the project status.</p> <p>PSR4 Sponsors, Direction and Decisions Project sponsors must provide clear and timely direction and decisions.</p> <p>PSR5 Sponsors, Resources and Skills Project sponsors must ensure that project managers have access to sufficient resources with the right skills to deliver projects.</p> <p>PSR8 Sponsor Accountability for Business Cases Sponsors must be accountable for, own and maintain the business case.</p> <p>PSR9 Sponsor Accountability for Benefit Sponsors must be accountable for the realisation of the benefit.</p> <p>PSR10 Sponsors and Project Representation Sponsors must represent the project throughout the organisation.</p> <p>PMR5 Roles and Responsibilities Key governance of project management roles and responsibilities must be clear and in place.</p> <p>PMR8 Authority Delegation Authority must be delegated to the right levels, balancing efficiency and control.</p> <p>DRR10 Quality of Information Where responsibility for disclosure and reporting is delegated or</p>

Component	Implication
	<p>duplicated, the Board must ensure that the quality of information that it receives is not compromised.</p> <p>DRR7 Independent Verification The Board must seek independent verification of reported project and portfolio information, as appropriate.</p> <p>PMR2 Board, Project Management Processes and Project Management Tools The Board must be assured that the organisational project and programme management processes, and project and programme management tools are appropriate for the projects it sponsors.</p> <p>PMR3 Board and Project Delivery The Board must be assured that the people responsible for project and programme delivery, especially the project and programme managers, are clearly mandated, sufficiently competent, and have the capacity to attain satisfactory project and programme outcomes.</p> <p>DRR3 Risk Information The Board must have sufficient information on significant project-related risks and their management.</p>
<p>Tools, Policies, Procedures, Processes and Practices</p>	<p>PSR1 Sponsor Competency All projects must have competent sponsors all the time.</p> <p>PMR4 Programme and Project Outcome Project and programme managers must be encouraged to develop opportunities for improving project and programme outcomes.</p> <p>DRR6 Forecasts, Commitment and Outcomes The organisation must be able to distinguish between project forecasts based on targets, commitment and expected outcomes.</p> <p>PSR11 Stakeholder Interests and Project Success</p>

Component	Implication
	<p>The interests of key stakeholders, including suppliers, regulators and providers of finance must be aligned with project success.</p> <p>PMR6 Service Departments and Supply Competency Service departments and suppliers must be able and willing to provide key resources tailored to the varying needs of different projects and the programme, and to provide an efficient and responsive service.</p> <p>PMR7 Issues, Change and Risk Management Appropriate issues, change and risk management practices must be implemented in line with adopted policies.</p> <p>PMR9 Project Contingency Project and programme contingencies must be estimated and controlled in accordance with delegated powers.</p> <p>PMR1 Success Criteria All projects and programmes must have clear critical success criteria, and these criteria must be used to inform decision-making.</p> <p>DRR5 Success Drivers and Indicators The organisation must use measures for both key success drivers and key success indicators.</p> <p>PSR6 Project Closure Projects must be closed at the appropriate time.</p>
<p>Control and Support</p>	<p>PSR7 Projects Appraisal Independent advice must be used for appraisal of projects.</p>
<p>Disclosure and Reporting</p>	<p>DRR1 Timely Reporting Forecast Relevant and reliable information of project forecasts, including those produced for the business case at project authorisation</p>

Component	Implication
	<p>points must be reported timely to the Board.</p> <p>DRR2 Timely Reporting Progress Relevant and reliable information of project progress must be reported to the Board.</p> <p>DRR4 Threshold Criteria There must be threshold criteria that are used to escalate significant issues, risks and opportunities through the organisation to the Board.</p> <p>DRR9 Reporting The business culture must encourage open and honest reporting.</p> <p>DRR11 Whistle-blowers A policy supportive of whistleblowers must be effective in the management of projects.</p> <p>DRR12 Reporting Requirements Project processes must reduce reporting requirements to the minimum necessary.</p>

Now with governance implications to programme management from the three standards analysed, mapped with the components of the IT programme governance framework, it is worthwhile to compare these implications in order to determine whether any similarity exists. If any do exist, they will be consolidated.

7.4 Comparison and Integration

In this section governance implications from SOX, CobiT and GoPM standards mapped in detail with components in the preceding section, are compared and integrated in case of similarities. The purpose of this process is to analyse implications, compare them and use deductive reasoning to reformulate the integrated implications, and use them in the IT programme governance framework.

7.4.1 Consolidating and Integrating SOX, CobiT and GoPM Implications

Based on programme management implications mapped with framework components in Table 7.6, Table 7.7 and Table 7.8, Table 7.9 depicts the comparisons and integration of the three sets of implications.

During the integration process the following rules were applied:

Firstly, comparisons occur among implications falling under the same component of the framework. Therefore, implications can only be compared for integration when they belong to the same component. This is done to preserve the clarity of components.

Secondly, two or more implications are integrated when it is established that the statement of one clarifies, complements or interprets the others.

Finally, when two or more implications are to be integrated, they are reformulated into one implication, which has to reflect the content of its composites.

Table 7.9: Integration of SOX, CobiT and GoPM Implications

	SOX	CobiT	GoPM	Integrated
Strategic Fit		PO1.6		
		PO6.5		
		AI1.1		
		AI1.2		
		AI1.3		
		AI1.4		
Roles and Responsibilities	SOX3			
	SOX4	PO1.1 (3)	PSR9	1
	SOX6		DRR7, DRR10	2
	SOX10			
		PO4.2		
		PO4.3		
		AI1.3 (2)		
		AI1.4 (2)		

	SOX	CobiT	GoPM	Integrated
		PO10.5 (2)		
		PO10.6 (2)		
			PSR2	
			PSR3	
			PSR4	
			PSR5	
			PSR8	
			PSR10	
			PMR5	
			PMR8	
			PMR2	
			PMR3	
			DRR3	
	Tools, Policies, Procedures, Processes and Practices		PO10.1	
		PO10.2		
		PO10.3	PSR1	3
		PO1.1 (1)		
			PMR4	
		PO5.1		
		PO5.2		
		PO5.3		
		PO10.4	PMR6, PSR11	4
		PO10.5		
		PO10.6		
		PO10.7		
		PO10.8		
			PMR7	
			PMR9	
	PO10.9			
	PO10.11			

	SOX	CobiT	GoPM	Integrated
		PO8.3		
		PO10.10		
		PO10.12		
		PO1.4	PMR1,DRR5	5
	SOX9	PO10.14	PSR6	6
Control and Support		PO6.1		
	SOX5			
			PSR7	
		PO5.4		
		PO5.5		
		PO10.13		
Disclosure and Reporting		PO1.5		
	SOX8	PO1.1		7
	SOX2			
	SOX1			
		ME1.5		
	SOX7		DRR1, DRR4	8
			DRR9	
			DRR11	
		DRR12		

As Table 7.9 illustrates, there are eight integrations that result from the comparison of SOX, CobiT and GoPM. These integrations are discussed and the resulting integrated implications used in the framework are reformulated.

7.4.1.1 SOX4, PO1.1 (3) and PSR9

The CobiT PO1.1 (3) requires the assignment and monitoring of accountability for achieving benefit and controlling cost. The Sarbanes-Oxley SOX4 suggests that the signing authority of programme financial statements should be the person who has

accountability over the programme outcome but it does not specify the accountable person.

The GoPM PSR9 specifies that the sponsor is the one to be held accountable for the realisation of benefit. The integrated implication from these three will be stated as follows:

The sponsor is accountable for achieving benefit and controlling cost. He must sign the programme's financial statement, and ensure their reliability and accuracy.

7.4.1.2 SOX6, DRR7 and DRR10

The GoPM DRR10 requires the Board to ensure that the quality of information it receives is not compromised in case responsibility for disclosure and reporting of such information has been delegated or duplicated. The GoPM DRR7 provides the means by which the quality of information can be ensured by commanding the Board to seek independent verification. The Sarbanes-Oxley SOX6 adds that external auditors should attest to and report on the assessment of internal control made by management. The integrated implication of these three will be formulated as follows:

Where responsibility of disclosure and reporting is delegated or duplicated, the Board must make use of external auditors in order to ensure that received information is not compromised, and that the assessment of internal controls made by management remains effective.

7.4.1.3 PO10.3 and PSR1

Besides the establishment of a project management approach and a project management structure, the CobiT PO10.3 requires the assurance that all IT projects within the overall strategic programme have sponsors with sufficient authority to own the execution of the project.

Considering that authority goes hand in hand with competency, it is the author's view that the GoPM PSR1 that requires that all projects must have competent sponsors all the time, complements the CobiT PO10.3 implication. The combined implication can be labelled as follows:

Establish a project management approach commensurate with the size, complexity and regulatory requirements of each project. The project governance structure can include the roles, responsibilities and accountabilities of the programme sponsor, project sponsors, steering committee, project office and project manager, and the mechanisms through which they can meet those responsibilities (such as reporting and stage reviews). Make sure all IT projects have competent sponsors with sufficient authority to own the execution of the project within the overall strategic programme.

7.4.1.4 PO10.4, PMR6 and PSR11

The CobiT PO10.4 requires obtaining commitment and participation from the affected stakeholders in the definition and execution of the project within the context of the overall programme. The GoPM PSR11 provides the means by which such commitment and participation can be obtained. The GoPM PMR6 specifies some elements to be considered in stakeholders' commitment and participation. An integrated implication of these three can be formulated as follows:

Obtain commitment and participation from the affected stakeholders in the definition and execution of projects within the context of overall programmes by aligning interests of key stakeholders such as suppliers, regulators and providers of finance with project success. Ensure that departments and suppliers are able and willing to provide key resources tailored to the varying needs of different projects and the programme, and to provide an efficient and responsive service.

7.4.1.5 PO1.4, PMR1, DRR5 and DRR6

The CobiT PO1.4 includes among its requirements the definition of measurements to be used to attest whether the programme has met its objectives. However, it remains silent about the success criteria that must be measured.

While the GoPM PMR1 limit on requiring the definition of success criteria for all projects and the overall programme, the GoPM DRR5 recommends two criteria: key success driver and key success indicator. Finally, the GoPM DRR6 specifies that in measuring these two success criteria, the organisation has to differentiate project forecasts based on target, commitment and expected outcomes. This leads to the following integrated implication:

Define how programme objectives will be met, the measurements to be used, and the procedure to obtain formal sign-off from the stakeholders. The measurements must cover both key success drivers and key success indicators with a clear differentiation between forecast, based on target, commitment and expected outcome. Programme budget, funding sources, sourcing strategy, acquisition strategy, and legal and regulatory requirements must be defined.

7.4.1.6 SOX9, PO10.14 and PSR6

The GoPM PSR9 requires that projects be closed at the appropriate time, but does not specify what is meant by “appropriate closure”. The CobiT PO10.14 describes activities that have to take place at the closure stage. It includes the ascertainment by stakeholders of whether the project has delivered the planned results and benefit, the identification and communication of outstanding activities, and the identification and documentation of lessons learned.

Although the CobiT PO10.14 clarifies what appropriate closure means, it does not shed more light on how lessons learned would be documented. The Sarbanes-Oxley SOX9 requires the implementation of a process for retaining documents. By combining these three implications, the integrated implication will be formulated as follows:

At the end of each project, project stakeholders must ascertain whether the project delivered the planned results and benefits. Identify any outstanding activities required to achieve the planned results of the project and the benefit of the programme. Identify and document lessons learned for use in future projects and programmes by implementing a process for retaining programme related documents, correspondence, decisions documents, and analysis documents for both paper-based and electronic records.

7.4.1.7 SOX8 and PO1.1 (2)

The CobiT PO1.1 requires the early reporting of any deviation from the plan that might affect the expected outcome of the programme. Impact on the outcome of the programme would mean that the programme benefit will be affected. It is in this context that this implication must be linked to the Sarbanes-Oxley SOX8, which

requires the disclosure of any change to the programme benefit. The combined implication is:

Report early any deviation from the plan including, cost schedules or functionalities that might affect the expected outcome of the programme. When the impact becomes effective, change to the programme benefit must be reported.

7.4.1.8 SOX7, DRR1 and DRR4

The Sarbanes-Oxley SOX7 requires the implementation of a real-time monitoring and reporting process of information in the broader context of the programme. The GoPM DRR1 adds information of projects that also has to be reported timely to the Board. The GoPM DRR4 recommends the definition of threshold criteria that must be used in escalating this information through the organisation to the Board. These three implications can be integrated as follows:

Define threshold criteria for escalating information to the Board, and then implement a real-time monitoring and reporting process for significant information such as risk, issue, event, environmental factors (internal or external), legislation change to programme, project forecasts and information produced for the business case at the approval point; thus, facilitate timely decision-making.

After integrating similar implications, it is now worthwhile to work out a new naming scheme for all implications before their use in the programme governance framework.

7.4.2 New Naming Standard

Implications used in this chapter were extracted from corporate, IT and project governance standards analysed. Their naming was therefore based on the immediate significance of these standards to reflect the purpose for which they were developed. This section devises a new naming scheme to these implications. The ultimate goal is to lessen the attention to a specific context of each standard analysed, and provide a standardised and exclusive view of the framework at the outset.

The new naming scheme will contain an identifier number containing PMGM, which stands for *Programme Management Governance Mandate*. The name of each mandate will be formulated in a way that reflects the content addressed within.

Table 7.10: Proposed Naming Scheme for the Programme Governance Mandates

Old Implications Identifier (SOX, CobiT, GoPM)	Name of Programme Governance Mandate
PO1.6	PMGM 1 Programme Prioritisation and Direction
PO6.5	PMGM 2 Providing Direction
AI1.1	PMGM 3 Business Consideration
AI1.2	PMGM 4 Business Risk Analysis
AI1.3 (1)	PMGM 5 Studying Feasibility and Alternatives
AI1.4 (1)	PMGM 6 Decision and Approval
SOX3	PMGM 7 Accountability and Responsibility for Programme Financial Reporting
SOX4, PO.1.1 (3), and PSR9	PMGM 8 Sponsor Accountability for Benefit and Financial Statements
SOX6, DRR7, and DRR10	PMGM 9 Board and Quality of Information
SOX10	PMGM 10 Accountability and Responsibility for Record
PO4.2	PMGM 11 Overseeing Investment
PO4.3	PMGM 12 Committee's Mission
AI1.3 (2)	PMGM 13 Business Management and Feasibility Studies
AI1.4 (2)	PMGM 14 Business Sponsor and Feasibility Studies

Old Implications Identifier (SOX, CobiT, GoPM)	Name of Programme Governance Mandate
PO10.5 (2)	PMGM 15 Programme and Project Sponsors Responsibilities for Project Scope
PO10.6 (2)	PMGM 16 Programme and Project Sponsors Responsibilities for Project Initiation and Progression
PSR2	PMGM 17 Sponsor Time Management
PSR3	PMGM 18 Sponsors, and Project Status and Meeting
PSR4	PMGM 19 Sponsors, and Direction and Decision
PSR5	PMGM 20 Sponsors, and Resources and Skills
PSR8	PMGM 21 Sponsors' Accountability for the Business Case
PSR10	PMGM 22 Sponsors and Project Representation
PMR5	PMGM 23 Governance Within Projects
PMR8	PMGM 24 Delegation of Authority
PMR2	PMGM 25 Board, and Programme and Project Management Tools and Processes
PMR3	PMGM 26 Board and Project Delivery
DRR3	PMGM 27 Board and Risk Information
PO10.1	PMGM 28 Programme Management Framework
PO10.2	PMGM 29 Project Management Framework
PO10.3 and PSR1	PMGM 30 Project Management Approach and Sponsor Competency
PO1.1 (1)	PMGM 31 Value Management

Old Implications Identifier (SOX, CobiT, GoPM)	Name of Programme Governance Mandate
PMR4	PMGM 32 Programme and Project Outcome
PO5.1	PMGM 33 Financial Management Framework
PO5.2	PMGM 34 Prioritisation of Programme Components
PO5.3	PMGM 35 Programme Budgeting
PO10.4, PMR6 and PSR11	PMGM 36 Stakeholders Commitment and Participation
PO10.5 (1)	PMGM 37 Project Scope, and Its link to the Programme
PO10.6 (1)	PMGM 38 Programme Governance in Project Initiation and Approval Points
PO10.7	PMGM 39 Integrated Project Plan and Programme Governance
PO10.8	PMGM 40 Project Resources
PMR7	PMGM 41 Issues, Change and Risk Management Practices
PMR9	PMGM 42 Project Contingency
PO10.9	PMGM 43 Risk Management
PO10.11	PMGM 44 Change Control System
PO8.3	PMGM 45 Development and Acquisition Standards
PO10.10	PMGM 46 Quality Plan
PO10.12	PMGM 47 Planning of Assurance Method
PO1.4, PMR1, DRR5 and DRR6	PMGM 48 Programme Success Evaluation

Old Implications Identifier (SOX, CobiT, GoPM)	Name of Programme Governance Mandate
SOX9, PO10.14 and PSR6	PMGM 49 Appropriate Closure
PO6.1	PMGM 50 Control Environment
SOX5	PMGM 51 Control Structure and Process
PSR7	PMGM 52 Independent Appraisal
PO5.4	PMGM 53 Cost Control
PO5.5	PMGM 54 Benefit Control
PO10.13	PMGM 55 Control Performance and Its Impact for Programme
ME4.3	PMGM 56 Value Delivery
PO1.5	PMGM 57 Reporting Resource Requirements
SOX8, and PO1.1 (2)	PMGM 58 Deviation Reporting
SOX2	PMGM 59 Disclosing Deficiency
SOX1	PMGM 60 Reporting Programme Financial Statement
ME1.5	PMGM 61 Board and Executive Reporting
SOX7, DRR1, and DRR4	PMGM 62 Real-time Reporting
DRR9	PMGM 63 Business Culture and Reporting
DRR11	PMGM 64 Whistleblower Policy
DRR12	PMGM 65 Reporting Requirements

As elicited in the Table 7.10 above, the integrated view of programme governance from corporate, IT and project governance results in 65 mandates that organisations need to fulfil in order to ensure compliance when managing programmes. The following section provides the framework by populating its components.

7.5 The Nyandongo IT Programme Management Governance Framework

Table 7.10 comprises all the governance mandates to be used in the IT programme governance framework. The implications that have led to these mandates were identified from the SOX, CobiT 4.1 and GoPM's requirements. Whether the requirements were addressing programme management directly or indirectly, the author discussed the relevance of the requirements in their respective chapters, and argued on why and what the implications entail for programme management.

Section 2 of this chapter has also identified and described the components of the framework. This section will proceed with populating the components of the framework and decipher interrelations among these components. Because of the huge number of mandates, the framework will be provided here in a summarised form, as the complete framework can be found in Appendix F.

