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Towards a Theoretical Framework to Support Corporate Governance through the use of a Business Process Management System: A South African Perspective

By

Hendrik Willem Pretorius

BSc (University of Pretoria), BSc Hons (University of Pretoria)

MIT (University of Pretoria), PGCHE (University of Pretoria)

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Promoter and Co- promoter

Prof A.C. Leonard

Prof I. Strydom

Abstract

Corporate governance has been heavily criticised because of failures of companies across the globe. In response to these failures, legislative and regulatory changes have been introduced. However, sceptics argue that compliance to these legislative and regulatory acts is costly and time consuming, contributing to overregulation. Furthermore, these measures lack business value and there is no guarantee that adherence to these measures can be enforced.

This thesis presents an argument for the better utilisation of electronic means and specifically Business Process Management Systems (BPMSs) in support of corporate governance. Orlikowski's theory of "Technologies-in-Practice" is applied as theoretical underpinning to guide the research process. This thesis follows an interpretive research paradigm approach to gain insight and understanding of how the King principles for governance, can be inscribed into BPMSs and their components to improve corporate governance in South Africa. The theory of Orlikowski supports the structuration perspective of the research phenomenon.

During this study, data was collected from a BPMS vendor company and seven South African BPMS user companies. After following a process of triangulation, the research findings were used to propose a theoretical framework that explains the utilisation of BPMSs in support of corporate governance in South Africa. Finally, a theoretical framework, reviewed by experts from the domains of corporate governance and business process management, is presented.

Publications

- Pretorius, H.W., Leonard, A.C. & Strydom, I. (2012). Towards an E-Support Framework for Corporate Governance in South Africa: A Business Process Management System Approach. *In proceedings of the E-Leadership Conference on Sustainable E-Government and E-Business Innovations in Africa (IEEE Conference), Pretoria, South Africa, October, 2012.*

- Pretorius, H.W. & Leonard, A.C. (2010). Using a Business Process Management System as Information Technology Tool for Corporate Governance. *Innovate, 5:84-87.*

- Pretorius, H.W., Leonard, A.C., & Strydom, I. (2013). Towards and electronic monitoring, observation and compliance framework for corporate governance using business process management systems. *African Journal of Information and Communication (AJIC), 13: 62-75, December 2013.*

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Soli Deo Gloria

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To my wife

Liezel Pretorius

I always see you

I will always love you

To my children

Aliandro and Daniëlle Pretorius

You are our love, my love

In loving memory of my father

Dr G.J.P. Pretorius

Henk: “Hoekom noem pa my altyd Meneer die Towenaar?”

Pa: “ Want jy kan enige iets doen…”

I am who I am, because of you

To my mother

Marthie Pretorius

For believing in me, loving me and supporting me

Terms and Abbreviations[1]

ad hoc	: Term meaning: for this purpose, special
ANT	: Actor-Network Theory
AST	: Adaptive Structuration Theory
bona fide	: Term meaning: in good faith
BPM	: Business Process Management
BPMS	: Business Process Management System
BPMSVC	: Business Process Management System Vendor Company
BPMSUC	: Business Process Management System User Company
CEO	: Chief Executive Officer
CFO	: Chief Financial Officer
confer (cf.)	: Term meaning: compare
de facto	: Term meaning: in fact
Deo Volente (D.V.)	: Term meaning: God willing
exempli gratia (e.g.)	: Term meaning: for example; for instance
et alia (et al.)	: Term meaning: and others
et cetera (etc.)	: Term meaning: and the others; and other things
GAAP	: Generally Accepted Accounting Principles
GNP	: General National Product
IS	: Information Systems
ISACA	: Information Systems Audit and Control Association
ISO	: International Standards Organisation
IT	: Information Technology
magnum opus	: Term meaning: a great undertaking, work
NASDAQ	: National Association of Securities Dealers Automated Quotations
NEPAD	: New Partnership for Africa's Development
NYSE	: New York Stock Exchange
SEC	: Securities and Exchange Commission

[1] Some terms are defined and discussed in the chapters and sections where the term is used in context.

SITA	: State IT Agency of South Africa
situated	: Term meaning: in the current context or environment, or
	: Term meaning: how people act in a situation (Suchman, 1987).
Soli Deo Gloria	: Term meaning: glory to God alone
SOX	: Sarbanes-Oxley Act of 2002
ST	: Structuration Theory
TPS	: Toyota Production System
TQM	: Total Quality Management
UHT	: Ultra High Temperature
U.S.	: United States
versus (vs.)	: Term meaning: against
WFMS	: Workflow Management System

Thesis Map

The thesis map, presents a graphical illustration of the structure of the thesis, as indicated in Figure 1. The thesis map depicts in a graphical way the current position of the reader in the thesis.

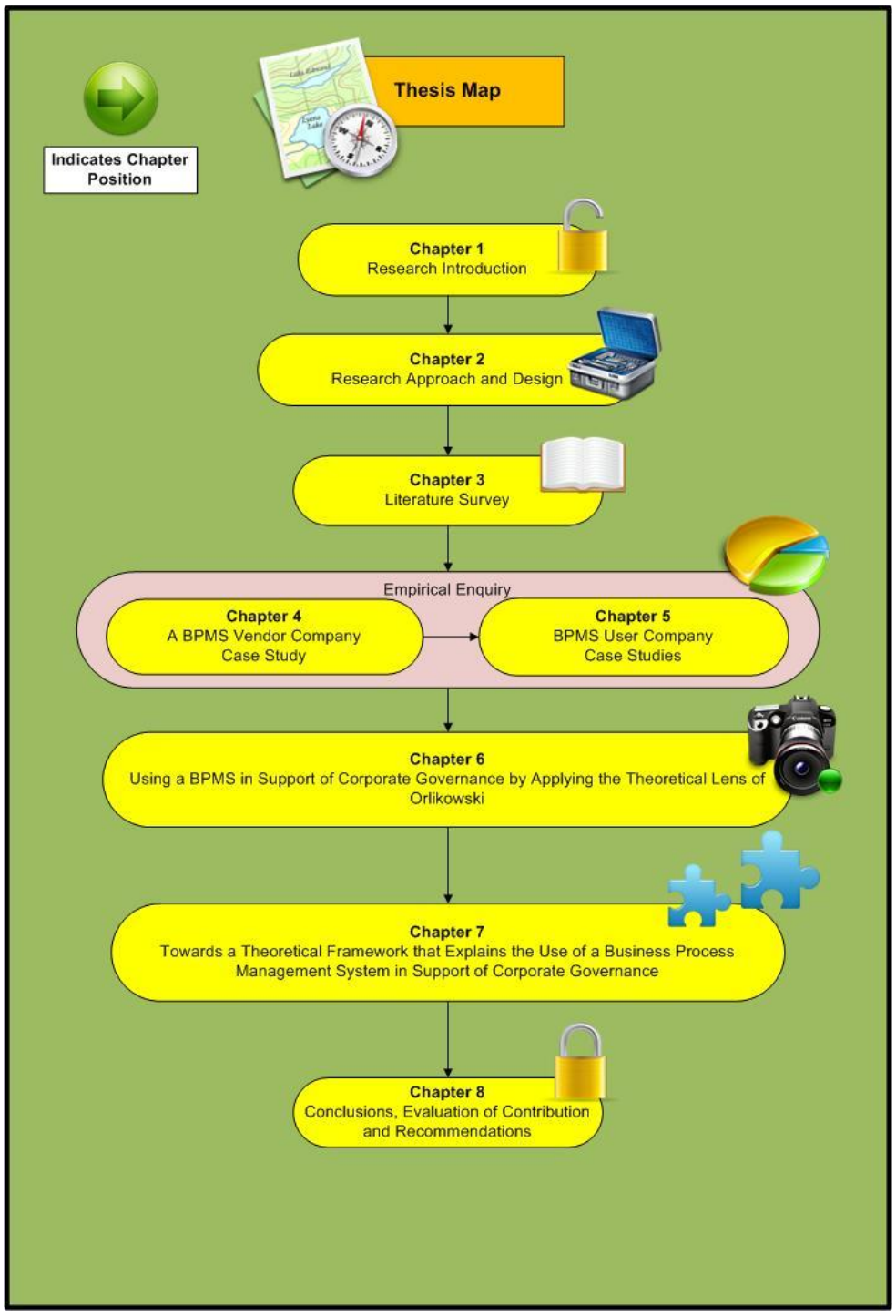


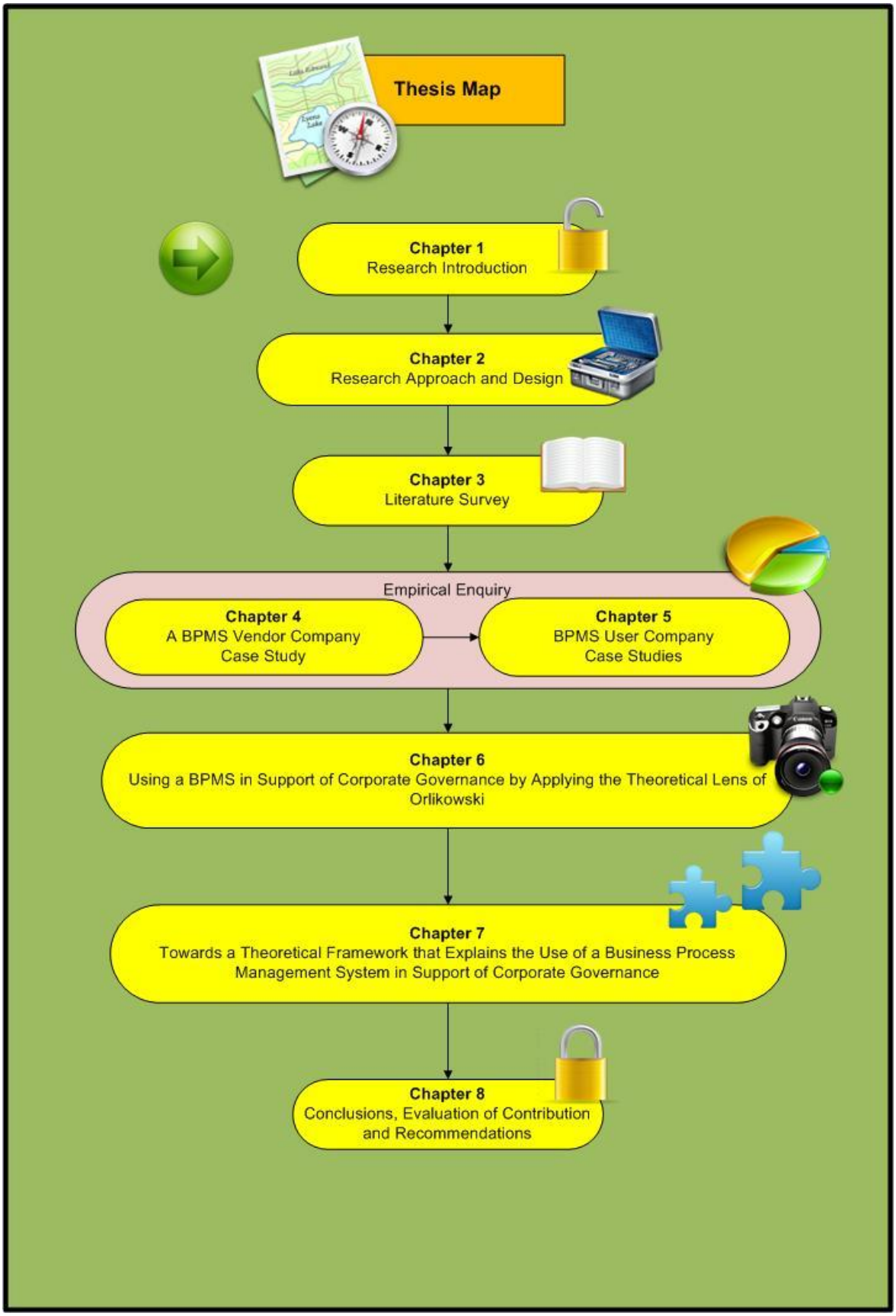
Figure 1 Thesis Map

Table of Contents

List of Tables

List of Figures

Chapter 1: Research Introduction



1.1 Introduction

Departing from an international and historical perspective, Adam Smith in 1776, introduced the concept of a business process. He used the example of a needle factory to demonstrate his business process principles. The productivity for the factory increased dramatically after introducing principles such as the elimination of passing work, workman dexterity and the use of machines. Later, Henry Ford and other successful business leaders added layers of management to these business process principles and established the organisational hierarchy. (*cf.* Kim and Ramkaran, 2004).

Hammer and Champy (1993) argue that the business process principles first identified no longer apply to companies in the 21st century, because the business environment (e.g. business processes and customer demands) became much too complex. Currently, organisations need to be responsive to ever changing market requirements and conditions, to gain or maintain a competitive advantage in the market (Hammer and Champy, 1993; Jaworski and Rayport, 2004; Weerakkody *et al.*, 2003). However, organisations continuously strive to improve their core business processes and competencies to stay in the competitive market environment (Moore, 2002; Norwood, 2004: 42; Perkins *et al.*, 2002; Reijers and Liman, 2005; Rosemann *et al.*, 2005; Siew Kien Sia and Boon Siong Neo, 1996; Weerakkody *et al.*, 2003). BPM is a management philosophy (Rosemann *et al.*, 2005) that helps organisations to achieve the goals of improving core business processes and competencies. In Europe, 97% of organisations surveyed indicated that BPM is important to them and only three percent of the organisations did not embark in BPM projects (Pritchard and Armistead, 1999).

However, the U.S., Europe and South Africa's corporate governances are under the spotlight because of company failures, poor governance and fraud (Arie, 2004; BBC News, 2003; BBC News, 2008; Boyd, 2003; Cooper, 2008; Cruver, 2002; Fusaro and Miller, 2002; Hough *et al.*, 2009; Kaplan and Holstrom, 2003; Kreitner and Kinicki, 2004; Kuhn and Sutton, 2006; Gumber, 2004; MacLean and Elkind, 2003; Mtimunye, 2009; Petrick and Scherer, 2003).The question remains if the capabilities of BPMSs that are used by organisations to automate, manage and adapt business processes in an

organisation (Miers and Harmon, 2005) can be extended to address the corporate governance problems that exist in organisations.

This chapter introduces the research problem and objectives of this research study. The chapter is concluded after a concise overview of the structure of the thesis is presented.

1.2 Problem Description

The first phase in the research process, as described in Chapter 2, Section 2.7, of any research project involves transforming an interesting research idea into a feasible research problem (Mouton, 2011). According to Mouton (2011), transformation is often a gradual, progressive and interactive process. Mouton (2001) therefore proposes four steps to transform an interesting research idea into a feasible research problem and research objectives, as indicated in Table 1.1.

Table 1.1 Transforming a research idea into a feasible research problem (Mouton, 2001)

Steps for transforming an interesting research idea into a feasible research problem	
Step 1	Conduct a preliminary literature review. The preliminary literature review clarifies and demonstrates how other researchers have approached the object of study.
Step 2	Identify what exactly it is that needs to be researched, to narrow down the research domain. If the research phenomenon is a real-life object e.g. social, political, economic or financial mismanagement, the research is referred to as empirical research. When the object is not a real-life object, it is referred to as conceptual or non-empirical research. In the case of this research project, the problem under study is a real-life problem and, therefore, this research study is empirical. Empirical problems require action or intervention to be resolved, which further requires information collection through e.g. interviews, documents and questionnaires.
Step 3	Clarify the research objectives.
Step 4	Do a "resource check". Given the time constraints, it is a rare phenomenon that a research project covers a topic comprehensively. Identify the focus of the project taking the identified objectives into consideration and elaborate on these objectives. The researcher or other researchers in the field of study can extend or elaborate on the research later.

By applying the steps of Mouton (2001), this section introduces the research problem of this thesis, starting from an international perspective.

1.2.1 The International Situation

In the U.S., corporate governance has been heavily criticised, because of failures of companies like Enron, WorldCom, Tyco, Adelphia and Global Crossing (Boyd, 2003; Kaplan and Holstrom, 2003; Hough *et al.*, 2009; Kreitner and Kinicki, 2004; Pearlson and Saunders, 2009). Kreitner and Kinicki (2004) further revealed that U.S. industries lose about $400 billion a year from unethical and criminal behaviour. The resignation and arrest of top U.S. managers indicate that there is an increasing level of managerial negligence and corporate irresponsibility that eroded domestic and global trust in U.S. markets (Elliott and Schroth, 2002; Mitchell, 2002). A concise overview of the Enron, WorldCom, Tyco, Adelphia and Global Crossing Corporate cases are presented and finishes with a summary of corporate governance problems that caused their failures.

Enron Corporation was an energy company in the U.S., based in Houston, Texas. The company had 22000 employees (MacLean and Elkind, 2003) before its bankruptcy and was one of the world's leading electricity, natural gas, pulp, paper and communication companies, with revenues of nearly $101 billion in 2000. Nearing the end of 2001, it was revealed that Enron's financial condition was sustained by institutionalised, systematic and creatively planned accounting fraud (Conroy and Emerson, 2006). Enron became a popular symbol for wilful corporate fraud and corruption. Enron filed for bankruptcy protection in the Southern District of New York in late 2001 (Cruver, 2002; Fusaro and Miller, 2002; Petrick and Scherer, 2003) and selected Weil, Gotshal and Manges as its bankruptcy counsel. The investigation revealed the destruction of documents and disregard for reported irregularities by senior partners of the Andersen audit team, because if discovered, these would jeopardize the revenue generated by the audit or that generated by the non-audit work that Anderson undertook for Enron (Hough *et al.*, 2009). Enron emerged from bankruptcy in November 2004 and was regarded as one of the biggest and most complex bankruptcy cases in the history of the U.S.

WorldCom (WCOM) was the second largest long distance phone company in the U.S. (Kuhn and Sutton, 2006) after AT&T. WorldCom largely grew by acquiring other telecommunication companies in the 1990s (Kuhn and Sutton, 2006), most notably MCI Communications in 1998. WorldCom owned a major part of the internet backbone. The headquarters of the company was in Clinton, Mississippi, before it moved to Virginia. (*cf.* Pasha, 2003). Beginning modestly in mid-year 1999 and continuing at an accelerated pace through to May 2002, the company, under the direction of Ebbers (and his Chief CFO, a Controller and the Director of General Accounting) used fraudulent accounting methods to mask its declining earnings by painting a false picture of financial growth and profitability to drive up the price of WorldCom stock (Kadlec, 2002; Kuhn and Sutton, 2006). Painting a false picture was primarily accomplished in two ways: By underreporting line costs (interconnection expenses with other telecommunicating companies) and capitalising these costs rather than properly expensing them; and by inflating revenues with bogus accounting entries. (*cf.* Kadlec, 2002; Kuhn and Sutton, 2006; Beresford *et al*., 2003).

Other fraudulent methods included the re-classification of the value of MCI assets as goodwill, which included future expenses in write-downs of acquired assets; and manipulating bad debt reserve calculations (Kuhn and Sutton, 2006). In 2002, a small team of internal auditors at WorldCom worked together in secret to unearth $3.8 billion in fraud (Cooper, 2008; Kadlec, 2002; Pulliam and Soloman, 2002; Ripley, 2002). Research portrays a grim picture of the ability of the auditors to detect fraud in the case of WorldCom (Kuhn and Sutton, 2006). Soon after the internal audit the company's audit committee and Board of Directors were notified of the fraud. The U.S. SEC launched an investigation into these matters on June 26, 2002. WorldCom filed for Chapter 11 bankruptcy on July 21, 2002, the largest such filing in the U.S. history. By the end of 2003 it was estimated that the company's total assets had been inflated by around $11 billion. (*cf.* Beresford *et al*., 2003).

In Tyco International, the chief executive Dennis Kozlowski and former CFO Mark H. Swartz were accused of theft of more than $150 million from the company. With regards to Global Crossing's rapid rise and fall, it was revealed that the Company and

particularly the executives of the company, lavishly spent money on themselves and their likes (Hopkins and Krantz, 2002; Fabrikant and Whitaker, 2002). At Adelphia, the founders of Adelphia were charged with SEC violations. The company collapsed into bankruptcy in 2002 after it disclosed $2.3 billion in off-balance-sheet debt. The founders used complicated cash-management systems to spread money around to various family owned entities and steal $100 million for themselves. Self-enrichment at the cost of others was at the order of the day.

Other examples of corporate misconduct are also found in Europe. Europe's biggest recent corporate failure is Parmalat (Arie, 2004; BBC News, 2003; BBC News, 2008; Gumber, 2004). Parmalat is a multinational Italian dairy and food corporation that became the leading global company in the production of UHT milk and other products such as juice, water, yoghurt and biscuits (Arie, 2004). The company collapsed in 2003, with a 14 billion Euro hole in its accounts (Arie, 2004; BBC News, 2003; BBC News, 2008; Gumber, 2004).

In 1997, Parmalat jumped into the world financial markets by financing several international acquisitions (Arie, 2004). However, in 2001 many of the new divisions produced losses. In February 2003 the CFO, Fausto Tonna announced a 500 million Euro bond issue (Gumber, 2004). The announcement was a surprise to the markets and to the CEO, Carlisto Tanzi. In 2003, Tonna was replaced by Alberto Ferraris who was appointed as the new CFO of Parmalat (Gumber, 2004). Ferraris discovered that, although he is the CFO, he still did not have access to all the corporate accounting books, which was handled by Chief Accounting Officer: Luciano Del Soldato (Gumber, 2004). He started to make inquiries about the current situation and began to suspect that the company's total debt was more than double that which was shown on the balance sheet (Gumber, 2004). In November, the crisis became public. Ferraris resigned a week later and was replaced by the Luciano Del Soldato (Gumber, 2004). In December, Del Soldato and CEO Calisto Tanzi resigned. Parmalat's Bank, the Bank of America, then released a document showing 3.95 billion Euros in Bonlat's (an offshore financial unit of Parmalat) bank account as forgery (BBC News, 2003; Gumber, 2004). Calisto Tanzi, once a symbol of unlimited success, was detained hours after the firm was declared insolvent and

charged with financial fraud and money laundering (Arie, 2004; BBC News, 2003; BBC News, 2008; Gumber, 2004). Hundreds of thousands of investors lost their money (BBC News, 2008) never to be recovered (Arie, 2004).

Tanzani has been sentenced to ten years in prison for fraud relating to the collapse of the Parmalat group (BBC News, 2008). Seven other defendants, including executives and bankers were acquitted and eight other defendants settled out of court in September 2008 (BBC News, 2008). In September 2009, three lawsuits by Parmalat Capital Finance Ltd. and Enrico Bondi, the new CEO of Parmalat, against the Bank of America and auditors Grant Thornton, were dismissed.

Some of the most important problems in corporate governance that caused the company failures of Enron, WorldCom, Tyco, Adelphia, Global Crossing and Parmalat, are summarised in Table 1.2.

Table 1.2 Identified problems in corporate governance

Problems	**Description**
Lack of transparency.	Transparency can be defined or considered as *the ease in which an outsider of the company is able to make a meaningful analysis of the company's actions* (King II Report, 2002). The King III Report (2009) further states that transparency involves effective communication with stakeholders. Effective communication includes reporting on the financial and non-financial aspects of the organisation. In the Enron Corporation for example, much information was withheld from outsiders and even employees of the company. (*cf.* Ackman, 2002; Conroy and Emerson, 2006; MacLean and Elkind, 2003; Pasha, 2006). In the WorldCom Corporation case only a few executives knew about the accounting irregularities. (*cf.* Kadlec, 2002; Kuhn and Sutton, 2006; Beresford *et al.*, 2003). Alberto Ferraris, the new CFO of Parmalat, discovered that, although he is the CFO, he still did not have access to all the corporate accounting books which was handled by Chief Accounting Officer: Luciano Del Soldato (Gumber, 2004).