7.5.1 Populating the Framework Components

IT programmes should be governed through the five components depicted in the following tables:

7.5.1.1 Strategic Fit



Table 7.11: Strategic Fit Mandates

No.	Identifier	Description
1	PMGM 1	Programme Prioritisation and Direction
2	PMGM 2	Providing Direction
3	PMGM 3	Business Consideration
4	PMGM 4	Business Risk Analysis
5	PMGM 5	Studying Feasibility and Alternatives
6	PMGM 6	Decision and Approval

7.5.1.2 Roles and Responsibilities

Table 7.12: Roles and Responsibilities' Mandates

No	Identifier	Description
1	PMGM 7	Accountability and Responsibility for Programme Financial Reporting
2	PMGM 8	Sponsor Accountability for Benefit and Financial Statement
3	PMGM 9	Board and Quality of Information
4	PMGM 10	Accountability and Responsibility for Records
5	PMGM 11	Overseeing Investment
6	PMGM 12	Committee's Mission
7	PMGM 13	Business Management and Feasibility Studies
8	PMGM 14	Business Sponsor and Feasibility Studies
9	PMGM 15	Programme and Project Sponsor Responsibilities for Project
10	PMGM 16	Programme and Project Sponsors, and Project Initiation and Progression
11	PMGM 17	Sponsor Time Management
12	PMGM 18	Sponsors, and Project Status and Meeting
13	PMGM 19	Sponsors, and Direction and Decision
14	PMGM 20	Sponsors, and Resources and Skills
15	PMGM 21	Sponsors' Accountability for the Business Case
16	PMGM 22	Sponsors and Project Representation
17	PMGM 23	Governance Within Projects
18	PMGM 24	Delegation of Authority
19	PMGM 25	Board, and Programme and Project Management Tools and Processes
20	PMGM 26	Board and Project Delivery
21	PMGM 27	Board and Risk Information

7.5.1.3 Tools, Policies, Processes, Procedures and Practices

Table 7.13: Tools Policies Processes, Procedures, and Practices Mandates

No	Identifier	Description
1	PMGM 28	Programme Management Framework
2	PMGM 29	Project Management Framework
3	PMGM 30	Project Management Approach and Sponsor Competency
4	PMGM 31	Value Management
5	PMGM 32	Project Outcome
6	PMGM 33	Financial Management Framework
7	PMGM 34	Prioritisation of Programme Components
8	PMGM 35	Programme Budgeting
9	PMGM 36	Stakeholders' Commitment and Participation
10	PMGM 37	Project Scope and its Link to the Programme
11	PMGM 38	Programme Governance in Project Initiation and Approval
12	PMGM 39	Integrated Project Plan and Programme Governance
13	PMGM 40	Project Resources
14	PMGM 41	Issues, Change and Risk Management Practices
15	PMGM 42	Project Contingency
16	PMGM 43	Risk Management
17	PMGM 44	Change Control System
18	PMGM 45	Development and Acquisition Standards
19	PMGM 46	Quality Plan
20	PMGM 47	Planning of Assurance Method
21	PMGM 48	Programme Success Evaluation
22	PMGM 49	Appropriate Closure

7.5.1.4 Control and Support

Table 7.14: Control and Support Mandates

No.	Identifier	Description
1	PMGM 50	Control Environment
2	PMGM 51	Control Structure and Process
3	PMGM 52	Independent Appraisal
4	PMGM 53	Cost Control
5	PMGM 54	Benefit Control
6	PMGM 55	Control Performance and Its Impact on the Programme
7	PMGM 56	Value Delivery

7.5.1.5 Disclosure and Reporting

Table 7.15: Disclosure and Reporting Mandates

No	Identifier	Description
1	PMGM 57	Reporting Resource Requirements
2	PMGM 58	Deviation Reporting
3	PMGM 59	Disclosing Deficiency
4	PMGM 60	Reporting Programme Financial Statement
5	PMGM 61	Board and Executive Reporting
6	PMGM 62	Real-time Reporting
7	PMGM 63	Business Culture and Reporting
8	PMGM 64	Whistle-blower Policy
9	PMGM 65	Reporting Requirements

7.5.2 Component Interrelations

With the five aforementioned components in mind, it is possible to graphically represent the IT programme governance framework as follows:

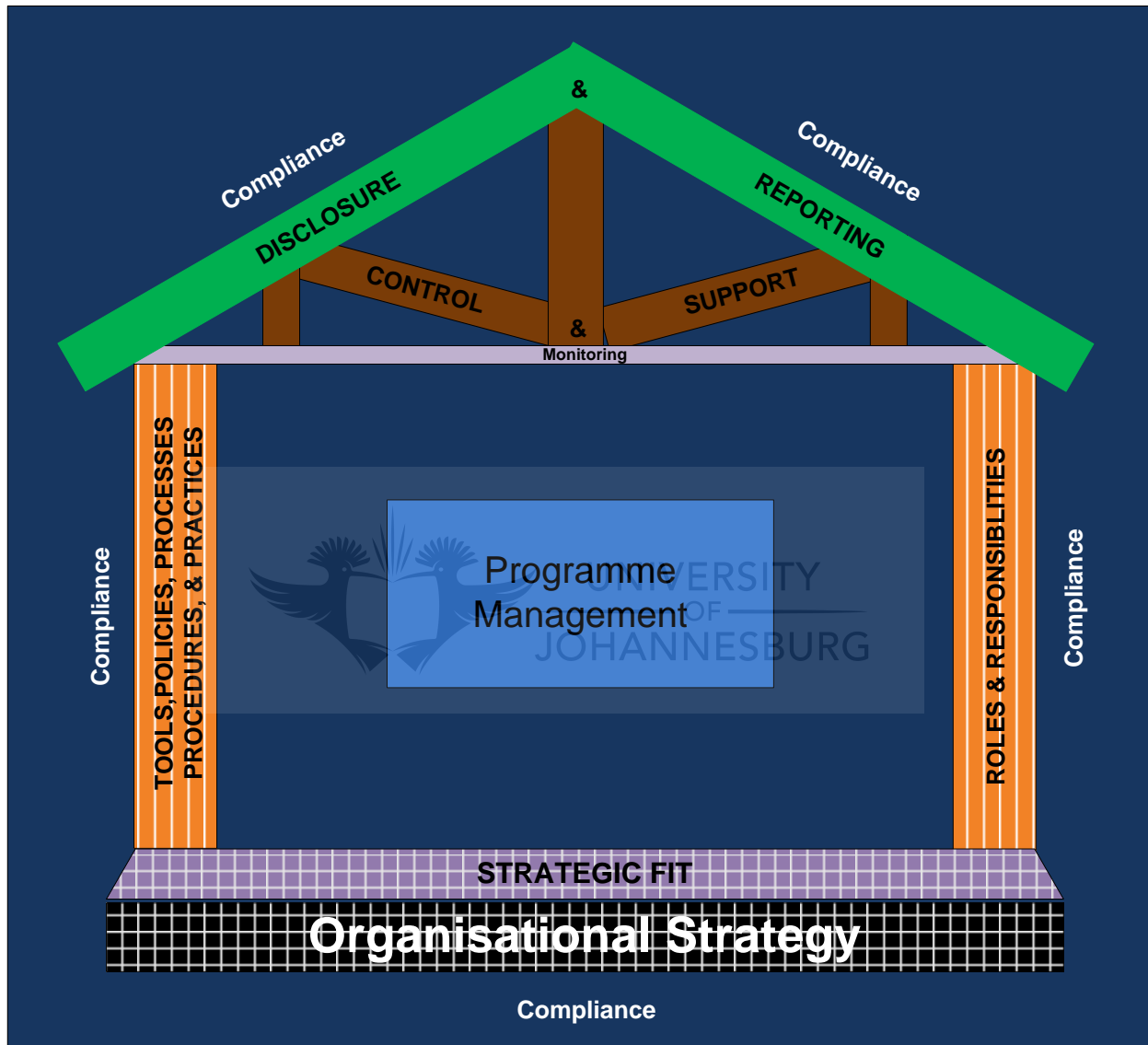


Figure 7.1: Graphical Representation of the Framework

As illustrated in the above diagram, the structure of a house has been adopted to represent how governing a programme should be operated.

In order to build a house the engineering team in interaction with architects and quantity surveyors start with a feasibility study based on the client's needs. One of

the important steps in the feasibility study is to determine the nature of the soil on which the structure will be erected. Intrinsic properties of the soil such as bearing capacity, water table position and land escape should be analysed. Based on the intrinsic properties of the soil, the required foundation will then be laid down.

In this framework the client represents the parent organisation and the soil represents the organisational strategy that must be analysed to determine the need. The strategic fit constitutes the foundation of programme management governance efforts. It is the main reason for which a programme can be undertaken. The benefit that a programme strives to achieve will be of value only if it fits into the organisational business strategy. As for a house that lacks a solid foundation, a programme that does not fit into the organisational strategy will not be worth undertaking.

Once the foundation has been laid down, all the super structuring elements such as columns and load bearings, which transfer the charge to the foundation, will be built.

In the context of the programme governance framework, the strategic fit of a programme from initiation to completion will be assured by two columns (pillars) that hold the management of programmes. These are (i) tools, policies, processes, procedures and practices that must be deployed intelligently in combination with clearly defined (ii) roles and responsibilities for an effective oversight and management of programme activities.

After the building of super structuring elements the covering system that includes roof sheeting and roof trusses are put in place to prevent outside elements such as rain water, cold and sun from affecting the internal portion of the building.

As for a house and considering that things will not always go as planned, and that internal and external factors can impede on the effectiveness of programme management, an effective system of control and support (roof sheeting) is needed to identify trends and correct them, while disclosure and reporting (roof trusses) ensure effective communication and timely decision-making.

The all site or the all effort relate to compliance, which is the ultimate goal of the governance framework.

The framework and its detailed mandates can be found in Appendix F.

7.6 Conclusion

The chapter sought out to devise an IT programme management governance framework by consolidating requirements generated from the content analysis of corporate, IT and project governance.

The first objective of the chapter was the identification and description of the components of the framework. In Section 2, framework components were identified from both modelling-by-design and content analysis. They were then consolidated to provide an exhaustive list of components of the framework. Each component was finally described and its purposes provided.

The second objective was to map in detail SOX, CobiT and GoPM implications for programme management with framework components in order to facilitate their integration later. Within Section 3 implications for programme management identified from these three governance standards were separately mapped with the framework components, which were identified and described in Section 2.

The third objective sought out to compare and integrate implications from the three standards analysed, and provide a new naming scheme before their final use in the framework. In Section 4 implications from the three standards falling within the same component were compared and integrated in case of similarities. The integrated implications were reformulated in order to provide an inclusive view of its sources. A new naming scheme was then provided to all implications, which became governance mandates in the programme governance framework.

Objective 4 was to populate the components of the programme governance framework with the consolidated implications, decipher interrelations among components and provide a graphical representation. Section 5 uses the 65 governance mandates resulting from Section 4 to populate the framework.

Using the structure of a house and the complementary role played by each building element, the framework was graphically represented and interrelations among components were provided relative to the building element to which it was assigned.

It was shown that governing an IT programme requires five building blocks: (i) strategic fit, which maintains the link between the programme and business strategy; (ii) tools, policies, processes, procedures and practices intelligently and consistently applied in order to attain the programme goals; (iii) roles and responsibilities for effective and accountable decision-making; (iv) control and support that measure gaps and implement corrective actions; and (v) disclosure and reporting, which provide accurate and timely information from bottom to the top for effective decision-making.

Each building block has been provided with useful mandates that enable it to accomplish its particular objective within the overall IT programme governance framework. With the successful development of this framework, organisations can now successfully control, oversee and secure their investment in IT programmes.



Chapter 8

Conclusion

8.1 Introduction

8.1.1 Context

The previous chapter devised an IT programme management governance framework that would provide an organisation with an integrated view for the governing of programme activities by consolidating implications or requirements generated from the content analysis of corporate, IT and project governance.

This chapter serves as the last step in this research study. It combines and accounts each of the previous chapters by revisiting the goal laid out in the introduction of this research and the steps taken throughout the research process. The chapter also revisits the findings, and finally it recommends areas and possibilities for further research.

8.1.2 Goal

The goal of this chapter is to prove that the research goal and its subsequent objectives set at the beginning of this research were met, and that it was done by following a structured and logical approach.

8.1.3 Objectives

In order to reach the goal mentioned above, some objectives must first be met. These objectives are as follows:

- The first objective is to assess the attainment of the research goal and the contribution of each objective toward its attainment.
- The second objective evaluates the framework, and presents its contribution to the governance of programme management by discussing its advantages and limitations.
- The third objective identifies areas and possibilities for further research.

8.1.4 Layout

The first section revisits the research problem, the research goal and its objectives. It assesses the attainment of the research goal and objectives.

The second section evaluates the ability of the developed IT programme management governance framework to resolve the research problem.

The third section recommends topics for further research.

8.2 Revisiting the Research Problem

8.2.1 Research Goal

The goal of this research was to develop a governance mechanism for efficient and effective decision-making and delivery management focused on attaining programme goals in a consistent manner, while addressing appropriate risks, issues and events that can impede on the programme outcome.

With such a mechanism, an organisation would be ensured that it has established enough control, policies, reporting processes, responsibility and accountability that would definitely lead to the attainment of the strategic objectives or benefit of the programme.

The relevance of the problem was linked to the need to ensure effective governance of corporations. It is established that corporate scandals around the world have forced investors to require transparent, responsible, accountable and fair management of their investments.

Efforts to ensure effective governance of corporations have led to the development of numerous standards, guidelines and codes applied throughout the organisations at different levels. With programme management providing a means through which organisations implement their strategies, and considering that programmes constitute the main provenance of risk that reflects at corporate level, governing its activities has become necessary for the boards of directors.

It must be remembered that programme management constitutes a means by which organisations achieve almost everything they undertake. As investors invest in companies, and demand transparency and accountability in return for their capital to

establish confidence, organisations invest in programmes and demand proper management of these investments in order to ensure the delivery of the expected benefit.

From the review of literature, it was established that existing standards, guidelines and codes on corporate governance, IT governance and project governance have requirements that affect the management of programmes and, as such, require top management to account for the management of programmes.

Therefore, the goal of this research project was the development of a practical and detailed framework for IT programme governance with an inside view of governance on corporate, IT and project level to provide an integrated model for efficiency and effective management of IT programmes.

In order to reach this goal four objectives revisited below were defined:

8.2.2 Objective 1: Overview of Programme Management

The goal of Chapter 2 was the establishment of a basic understanding of programme management, and the provision of important concepts and terms as well as a review of the evolution of the field. Concepts and terms were important because they provide the means to establish the foundation of programme management.

It was also shown that two goals framed the purpose of programme management, namely (i) the efficiency and effectiveness goal and (ii) the business focus goal. These goals emphasised the critical role of programme management in achieving organisational strategy; thus, justifying the need for an effective governance mechanism advocated for in the research problem.

The review of historical developments and issues within the field enabled the understanding of challenges that need to be addressed when developing the governance framework.

Throughout the chapter it was established that the discipline was young and lacked a commonly shared theoretical foundation. The chapter served to provide a programme management approach used as the basis for the development of the programme governance framework.

8.2.3 Objective 2: Corporate Governance

The goal set in Chapter 4 was to analyse a corporate governance standard, to identify requirements relevant to IT programme management and to determine its implications for IT programme governance.

The chapter provided the necessary background knowledge regarding corporate governance by defining concepts, and by discussing the purpose, principles and structure of corporate governance. This background was necessary to make an informed decision on which governance standard to analyse in depth.

By reviewing corporate governance literature it is clear that driving shareholder value remains the focus for all efforts to raise governance standards or reform them. This implies that the ultimate goal of programme governance framework should provide a means through which shareholder value remains central.

The understanding of corporate governance development between developed and developing economies, and the influence of self-regulated and statutory codes in each one of these economies was of great value to the researcher in deciding on the code that would be further analysed.

Of particular importance for this study was the review of existing international standards and country-specific codes of corporate governance, which resulted in choosing the Sarbanes-Oxley Act (2002) as the corporate governance blueprint for this study.

The enforcement method of SOX, its strong influence on IT and its notoriety coupled with the weakness that self-regulated codes have, demonstrated that it is the best choice for accomplishing the goal of this research.

Sarbanes-Oxley mandates relating to CEO and CFO accountability for corporate financial reporting, management responsibility for setting and maintaining internal control structures and processes over financial reporting, real-time disclosure of financial conditions and operations, retention of records created, sent or received, have implications for IT programme management.

These implications opened up many questions that needed to be addressed to ensure that IT programmes are managed in compliance with corporate governance. Thus, they are connected to the organisational decision-making processes. Therefore, it was believed that an organisation would not ensure corporate governance compliance, indeed SOX compliance, if SOX provisions did not pertain to the management of its programmes.

8.2.4 Objective 3: IT Governance

The goal mentioned for Chapter 5 entailed the analysis of an information technology governance standard, the identification of requirements relevant to IT programme management and the determination of its implications for IT programme governance.

The starting point was the understanding of IT governance. An overview of IT governance was provided. It included the definition of important concepts, the discussion of the purpose, advent and key elements of IT governance. This was important in order to understand the role of IT in the business and the consequences that result from poor management thereof.

It was established that IT had moved from efficiency and productivity gains to value creation; thus becoming the backbone of the business to such an extent that organisations ignoring IT have difficulty functioning or succeeding. Therefore, effective and sound corporate governance practices entail an effective and sound governance practice over IT systems that support the business; consequently effective and sound governance practice over IT programmes which use IT resources.

The IT governance focus area, which includes strategic alignment, value delivery, resources management, risk management and performance measurement as well as issues such as the critical role played by senior management in ensuring success and internal control over IT, are well-reflected in the IT programme management governance framework that has been developed. This ensures that the main concerns of the executive over IT governance are addressed.

Of further relevance to this study was the review of existing IT governance standards that led the researcher to choose the CobiT 4.1 as the IT governance blueprint for

further analysis. Particular characteristics of CobiT for providing a framework of overseeing all aspects of IT, addressing the full spectrum of IT governance duties, integrating all other standards on IT governance, supplementing COSO and supporting the Sarbanes-Oxley requirements were fundamental reasons that made it the framework of choice for this study.

Through scrupulous content analysis and document analysis, numerous control objectives impeding on IT programme management were identified from CobiT. These control objectives gave to the programme governance framework the IT connotation needed and it provided to SOX mandates a practical view in the context of IT programme governance.

8.2.5 Objective 4: Project Governance

The goal set for Chapter 6 was to analyse a project governance standard, to identify requirements relevant to IT programme management and to determine its implication for IT programme governance.

The chapter provided an understanding of project governance. The overview of project governance included the definition of key concepts and a discussion of the advent, purpose and key elements of project governance.

It was shown that two factors drove the need for project governance, namely (i) compliance with corporate governance requirements holding the board of directors responsible and accountable for directing and controlling the company affairs, and (ii) project performance failing to keep up with the wealth and growth of project management approaches.

From the above project governance drivers it was then ascertained that governing projects entails firstly eliminating project failure by doing the right projects and doing them correctly time after time. Secondly, because the project product and its development impacted on the organisation as a whole, project governance had to monitor and forecast the impact on the corporation. This would ensure that corporate governance requirements were complied with across all enterprises and that corporate resources were not wasted. This framed the researcher's view of what would be expected of a programme governance framework. The latter is a level

higher than project management and has a wide range of implications for the corporation.

IT project governance objectives were of particular importance. They included the business value by aligning IT projects with business, cost control via centralisation, resource maximisation, risk management and uniform application of best practices. These objectives, linked back to the IT governance focus areas addressed in Objective 4, were covered within the programme management governance framework.

Of further importance was the review of existing project governance standards. It was established that the project environment was lacking a common framework that regulated project affairs and reached consensus among practitioners. Despite the existence of numerous custom-made project governance frameworks responding to particular needs, it was noted that the literature argued in favour of creating a generic model of project governance that defined specific instruments and processes.

The researcher's choice of analysing the *Guide to Governance of Project Management* (GoPM) was linked to the fact that it was the first and major advancement toward establishing a framework for project governance. It gave a broad view of a project governance framework and it was published by a recognised body in the field (APM).

The results of the analysis showed that three components of the GoPM, namely Project Sponsorship, Project Management, and Disclosure and Reporting, have implications for programme management when projects are undertaken in the context of a programme.

The programme manager sponsoring programme projects or exercising this function via delegation must be concerned by requirements related to project sponsorship. The use of the term *project management* by APM, inclusive of *programme management*, endorsed that requirements related to the project management component were applicable to programme management.

Finally, the programme manager sponsoring projects had to provide the link between the corporate body and the project management body via an effective and efficient disclosure and reporting mechanism.

It was then concluded that effective and sound governance over programme management required an effective and sound governance of the management of its components.

With corporate, IT and project governance requirements that have implications for IT programme management, it was possible to accomplish the goal of the study. The following objective therefore focused on the development of the IT programme governance framework.

8.2.6 Objective 5: IT Programme Governance Framework: An Integrated View

The goal set for Chapter 7 was to devise an IT programme management governance framework by consolidating the implications of the requirements generated from the content analysis and document analysis of corporate, IT and project governance in order to provide organisations with an integrated view of overseeing the management of IT programmes.

This was done by triangulating data as suggested by the document analysis tool. Through triangulation, which is in this case data triangulation, implications from the three standards analysed were combined. This broadened and deepened the researcher's understanding, and added richness and different perspectives.

In order to arrive at a proper integration of implications from the requirements of the above governance standards, it was decided to first identify the components of the framework, then map the implications with the components by standards, and finally compare and integrate them when similarities had been established.

From existing literature, functions and goals of an IT programme governance framework were identified. These functions or goals were compared to the list of categories used for content analysis of governance standards, and a final list of components was provided.

It was shown that an IT programme management governance framework should provide:

- Strategic fit of the programme within the organisational strategy by providing guidance, direction, leadership, approval and over-sight
- Tools, policies, processes, procedures and practices that underpin the management of a programme, and their consistent application and interpretation throughout the programme life cycle
- Roles and responsibilities that establish a clear source of authority and decision-making, enabling effective oversight and management, while addressing the need for direction and decision required at the strategic fit component
- Control and support by identifying performance gaps, acknowledging issues, and developing support mechanisms and the necessary resources for effective corrective action, based on governance mandates from the preceding components, and organisational rules and policies
- Disclosure and reporting that ensure that timely, relevant, accurate and reliable information is provided to programme stakeholders for effective decision-making.

With the components of the programme governance framework in hand, it was possible to map implications identified from governance standards to the components, and then compare and integrate related implications.

The implications of each standard were judiciously mapped with the components of the framework before the comparison and integration process. This was done in order to only compare and integrate implications belonging to the same component; thus, to preserve the clarity of components.

The overall process from the document analysis and content analysis of corporate, IT and project governance to the final framework is depicted in Figure 8.1 below.

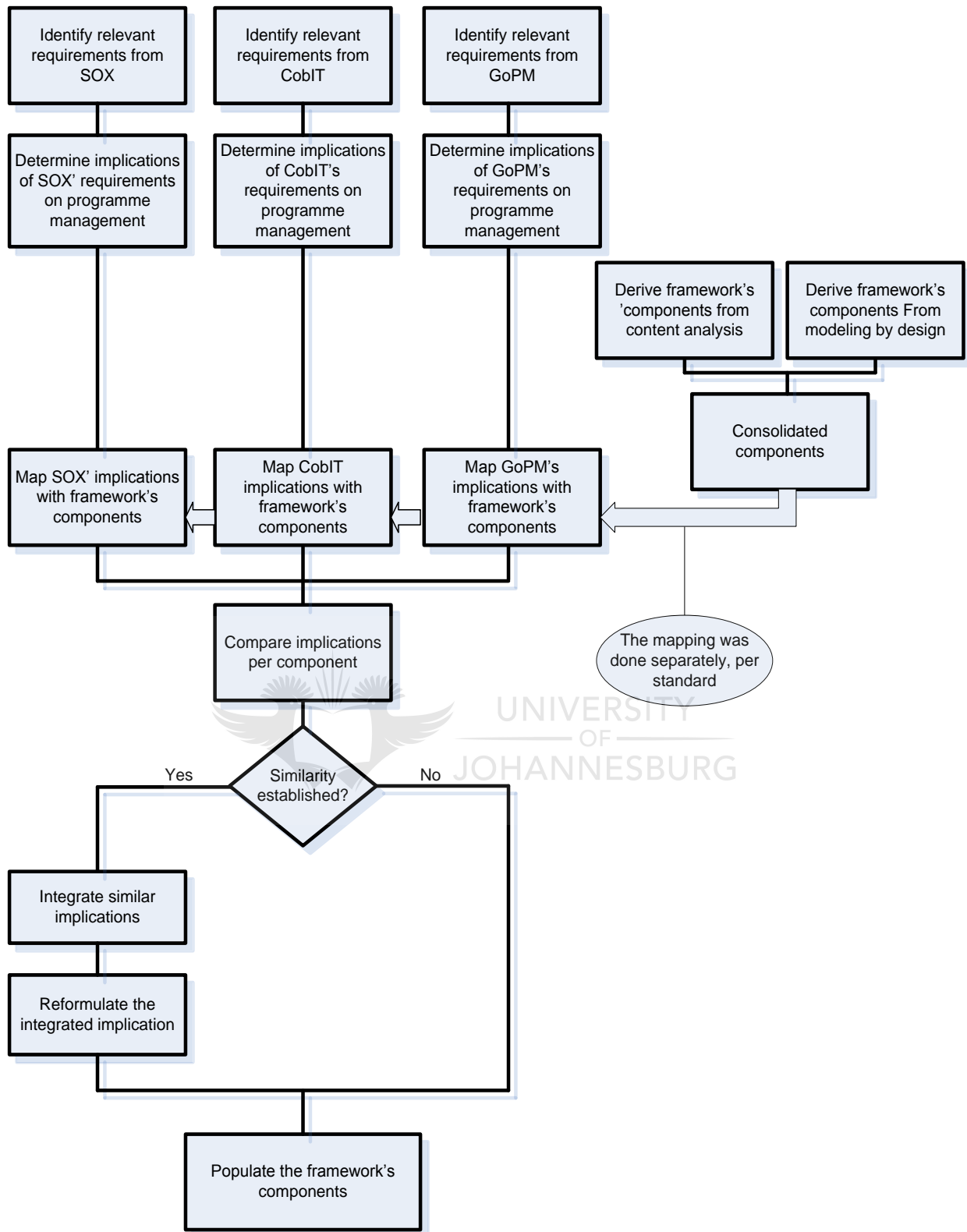


Figure 8.1: Development of the Framework for IT Programme Management Governance from SOX, CobIT and the GoPM

Throughout the comparison and integration process, the critical analysis done on implications identified showed that some mandates that were broadly stated in the Sarbanes-Oxley Act were provided with particular interpretations in the context of IT through CobiT. The GoPM provided the means to remain focused on the characteristics of a temporary organisation in which the management of programmes failed.

Both integrated and non-integrated implications were given a new naming convention and became mandates that the governance of a programme had to meet. By meeting these mandates, the governing body ensured that it had provided the overarching control mechanism and the backdrop for all activities of managing the programme and attaining its outcome, while ensuring compliance with corporate policies.

Therefore, the successful development of the IT programme governance framework, which resulted from the successful accomplishment of the research objectives, sanctioned the attainment of the research goal. The following section assesses the framework developed.

8.3 Evaluating the IT Programme Governance Framework

The dissertation provides an IT programme governance framework for effective and efficient management of IT programmes; thus bridging the governance gap between corporate governance at the top and operational programme management at the bottom.

Even though the developed framework ensured that the dissertation objectives were met and the ultimate goal attained, it should be acknowledged that, as with any scientific work, the programme governance framework has advantages and limitations. Within this section, both the advantages and limitations are discussed.

8.3.1 Advantages

8.3.1.1 Drawn From Successful Practices

The IT programme governance framework was drawn from authoritative standards for corporate, IT and project governance, recognised by both academics and practitioners. By having a framework that built from the Sarbanes-Oxley Act (2002),

the Control Objective for Information and related Technology (2007) and the Guide to Governance of Project Management (2004), an organisation could be assured that it kept up its standards in overseeing the organisational activities.

8.3.1.2 The Integrated View

The IT programme governance framework incorporates the Sarbanes-Oxley mandates that pertain to corporations, the CobiT control objectives that relate to IT programme management and the GoPM requirements that must be considered when projects are managed within the context of an overall programme.

The integrated view entails that, despite the temporary characteristic of programmes, the framework does not consider programmes in isolation. It considers programmes as an integral part of the organisation, which uses organisational resources for which top management should account.

Therefore, the adoption of this framework within an organisation gives top management peace of mind, knowing that there will be no negative drawback on the governance of the corporation, as the framework includes all related concerns raised in corporate governance (SOX), IT governance (CobiT) and project governance (GoPM).

In organisational environments where SOX, CobiT and GoPM are applied, the use of this framework will result in a non-conflicting governance mechanism throughout the organisation. This is evident in the context of South Africa where a code of corporate governance (the King III Report), similar to SOX in both approach and content, has been adopted recently. The CobiT is widely used by both internal and external auditors because of its strong control focus.

8.3.1.3 Encompassing Programme Governance Literature

The content analysis that drove the collection and analysis of data in this study used a deductive category application approach. This means that data (themes) were extracted and coded, based on categories developed from existing literature on programme governance. The intent was to encompass what current literature expects from a programme governance framework.

The framework provides clear mandates that include among elements of current literature, programme governance processes and activities provided by Reiss et al. (2006), programme governance themes suggested by the OGC (2007), programme governance principles conceived by PMI (2006 and 2008b), and programme governance functions identified by Pellegrinelli (2008) as well as Williams and Parr (2008).

By organising these expectations into the framework components or mandates within components, the researcher provided to both, academics and practitioners, a credible and responsive tool to the questions raised for the governance of programmes.

8.3.1.4 Rules-based Approach

The IT programme management governance framework provided comprised mandates in a form of rules that organisations must follow to ensure that the management of their programmes remains compliant.

By using a rules approach instead of focusing only on structures, roles and responsibilities, top management, programme stakeholders and programme teams have a clear indication of what must be done.

8.3.2 Limitations

8.3.2.1 First Attempt or Version

It was said in this study that a framework could be understood as a set of ideas, principles, agreements or rules that provided the basis or outline for something intended to be more fully developed at a later stage. That said, it must also be acknowledged that the developed framework is the first attempt of the researcher.

It could then be considered that the proposed framework might be subject to further refinement in the industry.

8.3.2.2 Lack of Empirical Evidence

Although the framework was developed, based on standards applicable in the industry, the framework itself has not yet stood the test of its own applicability in the industry. A further investigation via case studies or other means is needed in order to assert its efficiency and effectiveness.

8.3.2.3 Limited Roles and Responsibilities Description

Although the framework requires the definitions of roles and responsibilities for governance activities, it only describes some key role players and takes more of a rule perspective.

It considers that detailed descriptions of roles and responsibilities, and structure depend on the particular setting of an organisation and the particularity of a programme. It can be achieved, based on the rules provided.

This can lead to roles and structures conflicting with rules or governance mandates defined within the framework.

8.3.2.4 Sample Size

The purposive sampling strategy used in this study considered choosing one standard at each level for further analysis. Considering the number of standards available at the corporate, IT and project governance levels, it is evident that the generalisation of the results on the entire population can be confronted to the issue of representativeness.

8.4 Topics for Further Research

Through the research process and based on the limitations described above, some research topics have been identified and can be considered for further development of the programme governance framework or enhancement of research in the field.

8.4.1 Measuring Compliance

The framework has provided enormous mandates for programme governance. While it is established that organisation should meet these mandates in order to ensure compliance, the framework lacks tangible measures that can be used to assess how the programme governance team complies with programme governance.

Researchers can consider analysing each mandate to define tangible measures that allow the programme governance team to be compliant with programme governance mandates.

8.4.2 Roles and Responsibilities

As said in the limitation section of this chapter, the framework takes more a rules-based approach than providing detailed descriptions of roles and responsibilities.

The researcher might consider investigating a standard programme governance structure, and based on the programme mandates defined within the framework and other available literatures, develop roles and responsibilities linked to each single governance mandate.

8.4.3 IT Portfolio Governance

The IT programme governance framework, which has been developed, bridges the governance gap in the temporary organisation only at programme level. By adding a framework for IT portfolio governance, the temporary organisation will benefit from a complete set of governance frameworks that will ensure effective and efficient management of its activities from a single project to the portfolio level.

8.5 Final Word

The author's journey in the world of research has been a worthy learning process. From the proposal to the compilation of the final report, different types of knowledge and skills have been gained. The diversity of domains addressed in each chapter and the researcher's immersion into the study, as required in qualitative studies, are among elements that have significantly contributed to building the basis for a research career.

Throughout the research process, difficulties and problems were encountered. Of importance among these difficulties and problems were the lessons that had been drawn to improve upon them in the future.

As the researcher concludes the study, it must be said that by no means can top management still fly blind in funding IT programmes. From corporate, IT and project governance requirements, which are actually developed into an IT programme management governance, a mechanism of overseeing and executing investments in programme activities has been provided.

The developed framework presents an inclusive approach to programme governance. It entails an open management of financial and non-financial

programme outcomes, which, by its strategic fit, will remain responsive and responsible to the Board and key stakeholders.

Within the framework the role of both the programme sponsor and the project sponsor have been emphasised in the manner in which they provide an effective mechanism of overseeing the investment at each level of the temporary organisation. While the framework holds the programme executive sponsor accountable for the overall benefit of the programme, outcome and financial statements, it also requires the programme manager who sponsors the constituent projects of the programme to account for project benefits and information that end up in the financial statements of the programme.

Using this framework would ensure that the investment rests on a secure foundation, and that programmes are managed in compliance with corporate, IT and project governance requirements.



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Appendix A

Mapping Programme Knowledge Areas with Process Groups

Knowledge Areas	Initiating Process Group	Planning Process Group	Executing Process Group	Monitoring And controlling Process Group	Closing Process Group
Programme Integration Management	Initiate Programme	Develop Programme Management Plan Develop Programme Infrastructure	Direct and Manage Programme Execution Manage Programme Resources	Monitor and Control Programme Performance Manage Programme Issues	Close Programme
Programme Scope Management		Plan Programme Scope Define Programme Goals and Objectives Develop Programme Requirements Develop Programme Architecture	Manage Programme Architecture Manage Component Interfaces	Monitor and Control Programme Scope	

Knowledge Areas	Initiating Process Group	Planning Process Group	Executing Process Group	Monitoring And controlling Process Group	Closing Process Group
		Develop Programme WBS			
Programme Time Management		Develop Programme Schedule		Monitor and Control Programme Schedule	
Programme Cost Management		Cost Estimating and Budgeting		Cost Control	
Programme Quality Management		Quality Planning	Perform Quality Assurance	Perform Quality Control	
Programme Human Resource Management	Initiate Team	Human Resource Planning	Acquire Programme Team Develop Programme Team		
Communication Management		Plan Communication	Distribute Information	Report Programme Performance	

Knowledge Areas	Initiating Process Group	Planning Process Group	Executing Process Group	Monitoring And controlling Process Group	Closing Process Group
Programme Risk Management		Plan Programme Risk Management Identify Programme Risks Analyse Programme Risks Plan Programme Risk Responses		Monitor and Control Programme Risks	
Programme Procurement Management		Plan Programme Procurements	Conduct Programme Procurements	Administer Programme Procurements	Close Programme Procurement
Programme Financial Management	Establish Programme Financial Framework	Develop Programme Financial Plan Estimate Programme Costs Budget Programme Costs		Monitor and Control Programme Financials	

Knowledge Areas	Initiating Process Group	Planning Process Group	Executing Process Group	Monitoring And controlling Process Group	Closing Process Group
Programme Stakeholder Management		Plan Programme Stakeholder Management Identify Programme Stakeholders	Engage Programme Stakeholders	Manage Programme Stakeholder Expectations	
Programme Governance		Plan and Establish Programme Governance Structure Plan for Audit Plan Programme Quality	Approve Component Initiation	Provide Governance Oversight Manage Programme Benefit Monitor and Control Programme Change	Approve Component Transition

Appendix B

Analysed Copy of the Sarbanes-Oxley Act

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H. R. 3763

One Hundred Seventh Congress of the United States of America

AT THE SECOND SESSION

*Begun and held at the City of Washington on Wednesday,
the twenty-third day of January, two thousand and two*

An Act

To protect investors by improving the accuracy and reliability of corporate disclosures made pursuant to the securities laws, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

(a) SHORT TITLE.—This Act may be cited as the “Sarbanes-Oxley Act of 2002”.

(b) TABLE OF CONTENTS.—The table of contents for this Act is as follows:

- Sec. 1. Short title; table of contents.
- Sec. 2. Definitions.
- Sec. 3. Commission rules and enforcement.

TITLE I—PUBLIC COMPANY ACCOUNTING OVERSIGHT BOARD

- Sec. 101. Establishment; administrative provisions.
- Sec. 102. Registration with the Board.
- Sec. 103. Auditing, quality control, and independence standards and rules.
- Sec. 104. Inspections of registered public accounting firms.
- Sec. 105. Investigations and disciplinary proceedings.
- Sec. 106. Foreign public accounting firms.
- Sec. 107. Commission oversight of the Board.
- Sec. 108. Accounting standards.
- Sec. 109. Funding.

TITLE II—AUDITOR INDEPENDENCE

- Sec. 201. Services outside the scope of practice of auditors.
- Sec. 202. Preapproval requirements.
- Sec. 203. Audit partner rotation.
- Sec. 204. Auditor reports to audit committees.
- Sec. 205. Conforming amendments.
- Sec. 206. Conflicts of interest.
- Sec. 207. Study of mandatory rotation of registered public accounting firms.
- Sec. 208. Commission authority.
- Sec. 209. Considerations by appropriate State regulatory authorities.

TITLE III—CORPORATE RESPONSIBILITY

- Sec. 301. Public company audit committees.
- Sec. 302. Corporate responsibility for financial reports.
- Sec. 303. Improper influence on conduct of audits.
- Sec. 304. Forfeiture of certain bonuses and profits.
- Sec. 305. Officer and director bars and penalties.
- Sec. 306. Insider trades during pension fund blackout periods.
- Sec. 307. Rules of professional responsibility for attorneys.
- Sec. 308. Fair funds for investors.

TITLE IV—ENHANCED FINANCIAL DISCLOSURES

- Sec. 401. Disclosures in periodic reports.
- Sec. 402. Enhanced conflict of interest provisions.
- Sec. 403. Disclosures of transactions involving management and principal stockholders.

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- Sec. 404. Management assessment of internal controls.
- Sec. 405. Exemption.
- Sec. 406. Code of ethics for senior financial officers.
- Sec. 407. Disclosure of audit committee financial expert.
- Sec. 408. Enhanced review of periodic disclosures by issuers.
- Sec. 409. Real time issuer disclosures.

TITLE V—ANALYST CONFLICTS OF INTEREST

- Sec. 501. Treatment of securities analysts by registered securities associations and national securities exchanges.

TITLE VI—COMMISSION RESOURCES AND AUTHORITY

- Sec. 601. Authorization of appropriations.
- Sec. 602. Appearance and practice before the Commission.
- Sec. 603. Federal court authority to impose penny stock bars.
- Sec. 604. Qualifications of associated persons of brokers and dealers.

TITLE VII—STUDIES AND REPORTS

- Sec. 701. GAO study and report regarding consolidation of public accounting firms.
- Sec. 702. Commission study and report regarding credit rating agencies.
- Sec. 703. Study and report on violators and violations
- Sec. 704. Study of enforcement actions.
- Sec. 705. Study of investment banks.

TITLE VIII—CORPORATE AND CRIMINAL FRAUD ACCOUNTABILITY

- Sec. 801. Short title.
- Sec. 802. Criminal penalties for altering documents.
- Sec. 803. Debts nondischargeable if incurred in violation of securities fraud laws.
- Sec. 804. Statute of limitations for securities fraud.
- Sec. 805. Review of Federal Sentencing Guidelines for obstruction of justice and extensive criminal fraud.
- Sec. 806. Protection for employees of publicly traded companies who provide evidence of fraud.
- Sec. 807. Criminal penalties for defrauding shareholders of publicly traded companies.

TITLE IX—WHITE-COLLAR CRIME PENALTY ENHANCEMENTS

- Sec. 901. Short title.
- Sec. 902. Attempts and conspiracies to commit criminal fraud offenses.
- Sec. 903. Criminal penalties for mail and wire fraud.
- Sec. 904. Criminal penalties for violations of the Employee Retirement Income Security Act of 1974.
- Sec. 905. Amendment to sentencing guidelines relating to certain white-collar offenses.
- Sec. 906. Corporate responsibility for financial reports.

TITLE X—CORPORATE TAX RETURNS

- Sec. 1001. Sense of the Senate regarding the signing of corporate tax returns by chief executive officers.

TITLE XI—CORPORATE FRAUD AND ACCOUNTABILITY

- Sec. 1101. Short title.
- Sec. 1102. Tampering with a record or otherwise impeding an official proceeding.
- Sec. 1103. Temporary freeze authority for the Securities and Exchange Commission.
- Sec. 1104. Amendment to the Federal Sentencing Guidelines.
- Sec. 1105. Authority of the Commission to prohibit persons from serving as officers or directors.
- Sec. 1106. Increased criminal penalties under Securities Exchange Act of 1934.
- Sec. 1107. Retaliation against informants.

SEC. 2. DEFINITIONS.

(a) IN GENERAL.—In this Act, the following definitions shall apply:

- (1) APPROPRIATE STATE REGULATORY AUTHORITY.—The term “appropriate State regulatory authority” means the State agency or other authority responsible for the licensure or other regulation of the practice of accounting in the State or States

“(A) to the registered public accounting firm employed by the issuer for the purpose of rendering or issuing an audit report; and

“(B) to any advisers employed by the audit committee under paragraph (5).”.

SEC. 302. CORPORATE RESPONSIBILITY FOR FINANCIAL REPORTS.

(a) REGULATIONS REQUIRED.—The Commission shall, by rule, require, for each company filing periodic reports under section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m, 78o(d)), that the principal executive officer or officers and the principal financial officer or officers, or persons performing similar functions, certify in each annual or quarterly report filed or submitted under either such section of such Act that—

(1) the signing officer has reviewed the report;

(2) based on the officer's knowledge, the report does not contain any untrue statement of a material fact or omit to state a material fact necessary in order to make the statements made, in light of the circumstances under which such statements were made, not misleading;

(3) based on such officer's knowledge, the financial statements, and other financial information included in the report, fairly present in all material respects the financial condition and results of operations of the issuer as of, and for, the periods presented in the report;

(4) the signing officers—

(A) are responsible for establishing and maintaining internal controls;

(B) have designed such internal controls to ensure that material information relating to the issuer and its consolidated subsidiaries is made known to such officers by others within those entities, particularly during the period in which the periodic reports are being prepared;

(C) have evaluated the effectiveness of the issuer's internal controls as of a date within 90 days prior to the report; and

(D) have presented in the report their conclusions about the effectiveness of their internal controls based on their evaluation as of that date;

(5) the signing officers have disclosed to the issuer's auditors and the audit committee of the board of directors (or persons fulfilling the equivalent function)—

(A) all significant deficiencies in the design or operation of internal controls which could adversely affect the issuer's ability to record, process, summarize, and report financial data and have identified for the issuer's auditors any material weaknesses in internal controls; and

(B) any fraud, whether or not material, that involves management or other employees who have a significant role in the issuer's internal controls; and

(6) the signing officers have indicated in the report whether or not there were significant changes in internal controls or in other factors that could significantly affect internal controls subsequent to the date of their evaluation, including any corrective actions with regard to significant deficiencies and material weaknesses.

3. Policies, Procedures, Processes, and Practices.
5. Disclosure and Reporting.

States for a disgorgement fund described in subsection (a). Such gifts, bequests, and devises of money and proceeds from sales of other property received as gifts, bequests, or devises shall be deposited in the disgorgement fund and shall be available for allocation in accordance with subsection (a).

(c) STUDY REQUIRED.—

(1) SUBJECT OF STUDY.—The Commission shall review and analyze—

(A) enforcement actions by the Commission over the five years preceding the date of the enactment of this Act that have included proceedings to obtain civil penalties or disgorgements to identify areas where such proceedings may be utilized to efficiently, effectively, and fairly provide restitution for injured investors; and

(B) other methods to more efficiently, effectively, and fairly provide restitution to injured investors, including methods to improve the collection rates for civil penalties and disgorgements.

(2) REPORT REQUIRED.—The Commission shall report its findings to the Committee on Financial Services of the House of Representatives and the Committee on Banking, Housing, and Urban Affairs of the Senate within 180 days after of the date of the enactment of this Act, and shall use such findings to revise its rules and regulations as necessary. The report shall include a discussion of regulatory or legislative actions that are recommended or that may be necessary to address concerns identified in the study.

(d) CONFORMING AMENDMENTS.—Each of the following provisions is amended by inserting “, except as otherwise provided in section 308 of the Sarbanes-Oxley Act of 2002” after “Treasury of the United States”:

(1) Section 21(d)(3)(C)(i) of the Securities Exchange Act of 1934 (15 U.S.C. 78u(d)(3)(C)(i)).