Lack of accountability and responsibility.	In the Enron Corporation, irregular accounting procedures were performed. Irregular accounting procedures involved offshore accounts that were hiding losses. Offshore entities were also used for avoidance of taxes. The illusion was created that the company was making profits, while it was actually losing money. Executives and insiders knew about offshore accounts that hid losses, but did not take any responsible action in this regard. (*cf.* Ackman, 2002; Conroy and Emerson, 2006; MacLean and Elkind, 2003; Pasha, 2006). In the WorldCom corporation, executives, especially the CEO Ebbers and his CFO, a Controller and the Director of General Accounting, knew about the accounting irregularities, but continued with the irregularities in an irresponsible manner. (*cf.* Kadlec, 2002; Kuhn and Sutton, 2006; Beresford *et al*., 2003). The CEO of Parmalat, Calisto Tanzi, once a symbol of unlimited success, was detained hours after the firm was declared insolvent and charged with financial fraud and money laundering (Arie, 2004; BBC News, 2003; BBC News, 2008; Gumber, 2004). The company's total debt was more than double that which was shown on the balance sheet (Gumber, 2004). The CEO knew about the accounting irregularities in his company but continued with the irregularities in an irresponsible manner. On the other hand, the King III Report (2009) stresses the importance of responsible and ethical leadership (Board of Directors) in the organisation.
Lack of social responsibility.	The Enron Corporation produced misleading profit balance sheets to investors and the general public, creating the illusion that the company is making billions in profit. Enron Corporation employees lost their pensions (Jacobius and Anand, 2001), suppliers failed to receive payment and stockholders lost money. (*cf.* Ackman, 2002; Conroy and Emerson, 2006; MacLean and Elkind, 2003; Pasha, 2006). The WorldCom Corporation also produced misleading profit balance sheets to investors and the general public. (*cf.* Kadlec, 2002; Kuhn and Sutton, 2006; Beresford *et al*., 2003). The King III Report (2009), however, wants to ensure that the company is seen by society and stakeholders as a responsible citizen, protecting the relevant interests of society and stakeholders.

	Because of financial fraud and money laundering by the CEO of Parmalat (Arie, 2004; BBC News, 2003; BBC News, 2008; Gumber, 2004), hundreds of thousands of investors, who invested in Parmalat, lost their money (BBC News, 2008) never to be recovered (Arie, 2004).
Lack of independence.	According to the GAAP, accurate financial reporting is crucial for the corporate governance system to function effectively. Accountants and auditors are the primary providers of information to capital market participants. The King III Report on Corporate Governance (2009) further requires that management should prepare timely and complete financial and non-financial information in compliance with statutory and ethical obligations. Companies must make use of skilled and independent auditors, advisors and directors, to prepare the information. This was not the case with Arthur Anderson, Enron Corporation's accounting firm who was involved in the accounting fraud of Enron. Other parties, such as the Royal Bank of Scotland, Deutsche Bank and Citigroup were also involved in helping to hide Enron Corporation's true financial condition (*cf.* Ackman, 2002; Conroy and Emerson, 2006; Hough *et al.*, 2009; King III Report, 2009; MacLean and Elkind, 2003; Petrick and Scherer, 2003).
An unethical executive culture (lack of integrity, honesty and corporate leadership).	The Enron Corporation executives traded inside information of hidden company losses. At that time, the executives sold their company stock not to lose the money they had invested in the company. On the other hand, investors were misled by being told that the company was performing well, so that they would invest their money in the company by buying company stock. Deals were manipulated for self-enrichment (greed). Greed, dishonesty, arrogance, selfishness, cowardice, hypocrisy, disrespect and injustice of Enron executives disclosed their corrupt workplace culture (Petrick and Scherer, 2003; Sennett, 1998). According to Petrick and Scherer (2003), managerial integrity capacity is the root of Enron Corporations' legal and financial problems. Management and board members ignored whistle blower feedback and became morally deaf, blind and mute to ethical awareness (Petrick and Scherer, 2003; Swartz and Watkins, 2002). In WorldCom, the CEO, his CFO, a Controller and the Director of General Accounting, mostly members of the executive team, knew about the accounting irregularities but continued irresponsibly. (*cf.* Kadlec, 2002; Kuhn

	and Sutton, 2006; Beresford *et al*., 2003). The CEO of Parmalat was sentenced to ten years in prison for fraud relating to the collapse of the Parmalat group (BBC News, 2008), showcasing his unethical leadership culture. The Parmalat episode contrasts with the King III Report (2009) that requires an ethical leadership culture and fair remuneration for all, including the executives.
Greed resulting in poor moral judgement.	Executives in the Enron, WorldCom, Tyco, Adelphia and Global Crossing corporate cases greedily pursued short-term economic returns, manipulating the rules of their industry, ignoring the negative moral impacts of their bad example (Hopkins and Krantz, 2002; Fabrikant and Whitaker, 2002; Petrick and Scherer, 2003). The King III Report (2009), however, highlights the importance of company risk management and sustainability and the ability of the company to be seen as good and ethical.

1.2.2 The South African Situation

In South Africa, where this research study is conducted, the corporate governance situation is not much different from Europe and the U.S. IT vendors, for example, are being accused of frequently offering bribes to government employees (Jarvis, 2009). According to Jarvis (2009), suppliers are the root cause of corruption. He further states that governance and transparency are growing imperatives in the public sector and urges government IT professionals to get these imperatives in place, if only to protect themselves. According to Jarvis (2009), Chief Information Officers (CIOs) fail to report bribery offers from vendors. There are many factors for not reporting bribery, such as politics, political connections and fear of higher ranking employees. Jarvis (2009) proposes that the fight against corruption must start from the top and should be a collective effort.

Mtimunye (2009) the acting CEO of the State IT Agency (SITA), addressed the topics of fraud and corruption at the GovTech 2009 conference recently. Mtimunye (2009: 15) states that:

> *In its 10 years of existence SITA has spent about R10-billion on ICT – this is very lucrative and there are a lot of 'shenanigans' that can play themselves out in the tussle for a piece of this cake... We have heard particularly about process loopholes, allegations of process and procedure mismanagement and at times, staff activities bordering on the criminal... There have been allegations of ... poor document management procedures to exclude anyone from tracing transactions back. Overall, SITA is prone to external influences.*

The above citation points out that corruption or fraud can come from inside or outside an organisation. It can be an internal or external process. According to Mtimunye (2009) the dimensions of corruption and fraud include bribery, embezzlement, fraud, extortion, nepotism, favouritism, collusion, split purchases, abuse of power, conflict of interest and over or under invoicing[2]. Corruption is motivated by economic reasons namely greed, prestige, recognition, moral superiority or by the organisational environment[3]. Employees, for example, may wish to punish management, or systems may be poor, or processes are not followed, or there may be a difficult organisational atmosphere. Mtimunye (2009) states:

> *Since its inception, SITA has been accused many times of corruption or corrupt activities. Our own information indicates that 32 disciplinary hearings were held in the 2008/9 year; and there were 72 suspected irregularities. Since 2004 there have been 230 suspected irregularities... There are currently three cases where we are considering criminal procedures.*

According to Mtimunye (2009), many of the allegations within SITA remained allegations. Mtimunye (2009) further stated that SITA was changing its internal processes to help eliminate corruption. At the conference, Mtimunye also polled the

[2]Also see Chapter 3, Section 3.7: King's Root Causes for Problems in Corporate Governance.
[3]Also see Chapter 3, Section 3.7: King's Root Causes for Problems in Corporate Governance.

delegates for their opinion on the subject matter. Of the participants, 39% agreed that the ICT industry is guilty of feeding corruption, with 42% strongly agreeing. Furthermore, 38% of the delegates believe government officials could be corrupt and 47% strongly agreed. Mtimunye (2009: 16) concludes:

> *We are seeking to reinforce existing regulations to reduce dishonesty. At its core, ICT acquisition must focus on delivering services to the citizens, not on who makes the most money.*

In South Africa, further reference can be made to ABSA/Unifer Bank Ltd, Regal Treasury Bank Ltd and Macmed Ltd, where some impropriety behaviour at executive level led to the demise of the institution or a loss in shareholder value (Hough *et al.*, 2009). Unifer for example, made a loss of $220 million in 2001/2002, against a profit of $20 million in the previous year (Hough *et al.*, 2009). Business man Schabir Shaik was sentenced to 15 years in prison in 2005, on two counts of corruption and one on fraud (Hough *et al.*, 2009).

The corporate governance problems identified in this section (see Table 1.2) are in accord with the findings of King (2006) who has done extensive work and research in the field of corporate governance, especially in South Africa. King's work includes the King Reports (King I Report, 1994; King II Report, 2002; King III Report, 2009) within the King Committee that was named after him (King, 2006). Professor Mervyn King furthermore chaired the United Nations Governance and Oversight Committee and the South African Committee on Corporate Governance. King is a former corporate lawyer and Supreme Court Judge in South Africa and was involved in many corporate judgements (Hough *et al.*, 2009). He continuously strives to improve the quality of governance within organisations in South Africa, as well as across the world (Hough *et al.*, 2009; King, 2006). The King Committee produced three ground-breaking reports on corporate governance that strives to improve corporate governance in South Africa (Hough *et al.*, 2009; King, 2006).

Corporate governance is simply described as the system by which companies are directed and controlled (King II Report, 2002). From its inception, the King I Report (1994) incorporated a code of corporate practice (called the Code) that looked beyond the corporation itself, taking into account the impact of corporate practice on the larger community in which it operates (Hough *et al.*, 2009). The "inclusive" approach, as it is called, considers all stakeholders (Hough *et al.*, 2009). The "inclusive" approach addresses social, economic and environmental factors and offers integrated reporting on these factors (Hough *et al.*, 2009). On the other hand, systems that only focus on shareholders to maximise their returns are known as "exclusive" governance systems (Hough *et al.*, 2009).

In March 2002, the King Committee published the *King Report on Corporate Governance for South Africa 2002* (also known as the "The King II Report") that identified seven principles for good governance. They are discipline, transparency, independence, accountability, responsibility, fairness and social responsibility (Hough *et al.*, 2009; King II Report, 2002). King believes that a principle-based approach to corporate governance is more effective than just rules (Hough *et al.*, 2009). It is easier to get around rules than principles and it is therefore futile to legislate against dishonesty.

In more recent times, the King Committee published the *King Code of Corporate Governance in South Africa 2009* and the *King Report of Corporate Governance in South Africa 2009* (also known as "The King III Report"). The report included leadership and sustainability as additional principles of good governance (King III Report, 2009)[4]. For the purpose of this document, any further reference to corporate governance is based upon the King Reports and the principles in the King Reports for corporate governance in the South African context. The principles for good corporate governance to be considered from the King Reports are fairness, accountability, responsibility, transparency, discipline, independence, social responsibility, leadership and sustainability.

[4]Also see Chapter 3, Section 3.6: King's principles for Good Governance.

Bad governance is a result of neglecting fairness, accountability, responsibility, transparency, discipline, independence, social responsibility, leadership and sustainability. Most importantly: the foundation of these concepts is intellectual honesty, acting in good faith and acting in the best interests of the company. (*cf.* King, 2006; King II Report, 2002; King III Report, 2009; Maharaj *et al.*, 2006).

In response to the corporate failures, legislative changes (e.g., SOX Act of 2002) and regulatory changes (e.g., governance guidelines for the NYSE and NASDAQ) were introduced (Hough *et al.*, 2009; Kaplan and Holstrom, 2003; King III Report, 2009; Pearlson and Saunders, 2009). The purpose of the SOX Act of 2002 was to build and restore lost confidence in U.S. and international capital markets (Hough *et al*., 2009). Similar acts were introduced in other countries:

- Germany introduced the "Der Deutsche Corporate Governance Kodex" (the German Corporate Governance Code).

- Japan introduced "J-SOX", the Japanese equivalent of the SOX act.

- Australia introduced the Corporate Law Economic Reform Program (Audit Reform and Corporate Disclosure) Act in 2004, known as CLERP9.

- France introduced the "Loi sur la Sécurité Financière" (Financial Security Law of France).

- The Combined Code on Corporate Governance (originally derived from the Cadbury Report) was introduced in the United Kingdom.

Still, many sceptics remain. Comments of the sceptics include:

> *…the current changes are likely to make a good U.S. system a better one, although not without imposing some unnecessary costs. In fact, the*

> *greatest risk now facing the U.S. Corporate Governance System is the possibility of overregulation. (Kaplan and Holstrom, 2003: 2).*
>
> *…The cost of compliance is burdensome, both in time and money. Furthermore, the board and the management become focused on compliance rather than the business of the enterprise. It is the duty of the board of a trading enterprise to undertake risk for reward and to try to improve the economic value of the company. If the board follows a narrow focus on compliance, the board's responsibility towards enterprise and its ultimate responsibility, namely performance, may be diluted. (King III Report, 2009: 7).*
>
> *…questions are being raised about whether boards are spending too much time on governance and not enough on business strategy (Cangemi, 2007: 5).*
>
> *The cost of compliance by American Companies with section 404 of SOX, which deals with the verification of internal controls, is estimated at $264bn since the inception of SOX in 2002. The total cost of the American economy of complying with SOC is more than the total write-off of Enron, Word Com and Tyco combined (King III Report, 2009: 7).*
>
> *As the second year of SOX compliance is completed, there are still many complaints about the costs of compliance and questions about the business value of SOX related investments (Velichety et al., 2007: 42).*

From the quoted comments, it is evident that compliance to legislative and regulatory acts are costly[5], time consuming, causing overregulation and does not always provide any value to businesses (Cangemi, 2007; Kaplin and Holstrom, 2003; King, 2006; King III Report, 2009; Velichety *et al.*, 2007). There is also no guarantee that adherence to

[5] Also see FEI Survey (2007), Foley and Lardner Survey (2007) and Butler and Ribstein (2006).

these measures can be enforced, in fact, the first three years of SOX was at best an overreaction to Enron and at worst ineffective and unnecessary (King III Report, 2009; Richardson, 2006; The Financial Express, 2006).