(2) Section 21A(d)(1) of such Act (15 U.S.C. 78u-1(d)(1)).

(3) Section 20(d)(3)(A) of the Securities Act of 1933 (15 U.S.C. 77t(d)(3)(A)).

(4) Section 42(e)(3)(A) of the Investment Company Act of 1940 (15 U.S.C. 80a-41(e)(3)(A)).

(5) Section 209(e)(3)(A) of the Investment Advisers Act of 1940 (15 U.S.C. 80b-9(e)(3)(A)).

(e) DEFINITION.—As used in this section, the term “disgorgement fund” means a fund established in any administrative or judicial proceeding described in subsection (a).

TITLE IV—ENHANCED FINANCIAL DISCLOSURES

SEC. 401. DISCLOSURES IN PERIODIC REPORTS.

(a) DISCLOSURES REQUIRED.—Section 13 of the Securities Exchange Act of 1934 (15 U.S.C. 78m) is amended by adding at the end the following:

“(i) ACCURACY OF FINANCIAL REPORTS.—Each financial report that contains financial statements, and that is required to be prepared in accordance with (or reconciled to) generally accepted accounting principles under this title and filed with the Commission shall reflect all material correcting adjustments that have been

3. Policies, Procedures, Processes, and Practices
5. Disclosure and Reporting

identified by a registered public accounting firm in accordance with generally accepted accounting principles and the rules and regulations of the Commission.

“(j) OFF-BALANCE SHEET TRANSACTIONS.—Not later than 180 days after the date of enactment of the Sarbanes-Oxley Act of 2002, the Commission shall issue final rules providing that each annual and quarterly financial report required to be filed with the Commission shall disclose all material off-balance sheet transactions, arrangements, obligations (including contingent obligations), and other relationships of the issuer with unconsolidated entities or other persons, that may have a material current or future effect on financial condition, changes in financial condition, results of operations, liquidity, capital expenditures, capital resources, or significant components of revenues or expenses.”.

(b) COMMISSION RULES ON PRO FORMA FIGURES.—Not later than 180 days after the date of enactment of the Sarbanes-Oxley Act of 2002, the Commission shall issue final rules providing that pro forma financial information included in any periodic or other report filed with the Commission pursuant to the securities laws, or in any public disclosure or press or other release, shall be presented in a manner that—

(1) does not contain an untrue statement of a material fact or omit to state a material fact necessary in order to make the pro forma financial information, in light of the circumstances under which it is presented, not misleading; and

(2) reconciles it with the financial condition and results of operations of the issuer under generally accepted accounting principles.

(c) STUDY AND REPORT ON SPECIAL PURPOSE ENTITIES.—

(1) STUDY REQUIRED.—The Commission shall, not later than 1 year after the effective date of adoption of off-balance sheet disclosure rules required by section 13(j) of the Securities Exchange Act of 1934, as added by this section, complete a study of filings by issuers and their disclosures to determine—

(A) the extent of off-balance sheet transactions, including assets, liabilities, leases, losses, and the use of special purpose entities; and

(B) whether generally accepted accounting rules result in financial statements of issuers reflecting the economics of such off-balance sheet transactions to investors in a transparent fashion.

(2) REPORT AND RECOMMENDATIONS.—Not later than 6 months after the date of completion of the study required by paragraph (1), the Commission shall submit a report to the President, the Committee on Banking, Housing, and Urban Affairs of the Senate, and the Committee on Financial Services of the House of Representatives, setting forth—

(A) the amount or an estimate of the amount of off-balance sheet transactions, including assets, liabilities, leases, and losses of, and the use of special purpose entities by, issuers filing periodic reports pursuant to section 13 or 15 of the Securities Exchange Act of 1934;

(B) the extent to which special purpose entities are used to facilitate off-balance sheet transactions;

4. Monitoring and controlling Performance

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“(C) the issuer (if the issuer maintains a corporate website) shall provide that statement on that corporate website, not later than the end of the business day following that filing.”

(b) EFFECTIVE DATE.—The amendment made by this section shall be effective 30 days after the date of the enactment of this Act.

SEC. 404. MANAGEMENT ASSESSMENT OF INTERNAL CONTROLS.

(a) RULES REQUIRED.—The Commission shall prescribe rules requiring each annual report required by section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m or 78o(d)) to contain an internal control report, which shall—

(1) state the responsibility of management for establishing and maintaining an adequate internal control structure and procedures for financial reporting; and

(2) contain an assessment, as of the end of the most recent fiscal year of the issuer, of the effectiveness of the internal control structure and procedures of the issuer for financial reporting.

(b) INTERNAL CONTROL EVALUATION AND REPORTING.—With respect to the internal control assessment required by subsection (a), each registered public accounting firm that prepares or issues the audit report for the issuer shall attest to, and report on, the assessment made by the management of the issuer. An attestation made under this subsection shall be made in accordance with standards for attestation engagements issued or adopted by the Board. Any such attestation shall not be the subject of a separate engagement.

SEC. 405. EXEMPTION.

Nothing in section 401, 402, or 404, the amendments made by those sections, or the rules of the Commission under those sections shall apply to any investment company registered under section 8 of the Investment Company Act of 1940 (15 U.S.C. 80a–8).

SEC. 406. CODE OF ETHICS FOR SENIOR FINANCIAL OFFICERS.

(a) CODE OF ETHICS DISCLOSURE.—The Commission shall issue rules to require each issuer, together with periodic reports required pursuant to section 13(a) or 15(d) of the Securities Exchange Act of 1934, to disclose whether or not, and if not, the reason therefor, such issuer has adopted a code of ethics for senior financial officers, applicable to its principal financial officer and comptroller or principal accounting officer, or persons performing similar functions.

(b) CHANGES IN CODES OF ETHICS.—The Commission shall revise its regulations concerning matters requiring prompt disclosure on Form 8–K (or any successor thereto) to require the immediate disclosure, by means of the filing of such form, dissemination by the Internet or by other electronic means, by any issuer of any change in or waiver of the code of ethics for senior financial officers.

(c) DEFINITION.—In this section, the term “code of ethics” means such standards as are reasonably necessary to promote—

(1) honest and ethical conduct, including the ethical handling of actual or apparent conflicts of interest between personal and professional relationships;

5) Disclosure and Reporting

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(4) emerging companies with disparities in price to earning ratios;

(5) issuers whose operations significantly affect any material sector of the economy; and

(6) any other factors that the Commission may consider relevant.

(c) **MINIMUM REVIEW PERIOD.**—In no event shall an issuer required to file reports under section 13(a) or 15(d) of the Securities Exchange Act of 1934 be reviewed under this section less frequently than once every 3 years.

SEC. 409. REAL TIME ISSUER DISCLOSURES.

Section 13 of the Securities Exchange Act of 1934 (15 U.S.C. 78m), as amended by this Act, is amended by adding at the end the following:

“(1) **REAL TIME ISSUER DISCLOSURES.**—Each issuer reporting under section 13(a) or 15(d) shall disclose to the public on a rapid and current basis such additional information concerning material changes in the financial condition or operations of the issuer, in plain English, which may include trend and qualitative information and graphic presentations, as the Commission determines, by rule, is necessary or useful for the protection of investors and in the public interest.”.

TITLE V—ANALYST CONFLICTS OF INTEREST

SEC. 501. TREATMENT OF SECURITIES ANALYSTS BY REGISTERED SECURITIES ASSOCIATIONS AND NATIONAL SECURITIES EXCHANGES.

(a) **RULES REGARDING SECURITIES ANALYSTS.**—The Securities Exchange Act of 1934 (15 U.S.C. 78a et seq.) is amended by inserting after section 15C the following new section:

“SEC. 15D. SECURITIES ANALYSTS AND RESEARCH REPORTS.

“(a) **ANALYST PROTECTIONS.**—The Commission, or upon the authorization and direction of the Commission, a registered securities association or national securities exchange, shall have adopted, not later than 1 year after the date of enactment of this section, rules reasonably designed to address conflicts of interest that can arise when securities analysts recommend equity securities in research reports and public appearances, in order to improve the objectivity of research and provide investors with more useful and reliable information, including rules designed—

“(1) to foster greater public confidence in securities research, and to protect the objectivity and independence of securities analysts, by—

“(A) restricting the prepublication clearance or approval of research reports by persons employed by the broker or dealer who are engaged in investment banking activities, or persons not directly responsible for investment research, other than legal or compliance staff;

“(B) limiting the supervision and compensatory evaluation of securities analysts to officials employed by the broker or dealer who are not engaged in investment banking activities; and

are recommended or that may be necessary to address concerns identified in the study.

TITLE VIII—CORPORATE AND CRIMINAL FRAUD ACCOUNTABILITY

SEC. 801. SHORT TITLE.

This title may be cited as the “Corporate and Criminal Fraud Accountability Act of 2002”.

SEC. 802. CRIMINAL PENALTIES FOR ALTERING DOCUMENTS.

(a) IN GENERAL.—Chapter 73 of title 18, United States Code, is amended by adding at the end the following:

“§ 1519. Destruction, alteration, or falsification of records in Federal investigations and bankruptcy

“Whoever knowingly alters, destroys, mutilates, conceals, covers up, falsifies, or makes a false entry in any record, document, or tangible object with the intent to impede, obstruct, or influence the investigation or proper administration of any matter within the jurisdiction of any department or agency of the United States or any case filed under title 11, or in relation to or contemplation of any such matter or case, shall be fined under this title, imprisoned not more than 20 years, or both.

“§ 1520. Destruction of corporate audit records

“(a)(1) Any accountant who conducts an audit of an issuer of securities to which section 10A(a) of the Securities Exchange Act of 1934 (15 U.S.C. 78j–1(a)) applies, shall maintain all audit or review workpapers for a period of 5 years from the end of the fiscal period in which the audit or review was concluded.

“(2) The Securities and Exchange Commission shall promulgate, within 180 days, after adequate notice and an opportunity for comment, such rules and regulations, as are reasonably necessary, relating to the retention of relevant records such as workpapers, documents that form the basis of an audit or review, memoranda, correspondence, communications, other documents, and records (including electronic records) which are created, sent, or received in connection with an audit or review and contain conclusions, opinions, analyses, or financial data relating to such an audit or review, which is conducted by any accountant who conducts an audit of an issuer of securities to which section 10A(a) of the Securities Exchange Act of 1934 (15 U.S.C. 78j–1(a)) applies. The Commission may, from time to time, amend or supplement the rules and regulations that it is required to promulgate under this section, after adequate notice and an opportunity for comment, in order to ensure that such rules and regulations adequately comport with the purposes of this section.

“(b) Whoever knowingly and willfully violates subsection (a)(1), or any rule or regulation promulgated by the Securities and Exchange Commission under subsection (a)(2), shall be fined under this title, imprisoned not more than 10 years, or both.

“(c) Nothing in this section shall be deemed to diminish or relieve any person of any other duty or obligation imposed by Federal or State law or regulation to maintain, or refrain from destroying, any document.”.

7. Knowledge Management

(5) make any necessary conforming changes to the sentencing guidelines; and

(6) assure that the guidelines adequately meet the purposes of sentencing, as set forth in section 3553(a)(2) of title 18, United States Code.

(c) EMERGENCY AUTHORITY AND DEADLINE FOR COMMISSION ACTION.—The United States Sentencing Commission is requested to promulgate the guidelines or amendments provided for under this section as soon as practicable, and in any event not later than 180 days after the date of enactment of this Act, in accordance with the procedures set forth in section 219(a) of the Sentencing Reform Act of 1987, as though the authority under that Act had not expired.

SEC. 906. CORPORATE RESPONSIBILITY FOR FINANCIAL REPORTS.

(a) IN GENERAL.—Chapter 63 of title 18, United States Code, is amended by inserting after section 1349, as created by this Act, the following:

“§ 1350. Failure of corporate officers to certify financial reports

(a) CERTIFICATION OF PERIODIC FINANCIAL REPORTS.—Each periodic report containing financial statements filed by an issuer with the Securities Exchange Commission pursuant to section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m(a) or 78o(d)) shall be accompanied by a written statement by the chief executive officer and chief financial officer (or equivalent thereof) of the issuer.

“(b) CONTENT.—The statement required under subsection (a) shall certify that the periodic report containing the financial statements fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m or 78o(d)) and that information contained in the periodic report fairly presents, in all material respects, the financial condition and results of operations of the issuer.

“(c) CRIMINAL PENALTIES.—Whoever—

“(1) certifies any statement as set forth in subsections (a) and (b) of this section knowing that the periodic report accompanying the statement does not comport with all the requirements set forth in this section shall be fined not more than \$1,000,000 or imprisoned not more than 10 years, or both; or

“(2) willfully certifies any statement as set forth in subsections (a) and (b) of this section knowing that the periodic report accompanying the statement does not comport with all the requirements set forth in this section shall be fined not more than \$5,000,000, or imprisoned not more than 20 years, or both.”.

(b) CLERICAL AMENDMENT.—The table of sections at the beginning of chapter 63 of title 18, United States Code, is amended by adding at the end the following:

“1350. Failure of corporate officers to certify financial reports.”.

2. Roles and Responsibilities
5. Disclosure and Reporting

TITLE X—CORPORATE TAX RETURNS

SEC. 1001. SENSE OF THE SENATE REGARDING THE SIGNING OF CORPORATE TAX RETURNS BY CHIEF EXECUTIVE OFFICERS.

It is the sense of the Senate that the Federal income tax return of a corporation should be signed by the chief executive officer of such corporation.

TITLE XI—CORPORATE FRAUD ACCOUNTABILITY

SEC. 1101. SHORT TITLE.

This title may be cited as the “Corporate Fraud Accountability Act of 2002”.

SEC. 1102. TAMPERING WITH A RECORD OR OTHERWISE IMPEDING AN OFFICIAL PROCEEDING.

Section 1512 of title 18, United States Code, is amended—

(1) by redesignating subsections (c) through (i) as subsections (d) through (j), respectively; and

(2) by inserting after subsection (b) the following new subsection:

“(c) Whoever corruptly—

“(1) alters, destroys, mutilates, or conceals a record, document, or other object, or attempts to do so, with the intent to impair the object’s integrity or availability for use in an official proceeding; or

“(2) otherwise obstructs, influences, or impedes any official proceeding, or attempts to do so,

shall be fined under this title or imprisoned not more than 20 years, or both.”

SEC. 1103. TEMPORARY FREEZE AUTHORITY FOR THE SECURITIES AND EXCHANGE COMMISSION.

(a) IN GENERAL.—Section 21C(c) of the Securities Exchange Act of 1934 (15 U.S.C. 78u-3(c)) is amended by adding at the end the following:

“(3) TEMPORARY FREEZE.—

“(A) IN GENERAL.—

“(i) ISSUANCE OF TEMPORARY ORDER.—Whenever, during the course of a lawful investigation involving possible violations of the Federal securities laws by an issuer of publicly traded securities or any of its directors, officers, partners, controlling persons, agents, or employees, it shall appear to the Commission that it is likely that the issuer will make extraordinary payments (whether compensation or otherwise) to any of the foregoing persons, the Commission may petition a Federal district court for a temporary order requiring the issuer to escrow, subject to court supervision, those payments in an interest-bearing account for 45 days.

“(ii) STANDARD.—A temporary order shall be entered under clause (i), only after notice and opportunity for a hearing, unless the court determines that

2. Roles and Responsibilities.
7. Knowledge Management.

Appendix C

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LEADING THE IT GOVERNANCE COMMUNITY

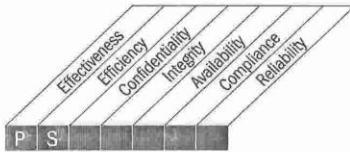


Framework
Control Objectives
Management Guidelines
Maturity Models

PROCESS DESCRIPTION

P01 Define a Strategic IT Plan

IT strategic planning is required to manage and direct all IT resources in line with the business strategy and priorities. The IT function and business stakeholders are responsible for ensuring that optimal value is realised from project and service portfolios. The strategic plan improves key stakeholders' understanding of IT opportunities and limitations, assesses current performance, identifies capacity and human resource requirements, and clarifies the level of investment required. The business strategy and priorities are to be reflected in portfolios and executed by the IT tactical plan(s), which specifies concise objectives, action plans and tasks that are understood and accepted by both business and IT.



Control over the IT process of

Define a strategic IT plan

that satisfies the business requirement for IT of

sustaining or extending the business strategy and governance requirements whilst being transparent about benefits, costs and risks

by focusing on

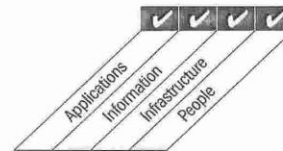
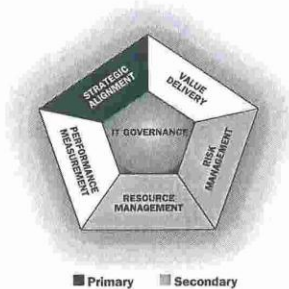
incorporating IT and business management in the translation of business requirements into service offerings, and the development of strategies to deliver these services in a transparent and effective manner

is achieved by

- Engaging with business and senior management in aligning IT strategic planning with current and future business needs
- Understanding current IT capabilities
- Providing for a prioritisation scheme for the business objectives that quantifies the business requirements

and is measured by

- Percent of IT objectives in the IT strategic plan that support the strategic business plan
- Percent of IT projects in the IT project portfolio that can be directly traced back to the IT tactical plans
- Delay between updates of IT strategic plan and updates of IT tactical plans



PO1 Plan and Organise

Define a Strategic IT Plan

CONTROL OBJECTIVES

2. Roles and Responsibilities
3. Policies, Procedures, Processes, and Practices
5. Disclosure and Reporting

PO1 Define a Strategic IT Plan

PO1.1 IT Value Management

Work with the business to ensure that the enterprise portfolio of IT-enabled investments contains programmes that have solid business cases. Recognise that there are mandatory, sustaining and discretionary investments that differ in complexity and degree of freedom in allocating funds. IT processes should provide effective and efficient delivery of the IT components of programmes and early warning of any deviations from plan, including cost, schedule or functionality, that might impact the expected outcomes of the programmes. IT services should be executed against equitable and enforceable service level agreements (SLAs). Accountability for achieving the benefits and controlling the costs should be clearly assigned and monitored. Establish fair, transparent, repeatable and comparable evaluation of business cases, including financial worth, the risk of not delivering a capability and the risk of not realising the expected benefits.

PO1.2 Business-IT Alignment

Establish processes of bi-directional education and reciprocal involvement in strategic planning to achieve business and IT alignment and integration. Mediate between business and IT imperatives so priorities can be mutually agreed.

PO1.3 Assessment of Current Capability and Performance

Assess the current capability and performance of solution and service delivery to establish a baseline against which future requirements can be compared. Define performance in terms of IT's contribution to business objectives, functionality, stability, complexity, costs, strengths and weaknesses.

PO1.4 IT Strategic Plan

Create a strategic plan that defines, in co-operation with relevant stakeholders, how IT goals will contribute to the enterprise's strategic objectives and related costs and risks. It should include how IT will support IT-enabled investment programmes, IT services and IT assets. IT should define how the objectives will be met, the measurements to be used and the procedures to obtain formal sign-off from the stakeholders. The IT strategic plan should cover investment/operational budget, funding sources, sourcing strategy, acquisition strategy, and legal and regulatory requirements. The strategic plan should be sufficiently detailed to allow for the definition of tactical IT plans.

PO1.5 IT Tactical Plans

Create a portfolio of tactical IT plans that are derived from the IT strategic plan. The tactical plans should address IT-enabled programme investments, IT services and IT assets. The tactical plans should describe required IT initiatives, resource requirements, and how the use of resources and achievement of benefits will be monitored and managed. The tactical plans should be sufficiently detailed to allow the definition of project plans. Actively manage the set of tactical IT plans and initiatives through analysis of project and service portfolios.

PO1.6 IT Portfolio Management

Actively manage with the business the portfolio of IT-enabled investment programmes required to achieve specific strategic business objectives by identifying, defining, evaluating, prioritising, selecting, initiating, managing and controlling programmes. This should include clarifying desired business outcomes, ensuring that programme objectives support achievement of the outcomes, understanding the full scope of effort required to achieve the outcomes, assigning clear accountability with supporting measures, defining projects within the programme, allocating resources and funding, delegating authority, and commissioning required projects at programme launch.

PROCESS DESCRIPTION

P04 Define the IT Processes, Organisation and Relationships

An IT organisation is defined by considering requirements for staff, skills, functions, accountability, authority, roles and responsibilities, and supervision. This organisation is embedded into an IT process framework that ensures transparency and control as well as the involvement of senior executives and business management. A strategy committee ensures board oversight of IT, and one or more steering committees in which business and IT participate determine the prioritisation of IT resources in line with business needs. Processes, administrative policies and procedures are in place for all functions, with specific attention to control, quality assurance, risk management, information security, data and systems ownership, and segregation of duties. To ensure timely support of business requirements, IT is to be involved in relevant decision processes.



Control over the IT process of

Define the IT processes, organisation and relationships

that satisfies the business requirement for IT of

being agile in responding to the business strategy whilst complying with governance requirements and providing defined and competent points of contact

by focusing on

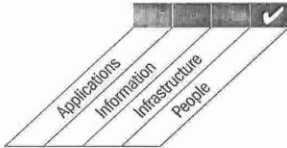
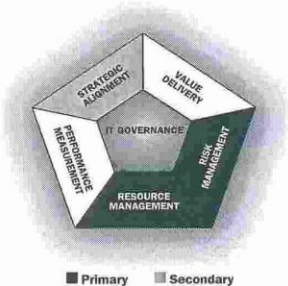
establishing transparent, flexible and responsive IT organisational structures and defining and implementing IT processes with owners, roles and responsibilities integrated into business and decision processes

is achieved by

- Defining an IT process framework
- Establishing appropriate organisational bodies and structure
- Defining roles and responsibilities

and is measured by

- Percent of roles with documented position and authority descriptions
- Number of business units/processes not supported by the IT organisation that should be supported, according to the strategy
- Number of core IT activities outside of the IT organisation that are not approved or are not subject to IT organisational standards



CONTROL OBJECTIVES

PO4 Define the IT Processes, Organisation and Relationships

PO4.1 IT Process Framework

Define an IT process framework to execute the IT strategic plan. This framework should include an IT process structure and relationships (e.g., to manage process gaps and overlaps), ownership, maturity, performance measurement, improvement, compliance, quality targets and plans to achieve them. It should provide integration amongst the processes that are specific to IT, enterprise portfolio management, business processes and business change processes. The IT process framework should be integrated into a quality management system (QMS) and the internal control framework.

PO4.2 IT Strategy Committee

2. Roles and Responsibilities

Establish an IT strategy committee at the board level. This committee should ensure that IT governance, as part of enterprise governance, is adequately addressed; advise on strategic direction; and review major investments on behalf of the full board.

PO4.3 IT Steering Committee

2. Roles and Responsibilities

Establish an IT steering committee (or equivalent) composed of executive, business and IT management to:

- Determine prioritisation of IT-enabled investment programmes in line with the enterprise's business strategy and priorities
- Track status of projects and resolve resource conflict
- Monitor service levels and service improvements

PO4.4 Organisational Placement of the IT Function

Place the IT function in the overall organisational structure with a business model contingent on the importance of IT within the enterprise, specifically its criticality to business strategy and the level of operational dependence on IT. The reporting line of the CIO should be commensurate with the importance of IT within the enterprise.

PO4.5 IT Organisational Structure

Establish an internal and external IT organisational structure that reflects business needs. In addition, put a process in place for periodically reviewing the IT organisational structure to adjust staffing requirements and sourcing strategies to meet expected business objectives and changing circumstances.

PO4.6 Establishment of Roles and Responsibilities

Establish and communicate roles and responsibilities for IT personnel and end users that delineate between IT personnel and end-user authority, responsibilities and accountability for meeting the organisation's needs.

PO4.7 Responsibility for IT Quality Assurance

Assign responsibility for the performance of the quality assurance (QA) function and provide the QA group with appropriate QA systems, controls and communications expertise. Ensure that the organisational placement and the responsibilities and size of the QA group satisfy the requirements of the organisation.

PO4.8 Responsibility for Risk, Security and Compliance

Embed ownership and responsibility for IT-related risks within the business at an appropriate senior level. Define and assign roles critical for managing IT risks, including the specific responsibility for information security, physical security and compliance. Establish risk and security management responsibility at the enterprise level to deal with organisationwide issues. Additional security management responsibilities may need to be assigned at a system-specific level to deal with related security issues. Obtain direction from senior management on the appetite for IT risk and approval of any residual IT risks.

PO4.9 Data and System Ownership

Provide the business with procedures and tools, enabling it to address its responsibilities for ownership of data and information systems. Owners should make decisions about classifying information and systems and protecting them in line with this classification.

PO4.10 Supervision

Implement adequate supervisory practices in the IT function to ensure that roles and responsibilities are properly exercised, to assess whether all personnel have sufficient authority and resources to execute their roles and responsibilities, and to generally review KPIs.

PO4.11 Segregation of Duties

Implement a division of roles and responsibilities that reduces the possibility for a single individual to compromise a critical process. Make sure that personnel are performing only authorised duties relevant to their respective jobs and positions.

PO4.12 IT Staffing

Evaluate staffing requirements on a regular basis or upon major changes to the business, operational or IT environments to ensure that the IT function has sufficient resources to adequately and appropriately support the business goals and objectives.

PO4.13 Key IT Personnel

Define and identify key IT personnel (e.g., replacements/backup personnel), and minimise reliance on a single individual performing a critical job function.

PO4.14 Contracted Staff Policies and Procedures

Ensure that consultants and contract personnel who support the IT function know and comply with the organisation's policies for the protection of the organisation's information assets such that they meet agreed-upon contractual requirements.

PO4.15 Relationships

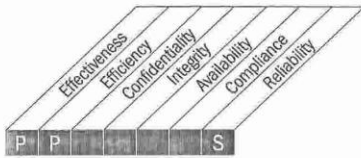
Establish and maintain an optimal co-ordination, communication and liaison structure between the IT function and various other interests inside and outside the IT function, such as the board, executives, business units, individual users, suppliers, security officers, risk managers, the corporate compliance group, outsourcers and offsite management.



PROCESS DESCRIPTION

P05 Manage the IT Investment

A framework is established and maintained to manage IT-enabled investment programmes and that encompasses cost, benefits, prioritisation within budget, a formal budgeting process and management against the budget. Stakeholders are consulted to identify and control the total costs and benefits within the context of the IT strategic and tactical plans, and initiate corrective action where needed. The process fosters partnership between IT and business stakeholders; enables the effective and efficient use of IT resources; and provides transparency and accountability into the total cost of ownership (TCO), the realisation of business benefits and the ROI of IT-enabled investments.



Control over the IT process of

Manage the IT investment

that satisfies the business requirement for IT of

continuously and demonstrably improving IT's cost-efficiency and its contribution to business profitability with integrated and standardised services that satisfy end-user expectations

by focusing on

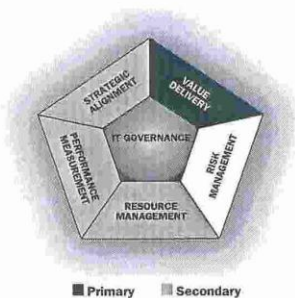
effective and efficient IT investment and portfolio decisions, and by setting and tracking IT budgets in line with IT strategy and investment decisions

is achieved by

- Forecasting and allocating budgets
- Defining formal investment criteria (ROI, payback period, net present value [NPV])
- Measuring and assessing business value against forecast

and is measured by

- Percent of reduction of the unit cost of the delivered IT services
- Percent of budget deviation value compared to the total budget
- Percent of IT expenditure expressed in business value drivers (e.g., sales/services increase due to increased connectivity)



CONTROL OBJECTIVES

PO5 Manage the IT Investment

PO5.1 Financial Management Framework

Establish and maintain a financial framework to manage the investment and cost of IT assets and services through portfolios of IT-enabled investments, business cases and IT budgets.

PO5.2 Prioritisation Within IT Budget

Implement a decision-making process to prioritise the allocation of IT resources for operations, projects and maintenance to maximise IT's contribution to optimising the return on the enterprise's portfolio of IT-enabled investment programmes and other IT services and assets.

PO5.3 IT Budgeting

Establish and implement practices to prepare a budget reflecting the priorities established by the enterprise's portfolio of IT-enabled investment programmes, and including the ongoing costs of operating and maintaining the current infrastructure. The practices should support development of an overall IT budget as well as development of budgets for individual programmes, with specific emphasis on the IT components of those programmes. The practices should allow for ongoing review, refinement and approval of the overall budget and the budgets for individual programmes.

PO5.4 Cost Management

Implement a cost management process comparing actual costs to budgets. Costs should be monitored and reported. Where there are deviations, these should be identified in a timely manner and the impact of those deviations on programmes should be assessed. Together with the business sponsor of those programmes, appropriate remedial action should be taken and, if necessary, the programme business case should be updated.

PO5.5 Benefit Management

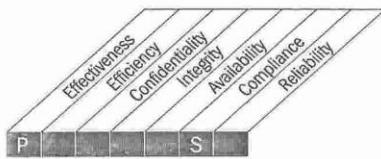
Implement a process to monitor the benefits from providing and maintaining appropriate IT capabilities. IT's contribution to the business, either as a component of IT-enabled investment programmes or as part of regular operational support, should be identified and documented in a business case, agreed to, monitored and reported. Reports should be reviewed and, where there are opportunities to improve IT's contribution, appropriate actions should be defined and taken. Where changes in IT's contribution impact the programme, or where changes to other related projects impact the programme, the programme business case should be updated.

OF
JOHANNESBURG

PROCESS DESCRIPTION

P06 Communicate Management Aims and Direction

Management develops an enterprise IT control framework and defines and communicates policies. An ongoing communication programme is implemented to articulate the mission, service objectives, policies and procedures, etc., approved and supported by management. The communication supports achievement of IT objectives and ensures awareness and understanding of business and IT risks, objectives and direction. The process ensures compliance with relevant laws and regulations.



Control over the IT process of

Communicate management aims and direction

that satisfies the business requirement for IT of

supplying accurate and timely information on current and future IT services and associated risks and responsibilities

by focusing on

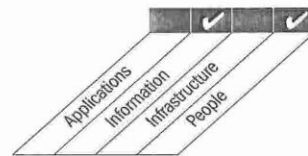
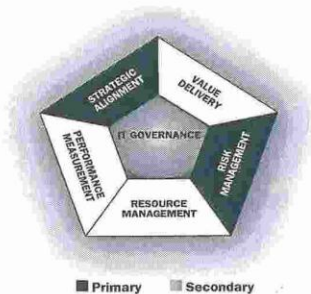
providing accurate, understandable and approved policies, procedures, guidelines and other documentation to stakeholders, embedded in an IT control framework

is achieved by

- Defining an IT control framework
- Developing and rolling out IT policies
- Enforcing IT policies

and is measured by

- Number of business disruptions due to IT service disruption
- Percent of stakeholders who understand the enterprise IT control framework
- Percent of stakeholders who are non-compliant with policy



CONTROL OBJECTIVES

PO6 Communicate Management Aims and Direction

PO6.1 IT Policy and Control Environment

4. Monitoring and controlling

Define the elements of a control environment for IT, aligned with the enterprise's management philosophy and operating style. These elements should include expectations/requirements regarding delivery of value from IT investments, appetite for risk, integrity, ethical values, staff competence, accountability and responsibility. The control environment should be based on a culture that supports value delivery whilst managing significant risks, encourages cross-divisional co-operation and teamwork, promotes compliance and continuous process improvement, and handles process deviations (including failure) well.

PO6.2 Enterprise IT Risk and Control Framework

Develop and maintain a framework that defines the enterprise's overall approach to IT risk and control and that aligns with the IT policy and control environment and the enterprise risk and control framework.

PO6.3 IT Policies Management

Develop and maintain a set of policies to support IT strategy. These policies should include policy intent; roles and responsibilities; exception process; compliance approach; and references to procedures, standards and guidelines. Their relevance should be confirmed and approved regularly.

PO6.4 Policy, Standard and Procedures Rollout

Roll out and enforce IT policies to all relevant staff, so they are built into and are an integral part of enterprise operations.

PO6.5 Communication of IT Objectives and Direction

1. Strategic Alignment.

Communicate awareness and understanding of business and IT objectives and direction to appropriate stakeholders and users throughout the enterprise.

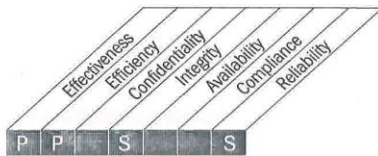


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PROCESS DESCRIPTION

PO8 Manage Quality

A QMS is developed and maintained that includes proven development and acquisition processes and standards. This is enabled by planning, implementing and maintaining the QMS by providing clear quality requirements, procedures and policies. Quality requirements are stated and communicated in quantifiable and achievable indicators. Continuous improvement is achieved by ongoing monitoring, analysis and acting upon deviations, and communicating results to stakeholders. Quality management is essential to ensure that IT is delivering value to the business, continuous improvement and transparency for stakeholders.



Control over the IT process of

Manage quality

that satisfies the business requirement for IT of

ensuring continuous and measurable improvement of the quality of IT services delivered

by focusing on

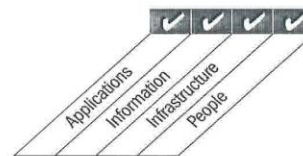
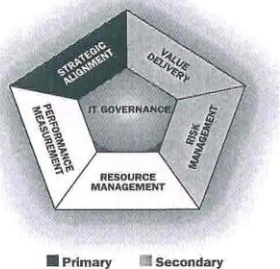
the definition of a QMS, ongoing performance monitoring against predefined objectives and implementation of a programme for continuous improvement of IT services

is achieved by

- Defining quality standards and practices
- Monitoring and reviewing internal and external performance against the defined quality standards and practices
- Improving the QMS in a continuous manner

and is measured by

- Percent of stakeholders satisfied with IT quality (weighted by importance)
- Percent of IT processes that are formally reviewed by QA on a periodic basis and that meet target quality goals and objectives
- Percent of processes receiving QA review



CONTROL OBJECTIVES

PO8 Manage Quality

PO8.1 Quality Management System

Establish and maintain a QMS that provides a standard, formal and continuous approach regarding quality management that is aligned with business requirements. The QMS should identify quality requirements and criteria; key IT processes and their sequence and interaction; and the policies, criteria and methods for defining, detecting, correcting and preventing non-conformity. The QMS should define the organisational structure for quality management, covering the roles, tasks and responsibilities. All key areas should develop their quality plans in line with criteria and policies and record quality data. Monitor and measure the effectiveness and acceptance of the QMS, and improve it when needed

PO8.2 IT Standards and Quality Practices

Identify and maintain standards, procedures and practices for key IT processes to guide the organisation in meeting the intent of the QMS. Use industry good practices for reference when improving and tailoring the organisation's quality practices.

PO8.3 Development and Acquisition Standards *3. Policies, Procedures, Processes..*

Adopt and maintain standards for all development and acquisition that follow the life cycle of the ultimate deliverable, and include sign-off at key milestones based on agreed-upon sign-off criteria. Consider software coding standards; naming conventions; file formats; schema and data dictionary design standards; user interface standards; interoperability; system performance efficiency; scalability; standards for development and testing; validation against requirements; test plans; and unit, regression and integration testing.

PO8.4 Customer Focus

Focus quality management on customers by determining their requirements and aligning them to the IT standards and practices. Define roles and responsibilities concerning conflict resolution between the user/customer and the IT organisation.

PO8.5 Continuous Improvement

Maintain and regularly communicate an overall quality plan that promotes continuous improvement.

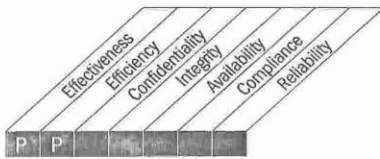
PO8.6 Quality Measurement, Monitoring and Review

Define, plan and implement measurements to monitor continuing compliance to the QMS, as well as the value the QMS provides. Measurement, monitoring and recording of information should be used by the process owner to take appropriate corrective and preventive actions.

PROCESS DESCRIPTION

P010 Manage Projects

A programme and project management framework for the management of all IT projects is established. The framework ensures the correct prioritisation and co-ordination of all projects. The framework includes a master plan, assignment of resources, definition of deliverables, approval by users, a phased approach to delivery, QA, a formal test plan, and testing and post-implementation review after installation to ensure project risk management and value delivery to the business. This approach reduces the risk of unexpected costs and project cancellations, improves communications to and involvement of business and end users, ensures the value and quality of project deliverables, and maximises their contribution to IT-enabled investment programmes.



Control over the IT process of
Manage projects

that satisfies the business requirement for IT of

ensuring the delivery of project results within agreed-upon time frames, budget and quality

by focusing on

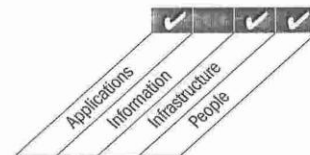
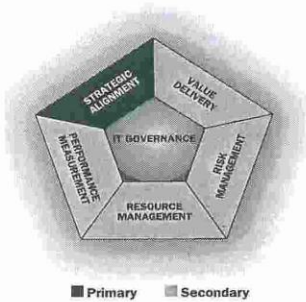
a defined programme and project management approach that is applied to IT projects and enables stakeholder participation in and monitoring of project risks and progress

is achieved by

- Defining and enforcing programme and project frameworks and approach
- Issuing project management guidelines
- Performing project planning for each project detailed in the project portfolio

and is measured by

- Percent of projects meeting stakeholders' expectations (on time, on budget and meeting requirement—weighted by importance)
- Percent of projects receiving post-implementation reviews
- Percent of projects following project management standards and practices



CONTROL OBJECTIVES

PO10 Manage Projects

- PO10.1 Programme Management Framework** *3. Policies, Procedures, Processes...*
Maintain the programme of projects, related to the portfolio of IT-enabled investment programmes, by identifying, defining, evaluating, prioritising, selecting, initiating, managing and controlling projects. Ensure that the projects support the programme's objectives. Co-ordinate the activities and interdependencies of multiple projects, manage the contribution of all the projects within the programme to expected outcomes, and resolve resource requirements and conflicts.
- PO10.2 Project Management Framework** *3. Policies, Procedures, Processes...*
Establish and maintain a project management framework that defines the scope and boundaries of managing projects, as well as the method to be adopted and applied to each project undertaken. The framework and supporting method should be integrated with the programme management processes.
- PO10.3 Project Management Approach** *3. Policies, Procedures, Processes...*
Establish a project management approach commensurate with the size, complexity and regulatory requirements of each project. The project governance structure can include the roles, responsibilities and accountabilities of the programme sponsor, project sponsors, steering committee, project office and project manager, and the mechanisms through which they can meet those responsibilities (such as reporting and stage reviews). Make sure all IT projects have sponsors with sufficient authority to own the execution of the project within the overall strategic programme.
- PO10.4 Stakeholder Commitment** *3 Policies, Procedures, Processes...*
Obtain commitment and participation from the affected stakeholders in the definition and execution of the project within the context of the overall IT-enabled investment programme.
- PO10.5 Project Scope Statement** *2. Roles and Responsibilities. 3. Policies*
Define and document the nature and scope of the project to confirm and develop amongst stakeholders a common understanding of project scope and how it relates to other projects within the overall IT-enabled investment programme. The definition should be formally approved by the programme and project sponsors before project initiation.
- PO10.6 Project Phase Initiation** *2. Roles and Responsibilities. 3. Policies.*
Approve the initiation of each major project phase and communicate it to all stakeholders. Base the approval of the initial phase on programme governance decisions. Approval of subsequent phases should be based on review and acceptance of the deliverables of the previous phase, and approval of an updated business case at the next major review of the programme. In the event of overlapping project phases, an approval point should be established by programme and project sponsors to authorise project progression.
- PO10.7 Integrated Project Plan** *3. Policies, Procedures, Processes...*
Establish a formal, approved integrated project plan (covering business and information systems resources) to guide project execution and control throughout the life of the project. The activities and interdependencies of multiple projects within a programme should be understood and documented. The project plan should be maintained throughout the life of the project. The project plan, and changes to it, should be approved in line with the programme and project governance framework.
- PO10.8 Project Resources** *3. Policies, Procedures, Processes...*
Define the responsibilities, relationships, authorities and performance criteria of project team members, and specify the basis for acquiring and assigning competent staff members and/or contractors to the project. The procurement of products and services required for each project should be planned and managed to achieve project objectives using the organisation's procurement practices.
- PO10.9 Project Risk Management** *3. Policies, Procedures, Processes...*
Eliminate or minimise specific risks associated with individual projects through a systematic process of planning, identifying, analysing, responding to, monitoring and controlling the areas or events that have the potential to cause unwanted change. Risks faced by the project management process and the project deliverable should be established and centrally recorded.
- PO10.10 Project Quality Plan** *3. Policies, Procedures, Processes...*
Prepare a quality management plan that describes the project quality system and how it will be implemented. The plan should be formally reviewed and agreed to by all parties concerned and then incorporated into the integrated project plan.

PO10.11 Project Change Control *3. Policies, Procedures, Processes . . .*

Establish a change control system for each project, so all changes to the project baseline (e.g., cost, schedule, scope, quality) are appropriately reviewed, approved and incorporated into the integrated project plan in line with the programme and project governance framework.

PO10.12 Project Planning of Assurance Methods *3. Policies, Procedures, Processes .*

Identify assurance tasks required to support the accreditation of new or modified systems during project planning, and include them in the integrated project plan. The tasks should provide assurance that internal controls and security features meet the defined requirements.

PO10.13 Project Performance Measurement, Reporting and Monitoring *4. Monitoring . . .*

Measure project performance against key project performance scope, schedule, quality, cost and risk criteria. Identify any deviations from the plan. Assess the impact of deviations on the project and overall programme, and report results to key stakeholders. Recommend, implement and monitor remedial action, when required, in line with the programme and project governance framework.

PO10.14 Project Closure *3. Policies, Procedures, Processes and Practice*

Require that, at the end of each project, the project stakeholders ascertain whether the project delivered the planned results and benefits. Identify and communicate any outstanding activities required to achieve the planned results of the project and the benefits of the programme, and identify and document lessons learned for use on future projects and programmes.



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PROCESS DESCRIPTION

AI1 Identify Automated Solutions

The need for a new application or function requires analysis before acquisition or creation to ensure that business requirements are satisfied in an effective and efficient approach. This process covers the definition of the needs, consideration of alternative sources, review of technological and economic feasibility, execution of a risk analysis and cost-benefit analysis, and conclusion of a final decision to 'make' or 'buy'. All these steps enable organisations to minimise the cost to acquire and implement solutions whilst ensuring that they enable the business to achieve its objectives.