1.3 Summary of Problem

The problems that exist in corporate governance can be summarised as the neglect, willingly or unwillingly, of the King principles of governance. The principles of governance are fairness, accountability, responsibility, transparency, discipline, independence, social responsibility leadership and sustainability (King, 2006; King I Report, 1994; King II Report, 2002; King III Report, 2009; Maharaj *et al.*, 2006). The principles are based on a foundation of intellectual honesty and integrity, which means that one should act in good faith and in the best interest of the company. Furthermore, compliance to legislative and regulatory acts in response to the corporate governance problems are costly, time consuming, causing overregulation and do not always provide any value to businesses (Cangemi, 2007; Kaplin and Holstrom, 2003; King III Report, 2009; Velichety *et al.*, 2007). There is also no guarantee that adherence to these measures can be enforced in an effective way (Richardson, 2006; King III Report, 2009).

The next section discusses the problem phenomenon of interest of this research project i.e. to determine what role technology and specifically a BPMS, can play in supporting the King's principles of governance for better corporate governance.

1.4 Motivation for the Research Project

In contrast to the problem, King (2006) states that the use of IT should be increased to achieve better and effective corporate governance. King (2006) believes IT is the ultimate way to achieve corporate governance, 24 hours a day, across the borderless world of today. In King's (2006) own words:

> *Willingly or unwillingly we are members of the information age. The ultimate light in regard to transparency and governance has become IT. The use of IT in the business world is not only an enabler but has also*

> *become of strategic importance. Through this strategic role it has become pervasive. (King, 2006: 74).*

IT is a business enabler that has become of strategic importance to a business (King, 2006; King III Report, 2009; Vecchiatto, 2009) and when aligned with the business goals, IT delivers optimum value to the business (Cangemi, 2007; Robinson, 2007; Tallon *et al.*, 2001). The use of IT in governance is furthermore becoming a popular way to ensure regulatory compliance (Robinson, 2007; The Financial Express, 2006). The King III Report (2009) also states the importance of appointing a Chief Information Officer (CIO) – an expert in IT - as part of the board of directors, who is ultimately responsible for IT governance.

As indicated earlier, compliance to legislative and regulatory acts are costly, time consuming, causing overregulation and does not always provide any value to businesses (Cangemi, 2007; Kaplin and Holstrom, 2003; Velichety et al., 2007). There is also no guarantee that adherence to these measures can be enforced effectively (Richardson, 2006; King III Report, 2009).

Most people view South Africa as a springboard into the untapped markets of sub-Sahara Africa and beyond (Hough *et al.*, 2009).With South Africa in the forefront of supporting the initiatives of the NEPAD, it has the more reason to set the tone with regard to what good corporate governance is. The country has to raise standards when it comes to ensuring that South Africa complies with the world-class standards of corporate governance (Hough *et al.*, 2009). South Africa has accepted the challenge to be in the forefront in the "African Renaissance" (Hough *et al.*, 2009). It is therefore incumbent on the business fraternity to embrace the notion of good corporate governance, now that South Africa has been recognised as a worthy global player. Good governance is the foundation for good business (Hough *et al.*, 2009).

On the other hand, business processes can easily be adapted in a BPMS (business process agility) to take advantage of new market opportunities (Pantazi and Georgopoulos, 2006; Sommer, 2003). With a BPMS, a better chance exists to meet

business objectives and corporate governance objectives in time, as opposed to current mechanisms and measures. Tallon *et al.* (2001) indicate that companies who align their business processes with the organisational strategy and have operationally effective processes perform better than other companies who want to take advantage of new market opportunities. In support of this argument, of Tallon *et al.* (2001), Peppard (1996) states that strategy implicitly or explicitly sets the direction of an enterprise. Strategy lives through processes, people and technology and with these three entities an organisation can build its core competencies to sustain a competitive market advantage (Peppard, 1996; Tallon *et al*., 2001; Van Rensburg, 1998). Therefore, when the core competencies are identified within an organisation, these competencies can be incorporated into a process configuration which can be automated and enforced in a BPMS. Trough automated and enforced processes, strategy can be delivered to support the business, resulting in increased business value. King (2006: 74) concludes:

> *The need of the hour, therefore, is a comprehensive BPM approach. This requires every business process to be documented in detail and with maximum clarity. All possible risks, whether financial, strategic, reputational, or operational, have to be identified, and controls for mitigating these risks have to be established. Processes continually have to be audited to ensure proper implementation and to identify the weaknesses. Finally, the processes have to be redefined to rectify the identified weaknesses and, thus, continuously improve and refine processes.*

Other business advantages and value that a BPM approach and a BPMS delivers to the business include reduced operating cost, improved productivity, shortened end-to-end business process cycle time, improved process quality, improved customer service and satisfaction, enterprise application integration (EAI), improved process visibility, improved process agility and adaptation to the best business practices for a competitive advantage in the local and global market. (*cf.* BizFlow 8, 2002; Lee and Dale, 1998; Moore, 2002; Norwood, 2004; Pantazi and Georgopoulos, 2006; Peppard, 1996; Perkins

et al., 2002; Reijers and Liman, 2004; Rosemann *et al.*, 2005; Siew Kien Sia and Boon Siong Neo, 1996; Sommer, 2003; Weerakkody *et al.*, 2003).

There are many business benefits associated with the use of a BPMS in the organisation, but it is not articulated how such a system can be utilised for corporate governance, how such a system can be used to support principles for governance and how a BPMS improves corporate governance supportive behaviour in the organisation. These aspects form the main research objective of this study:

How can a BPMS be utilised and adapted to support the King principles of governance (King, 2006; King I Report, 1994; King II Report, 2002; King III Report, 2009) in support of better corporate governance, specifically in the South African context.

1.5 Research Objectives and Questions

The main research objective of the research project is to explain how a BPMS can be utilised and adapted to support the King principles of governance in support of better corporate governance in South Africa. The main research objective is transformed into the main research question for this research project:

How can a BPMS be utilised and adapted to support the King principles of governance in support of better corporate governance in the South African context?

The secondary research objectives that assist to resolve the main research objective of the study are:

> *Secondary research objective 1:* To understand the nature of corporate governance problems experienced in the South African context and the forces that impact it. The resulting research question is:
>
> *Secondary research question 1:* What corporate governance problems are experienced by companies in the South African context and what forces impact it?

Secondary research objective 2: The King Committee on Corporate Governance established a set of governance principles for better corporate governance, as articulated in the King reports. Research objective two is to investigate how this set of governance principles can be inscribed or supported by a BPMS to improve corporate governance. The logical way to approach the problem of inscribing the set of governance principles into a BPMS, is to break the BPMS down into its architectural components and then to investigate how these principles can be applied to the individual components of the BPMS. The research objective is responsible for formulating the "inscribing" component of the theoretical framework developed that explains how a BPMS is utilised in support of corporate governance (*cf.* Chapter 7). Secondary research objective two results in the following research question:

Secondary research question 2: How can the King principles of governance be inscribed or supported by using a BPMS?

Secondary research objective 3.1: The author aims to determine what the nature (historical and current) and role of a BPMS are in the organisation and how the nature and role of a BPMS are relevant to corporate governance. The research objective is used to describe the "feedback" component of the theoretical framework developed that explains how a BPMS is utilised in support of corporate governance (*cf.* Chapter 7). The research objective results in the following research question:

Secondary research question 3.1: What is the role and nature of a BPMS in the organisation and how is the relevant to corporate governance?

Secondary research objective 3.2: The objective of the research is to investigate what types of corporate governance problems can be addressed by using a BPMS and what types of corporate governance problems cannot be addressed (the shortcomings) when using a BPMS. The research objective contributes to

describe the "inscribing" component of the theoretical framework developed that explains how a BPMS is utilised in support of corporate governance (*cf.* Chapter 7). The research objective results in the following research question:

Secondary research question 3.2: What are the shortcomings of using a BPMS in support of corporate governance?

Secondary research objective 4: Research objective four aims to determine how a BPMS may improve the behaviour of individuals in the organisation in support of corporate governance. The foundation of good governance is intellectual honesty (King, 2006). The author therefore also wants to investigate how the use of a BPMS may improve intellectual honesty (as socially constructed norm) and other behaviours in the organisation in support of better corporate governance. The research objective can be achieved by articulating the change in behaviour of individuals in the organisation after a BPMS was introduced in the organisation. If there was a "mind shift" by the individuals (the formulation of new structures[6]) when the BPMS was used (e.g. employees might be afraid that the BPMS flags dishonest behaviour), one can argue that the BPMS caused a behavioural change in support of corporate governance. The research objective is responsible for formulating the "behavioural" component of the theoretical framework developed that explains how a BPMS is utilised in support of corporate governance (*cf.* Chapter 7). The research objective results in the following research question:

Secondary research question 4: How does the use of a BPMS improve behaviour of people (e.g. intellectual honesty) to support better corporate governance[7]?

Secondary research objective 5: To construct a theoretical framework that explains how a BPMS can be used in support of corporate governance. The

[6] Also see Chapter 2, Section 2.3.5: Using Technologies and Constituting Structures
[7] Also see Chapter 2, Section 2.3.5: Using Technologies and Constituting Structures

theoretical framework directly answers the main research question. The research objective is transformed into the following research question:

Secondary research question 5: What are the components of a theoretical framework that illustrate how a BPMS can be utilised in support of better corporate governance?

1.6 Expected Contribution

It is expected that the research study contributes to the existing body of knowledge that intersects the fields of BPM and corporate governance in the following ways:

- A theoretical framework that explains how a BPMS can be utilised in support of corporate governance in a specific context is developed.
- To articulate how a BPMS improves behaviour (e.g., intellectual honesty) in the organisation in support of corporate governance.
- To illustrate how a set of principles for governance can be applied to a BPMS to achieve better corporate governance.
- To articulate the shortcomings of a BPMS in terms of supporting corporate governance.
- To explain the nature and role of a BPMS in supporting corporate governance.

1.7 Research Limitations and Exclusions

The following research limitations have been identified:

- This project excludes corporate governance complexities associated with virtual and international companies that operate in many different countries. King (2006: 117) himself states:

> *There is no global governance framework for a holding company with many foreign subsidiaries, which lead to a number of issues, such as operating under different legal and governance frameworks... The rules laid down by the holding company might even be illegal in one or more of the countries in which a subsidiary operates. Further, health, social and environmental legislation differs from country to country*.

- The research project excludes in-depth study and analysis of research fields surrounding the newly developed theoretical framework that arises from this research effort. An example of such is the field of Change Management when utilising a BPMS in support of corporate governance.

- The research in this thesis, where the fields of Corporate Governance and BPM intersect is fairly new. Currently, not much formal academic literature (e.g. journal articles) that intersects these research fields exists. The author, therefore, included less formal literature (e.g. internet sources and online news articles) in this thesis.

1.8 Thesis Structure

The thesis structure is as follows:

Chapter 1: Research Introduction: Chapter 1 presents an introduction to the research project, with a specific focus on the research problem and the research objectives of this study.

Chapter 2: Research Approach and Design: Chapter 2 presents an in-depth description of the research approach and design that is followed to guide this study.

Chapter 3: Literature Survey: Chapter 3 makes-up the literature for this research project and is organised in different literature topics that include:

- *The Nature and Role of BPM:* This literature section includes a historical perspective on the origins of BPM to determine its historical nature and role in organisations. Other process disciplines are also examined to determine the nature and role BPM in the organisation.

- *BPM and BPMSs:* The concept of a business process and its characteristics are explored in this literature section. Business processes form the basis for BPM, therefore the concept of BPM is examined. Then, the BPM life cycle is explained. The value that BPM brings into the organisation is also investigated. Next, the architectural components of a BPMS System in which business processes are automated is identified and presented.