Control over the IT process of

Identify automated solutions

that satisfies the business requirement for IT of

translating business functional and control requirements into an effective and efficient design of automated solutions

by focusing on
identifying technically feasible and cost-effective solutions
is achieved by

- Defining business and technical requirements
- Undertaking feasibility studies as defined in the development standards
- Approving (or rejecting) requirements and feasibility study results

and is measured by

- Number of projects where stated benefits were not achieved due to incorrect feasibility assumptions
- Percent of feasibility studies signed off on by the business process owner
- Percent of users satisfied with functionality delivered



CONTROL OBJECTIVES

AI1 Identify Automated Solutions

AI1.1 Definition and Maintenance of Business Functional and Technical Requirements

1. Strategic Alignment.

Identify, prioritise, specify and agree on business functional and technical requirements covering the full scope of all initiatives required to achieve the expected outcomes of the IT-enabled investment programme.

AI1.2 Risk Analysis Report

1. Strategic Alignment.

Identify, document and analyse risks associated with the business requirements and solution design as part of the organisation's process for the development of requirements.

AI1.3 Feasibility Study and Formulation of Alternative Courses of Action

2. Roles and Responsibilities

1. Strategic Alignment.

Develop a feasibility study that examines the possibility of implementing the requirements. Business management, supported by the IT function, should assess the feasibility and alternative courses of action and make a recommendation to the business sponsor.

AI1.4 Requirements and Feasibility Decision and Approval

1. Strategic Alignment.
2. Roles and Responsibilities.

Verify that the process requires the business sponsor to approve and sign off on business functional and technical requirements and feasibility study reports at predetermined key stages. The business sponsor should make the final decision with respect to the choice of solution and acquisition approach.

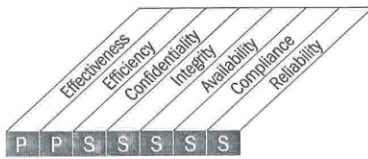


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PROCESS DESCRIPTION

ME1 Monitor and Evaluate IT Performance

Effective IT performance management requires a monitoring process. This process includes defining relevant performance indicators, systematic and timely reporting of performance, and prompt acting upon deviations. Monitoring is needed to make sure that the right things are done and are in line with the set directions and policies.



Control over the IT process of

Monitor and evaluate IT performance

that satisfies the business requirement for IT of

transparency and understanding of IT cost, benefits, strategy, policies and service levels in accordance with governance requirements

by focusing on

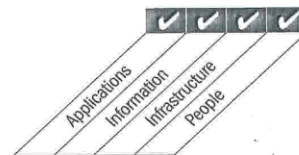
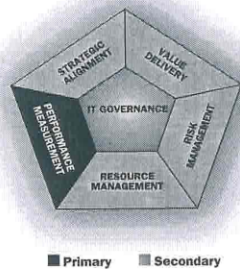
monitoring and reporting process metrics and identifying and implementing performance improvement actions

is achieved by

- Collating and translating process performance reports into management reports
- Reviewing performance against agreed-upon targets and initiating necessary remedial action

and is measured by

- Satisfaction of management and the governance entity with the performance reporting
- Number of improvement actions driven by monitoring activities
- Percent of critical processes monitored



CONTROL OBJECTIVES

ME1 Monitor and Evaluate IT Performance**ME1.1 Monitoring Approach**

Establish a general monitoring framework and approach to define the scope, methodology and process to be followed for measuring IT's solution and service delivery, and monitor IT's contribution to the business. Integrate the framework with the corporate performance management system.

ME1.2 Definition and Collection of Monitoring Data

Work with the business to define a balanced set of performance targets and have them approved by the business and other relevant stakeholders. Define benchmarks with which to compare the targets, and identify available data to be collected to measure the targets. Establish processes to collect timely and accurate data to report on progress against targets.

ME1.3 Monitoring Method

Deploy a performance monitoring method (e.g., balanced scorecard) that records targets; captures measurements; provides a succinct, all-around view of IT performance; and fits within the enterprise monitoring system.

ME1.4 Performance Assessment

Periodically review performance against targets, analyse the cause of any deviations, and initiate remedial action to address the underlying causes. At appropriate times, perform root cause analysis across deviations.

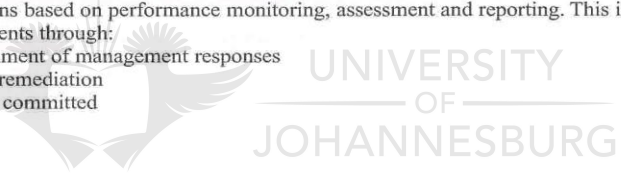
ME1.5 Board and Executive Reporting

Develop senior management reports on IT's contribution to the business, specifically in terms of the performance of the enterprise's portfolio, IT-enabled investment programmes, and the solution and service deliverable performance of individual programmes. Include in status reports the extent to which planned objectives have been achieved, budgeted resources used, set performance targets met and identified risks mitigated. Anticipate senior management's review by suggesting remedial actions for major deviations. Provide the report to senior management, and solicit feedback from management's review.

ME1.6 Remedial Actions

Identify and initiate remedial actions based on performance monitoring, assessment and reporting. This includes follow-up of all monitoring, reporting and assessments through:

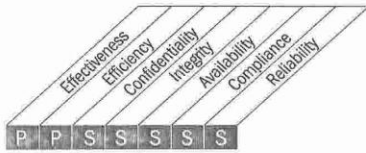
- Review, negotiation and establishment of management responses
- Assignment of responsibility for remediation
- Tracking of the results of actions committed



PROCESS DESCRIPTION

ME4 Provide IT Governance

Establishing an effective governance framework includes defining organisational structures, processes, leadership, roles and responsibilities to ensure that enterprise IT investments are aligned and delivered in accordance with enterprise strategies and objectives.



Control over the IT process of

Provide IT governance

that satisfies the business requirement for IT of

integrating IT governance with corporate governance objectives and complying with laws, regulations and contracts

by focusing on

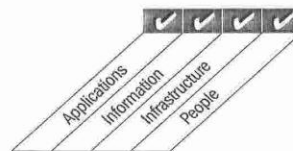
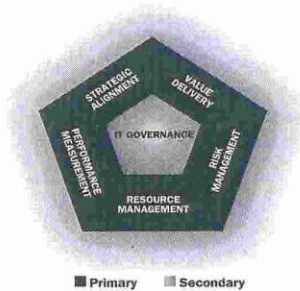
preparing board reports on IT strategy, performance and risks, and responding to governance requirements in line with board directions

is achieved by

- Establishing an IT governance framework integrated into corporate governance
- Obtaining independent assurance over the IT governance status

and is measured by

- Frequency of board reporting on IT to stakeholders (including maturity)
- Frequency of reporting from IT to the board (including maturity)
- Frequency of independent reviews of IT compliance



CONTROL OBJECTIVES

ME4 Provide IT Governance

ME4.1 Establishment of an IT Governance Framework

Define, establish and align the IT governance framework with the overall enterprise governance and control environment. Base the framework on a suitable IT process and control model and provide for unambiguous accountability and practices to avoid a breakdown in internal control and oversight. Confirm that the IT governance framework ensures compliance with laws and regulations and is aligned with, and confirms delivery of, the enterprise's strategies and objectives. Report IT governance status and issues.

ME4.2 Strategic Alignment

Enable board and executive understanding of strategic IT issues, such as the role of IT, technology insights and capabilities. Ensure that there is a shared understanding between the business and IT regarding the potential contribution of IT to the business strategy. Work with the board and the established governance bodies, such as an IT strategy committee, to provide strategic direction to management relative to IT, ensuring that the strategy and objectives are cascaded into business units and IT functions, and that confidence and trust are developed between the business and IT. Enable the alignment of IT to the business in strategy and operations, encouraging co-responsibility between the business and IT for making strategic decisions and obtaining benefits from IT-enabled investments.

ME4.3 Value Delivery

4. Monitoring and controlling Performance
Manage IT-enabled investment programmes and other IT assets and services to ensure that they deliver the greatest possible value in supporting the enterprise's strategy and objectives. Ensure that the expected business outcomes of IT-enabled investments and the full scope of effort required to achieve those outcomes are understood; that comprehensive and consistent business cases are created and approved by stakeholders; that assets and investments are managed throughout their economic life cycle; and that there is active management of the realisation of benefits, such as contribution to new services, efficiency gains and improved responsiveness to customer demands. Enforce a disciplined approach to portfolio, programme and project management, insisting that the business takes ownership of all IT-enabled investments and IT ensures optimisation of the costs of delivering IT capabilities and services.

ME4.4 Resource Management

Oversee the investment, use and allocation of IT resources through regular assessments of IT initiatives and operations to ensure appropriate resourcing and alignment with current and future strategic objectives and business imperatives.

ME4.5 Risk Management

Work with the board to define the enterprise's appetite for IT risk, and obtain reasonable assurance that IT risk management practices are appropriate to ensure that the actual IT risk does not exceed the board's risk appetite. Embed risk management responsibilities into the organisation, ensuring that the business and IT regularly assess and report IT-related risks and their impact and that the enterprise's IT risk position is transparent to all stakeholders.

ME4.6 Performance Measurement

Confirm that agreed-upon IT objectives have been met or exceeded, or that progress toward IT goals meets expectations. Where agreed-upon objectives have been missed or progress is not as expected, review management's remedial action. Report to the board relevant portfolios, programme and IT performance, supported by reports to enable senior management to review the enterprise's progress toward identified goals.

ME4.7 Independent Assurance

Obtain independent assurance (internal or external) about the conformance of IT with relevant laws and regulations; the organisation's policies, standards and procedures; generally accepted practices; and the effective and efficient performance of IT.

Appendix D

CobIT's Implications for IT Programme Management

D.1 PO1 Define a Strategic IT Plan

PO1.1 IT Value Management	
CobIT Requirements	Implication for IT Programme Management
<p><i>Work with the business to ensure that the enterprise portfolio of IT-enabled investments contains programmes that have solid business cases. Recognize that there are mandatory, sustaining and discretionary investments that differ in complexity and degree of freedom in allocating funds. IT processes should provide effective and efficient delivery of the IT components of programmes and early warning of any deviations from plan, including cost, schedule or functionality that might impact the expected outcomes of the programmes. IT services should be executed against equitable and enforceable service level agreements (SLAs). Accountability for achieving the benefits and controlling the costs should be clearly assigned and monitored. Establish fair, transparent, repeatable and comparable evaluation of business cases, including financial worth, the risk of not delivering a capability and the risk of not realising the expected benefits.</i></p>	<p>PO1.1 IT Value Management 1</p> <ul style="list-style-type: none"> – Develop solid business case for the programme. Establish fair, transparent, repeatable and comparable evaluation of business cases, including financial worth, the risk of not delivering a capability and the risk of not realising the expected benefits. <p>PO1.1 IT Value Management 2</p> <ul style="list-style-type: none"> – Report early any deviation from plan, including cost schedule or functionality that might impact the expected outcome of the programme <p>PO1.1 IT Value Management 3</p>

	<ul style="list-style-type: none"> – Assign and monitor accountability for achieving benefits and controlling the cost
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PO1.4 IT Strategic Plan	
CobIT Requirements	Implication for IT Programme Management
<p><i>Create a strategic plan that defines, in co-operation with relevant stakeholders, how IT goals will contribute to the enterprise's strategic objectives and related costs and risks. It should include how IT will support IT-enabled investment programmes, IT services and IT assets. It should define how the objectives will be met, the measurements to be used and the procedures to obtain formal sign-off from the stakeholders. The IT strategic plan should cover investment/operational budget, funding sources, sourcing strategy, acquisition strategy, and legal and regulatory requirements. The strategic plan should be sufficiently detailed to allow for the definition of tactical IT plans.</i></p>	<p>Define how programme objectives will be met, the measurements to be used and the procedure to obtain formal sign-off from the stakeholders. Programme budget, funding sources, sourcing strategy, acquisition strategy, and legal and regulatory requirements must be defined.</p>

PO1.5 IT Tactical Plans	
CobIT Requirements	Implication for IT Programme Management
<p><i>Create a portfolio of tactical IT plans that are derived from the IT strategic plan. The tactical plans should address IT-enabled programme investments, IT services and IT assets. The tactical plans should describe required IT initiatives, resource requirements, and how the use of resources and achievement of benefits will be monitored and managed. The tactical plans should be sufficiently detailed to allow the definition of project plans. Actively manage the set of tactical IT plans and initiatives through analysis of project and service portfolios.</i></p>	<p>Describe and report resources requirements for the programme, and the way in which the use of resources and the achievement of benefit will be monitored and managed</p>

PO1.6 IT Portfolio Management	
CobIT Requirements	Implication for IT Programme Management
<p><i>Actively manage with the business the portfolio of IT-enabled investment programmes required to achieve specific strategic business objectives by identifying, defining, evaluating, prioritising, selecting, initiating, managing and controlling programmes. This should include clarifying desired business outcomes, ensuring that programme objectives support achievement of the outcomes, understanding the full scope of effort required to achieve the outcomes, assigning clear accountability with supporting measures, defining projects within the programme, allocating resources and funding, delegating authority, and commissioning required projects at programme launch.</i></p>	<p>As it is</p>

D.2 PO4 Define the IT Processes, Organisation and Relationships

PO4.2 IT Strategy Committee	
CobIT Requirements	Implication for IT Programme Management
<p><i>Establish an IT strategy committee at Board level. This committee should ensure that IT governance, as part of enterprise governance, is adequately addressed, advise on strategic direction and review major investments on behalf of the full Board.</i></p>	<ul style="list-style-type: none"> – Establish a committee that will oversee investments in programmes on behalf of the full Board

PO4.3 IT Steering Committee	
CobIT Requirements	Implication for IT Programme Management
<p><i>Establish an IT steering committee (or equivalent) composed of executive, business and IT management to:</i></p> <ul style="list-style-type: none"> – <i>Determine prioritisation of IT-enabled investment programmes in line with the enterprise's business strategy and priorities</i> – <i>Track status of projects and resolve resource conflict</i> – <i>Monitor service levels and service improvements</i> 	<p>The Committee required on PO4.1 should:</p> <ul style="list-style-type: none"> – Determine prioritisation of IT-enabled investment programmes in line with the enterprise's business strategy and priorities – Track status of projects – Resolve resource conflict

D.3 PO5 Manage the IT Investment

PO5.1 Financial Management Framework	
CobIT Requirements	Implication for IT Programme Management
<i>Establish and maintain a financial framework to manage the investment and cost of IT assets and services through portfolios of IT-enabled investments, business cases and IT budgets.</i>	– A financial management framework must be established and maintained to manage the IT programme.

PO5.2 Prioritisation Within IT Budget	
CobIT Requirements	Implication for IT Programme Management
<i>Implement a decision-making process to prioritise the allocation of IT resources for operations, projects and maintenance to maximise IT's contribution to optimising the return on the enterprise's portfolio of IT-enabled investment programmes, and other IT services and assets.</i>	A decision-making process must be implemented within an IT programme in order to prioritise the allocation of IT resources among projects.

PO5.3 IT Budgeting	
CobIT Requirements	Implication for IT Programme Management
<p><i>Establish and implement practices to prepare a budget reflecting the priorities established by the enterprise's portfolio of IT-enabled investment programmes, including the on-going costs of operating and maintaining the current infrastructure. The practices should support development of an overall IT budget as well as development of budgets for individual programmes, with specific emphasis on the IT components of those programmes. The practices should allow for on-going review, refinement and approval of the overall budget, and the budgets for individual programmes.</i></p>	<p>Develop the programme budget with specific emphasis on the IT component of the programme. The practice should allow for review, refinement and approval.</p>

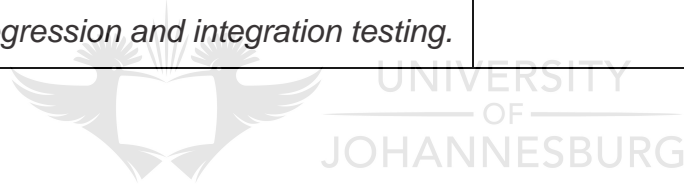


PO5.4 Cost Management	
CobIT Requirements	Implication for IT Programme Management
<p><i>Implement a cost management process comparing actual costs to budgets. Costs should be monitored and reported. Where there are deviations, these should be identified in a timely manner and the impact of those deviations on programmes should be assessed. Together with the business sponsor of those programmes, appropriate remedial action should be taken and, if necessary, the programme business case should be updated.</i></p>	<p>As it is</p>

PO 5.5 Benefit Management	
CobIT Requirements	Implication for IT Programme Management
<p><i>Implement a process to monitor the benefits from providing and maintaining appropriate IT capabilities. IT's contribution to the business, either as a component of IT-enabled investment programmes or as part of regular operational support, should be identified and documented in a business case, agreed to, monitored and reported. Reports should be reviewed and, where there are opportunities to improve IT's contribution, appropriate actions should be defined and taken. Where changes in IT's contribution impact the programme, or where changes to other related projects impact the programme, the programme business case should be updated.</i></p>	<ul style="list-style-type: none"> – Implement a process to monitor the benefits from providing appropriate IT capabilities. – The contribution to the business of the component of IT programmes should be identified and documented in a business case, agreed to, monitored and reported. – Reports should be reviewed and, where there are opportunities to improve the programme contribution, appropriate actions should be defined and taken. – Where changes in the programme contribution impact the programme, or where changes to other related projects impact the programme, the programme business case should be updated.

D.4 PO8 Manage Quality

PO8.3 Development and Acquisition Standards	
CobIT Requirements	Implication for IT Programme Management
<i>Adopt and maintain standards for all development and acquisition that follow the life cycle of the ultimate deliverable, and include sign-off at key milestones based on agreed-upon sign-off criteria. Consider software coding standards; name conventions; file formats, schema and data dictionary design standards; user interface standards; interoperability; system performance efficiency; scalability; standards for development and testing; validation against requirements; test plans; and unit, regression and integration testing.</i>	As it is



D.5 PO6 Communicate Management Aims and Direction

PO6.1 IT Policy and Control Environment	
CobIT Requirements	Implication for IT Programme Management
<p><i>Define the elements of a control environment for IT, aligned with the enterprise's management philosophy and operating style. These elements should include expectations/ requirements regarding delivery of value from IT investments, appetite for risk, integrity, ethical values, staff competence, accountability and responsibility. The control environment should be based on a culture that supports value delivery whilst managing significant risks, encourages cross-divisional co-operation and teamwork, promotes compliance and continuous process improvement, and handles process deviations (including failure) well.</i></p>	<p>– Define elements of control environment for the IT programme in terms of expectations/ requirements regarding delivery of value from the programme, appetite for risk, integrity, ethical values, staff competence, accountability and responsibility, based on a culture that supports value delivery whilst managing significant risks.</p>

PO6.5 Communication of IT Objectives and Direction	
CobIT Requirements	Implication for IT Programme Management
<i>Communicate awareness and understanding of business, as well as IT objectives and direction to appropriate stakeholders and users throughout the enterprise.</i>	– Awareness and understanding of business objectives, IT objectives and direction must be communicated to the IT programme stakeholders.