- *Corporate governance:* This research project investigates how a BPMS is used in support of corporate governance. This literature section, therefore explains the concept of corporate governance. Two other closely related concepts, namely IT governance and process governance are explained to show how these concepts are different from the concept of corporate governance.

- *King's principles for good governance:* This literature section presents an overview of the King principles for governance. This research project investigates how these principles are inscribed into a BPMS in support of corporate governance in South Africa.

- *Root causes for problems in corporate governance:* This literature section investigates the root causes for problems in corporate governance.

- *The social impact of IS on organisations:* The purpose of this literature topic is to gain insight into the impact that a BPMS has on the behaviour of people in the organisation, when it is used in support of corporate governance.

Chapter 4: A Business Process Management System Vendor Company Case Study: Chapter 4 presents a case study of a BPMSVC. The purpose of this case study is to give the reader insight into how BPMSs are built and how the principles of corporate governance can be inscribed into a BPMS in support of corporate governance.

Chapter 5: Business Process Management System User Companies: Chapter 5 offers diverse views from BPMSUCs of how the principles of corporate governance are supported when using a BPMS. The aim is to identify the shortcomings of such an approach.

Chapter 6: Using a Business Process Management System in Support of Corporate Governance by Applying the Theoretical Lens of Orlikowski: Chapter 6 is devoted to the interpretation of the research findings obtained from the empirical investigations (Chapter 4 and Chapter 5), by applying the theoretical framework of Orlikowski (2000)[8].

Chapter 7: Towards a Theoretical Framework that Explains the Use of a Business Process Management System in Support of Corporate Governance: The research results are combined (synthesis) to construct a theoretical framework that explains how a BPMS can be used in support of corporate governance.

Chapter 8: Conclusions, Evaluation of Contribution and Recommendations: The final chapter of this study presents the research conclusions, evaluates the research contributions and make recommendations for future research.

[8] Also see Chapter 2, Section 2.3: Theoretical Underpinning.

1.9 Concluding Summary

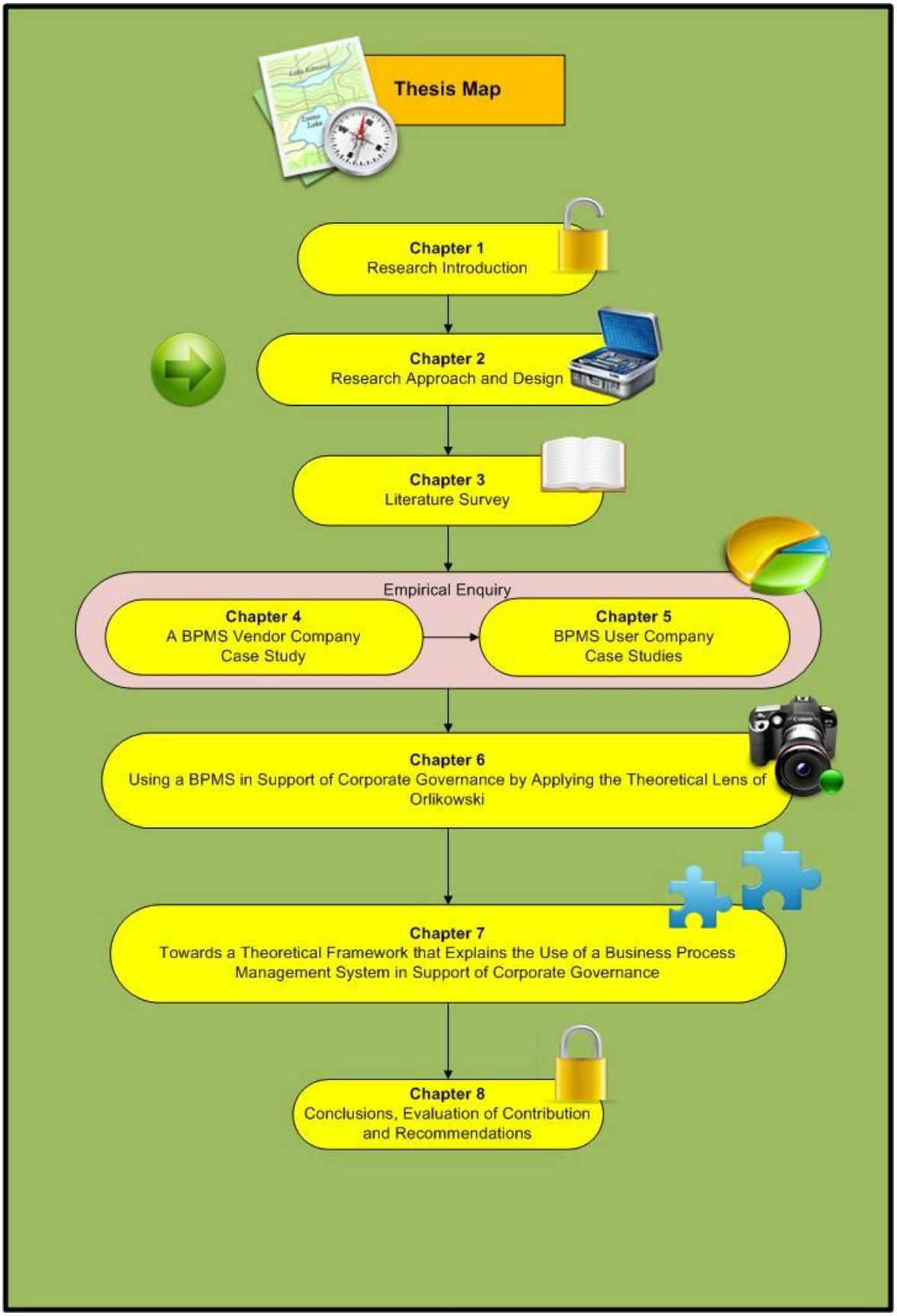
Corporate Governance is under the spotlight because of company failures, poor governance and fraud. In response to company failures, poor governance and fraud, legislative changes (e.g. SOX Act of 2002) and regulatory changes (e.g. governance guidelines for the NYSE and NASDAQ) were introduced. However, compliance to legislative and regulatory acts is costly, time consuming, causing overregulation and does not always provide any value to business. There is also no guarantee that adherence to these legislative and regulatory measures can be enforced, in fact, the first three years of SOX was, at best, an overreaction to Enron and at worst, ineffective and unnecessary.

In the information age of today, IT is ultimately the future for better governance. IT is a business enabler and has become of strategic importance. A BPMS is a cost-and time-effective IT tool that adds value to a business. The main intention of this study is to investigate how a BPMS can be utilised in support of better corporate governance. The biggest expected contribution of this research project is a theoretical framework that explains how a BPMS supports the principles of governance in support of better corporate governance, with specific relevance to the South African context.

An interpretive research approach is followed during the research project. *Using Technology and Constituting Structures - A Practice Lens for Studying Technology in Organisations* by Orlikowski (2000) serves as the theoretical framework to guide the research project. A multiple case study strategy is followed to conduct the research.

The next chapter elaborates on the research approach and design that was used to conduct the research project.

Chapter 2: Research Approach and Design



2.1 Introduction

Chapter 2 explains the research approach that was followed in this research project. It involves an explanation of the philosophical orientation, the theoretical underpinning, case study research, the data analysis method, triangulation and the research design that was used to inform this research project. An overview of the chapter sections follow:

- The first section (Section 2.2), explains the philosophical orientation of the research project. The research project follows an interpretive research paradigm approach. An overview of the interpretive research paradigm is presented and why this approach was selected for this research project, is explained.

- Next, the theoretical underpinning for the research is presented. An overview of different theories that were taken into consideration to inform this research project is presented. The author then justifies the selection of - *Using Technology and Constituting Structures - A Practice Lens for Studying Technology in Organisations* - from Orlikowski (2000), to be used as the theory to guide this research study.

- This research project contains multiple case studies and therefore the author offers an overview of case study research and the guidelines to conduct case study research.

- The data analysis methods for this study are discussed. Data coding is used as the primary data analysis method in this research study. As a result, an overview of data coding is presented.

- Then, triangulation as scientific approach is discussed. Triangulation is the combining of several research methods or data, to gain a richer and hopefully truer account of the research phenomenon (Kennedy, 2009; Olsen, 2004). Triangulation is used in this study to increase the credibility and validity of the research results (Kennedy, 2009; Olsen, 2004).

- Finally, the research design that was followed during the research project is discussed.

2.2 Philosophical Orientation

2.2.1 Introduction

According to Mouton (2001) different paradigms in the philosophy of science exist to assist researchers to think about and study a phenomenon of interest. Typical examples of such paradigms include positivism, interpretivism, critical theory, realism, postmodernism and phenomenology. Each paradigm has its own strengths, limitations, and ontological and epistemological perspectives. (*cf.* Mouton, 2001).

The interpretive philosophical research paradigm approach is mainly used for this research project. The interpretive philosophical approach is now described in terms of its ontological, epistemological and methodological stances, e.g. ways to observe measure and understand social reality.

2.2.2 Interpretive Research

Interpretive research aims to develop an understanding of social life, to discover how people construct meaning within in a specific context. The interpretive approach holds that social life is based on socially constructed meaning systems, social interaction, and therefore people possess an internal experience sense of reality (Walsham, 1995). The interpretive research paradigm approach is described in terms of the ontological, epistemological and methodological stances it holds.

The ontological (the underlying assumptions about the phenomena studied) position of interpretive research is one of multiple realities that exist as a subjective construction of the mind. Reality and knowledge of reality are social products incapable of being understood independent of the social actors, which include the researcher that makes sense of reality and constructs it. Reality and the person observing it cannot be

separated. The aim is to understand the inter-subjective meanings embedded in social life by in-depth examination, understanding and exposure to the phenomenon of interest. (*cf.* Chen and Hirschheim, 2004; Fitzgerald and Howcroft, 1998; Flores, 1998; Jones and Nandhakumar, 1997; Klein and Myers, 1999; Orlikowski and Baroudi, 1991; Pozzebon, 2004; Trauth and Jessup, 2000; Webber, 2004).

The epistemological position (type of valid knowledge obtained about the phenomena under study) of interpretive research is that of subjectivity (the insider). The researcher and reality are collapsed. Knowledge comes from the interaction between the researcher and phenomena studied. The values and beliefs of the researcher are central mediators, which mean that the researcher can never assume a value-neutral stance. Understanding social reality requires understanding of how practices and meanings are formed and informed by language and tacit norms, shared by humans towards a common goal. Different outcomes are generated across different contexts and time. There is no universal truth. (*cf.* Chen and Hirschheim, 2004; Fitzgerald and Howcroft, 1998; Flores, 1998; Jones and Nandhakumar, 1997; Klein and Myers, 1999; Orlikowski and Baroudi, 1991; Pozzebon, 2004; Trauth and Jessup, 2000; Webber, 2004).

Interpretive research uses qualitative approaches to data collection. Qualitative researchers do not own a distinct set of their own research methods and typically use one or many research methods such as interviews, hermeneutic enquiry, survey research, participant observation and even statistical research. Qualitative methods (more frequently used in interpretive research approaches) find out what and why things exist rather than how many exist as in quantitative methods. Polkinghorne (1991: 112) states that qualitative research is particularly useful in:

> *…the generation of categories for understanding human phenomena and the investigation of the interpretation and meaning that people give to events they experience.*

These qualitative methods are less structured and more responsive to the needs of nature and usually involve direct contact with real world actors. Qualitative methods

imply that data is in the form of words and sentences. Data is normally reduced to subjective themes or categories for understanding human phenomena and the investigation, interpretation and meaning that people give to events they experience (contextual), as in the case of this research project. Qualitative methods also seek to understand a phenomenon in its entirety (a holistic view) in order to develop a more complete understating of the research phenomenon, while quantitative methods such as experimental design aims to isolate and measure narrowly defined variables with an emphasis on prediction and control. Quantitative methods, which are more frequently used in positivistic research approaches, use mathematical and statistical techniques to interpret and understand subjective facts behind the matter in interpretive research. (*cf.* Chen and Hirschheim, 2004; Denzin and Lincoln, 1998; Fitzgerald and Howcroft, 1998; Jones and Nandhakumar, 1997; Kaplan and Duchon, 1988; Kaplan and Maxwell, 1994; Patton, 1990; Polkinghorne, 1991; Trauth and Jessup, 2000). Because qualitative researchers do not have a single set of research methods (Denzin and Lincoln, 1998), it is important to purposefully design a study that corresponds with the overall research goals and objectives.