D.6 PO10 Manage Projects

PO10.1 Programme Management Framework	
CobIT Requirements	Implication for IT Programme Management
<i>Maintain the programme of projects, related to the portfolio of IT-enabled investment programmes by identifying, defining, evaluating, prioritising, selecting, initiating, managing and controlling projects. Ensure that the projects support the programme objectives. Co-ordinate the activities and interdependencies of multiple projects, manage the contribution of all the projects within the programme to expected outcomes, and resolve resource requirements and conflicts.</i>	As it is

PO10.2 Project Management Framework	
CobIT Requirements	Implication for IT Programme Management
<p><i>Establish and maintain a project management framework that defines the scope and boundaries of managing projects, as well as the method to be adopted and applied to each project undertaken. The framework and supporting method should be integrated with the programme management processes.</i></p>	<p>As it is</p>

PO10.3 Project Management Approach	
CobIT Requirements	Implication for IT Programme Management
<p><i>Establish a project management approach commensurate with the size, complexity and regulatory requirements of each project. The project governance structure can include the roles, responsibilities and accountabilities of the programme sponsor, project sponsors, steering committee, project office and project manager, and the mechanisms through which they can meet those responsibilities (such as reporting and stage reviews). Make sure all IT projects have sponsors with sufficient authority to own the execution of the project within the overall strategic programme.</i></p>	<p>As it is</p>

PO10.4 Stakeholder Commitment	
CobIT Requirements	Implication for IT Programme Management
<p><i>Obtain commitment and participation from the affected stakeholders in the definition and execution of the project within the context of the overall IT-enabled investment programme.</i></p>	<p>As it is</p>

PO10.5 Project Scope Statement	
CobIT Requirements	Implication for IT Programme Management
<p><i>Define and document the nature and scope of the project to confirm and develop amongst stakeholders a common understanding of project scope and how it relates to other projects within the overall IT-enabled investment programme. The definition should be formally approved by the programme and project sponsors before project initiation.</i></p>	<p>PO10.5 Project Scope Statement (1) As it is</p> <p>PO10.5 Project Scope Statement (2) Programme and project sponsors must approve the definition of the project scope and its relation to other projects within the programme.</p>

PO10.6 Project Phase Initiation	
CobIT Requirements	Implication for IT Programme Management
<p><i>Approve the initiation of each major project phase and communicate it to all stakeholders. Base the approval of the initial phase on programme governance decisions. Approval of subsequent phases should be based on review and acceptance of the deliverables of the previous phase, and approval of an updated business case at the next major review of the programme. In the event of overlapping project phases, an approval point should be established by programme and project sponsors to authorise project progression.</i></p>	<p>PO10.6 Project Phase Initiation (1) As it is</p> <p>PO10.6 Project Phase Initiation (2) Programme and project sponsors must approve the initiation of each major project phase. In the case of overlapping project phases, they must establish an approval point.</p>

PO10.7 Integrated Project Plan	
CobIT Requirements	Implication for IT Programme Management
<p><i>Establish a formal, approved integrated project plan (covering business and information systems resources) to guide project execution and control throughout the life of the project. The activities and interdependencies of multiple projects within a programme should be understood and documented. The project plan should be maintained throughout the life of the project. The project plan and changes to it should be approved in line with the programme and project governance framework.</i></p>	<p>As it is</p>

PO10.8 Project Resources	
CobIT Requirements	Implication for IT Programme Management
<p><i>Define the responsibilities, relationships, authorities and performance criteria of project team members, and specify the basis for acquiring and assigning competent staff members and/or contractors to the project. The procurement of products and services required for each project should be planned and managed to achieve project objectives using the organisation's procurement practices.</i></p>	<p>As it is</p>



PO10.9 Project Risk Management	
CobIT Requirements	Implication for IT Programme Management
<p><i>Eliminate or minimise specific risks associated with individual projects through a systematic process of planning, identifying, analysing, responding to, monitoring and controlling the areas or events that have the potential to cause unwanted change. Risks faced by the project management process and the project deliverable should be established and centrally recorded.</i></p>	<p>As it is</p>

PO10.10 Project Quality Plan	
CobIT Requirements	Implication for IT Programme Management
<p><i>Prepare a quality management plan that describes the project quality system and how it will be implemented. The plan should be formally reviewed and agreed to by all parties concerned, and then incorporated into the integrated project plan.</i></p>	<p>As it is</p>

PO10.11 Project Change Control	
CobIT Requirements	Implication for IT Programme Management
<p><i>Establish a change control system for each project, so all changes to the project baseline (e.g. cost, schedule, scope, quality) are appropriately reviewed, approved and incorporated into the integrated project plan in line with the programme and project governance framework.</i></p>	<p>As it is</p>

PO10.12 Project Planning of Assurance Methods	
CobIT Requirements	Implication for IT Programme Management
<p><i>Identify assurance tasks required to support the accreditation of new or modified systems during project planning and include them in the integrated project plan. The tasks should provide assurance that internal controls and security features meet the defined requirements.</i></p>	<p>As it is</p>

PO10.13 Project Performance Measurement, Reporting and Monitoring	
CobIT Requirements	Implication for IT Programme Management
<p><i>Measure project performance against key project performance scope, schedule, quality, cost and risk criteria. Identify any deviations from the plan. Assess the impact of deviations on the project and overall programme, and report results to key stakeholders.</i></p> <p><i>Recommend, implement and monitor remedial action, when required, in line with the programme and project governance framework.</i></p>	<p>As it is</p>

PO10.14 Project Closure	
CobIT Requirements	Implication for IT Programme Management
<p><i>Require that, at the end of each project, the project stakeholders ascertain whether the project delivered the planned results and benefits. Identify and communicate any outstanding activities required to achieve the planned results of the project and the benefits of the programme, and identify and document lessons learned for use on future projects and programmes.</i></p>	<p>As it is</p>

D.7 AI1 Identify Automated Solutions

AI1.1 Definition and Maintenance of Business Functional and Technical Requirements	
CobIT Requirements	Implication for IT Programme Management
<p><i>Identify, prioritise, specify and agree on business functional and technical requirements covering the full scope of all initiatives required to achieve the expected outcomes of the IT-enabled investment programme.</i></p>	<p>As it is</p>

A11.2 Risk Analysis Report	
CobIT Requirements	Implication for IT Programme Management
<i>Identify, document and analyse risks associated with the business requirements and solution design as part of the organisation's process for the development of requirements.</i>	As it is

A11.3 Feasibility Study and Formulation of Alternative Courses of Action	
CobIT Requirements	Implication for IT Programme Management
<i>Develop a feasibility study that examines the possibility of implementing the requirements. Business management, supported by the IT function, should assess the feasibility and alternative courses of action, and make recommendations to the business sponsor.</i>	<p>A11.3 Feasibility Study and Formulation of Alternative Courses of Action (1)</p> <p>As it is</p> <p>A11.3 Feasibility Study and Formulation of Alternative Courses of Action (2)</p> <ul style="list-style-type: none"> – Business management, supported by the IT function, should assess the feasibility and alternative courses of action for the implementation of requirements and make recommendations to the business sponsor.

A11.4 Requirements and Feasibility Decision and Approval	
CobIT Requirements	Implication for IT Programme Management
<p><i>Verify that the process requires the business sponsor to approve and sign off on business functional and technical requirements as well as feasibility study reports at predetermined key stages. The business sponsor should make the final decision with respect to the choice of solution and acquisition approach.</i></p>	<p>A11.4 Requirements and Feasibility Decision and Approval (1) As it is</p> <p>A11.4 Requirements and Feasibility Decision and Approval (2) The business sponsor must approve and sign off on business functional and technical requirements as well as feasibility study reports with respect to the choice of solution and acquisition approach.</p>

D.8 ME1 Monitor and Evaluate IT Performance

ME1.5 Board and Executive Reporting	
CobIT Requirements	Implication for IT Programme Management
<p><i>Develop senior management reports on IT's contribution to the business, specifically in terms of the performance of the enterprise's portfolio, IT-enabled investment programmes, and the solution and service deliverable performance of individual programmes. Include in status reports the extent to which planned objectives have been achieved, budgeted resources used, set performance targets met and identified risks mitigated. Anticipate senior management's review by suggesting remedial actions for major deviations. Provide the report to senior management and solicit feedback from management's review.</i></p>	<p>Develop a report on the performance of the enterprise's portfolio, IT-enabled investment programmes, and the solution and service deliverable performance of individual programmes. Include in status reports the extent to which planned objectives have been achieved, budgeted resources used, set performance targets met and identified risks mitigated. Anticipate senior management's review by suggesting remedial actions for major deviations. Provide the report to senior management, and solicit feedback from management's review.</p>

D.9 ME4 Provide IT Governance

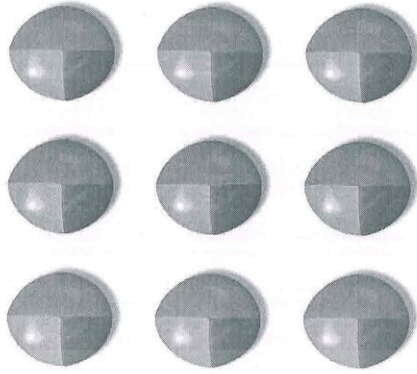
ME4.3 Value Delivery	
CobIT Requirements	Implication for IT Programme Management
<p><i>Manage IT-enabled investment programmes, and other IT assets and services to ensure that they deliver the greatest possible value in supporting the enterprise's strategy and objectives. Ensure that the expected business outcomes of IT-enabled investments and the full scope of effort required to achieve those outcomes are understood, comprehensive and consistent business cases are created and approved by stakeholders, assets and investments are managed throughout their economic life cycle and there is active management of the realisation of benefits, such as contribution to new services, efficiency gains and improved responsiveness to customer demands. Enforce a disciplined approach to portfolio, programme and project management, insisting that the business takes ownership of all IT-enabled investments and IT ensures optimisation of the costs of delivering IT capabilities and services.</i></p>	<ul style="list-style-type: none"> – Manage IT-enabled investment programmes to ensure that they deliver the greatest possible value in supporting the enterprise's strategy and objectives. – Ensure that the expected business outcomes of IT-enabled investments and the full scope of effort required to achieve those outcomes are understood, comprehensive and consistent business cases are created and approved by stakeholders, assets and investments are managed throughout their economic life cycle and there is active management of the realisation of benefits, such as contribution to new services, efficiency gains and improved responsiveness to customer demands. – Enforce a disciplined

	<p>approach to portfolio, programme and project management, insisting that the business takes ownership of all IT-enabled investments and IT ensures optimisation of the costs of delivering IT capabilities and services.</p>
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ME4.6 Performance Measurement	
CobIT Requirements	Implication for IT Programme Management
<p><i>Confirm that agreed-upon IT objectives have been met or exceeded, or that progress toward IT goals meets expectations. Where agreed-upon objectives have been missed or progress is not as expected, review management's remedial action. Report to the Board relevant portfolios, programme and IT performance, supported by reports to enable senior management to review the enterprise's progress toward identified goals.</i></p>	<p>– Report to the Board relevant programme performance, supported by reports to enable senior management to review the enterprise's progress toward identified goals.</p>

Appendix E

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Association for Project Management
Directing Change
A guide to governance of project management



Association for Project Management

150 West Wycombe Road

High Wycombe

Buckinghamshire HP12 3AE

Tel: 0845 458 1944

Fax: 01494 528 937

Email: info@apm.org.uk

Web: www.apm.org.uk/gopm



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4.1 Portfolio direction - effectiveness and efficiency

This component seeks to ensure that all projects are identified within the one portfolio. This portfolio should be evaluated and directed mindful of the organisation's aims and constraints.

Key questions

PD1	Is the organisation's project portfolio aligned with its key business objectives, including those of profitability, customer service, reputation, sustainability and growth?
PD2	Are the organisation's financial controls, financial planning and expenditure review processes applied to both individual projects and the portfolio as a whole?
PD3	Is the project portfolio prioritised, refreshed, maintained and pruned in such a way that the mix of projects continues to support strategy and take account of external factors?
PD4	Does the organisation discriminate correctly between activities that should be managed as projects and other activities that should be managed as non-project operations?
PD5	Has the organisation assessed the risks associated with the project portfolio, including the risk of corporate failure?
PD6	Is the project portfolio consistent with the organisation's capacity?
PD7	Does the organisation's engagement with project suppliers encourage a sustainable portfolio by ensuring their early involvement and by a shared understanding of the risks and rewards?
PD8	Does the organisation's engagement with its customers encourage a sustainable portfolio?
PD9	Does the organisation's engagement with the sources of finance for its projects encourage a sustainable portfolio?
PD10	Has the organisation assured itself that the impact of implementing its project portfolio is acceptable to its ongoing operations?

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4.2 Project sponsorship - effectiveness and efficiency

This component seeks to ensure that project sponsorship is the effective link between the organisation's senior executive body and the management of the project. The sponsoring role has decision making, directing and representational accountabilities.

Project sponsors are variously titled, for example Senior Responsible Owner, and may be located at different levels in organisations. Project sponsors are the route through which project managers directly report and from which project managers obtain their formal authority, remit and decisions. Sponsors own the project business case.

Competent project sponsorship is of great benefit to even the best project managers.

Key questions

PS1	Do all major projects have competent sponsors at all times?
PS2	Do sponsors devote enough time to the project?
PS3	Do project sponsors hold regular meetings with project managers and are they sufficiently aware of the project status?
PS4	Do project sponsors provide clear and timely directions and decisions?
PS5	Do project sponsors ensure that project managers have access to sufficient resources with the right skills to deliver projects?
PS6	Are projects closed at the appropriate time?
PS7	Is independent advice used for appraisal of projects?
PS8	Are sponsors accountable for and do they own and maintain the business case?
PS9	Are sponsors accountable for the realisation of benefits?
PS10	Do sponsors adequately represent the project throughout the organisation?
PS11	Are the interests of key project stakeholders, including suppliers, regulators and providers of finance, aligned with project success?

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4.3 Project management – effectiveness and efficiency

This component seeks to ensure that the teams responsible for projects are capable of achieving the objectives that are defined at project approval points. Project team capability is driven by a number of factors, including the skills and experience of project leaders, the resources available to them and the tools and processes they are able to deploy. The board and project sponsors should take these factors into account when assessing the effectiveness of their project teams and identifying improvement priorities.

Efficient project management requires effective delegation that allows decisions to be made at a level that is consistent with the organisation's system for internal control.

Key questions

PM1	Do all projects have clear critical success criteria and are they used to inform decision-making?
PM2	Is the board assured that the organisation's project management processes and project management tools are appropriate for the projects that it sponsors?
PM3	Is the board assured that the people responsible for project delivery, especially the project managers, are clearly mandated, sufficiently competent, and have the capacity to achieve satisfactory project outcomes?
PM4	Are project managers encouraged to develop opportunities for improving project outcomes?
PM5	Are key governance of project management roles and responsibilities clear and in place?
PM6	Are service departments and suppliers able and willing to provide key resources tailored to the varying needs of different projects and to provide an efficient and responsive service?
PM7	Are appropriate issue, change and risk management practices implemented in line with adopted policies?
PM8	Is authority delegated to the right levels, balancing efficiency and control?
PM9	Are project contingencies estimated and controlled in accordance with delegated powers?

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4.4 Disclosure and reporting – effectiveness and efficiency

This component seeks to ensure that the content of project reports will provide timely relevant and reliable information that supports the organisation's decision making processes, without fostering a culture of micro-management. It is important for the organisation to distinguish between key drivers of success and key indicators of success: an effective reporting process will therefore include measures of both.

An efficient reporting process will minimise the reporting burden throughout the organisation without compromising effectiveness.

A culture of open and honest disclosure is a key requirement for effective reporting. Where internal or external pressures pose threats to this, independent verification of information should be required. Such threats are frequently present prior to major project approvals or when projects start to encounter serious difficulties. Disclosure should be extended to all stakeholders to the extent that they have a legitimate interest in project information.

*2. Role and Responsibilities
3. Policy, Procedure...
5. Disclosure and Reporting*

*2. Role and Responsibilities
3. Policy, Procedure...*

Key questions

DR1	Does the board receive timely, relevant and reliable information of project forecasts, including those produced for the business case at project authorisation points?
DR2	Does the board receive timely, relevant and reliable information of project progress?
DR3	Does the board have sufficient information on significant project-related risks and their management?
DR4	Are there threshold criteria that are used to escalate significant issues, risks and opportunities through the organisation to the board?
DR5	Does the organisation use measures for both key success drivers and key success indicators?
DR6	Is the organisation able to distinguish between project forecasts based on targets, commitments and expected outcomes?
DR7	Does the board seek independent verification of reported project and portfolio information as appropriate?
DR8	Does the board reflect the project portfolio status in communications with key stakeholders?
DR9	Does the business culture encourage open and honest reporting?
DR10	Where responsibility for disclosure and reporting is delegated or duplicated, does the board ensure that the quality of information that it receives is not compromised?
DR11	Is a policy supportive of whistleblowers effective in the management of projects?
DR12	Do project processes reduce reporting requirements to the minimum necessary?

5. Postscript

5.1 Disclaimer

This guide is intended solely to provide practical guidance relating to the establishment of good governance of project management. This guide is not intended to comprise advice on which you may rely in order to ensure compliance with any legal obligations regarding corporate governance. All liability is excluded in respect of any loss or damage which may arise in connection with the use of or reliance on any information contained in this guide.

5.2 Acknowledgements

This document was prepared by the Governance of Project Management Specific Interest Group of the Association for Project Management between October 2003 and July 2004.

The editing committee listed below would welcome any feedback:

David Shannon	OPM	david.shannon@oxfordprojectmanagement.com
Ian Isaac	02	ian.isaac@02.com
John Slocombe	atcom	john@atcom.me.uk
Martin Hopkinson	HVR	martin.hopkinson@hvr-csl.co.uk

Other members of the group who made significant contributions include:

Alistair Godbold, Carol Long, Glenn Webb, Hartley Millar, Helen Graham, John Caton, John Knott, Martin Samphire, Michael Hougham, Peter Gulliver, Phil Stride, Terry Cooke-Davies, Tim Banfield.

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Appendix F

The Nyandongo IT Programme Management Governance Framework

F.1 Overview

This appendix provides the developed conceptual framework for IT programme management governance. It presents an integrated view of corporate, IT and project governance using Sarbanes-Oxley Act (2002), Control Objective for Information and Related Technologies (2007), and the Guide to Governance of Project Management (2004).

The framework contains:

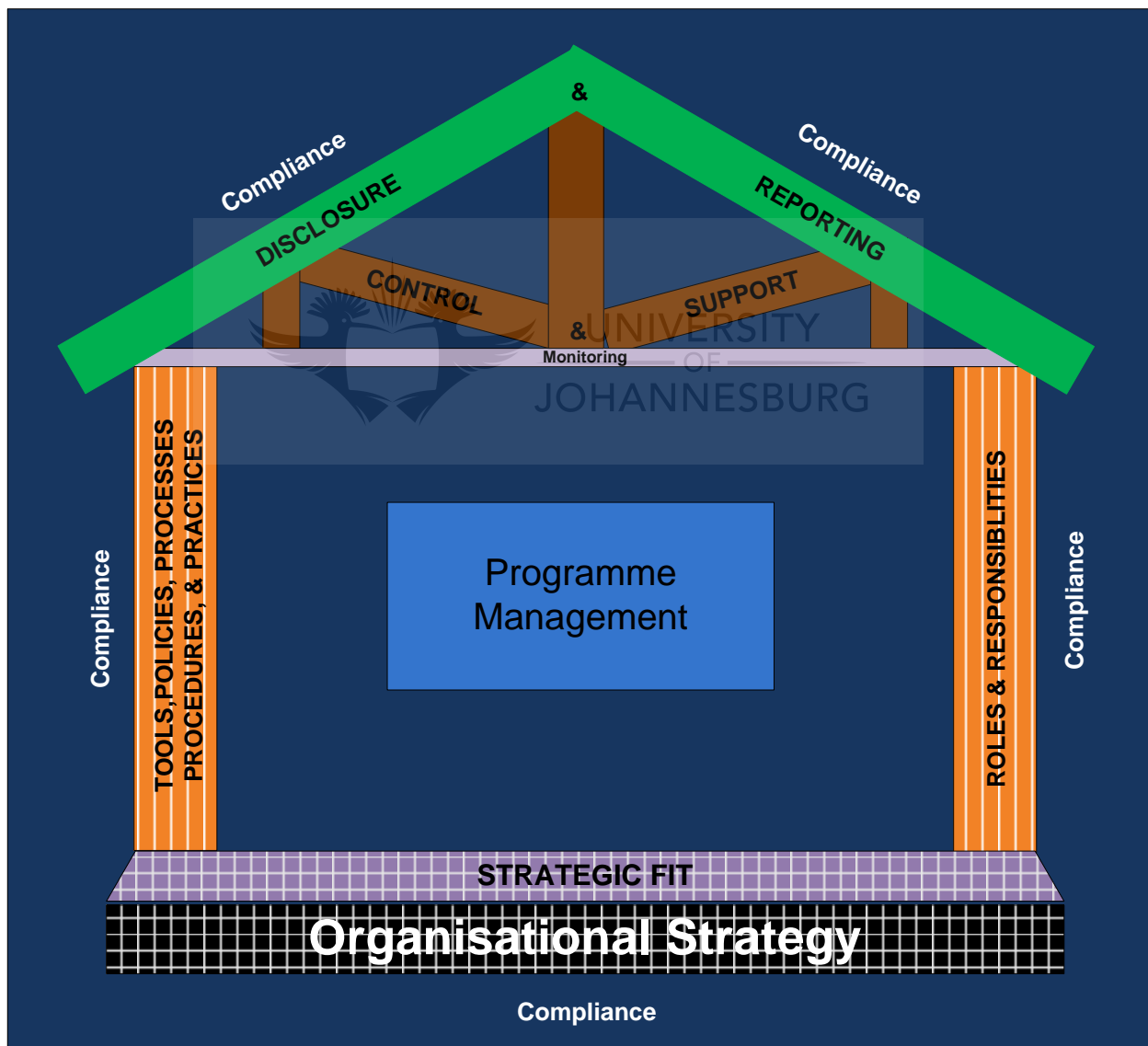
- **Strategic fit** mechanisms that ensure that the programme fits within the organisational strategy throughout its lifecycle by providing guidance, direction, leadership, approval and oversight
- **Tools, policies, processes, procedures and practices** that underpin the management of a programme as well as their consistent application and interpretation throughout the programme lifecycle
- **Roles and responsibilities** that establish a clear source of authority and decision-making, enabling effective oversight and management, and addressing the need for direction and decision required at the strategic fit component
- **Control and support** mechanisms that identify performance gaps, acknowledge issues while developing support mechanisms and the necessary resources for effective corrective actions based on governance mandates from the preceding components, organisational rules and policies.

- **Disclosure and reporting** that ensure that timely, relevant, accurate and reliable information is provided to programme stakeholders for effective decision-making

F.2 Components and Their Interrelations

The overall IT Programme Management Governance Framework is depicted in the following figure. The framework has been broken down in five building blocks that constitute the components of the framework.

Graphical representation of the framework



As illustrated in the above diagram, the structure of a house has been adopted to represent how governing a programme should be operated.

In order to build a house, the engineering team, in interaction with architects and quantity surveyors, starts with a feasibility study based on the client's needs. One of the important steps in the feasibility study is to determine the nature of the soil on which the structure will be erected. Intrinsic properties of the soil such as bearing capacity, water table position and land escape should be analysed. Based on the intrinsic properties of the soil the required foundation will be laid.