2.2.3 Critique Against Interpretive Information Systems Research

Critiques of the interpretive research paradigm are summarised in the points that follow:

- The researcher cannot assume to understand the actor's behaviour and the research context, therefore, the experience of the researcher plays a big role in understanding the research phenomenon (Jones and Nandhakumar, 1997).

- Actors may provide a distorted account of their behaviour and knowledge because of, for example, secrecy, privacy and failure. Distorted data leads to flawed research results. (*cf.* Jones and Nandhakumar, 1997).

- Actors cannot always give an accurate account of tacit knowledge (Jones and Nandhakumar, 1997).

- The researcher can interfere or intervene in the research context and can change research outcomes (Jones and Nandhakumar, 1997).

- When interacting with an actor it is difficult to know what is to be considered data for the research and what not to consider (Jones and Nandhakumar, 1997).

- Interpretive research does not always take external conditions into consideration (Orlikowski and Baroudi, 1991).

- Interpretive research does not address structural conflicts with society and organisations (Orlikowski and Baroudi, 1991).

Although critique exists against the interpretive research approach, it is an essential approach for understanding the inter-subjective meanings embedded in social life by in-depth examination such as in the case of this research. The next section presents reasons for adopting an interpretive stance for this research project.

2.2.4 Reasons for Making Use of the Interpretive Approach

The research is mainly informed by an interpretive philosophical research paradigm stance. The section explains why the interpretive stance was selected for this research project.

The interpretive IS research paradigm is used to explain different individual viewpoints, the inter-subjective meanings of social structures that are formed when users interact with a BPMS - a software tool - and its structural features within an organisation, to improve corporate governance. One of the research aims of this research project is to determine if software such as a BPMS, which is used regularly or repeatedly with its inscribed properties in a particular way and within particular conditions, may become firm prescriptions for social action that may impede change, for example, intellectual honesty. Change may occur as reinforcement with no noticeable changes or it may occur

as a transformation where structures are changed in a modest or substantial way (Orlikowski, 2000). This research project aims to improve intellectual honesty, which is the basis for good governance according to King (2006), by enforcing and inscribing the King (2006) principles of governance in a BPMS.

The research mainly follows an interpretive research paradigm approach to determine how the use of a BPMS may cause social change, in this case of the research project, to improve corporate governance. The interpretation resulting from the research is based on the author's frame of reference, which makes this research subjective and contextual. The interpretive perspective helped the researcher to understand the social and organisational issues involved from those who developed and used the BPMS.

2.3 Theoretical Underpinning

2.3.1 Introduction

This section presents an overview of theories that were investigated and considered to inform and guide the research. The theories include the "Structuration Theory", "Adaptive Structuration Theory" and "Technologies-in-Practice" by Orlikowski (2000). Technologies-in-Practice" by Orlikowski (2000) extends the Structuration perspective to include the use of technologies in the formation of social structures. The latter theory was suitable to guide this research project.

Firstly, an overview of the historical roots of ST when it was introduced by Giddens (1984) is presented. The theory was criticised for omitting the role of technology and social structures, which led to the formulation of the AST developed by DeSanctis and Poole (1994).

Secondly, the author presents a concise summary of the AST by DeSanctis and Poole (1994) that emerged from the ST of Giddens (1984). Because of the critique against the AST, the author decided that AST is not suitable to guide and inform this research study.

Finally, the author presents an overview of the research framework: "Technologies-in-Practice", introduced by Orlikowski (2000). The author argues the framework of Orlikowski (2000) is a suitable ST to inform and guide the research project. The motivation as to why Orlikowski's (2000) research framework was selected to inform and guide the research project is presented.

2.3.2 The Structuration Theory

ST was proposed and introduced by Anthony Giddens (1984). ST is a theory of social organisation rather than a theory specific to IS (Jones (1997). ST emerged in European sociology in the late 1970's. The origins of ST are mainly traced back to the work of Berger and Luckman (1967) with their concept of the mutual constitution of society and individuals.

Giddens (1984) argues that social structures do not exist independent of human action, nor are they material entities. Social structures are "traces in the mind" that exist only through human actions. Giddens (1984) proposes that structure and agency should not be viewed as independent entities, but as a mutually interacting duality. Social structure is created by human agents and their actions, while the actions of human agents serve to produce and reproduce social structure.

Social systems can be understood by their structure, modality and interaction. Structures can be rules or resources that are organised as properties of a social system that are available to agents and can be governed by agents (human actors). The modality of a structural system is the means by which structures are translated into action. Interaction is the activity instantiated by the agent in acting within the social system. (*cf.* Giddens, 1984).

Three types of social system structures exist for analytical purposes namely: signification, legitimation and domination. Signification is meaning produced thought organised language. Legitimation produces moral order though norms, values and standards (neutralisation). Domination is the exercise of power that originates from the

control of resources. Typically, these forces work together and reinforce one another. (*cf.* Giddens, 1984).

Jones (1997) mentions the fact that Giddens was ignorant of the role of technology and social structures. The ignorance is also the main critique against ST from an IS research point of view. In the research project a BPMS – a software tool - is the major phenomena under study. Because ST ignores the role of technology and social structures, the author decided not to use ST in the research project. DeSanctis and Poole (1994) attempted to address the role of technology and social structures. DeSanctis and Poole (1994) borrowed the ST concepts from Giddens (1984) to propose "Adaptive Structuration Theory", which is discussed in the next section.

2.3.3 Adaptive Structuration Theory

DeSanctis and Poole (1994) developed the AST to study the mutual influence of technology on social processes. They identified many propositions of AST, which include that social structures serve as templates for planning, doing and completing tasks. According to DeSanctis and Poole (1994), social structures can be incorporated into technologies which result in social structures being modified or recreated. Modified social structures then cause new structures to be created. (*cf.* DeSanctis and Poole, 1994; Jones, 1997).

The process of change, when advanced technologies impact the organisation, is investigated from two perspectives. The first perspective investigates the type of structures that are provided by information technologies. The second perspective investigates the structures that emerge in human action, when human actors interact with these technologies. AST can also reveal the complexity of the technology-organisation. (*cf.* DeSanctis and Poole, 1994).

AST allows for a more complete view of factors causing organisational change. AST integrates the assumptions from both the interpretive and positivist research approaches called "soft-line" determinism. DeSanctis and Poole (1994) state that "AST accounts for the power of social practices without ignoring the force that technology has

in bringing about organisational change". AST extends the ST by taking into account the influence of technology and social processes. Identical technologies often lead to different social outcomes within an organisational context. A social structure offered by a technology can be described by the structural features of the technology and the spirit of the technology. Together, the spirit and structural features are set from the structural potential of the technology.

The structural features are the rules, resources and capabilities offered by the system (DeSanctis and Poole, 1994). The structural features govern the way in which information can be gathered and controlled by the users of the system. The structural features bring meaning, what Giddens (1984) calls "signification" and "control".

The spirit of an IT is described in terms of its social structure. Spirit is defined by DeSanctis and Poole (1994) as "the general intent with regards to values and goals underlying a given set of structural features". Giddens (1984) calls this "legitimation" – the normative frame of behaviours that are appropriate in the context of the technology (DeSanctis and Poole, 1994). According to DeSanctis and Poole (1994), the spirit is a property of technology as it is presented to the users of the technology. It is, therefore, important to know that the spirit is neither the initial intention of the designers nor that of the users, although some of the initial intent of the designers and users are reflected in the spirit. The spirit is identified by developing a philosophy based on an analysis of (a) the design metaphor underlying the system (e.g. chat service), (b) the features of the technology and how it is named and presented, (c) the nature of the user interface, (d) the training materials and on-line guidance and facilities and (e) other training and help provided for the technology. (*cf.* DeSanctis and Poole, 1994).

Furthermore, technologies that present a consistent coherent spirit are expected to channel the technology in a definite direction; conversely, technologies with an incoherent spirit send contradictory signs, signals and influence about user behaviour (DeSanctis and Poole, 1994). For a new technology, the spirit of the technology is in fluctuation. When organisations adopt the technology, it contributes through, for example, training and management pronouncements, to the definition of the spirit of

the technology. When the technology is stable and is used in routine ways, the spirit becomes stable and less open for conflicting interpretations. The spirit of a technology can be characterised through many dimensions describing the technology. Such dimensions can be leadership, emerging from using the technology, efficiency where interaction periods with the technology becomes shorter or longer and conflict management or atmosphere that the technology builds. (*cf.* DeSanctis and Poole, 1994).

Technology provides one source of structure, but there are many other sources of structure (DeSanctis and Poole, 1994). Every task, with its content, is a source of structure. The organisational environment provides structures. Factors in the organisation that provide structures are, for example, culture, information, modes of conduct and values. (*cf.* DeSanctis and Poole, 1994). The context, constraints and research environment therefore plays a big role in the formulation of structures and that is why the context, constraints and research environment need to be understood well in order for proper research to be conducted. AST is not perfect, as explained in the next section.

2.3.4 Critique Against Adaptive Structuration Theory

AST has little resemblance to the ST of Giddens (1984), even though a number of terms are borrowed from Giddens and comments are made about the continuous production and reproduction of structure (Jones, 1997). Jones (1997) argues that the concept of *dialectic of control* between the "group and the technology" are directly in contrast with the principles of Giddens. According to Jones (1997), no substantive theoretical justification exists for concepts such as "spirit" and "appropriation" to produce a contingency-type model of technology impacts. These concepts are almost totally incompatible with the main tenets of the ST (Jones, 1997). Jones (1997) concludes that AST provides a framework mostly for the positivist experimental studies of Group Decision Support Systems (GDSS).

The fact that AST has little resemblance to the ST of Giddens (1984) is a great concern to the author. The author originally searched for a theory that describes, from an interpretive stance, the impact that technology has on social structures. The mere fact

that AST has little resemblance to the ST (Jones, 1997), which is used to describe the formulation of social structures and which is regarded as one of the main aspects of this research, disqualifies the use of this theory to inform the research project. For the reasons mentioned, the adoption of AST does not suit the interpretive nature of this research project.

2.3.5 Using Technologies and Constituting Structures

This section portrays the revised theory of Orlikowski (2000) that advances the view that social structures are not located in organisations or in technology, but are enacted by users.

Orlikowski's (1992) theory of the "duality of technology" depicts the relationships between technology, humans (called agents) and the organisation.

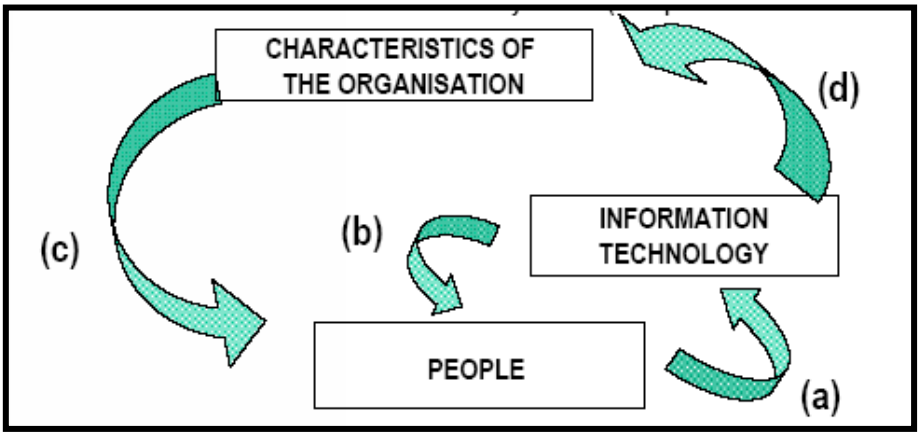


Figure 2.1 The duality of technology (Orlikowski, 1992)

IS are developed and designed by people and they change the way in which people do their work (Orlikowski, 1992). There is continuous interaction between the organisation, technology and people (Figure 2.1), which forms the characteristics of the organisation. These characteristics change as required.

Orlikowski (2000) replaces the notion of technologies' embedded properties by proposing a practice-oriented understanding of the recursive interaction between people, technologies and social action. Technology is typically developed through a

social-political process, which results in structures (rules and resources) being embedded within the technology (DeSanctis and Poole, 1994; Orlikowski, 1992). Orlikowski (2000) argues that structures (rules and resources) being embedded within the technology are problematic because it depicts technologies as static artefacts of fixed structures that are available to users. Social structures cannot exist in material (Orlikowski, 2000).

Orlikowski (2000) further argues that structures of technology are constituted recursively as humans regularly and continuously interact with properties of the technology. This outlines the set of rules and resources that serve to shape the human interaction. Through the regular engagement with a specific technology and its inscribed properties, in a particular way and within particular conditions, users repeatedly enact a set of rules and resources that structure their on-going interactions with that technology. (*cf.* Orlikowski, 2000).

The specific technology is constructed with specific materials by developers and their assumptions and knowledge about the world at that point in time (Orlikowski, 2000). When users then choose to use the technology, the technology is used in ways that were not anticipated by the developers or designers. Orlikowski (2000: 409) states that the:

> *Use of technology is strongly influenced by users' understandings of the properties and functionality of a technology, and these are strongly influenced by the images, descriptions, rhetoric's, ideologies, and demonstrations presented by intermediaries such as vendors, journalists, consultants, champions, trainers, managers and power-users.*

As people use the technology, they draw on the properties of the technological artefact – those inscribed by the designers and those added on by the users. They also make use of their skills, power, knowledge, emotional abilities and intellectual abilities to use the technology. Over time people constitute and reconstitute a structure of technology use, as indicated in Figure 2.2. (*cf.* Orlikowski, 2000).

According to Orlikowski (2000), a community of users with similar work practices enacts similar technologies in practice over time. Through repeated use, such technologies-in-practice become reinforced and institutionalised. At such a stage technologies-in-practice become firm prescriptions for social action that may impede change. In the case of this research project, a BPMS, may cause change in an organisation in support of corporate governance. (*cf.* Orlikowski, 2000).

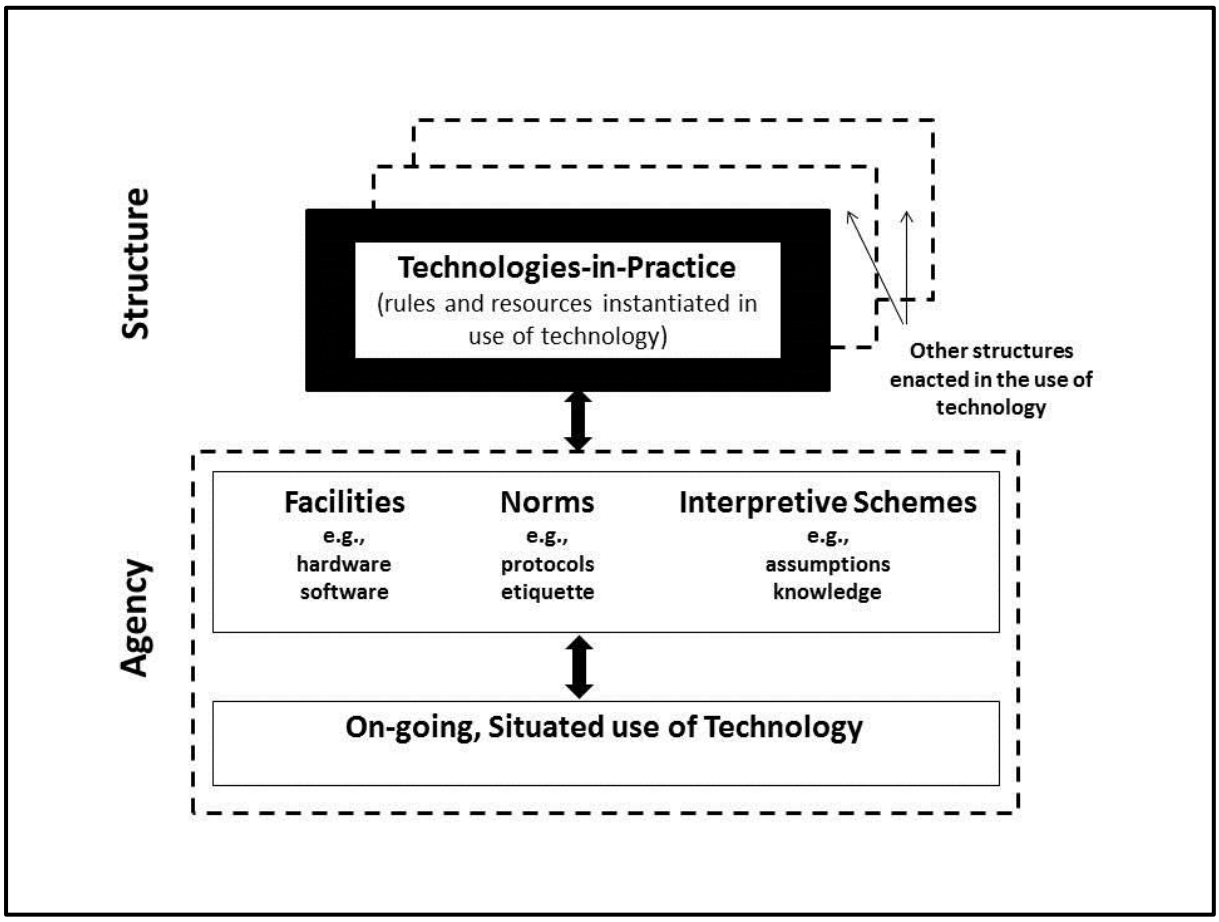


Figure 2.2 Enactment of Technologies in Practice (Orlikowski, 2000)

Figure 2.2 illustrates that people's recurrent use of technology simultaneously enacts multiple structures. Such reconstruction may be deliberate or inadvertent. It may occur as reinforcement with no noticeable changes or it may occur as a transformation where structures are changed in a modest or substantial way. (*cf.* Orlikowski, 2000).

Orlikowski (2000) concludes the description of her framework with the remark that, even as technologies-in-practice may become institutionalised over time, technologies

are still temporal and contextual. The possibility always exists that a different structure may be enacted. In change lies the possibility and potential for innovation and learning. (*cf.* Orlikowski, 2000).

2.3.6 Motivation for Using Technologies and Constituting Structures.

The framework of Orlikowski (2000) is suitable to guide the research project. The framework of Orlikowski (2000) is used later in this thesis, to argue how structures, referred to as "technologies-in–practice", are formed when users in an organisation use a BPMS in support of corporate governance. The technology's structural features are configured in such a way that it supports the principles of governance. Through repeated use, such technologies-in-practice become reinforced and institutionalised in the organisation (Orlikowski, 2000). At such a stage they become firm prescriptions for social action that may impede change (Orlikowski, 2000). With regards to the research phenomenon, organisations may experience behavioural change in support of corporate governance.

2.4 Case Study Research

2.4.1 Introduction

This section presents a theoretical overview of case study research. This research project includes multiple case studies. In the sections that follow, the author first presents an overview of case study research. Secondly, critique that exists against case study research is discussed. Thirdly, the guidelines that are used to conduct case study research, are presented. Finally, a motivation is presented for why this research project made use of case study research.

2.4.2 A Case Study Approach

According to Yin (1999, 2003), a case study can be defined as an empirical enquiry that investigates a modern-day issue or event within its existing context, where the boundary between the issues or event and the context cannot be clearly defined.

Different epistemological and ontological stances can be adopted when using a case study approach (Myers, 2009), but according to Walsham (1993), a case study approach is the most appropriate method for conducting interpretive, empirical research. Myers (2009) also acknowledges that interpretive case study research has become more accepted over the past decade and now appears regularly in top journals and conferences. Myers (2009) states that research cases are particularly useful to contribute to new theory or to test or refine an existing theory.

2.4.3 Critique against Case Study Research

Although case study research is popular among IS researchers, it has been subjected to many criticisms. The biggest concerns are the lack of non-representativeness and statistical generalizability (Myers, 2009). These concerns are typical positivistic perspectives. Flyvbjerg (2006), Yin (2003) and Myers (2009), on the other hand, argue that one can often generalise when using case study research. Flyvbjerg (2006) further criticises the scientific community for underestimating the "force of example" and overvaluing formal generalisations, in agreement with Walsham (1993: 15), who states that:

> *The validity of an extrapolation from an individual case or cases depends not on the representativeness of such cases in statistical sense, but on the plausibility and cogency of the logical reasoning used in describing the results from the cases and in drawing conclusions from them.*

Another critique against case study research and more specifically, multiple case study research, comes from Barley (1986) who warns against the unsound practice of grouping together organisations with radically different social histories, in interpretive analysis. Multiple case studies often become a barrier and the product may be too lengthy, too involved and too detailed for academics and practitioners to use. Interpretevists are more prone to justify the broader relevance of a single in-depth case study with rich and thick descriptions, compared to multiple case studies with a rushed analysis of the research phenomenon (Lee and Baskerville, 2003; Ruddin, 2006). However, in this project, the author uses multiple case studies. The challenge, however,

is not to get lost in the detail of the case studies, or to become too lengthy so that the research is useless for academics and researchers.

A further criticism of case study research is the lack of strictness in the collection of data, in the construction and analysis of the case study (Dube and Pare, 2003). The lack of strictness is further associated with bias, which is caused by the subjectivity of the researcher. According to Lee (1989), Yin (1999, 2003) and Myers (2009), a positivistic perspective of scientific proficiency is defined in terms of construct validity, internal validity, external validity and reliability.

When empirical data in multiple situations lead to the same conclusions it is called construct validity (Yin, 1999; Yin, 2003). Internal validity refers to the issue of whether empirical data provides information about the theoretical concept. It is achieved by using pattern matching to ensure the case study data cannot be explained by rival theories that have independent variables in the hypotheses (Yin, 1999; Yin, 2003). Reliability refers to the stability and consistency of the study over time, and is ensured by developing an apparent case study course of action and developing a case study database (Yin, 1999; Yin, 2003). External validity concerns the generalizability of the result of the study and is ensured by selecting a typical case, e.g. a case representative of a large number of cases and further selecting a case that is likely to confirm the hypothesis so that evidence can be considered decisive (Markus and Robey, 1988).

Lastly, Myers (2009) states that, in case study research it is often difficult to get access to the particular company or group of companies that one wants to study, because of possible unwelcome publicity. Myers (2009) furthermore reveals that, in case study research, the researcher has no control over the situation, for example, the company may go bankrupt, while it often takes a long time for researchers to study one or more cases. In the case of this research project, the author was employed in the BPMSVC that was under investigation during this research project[9]. The author further articulated and used his own experiences at BPMSUCs as research cases for this research project.

[9] See Chapter 4: A Business Process Management System Vendor Company.

Despite these criticisms, case study research is an important component of pluralist research programs in IS (Mingers, 2003). There have been a number of case studies on IS research over the past years, such as, Markus and Pfeffer (1983) and Myers (1994). Walsham (1995) argues that even a single case study allows the researcher to investigate the research phenomenon in great detail and depth, which provides rich descriptions and understanding.

In summary, this research project uses multiple case studies that provide a unique and rare opportunity to determine the impact that a BPMS has in organisations, when it is used to improve corporate governance in organisations. The next section provides guidelines to conduct case study research.

2.4.4 Guidelines to Conduct Case Study Research

Despite the fact that interpretive case study research can benefit from strictness in design and collection of data positivist criteria are not meaningful in the interpretive tradition (Darke *et al.*, 1998; Guba and Lincoln, 1989; Myers, 2009). Klein and Myers (1999) even argue that positivist criteria are inappropriate for interpretive research.

Guba and Lincoln (1989) propose alternative criteria for interpretive research namely, confirmability, as opposed to construct validity; credibility, as opposed to internal validity; transferability; as opposed to external validity; and dependability, as opposed to reliability.

Confirmability refers to the evidence that supports the findings of the study (Guba and Lincoln; 1989). Such evidence must come directly from the research context and research subjects and not from the biases of the researcher, his motivations and perspectives. Creditability confirms the match between the constructed realities of the participants and those represented by the researcher. Transferability establishes to what extent research results and findings can be transferred to another context. The researcher has to identify key aspects of the research setting that emerge, to determine if they are applicable to other settings (Guba and Lincoln, 1989). Lastly, dependability

aims to determine to what extent the research would produce consistent and similar findings when conducted, as described.

Klein and Myers (1999) propose seven principles for evaluating interpretive case studies (these principles also apply to interpretive ethnographies). Table 2.1 summarise the set of principles introduced by Klein and Myers (1999).