In this framework the client represents the parent organisation and the soil represents the organisational strategy that must be analysed in order to determine the need. The strategic fit constitutes the foundation of efforts of the programme management governance. It is the main reason for which a programme can be undertaken. The benefit that a programme strives to achieve will be of value only if it fits into the organisational business strategy. As for a house that lacks a solid foundation, a programme that does not fit into the organisational strategy will not be worth undertaking. Once the foundation has been laid all the super structuring elements such as columns and load bearings, which transfer the charge to the foundation, will be built.

In the context of the programme governance framework the strategic fit of a programme from initiation to completion will be assured by two columns (pillars) that hold the management of programmes. These are: (i) tools, policies, processes, procedures and practices that must be deployed intelligently in combination with (ii) clearly defined roles and responsibilities for an effective oversight and management of programme activities.

After the building of super structuring elements the covering system, which includes roof sheeting and roof trusses is put into place to prevent outside elements such as rainwater, cold and the sun from affecting the internal portion of the building.

As for a house and considering that things will not always go as planned, and that internal and external factors can impede the effectiveness of programme management, an effective system of control and support (roof sheeting) is needed to

identify trends and correct them, while disclosure and reporting (roof trusses) ensure effective communication and timely decision-making.

The all site or the all effort relates to compliance, which is the ultimate goal of the governance framework.

F.2.1 Strategic Fit

The importance of a programme depends on the extent to which it supports the strategic objectives of the organisation. The Office of Government Commerce (OGC, 2007) includes among elements of this component the vision of the future, leadership, direction, the value to be added and the transformational change to be achieved while considering the volatile characteristic of the organisational strategy. Therefore, the first step of governing a programme is to ensure its fit into the organisational strategy.

The strategic fit component strives for the providence of guidance, directions, approval, over-sight and leadership in order to ensure that the programme remains aligned with the strategic vision. Thus, the benefit and value it entails remain relevant to the strategic context. Hanford (2005) states that programmes need a mechanism that will maintain the link between the programme and the business strategy throughout planning and execution. It is in this context that the Project Management Institute (PMI, 2006) describes programmes and programme management as the strategy implementation vehicles.

Component 1: Strategic Fit	
No	Description
PMGM 1	<p>Programme Prioritisation and Direction</p> <p>Actively manage with the business the portfolio of IT-enabled investment programmes required to achieve specific strategic business objectives by identifying, defining, evaluating, prioritising, selecting, initiating, managing and controlling programmes. This should include clarifying desired business outcomes, ensuring that programme objectives support achievement of the outcomes, understanding the full scope of effort required to achieve the outcomes, assigning clear accountability with supporting measures, defining projects within the programme, allocating resources and funding, delegating authority and commissioning required projects at programme launch.</p>
PMGM 2	<p>Providing Direction</p> <p>Awareness and understanding of business and IT objectives as well as IT direction must be communicated to IT programme stakeholders.</p>
PMGM 3	<p>Business Consideration</p> <p>Identify, prioritise, specify and agree on business functional and technical requirements covering the full scope of all initiatives required to attain the expected outcomes of the IT-enabled investment programme.</p>
PMGM 4	<p>Business Risk Analysis</p> <p>Identify, document and analyse risks associated with the business requirements and solution design as part of the process of the organisation for the development of requirements.</p>
PMGM 5	<p>Studying Feasibility and Alternatives</p> <p>Develop a feasibility study that examines the possibility of implementing the requirements. Business management, supported by the IT function, should assess the feasibility and alternative courses of action, and make a recommendation to the business sponsor.</p>

Component 1: Strategic Fit	
No	Description
PMGM 6	<p>Decision and Approval</p> <p>Verify that the process requires the business sponsor to approve and sign off on business functional and technical requirements as well as feasibility study reports at predetermined key stages. The business sponsor should make the final decision with respect to the choice of solution and acquisition approach.</p>

F.2.2 Roles and Responsibilities

Although the uniqueness of each programme and the uniqueness of each organization, which in turn require a unique structure, literature accentuate the need to organise a programme, by providing the right combination of an effective structure, the right individuals, and their roles and responsibilities (Reiss, Anthony, Chapman, Leigh, Pyne & Rayner, 2006; PMI, 2008b; Capital Ambition, 2009).

Hanford (2004) states that “a poorly articulated management structure, overlapping roles, decision-making authorities and roles filled by the wrong people can prevent a programme from achieving sustained momentum or bog it down with endless attempt to achieve consensus on every decision”.

Therefore, the purpose of this component is to define clear roles and assign well-understood responsibilities in order to ensure that there are clear sources of authority and decision-making, effective oversight and management, and the need for direction and decision is addressed.

Component 2: Roles and Responsibilities	
No	Description
PMGM 7	<p>Accountability and Responsibility for Programme Financial Reporting</p> <p>Accountability and responsibility for financial reporting must be defined. Penalties related to financial reporting must be extended to the authority of the programme accountable.</p>
PMGM 8	<p>Sponsor Accountability for Benefit and Financial Statement</p> <p>The sponsor is accountable for achieving benefit and controlling cost. He must sign the financial statement of the programme, and ensure its reliability and accuracy.</p>
PMGM 9	<p>Board and Quality of Information</p> <p>Where responsibility of disclosure and reporting are delegated or duplicated, the Board must make use of external auditors in order to ensure that received information is not compromised and the assessment of internal control made by management remains effective.</p>
PMGM 10	<p>Accountability and Responsibility for Record</p> <p>Define responsibilities and accountability for record retention.</p>
PMGM 11	<p>Overseeing Investment</p> <p>Establish a committee that oversees investments in programmes on behalf of the full Board.</p>
PMGM 12	<p>Mission of the Committee</p> <p>The committee required at PO4.2 should</p> <ul style="list-style-type: none"> – determine prioritisation of IT-enabled investment programmes in line with the business strategy and priorities of the enterprise; – track the status of projects; and – resolve resource conflict.

Component 2: Roles and Responsibilities	
No	Description
PMGM 13	<p>Business Management and Feasibility Studies</p> <p>Business management, supported by the IT function, should assess the feasibility and alternative courses of action for the implementation of requirements and make recommendations to the business sponsor.</p>
PMGM 14	<p>Business Sponsor and Feasibility Studies</p> <p>The business sponsor must approve and sign off on business functional and technical requirements as well as the feasibility study report with respect to the choice of solution and acquisition approach.</p>
PMGM 15	<p>Programme and Project Sponsor Responsibilities for Project Scope</p> <p>Programme and project sponsor must approve the definition of the project scope and its relation to other projects within the programme.</p>
PMGM 16	<p>Programme and Project Sponsors, and Project Initiation and Progression</p> <p>Programme and project sponsors must approve the initiation of each major project phase. In the case of overlapping project phases, they must establish an approval point.</p>
PMGM 17	<p>Sponsor Time Management</p> <p>Sponsors must devote enough time to the project.</p>
PMGM 18	<p>Sponsors, Project Status and Meetings</p> <p>Project sponsors must hold regular meetings with project managers and they must be sufficiently aware of the project status.</p>
PMGM 19	<p>Sponsors, Direction and Decisions</p> <p>Project sponsors must provide clear and timely direction and decisions.</p>

Component 2: Roles and Responsibilities	
No	Description
PMGM 20	<p>Sponsors, Resources and Skills</p> <p>Project sponsors must ensure that project managers have access to sufficient resources with the right skills to deliver projects.</p>
PMGM 21	<p>Sponsor Accountability for the Business Case</p> <p>Sponsors must be accountable for, own and maintain the business case.</p>
PMGM 22	<p>Sponsors and Project Representation</p> <p>Sponsors must represent the project throughout the organisation.</p>
PMGM 23	<p>Governance Within Projects</p> <p>Key governance of project management roles and responsibilities must be clear and in place.</p>
PMGM 24	<p>Delegation of Authority</p> <p>Authority must be delegated to the right levels, balancing efficiency and control.</p>
PMGM 25	<p>The Board, and Programme and Project Management Tools and Processes</p> <p>The Board must be assured that the project and programme management processes and project, as well as the programme management tools of the organisation are appropriate for the projects it sponsors.</p>
PMGM 26	<p>Board and Project Delivery</p> <p>The Board must be assured that the people responsible for project and programme delivery, especially the project and programme managers, are clearly mandated and sufficiently competent, and have the capacity to attain satisfactory project and programme outcomes.</p>

Component 2: Roles and Responsibilities	
No	Description
PMGM 27	<p>Board and Risk Information</p> <p>The Board must have sufficient information on significant project-related risks and their management.</p>

F.2.3 Tools, Policies, Processes, Procedures and Practices

This component seeks to ensure that the teams of the programme are enabled to achieve the programme goal by providing them with tools, policies, processes, procedures and practices that must be intelligently and constantly applied to the programme activities.

The outcome of this component can be linked to what Pellegrinelli (2008), and Williams and Parr (2008) refer to as the consistent application and interpretation of standards, guidelines and principles. This will finally ensure that there is a well-defined approach, which is understood and agreed to by all parties (Girling, 2009).

This component includes elements such as project and programme methodologies, benefit and value management, risk issue and change management, financial management, quality management and success evaluation.

Although the above elements sound more programme management-related than programme governance, thus causing some confusion, it must be specified that there is a difference between the two on how these elements are addressed. At the highest level governance defines what must be done for each of the above elements, while management refers to how it should be done by providing details on their development and implementation (Sohal & Fitzpatrick, 2002; Brown, 2006; Stretton, 2010).

Component 3: Tools, Policies, Procedures, Processes and Practices	
No	Description
PMGM 28	<p>Programme Management Framework</p> <p>Maintain the programme of projects related to the portfolio of IT-enabled investment programmes by identifying, defining, evaluating, prioritising, selecting, initiating, managing and controlling projects. Ensure that the projects support the programme objectives. Coordinate the activities and interdependencies of multiple projects, manage the contribution of all the projects within the programme to expected outcomes, and resolve resource requirements and conflicts.</p>
PMGM 29	<p>Project Management Framework</p> <p>Establish and maintain a project management framework that defines the scope and boundaries of managing projects as well as the method to be adopted and applied to each project undertaken. The framework and supporting method should be integrated with the programme management processes.</p>
PMGM 30	<p>Project Management Approach and Sponsor Competency</p> <p>Establish a project management approach commensurate with the size, complexity and regulatory requirements of each project. The project governance structure can include the roles, responsibilities and accountabilities of the programme sponsor, project sponsors, steering committee, project office, project manager and the mechanisms through which they can meet those responsibilities (such as reporting and stage reviews). Make sure all IT projects have all the times and competent sponsors with sufficient authority to own the execution of the project within the overall strategic programme.</p>

Component 3: Tools, Policies, Procedures, Processes and Practices	
No	Description
PMGM 31	<p>Value Management</p> <p>Develop solid business cases for the programme. Establish fair, transparent, repeatable and comparable evaluation of business cases, including financial worth, the risk of not delivering a capability and the risk of not realising the expected benefits.</p>
PMGM 32	<p>Programme and Project Outcome</p> <p>Project and programme managers must be encouraged to develop opportunities for improving project and programme outcomes.</p>
PMGM 33	<p>Financial Management Framework</p> <p>A financial management framework must be established and maintained to manage IT programmes.</p>
PMGM 34	<p>Prioritisation of Programme Components</p> <p>Within an IT programme a decision-making process must be implemented in order to prioritise the allocation of IT resources among projects.</p>
PMGM 35	<p>Programme Budgeting</p> <p>Develop the programme budget with specific emphasis on the IT component of the programme. The practice should allow for review, refinement and approval.</p>
PMGM 36	<p>Stakeholder Commitment and Participation</p> <p>Obtain commitment and participation from the affected stakeholders in the definition and execution of the project within the context of the overall programme by aligning interests of key stakeholders such as suppliers, regulator and providers of finance with project success. Ensure that departments and suppliers are able and willing to provide key resources tailored to the varying needs of different projects and the programme, and to provide an efficient and responsive service.</p>

Component 3: Tools, Policies, Procedures, Processes and Practices	
No	Description
PMGM 37	<p>Project Scope and its Link to the Programme</p> <p>Define and document the nature and scope of the project to confirm and develop a common understanding of the project scope and how it relates to other projects within the overall IT-enabled investment programme among stakeholders. The definition should be formally approved by the programme and project sponsors before project initiation.</p>
PMGM 38	<p>Programme Governance in Project Initiation and Approval Points</p> <p>Approve the initiation of each major project phase and communicate it to all stakeholders. Base the approval of the initial phase on programme governance decisions. Approval of subsequent phases should be based on review and acceptance of the deliverables of the previous phase, and approval of an updated business case at the next major review of the programme. In the event of overlapping project phases, an approval point should be established by programme and project sponsors to authorise project progression.</p>
PMGM 39	<p>Integrated Project Plan and Programme Governance</p> <p>Establish a formal, approved integrated project plan (covering business and information systems resources) to guide the project execution and control throughout the life of the project. The activities and interdependencies of multiple projects within a programme should be understood and documented. The project plan should be maintained throughout the life of the project. The project plan and changes to it should be approved in line with the programme and project governance framework.</p>

Component 3: Tools, Policies, Procedures, Processes and Practices	
No	Description
PMGM 40	<p>Project Resources</p> <p>Define the responsibilities, relationships, authorities and performance criteria of project team members, and specify the basis for acquiring and assigning competent staff members and/or contractors to the project. The procurement of products and services required for each project should be planned and managed to achieve project objectives using the procurement practices of the organisation.</p>
PMGM 41	<p>Issue, Change and Risk Management Practices</p> <p>Appropriate issue, change and risk management practices must be implemented in line with adopted policies.</p>
PMGM 42	<p>Project Contingency</p> <p>Project and programme contingencies must be estimated and controlled in accordance with delegated powers.</p>
PMGM 43	<p>Risk Management</p> <p>Eliminate or minimise specific risks associated with individual projects through a systematic process of planning, identifying, analysing, monitoring, controlling and responding to the areas or events that have the potential of causing unwanted change. Risks faced by the project management process and the project deliverable should be established and centrally recorded.</p>
PMGM 44	<p>Change Control System</p> <p>Establish a change control system for each project, so all changes to the project baseline (e.g. cost, schedule, scope, quality) are appropriately reviewed, approved and incorporated into the integrated project plan in line with the programme and project governance framework.</p>

Component 3: Tools, Policies, Procedures, Processes and Practices	
No	Description
PMGM 45	<p>Development and Acquisition Standards</p> <p>Adopt and maintain standards for all development and acquisition that follow the life cycle of the ultimate deliverable, and include sign-off at key milestones based on agreed-upon sign-off criteria. Consider software coding standards; name conventions; file formats; schema and data dictionary design standards; user interface standards; interoperability; system performance efficiency; scalability; standards for development and testing; validation against requirements; test plans; and unit, regression and integration testing.</p>
PMGM 46	<p>Quality Plan</p> <p>Prepare a quality management plan that describes the project quality system and how it will be implemented. The plan should be formally reviewed and agreed to by all parties concerned, and then incorporated into the integrated project plan.</p>
PMGM 47	<p>Planning of Assurance Method</p> <p>Identify assurance tasks required to support the accreditation of new or modified systems during project planning, and include them in the integrated project plan. The tasks should provide assurance that internal controls and security features meet the defined requirements.</p>
PMGM 48	<p>Programme Success Evaluation</p> <p>Define how programme objectives will be met, the measurements to be used and the procedure to obtain formal sign-off from the stakeholders. The measurements must cover both key success drivers and key success indicators with a clear differentiation between forecast based on target, commitment and expected outcome. Programme budget, funding sources, sourcing strategy, acquisition strategy, and legal and regulatory requirements must be defined.</p>

Component 3: Tools, Policies, Procedures, Processes and Practices	
No	Description
PMGM 49	<p>Appropriate Closure</p> <p>At the end of each project the project stakeholders must ascertain whether the project delivered the planned results and benefits. Identify any outstanding activities required to achieve the planned results of the project and the benefit of the programme. Identify and document lessons learned for use in future projects and programme by implementing a process for retaining programme related documents, correspondence, decision documents and analysis documents for both paper-based and electronic records.</p>

F.2.4 Control and Support

The online Businessdictionary.com (2010) defines *control* as the “management process in which the (i) actual performance is compared with planned performance, (ii) difference between the two is measured, (iii) causes contributing to the difference are identified, and (iv) corrective action is taken to eliminate or minimise the difference”.

In the context of programme governance, after defining rules, policies, processes, procedure and practices, an effective system of control and support needs to be in place. This system will seek to identify and predict trends and variance, and help in implementing corrective actions as soon as they are needed.

The purpose of the control and support components is to identify performance gaps, acknowledge issues, and develop support and resources for effective corrective actions. By doing so, this component will maintain compliance with the rules and policies of the organisation.

Component 4: Control and Support	
No	Description
PMGM 50	<p>Control Environment</p> <p>Define elements of control environment for programme in terms of expectations/requirements regarding delivery of value from the programme, appetite for risk, integrity, ethical values, staff competence, accountability and responsibility based on a culture that supports value delivery whilst managing significant risks.</p>
PMGM 51	<p>Control Structure and Process</p> <p>Implement a programme management process that establishes programme control structure and process to be exercised on all programme activities (financial and non-financial) throughout the programme life cycle, assess the effectiveness of the control and recommend the use of appropriate product development processes for SOX-compliant programmes.</p>
PMGM 52	<p>Independent Appraisal</p> <p>Independent advice must be used for appraisal of projects.</p>
PMGM 53	<p>Cost Control</p> <p>Implement a cost management process comparing actual costs to budgets. Costs should be monitored and reported. Where there are deviations, these should be identified in a timely manner and the impact of those deviations on programmes should be assessed. Together with the business sponsor of those programmes, appropriate remedial action should be taken and, if necessary, the programme business case should be updated.</p>

Component 4: Control and Support	
No	Description
PMGM 54	<p>Benefit Control</p> <p>Implement a process to monitor the benefits from providing appropriate IT capabilities. The contribution to the business of the component of IT programmes should be identified and documented in a business case, agreed to, monitored and reported. Reports should be reviewed and where there are opportunities to improve the programme contribution, appropriate action should be defined and taken. Where changes in programme contribution impact the programme or where changes to other related projects impact the programme, the programme business case should be updated.</p>
PMGM 55	<p>Control Performance and its Impact on the Programme</p> <p>Measure project performance against key project performance scope, schedule, quality, cost and risk criteria. Identify any deviations from the plan. Assess the impact of deviations on the project and the overall programme, and report results to key stakeholders. Recommend, implement and monitor remedial action, when required, in line with the programme and project governance framework.</p>

Component 4: Control and Support	
No	Description
PMGM 56	<p>Value Delivery</p> <p>Manage IT-enabled investment programmes to ensure that they deliver the greatest possible value in supporting the strategies and objectives of the enterprise.</p> <p>Ensure that the expected business outcomes of IT-enabled investments and the full scope of effort required to attain those outcomes are understood; that comprehensive and consistent business cases are created and approved by stakeholders; that assets and investments are managed throughout their economic life cycle; and that there is active management of the realisation of benefits, such as contribution to new services, efficiency gains and improved responsiveness to customer demands.</p> <p>Enforce a disciplined approach to portfolio, programme and project management, insisting that the business takes ownership of all IT-enabled investments and that IT ensures optimisation of the costs of delivering IT capabilities and services.</p>

F.2.5 Disclosure and Reporting

Governing a programme requires that appropriate decisions must be made at the exact time, based on accurate information. The disclosure and reporting components seek to ensure that timely, relevant, accurate and reliable information is provided to programme stakeholders for effective decision-making.

Component 5: Disclosure and Reporting	
No	Description
PMGM 57	<p>Reporting Resource Requirements</p> <p>Describe and report resources requirements for the programme, the way in which the utilisation of resources and the attainment of benefit will be monitored and managed.</p>
PMGM 58	<p>Deviation Reporting</p> <p>Report early any deviation from the plan, including cost schedules or functionality that might impact the expected outcome of the programme. When the impact becomes effective, any change to the programme benefit must be reported.</p>
PMGM 59	<p>Disclosing Deficiency</p> <p>Timely disclosure of deficiencies that can lead to inaccurate or incomplete information, any fraud regardless of materiality and any change to internal control</p>
PMGM 60	<p>Reporting the Financial Statement of the Programme</p> <p>Financial statements related to IT programme management must be certified and reported. This includes all programme activities that have current or future material effect on the benefit of the programme.</p>
PMGM 61	<p>Board and Executive Reporting</p> <p>Develop a report on the performance of the enterprise portfolio, IT-enabled investment programmes, and the solution and service deliverable performance of individual programmes. Include in status reports the extent to which planned objectives have been attained, budgeted resources utilised, set performance targets met and identified risks mitigated. Anticipate senior management's review by suggesting remedial actions for major deviations. Provide the report to senior management and solicit feedback from management's review.</p>

Component 5: Disclosure and Reporting	
No	Description
PMGM 52	<p>Real-time Reporting</p> <p>Define threshold criteria for escalating information to the Board, and then implement a real-time monitoring and reporting process for significant information such as risk, issue, event, environmental factor (internal or external), legislation change to programme, project forecasts and information produced for the business case at the approval point; thus, facilitate timely decision-making.</p>
PMGM 63	<p>Business Culture and Reporting</p> <p>The business culture must encourage open and honest reporting.</p>
PMGM 64	<p>Whistleblower Policy</p> <p>A policy supportive of whistleblowers must be effective in the management of projects.</p>
PMGM 65	<p>Reporting Requirements</p> <p>Project processes must reduce reporting requirements to the minimum necessary.</p>

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Ann Arbor, MI 48106 - 1346