Table 2.1 Summary of interpretive field research principles for evaluating interpretive case studies (Klein and Myers, 1999; Myers 2009)

Element	**Description**
The hermeneutic circle	It suggests that human understanding is achieved by iterating between considering the interdependent meaning of parts and the whole they form. The principle is central to all other principles listed below.
Contextualisation	It requires that the study critically reflects on the social and historical background of the research setting, so that the audience can understand and see how the current scenario emerged and unfolded.
Interaction between the researchers and subjects	A critical reflection is required on how the research data was socially constructed between researcher and participants.
Abstraction and generalisation	It involves relating the idiographic details revealed by the data interpretation to theoretical general concepts that describe the nature of human understanding and social action.
Dialogical reasoning	It anticipates or expects sensitivity to possible contradictions between theoretical perceptions guiding the research design and actual findings with subsequent cycles of revision.
Multiple interpretations	Multiple interpretations involves sensitivity to possible differences in interpretations among the participants as they are typically expressed in multiple narratives or stories of the same sequence of events under study.
Suspicion	It necessitates sensitivity to possible biases and systematic distortions in narratives collected from the participants.

Klein and Meyers (1999) show how the concepts are interrelated. The researcher decides what to say, depending on the audience and the story that he or she wants to tell. Klein and Meyers (1999) suggest that the research must decide which principles come into play when studying a particular situation. The set of principles, when used,

aid research work to become more convincing to the target audience. The aim, therefore, of the set of principles, is to improve the plausibility and cogency of research.

Myers (2009) further suggests his own set of criteria to evaluate case study research, as indicated in Table 2.2.

Table 2.2 Criteria to evaluate case study research (Myers, 2009)

How interesting is the case study?
Does the case show sufficient evidence?
Is the case complete?
Does the case consider alternative perspectives?
Is the case written in an engaging manner?
Does the case contribute to knowledge?

Atkins and Samson (2002) also provide guidelines for conducting case study research. The guidelines are a combination of the foremost research work in the IS field of case studies (Klein and Myers, 1999; Walsham, 1995a). These guidelines are organised into a classification framework that suggests five classification elements: way of thinking, way of controlling, way of working, way of supporting and way of communicating. Table 2.3 presents a summary of this framework.

Table 2.3 Guidelines for conducting case study research (Atkins and Sampson, 2002)

Element	**Guidelines**
Way of thinking	Provides an appropriate argument for the case study being suitable. State philosophical stance and perspective. Take account of bias when performing data analysis.
Way of controlling	Define and use some form of quality control measures. Ensure that the results are credible. Determine how to draw conclusions and justify the results through appropriate use of theory.
Way of working	Construct a clearly formulated question that describes an important IS issue or problem of interest. Create a first cut conceptual framework. Devise first cut case study questions. Perform a pilot case study.

	Determine criteria for selecting the appropriate case and participants. Refine the case study questions based on lessons learnt from the pilot study. Revisit the research purpose/question and modify the conceptual framework as required.
Way of supporting	Choose appropriate methods for collecting data. Ensure that these are described in enough detail. Employ a systematic way to analyse the data. Ensure that these are described in enough detail.
Way of communicating	Create a plan for the final report. Determine how the case study findings might be transferable to other settings. Determine how to present the findings to the academic practitioner and other relevant communities.

Sub-sets from the guidelines for conducting case study research, as presented by Atkins and Sampson (2002), Myers (2009) and Klein and Myers (1999), were used in the various case studies (each case was different) to complete the data analysis process (see open coding) discussed next.

2.4.5 Motivation for Using a Case Study Approach

The research project involves multiple organisations that use BPMSs. A BPMSVC is also investigated; therefore a multiple case study approach was followed during this research project. Case study research suits the interpretive stance that was adopted for this research project and research objectives. Secondly, a number of researchers (Schultze and Orlikowski, 2004; Kwam and Zmud, 1987; Markus, 1983) have demonstrated how case study research brings about a broader understanding of the research phenomenon and further offers the potential to improve current practice-based problems. Thirdly, a case study approach allows for "thick descriptions" of the phenomenon under study, which allows the researcher access to the subtleties of changing and multiple interpretations (Walsham, 1995) not present in quantitative research (Flyvbjerg, 2006). Fourthly, just as it is possible to generalise from a single experiment, it is possible to generalise from a single case study (Lee, 1989; Myers, 2009; Yin, 2003). However, in this research project multiple case studies (involving multiple organisations) were conducted to acquire a broader understanding of the research

phenomenon. Finally, the author as researcher was employed in the BPMSVC that was used as a research case. Being employed in the BPMSVC assisted the author as researcher to obtain access to relevant information and relevant participant groups. The author as researcher also articulated certain of his own experiences at BPMSUCs in the form of case studies, from when he was employed at the BPMSVC. The next section discusses data analysis used in the case studies.

2.5 Data Analysis

2.5.1 Introduction

This section presents a theoretical overview of the data analysis method, namely coding, that was used in this research project. Firstly, the data coding process is discussed. Secondly, the role of the researcher during the data coding process is explained. Data coding was used to analyse data obtained from the BPMSVC and the various BPMSUCs. The goal of the analysis is to determine, from the BPMSVC and the various BPMSUCs, how BPMSs are utilised in support of corporate governance, e.g. inscribing the King principles of governance in these systems, how these systems change behaviour in organisations in support of corporate governance and how effective these systems are to address corporate governance problems.

2.5.2 Data Analysis Method

One of the simplest ways to analyse qualitative data is to do some sort of coding (Myers, 2009). According to Myers (2009: 167):

> *A code can be a word that is used to describe or summarize a sentence, a paragraph, or even a whole piece of text such as an interview.*

In other words, codes are tags or labels for assigning units of meaning to descriptive information compiled during a study (Miles and Huberman, 1994; Myers, 2009). As soon as you start to code information you are already in the process of analysing it. Myers (2009) states that coding helps to reduce the size of your data. Coding is further

useful for retrieving and organising data to speed up the analysis of the data (Myers, 2009). This research project uses coding combined with mind maps to organise the data.

There are various types of codes: descriptive codes (open codes), interpretive codes (axial or selective codes), theoretical codes and pattern codes (Myers, 2009; Oates, 2008). Table 2.4 presents a brief description of the various coding types that is used in this research project.

Table 2.4 Types of codes (Myers, 2009; Oates, 2008)

Type of coding	**Description**
Open coding.	Open coding involves analysing text and summarising the text by using a succinct code. Open codes are descriptive and identify, name, and categorise phenomena found in the text. The most important activity in open coding is one of constant comparison.
Selective coding.	Selective coding often occurs after open coding. The main activity of this stage is to refine conceptual constructs that might explain interaction between the descriptive categories (Glaser, 1978).
Theoretical coding.	Involves the formulation of a theory. Theoretical coding is achieved by specifying explicit, casual correlations between individual interpretive constructs. The system of inferences covers the whole of the area under investigation (Urquhart et al., 2006).

In this project, open coding is used to summarise the text, e.g. sentences, paragraphs and interviews, captured from the data collection process. Selective coding is used to refine the conceptual constructs that explain the interaction between descriptive categories. The conceptual constructs are clearly evident in the mind maps that were constructed in the data coding processes. Theoretical coding is used later in this research project, to construct a framework that explains the phenomenon under investigation.

2.5.3 The Role of the Researcher

The role of the researcher as interpreter in this research project involved the selection of sample material (e.g. documents), the comparison of material and data (e.g. interview data), the ordering of material and data, the explanation of material and the interpretation of material to better understand the research phenomenon.

Other important roles of the researcher in this research project include:

- *Deciding what forms the boundaries of the research project:* Due to the exploratory nature of this research project, it was difficult to decide what content should be included in the research project and what should be excluded from this research project. Through the research process there was interplay of discovering and going back to the literature to read and learn more. The researcher decided to narrow down the study as much as possible and to rather focus on an in-depth study of the topic at hand. Other discoveries from this research project are explored and referenced as separate research projects for future research (Section 8.4).

- *Selection of reliable data:* Incorporates the selection and identification of reliable material and text during the coding process. The sampling process was time consuming and in some instances difficult. The following section discusses triangulation of data.

2.6 Triangulation as Scientific Approach

2.6.1 Introduction

All research methods have positive and negative aspects, but problems typically arise when relying solely on one research method (Kennedy, 2009). This is where the concept of triangulation comes into play. Triangulation in qualitative research aims to increase the credibility and validity of the research results by applying at least three sources of data, methods, perspectives etc. Several definitions of triangulation have been given over time:

- Olsen (2004) defines triangulation as the mixing of data or methods to obtain different perspectives on a research phenomenon.

- Cohen and Manion (2000) explain triangulation as an attempt to map out or explain more fully the richness and complexity of a research phenomenon by studying it from more than one standpoint.

- Altrichter *et al.* (2008) state that triangulation gives a more balanced and detailed picture of a situation.

- Finally, O'Donoghue and Punch (2003) define triangulation as a method of cross-checking data from multiple sources to search for regularities in the research data.

Denzin (2006) identified four basic types of triangulation, as summarised in Table 2.5.

Table 2.5 Types of triangulation (Denzin, 2006)

Type	**Description**
Data triangulation.	It involves time, space and persons.
Investigator triangulation.	Involves multiple researchers in an investigation.
Theory triangulation.	Involves more than one theoretical scheme in the interpretation of the research phenomenon.
Methodological triangulation.	Involves using more than one research method to gather data, such as interviews, observations, documents and questionnaires.

As the various definitions of triangulation indicate, depending on the type of research, triangulation can be applied in more than one way. In the case of interpretive research, triangulation can be achieved by studying a research phenomenon from various perspectives and also by mixing data and methodologies (Cohen and Manion, 2000; Olsen, 2004). This project is interpretive in nature and attempts to give a richer, more complete and balanced description of the research phenomenon. Triangulation in this

project is therefore applied by studying the research phenomenon form more than one perspective (designers, developers, users, etc.) and by mixing data (obtained from different sets of questions to various respondent groups) and methods.

As indicated earlier, triangulation eliminates the problem of just relying on one method that effects research bias. Kennedy (2009) indicates that several types of research bias exist, as summarised in Table 2.6.

Table 2.6 Types of research bias (Kennedy, 2009)

Research bias	**Description**
Measurement bias.	Measurement bias is caused by the way in which you collect data. Triangulation allows you to combine individual and group research methods to help reduce bias. Related to measurement bias is "response bias" in which participants tend to tell you what you want to hear. Triangulation again helps, by combining self-reported and observational research methods to help balance out the problem.
Sampling bias.	Sampling bias occurs when not all of the population that is studied is covered. Some research methods make it easier to cover some parts of the population. Triangulation combines different strengths of research methods to ensure sufficient coverage.
Procedural bias.	Procedural bias occurs when participants are put under pressure to provide information that might affect their answers. Triangulation allows researchers to combine short participant engagements, with longer participant engagements allowing participants to have more time to give considered responses.

One needs to take into account that specific research methods have limitations, such as the types of bias explained in Table 2.6. Triangulation is useful in capturing more detail, but triangulation also minimises the effects of bias, ensuring a more balanced research study. According to Kennedy (2009), one can never completely rule out bias or preconceptions. However, one should be aware of their presence and impact. Failing to recognise bias itself is known as "design bias", which includes failing to disclose assumptions and possible bias when reporting research findings, specifically in qualitative research (Kennedy, 2009). In this regard, self-reflection and awareness of

the limitations of one's research methods assist one to access possible bias and take them into account when analysing data.

To summarise, triangulation is the combining of several research methods or data, to gain a richer and hopefully truer account of a research phenomenon (Cohen and Manion, 2000; Kennedy, 2009; Olsen, 2004). Olsen (2004) further argues that triangulation plays an important role in social and interpretive research, such as this research study. As stated in the words of Olsen (2004: 5):

> *I would argue that too much time is spent by statisticians on statistics, when it would be interesting for them to spend more time on developing alternative interpretations (and triangulated re-interpretations) of the data they have.*

2.6.2 Guidelines for Conducting Triangulation

When applying triangulation, one should take cognisance of the methodological pluralism discourse (Carter and New, 2003; Danermark, 2002; Sayer, 2000), which refers to a pluralism of method that enables the researcher to use different techniques to get access to different facets of the same social phenomenon (Olsen, 2004). This section contrasts the two positions of methodological pluralism.

The traditional position claims that there is an epistemological chasm between quantitative and qualitative research (Olsen, 2004; Silverman, 1993; Harre, 1998). Silverman (1993) argues that an advantage of qualitative research is its ability to identify the inherently subjective nature of social relationships. Individuals construct the behaviour of others through their own subjective frame of reference (Olsen, 2004; Silverman, 1993). These authors claim that epistemological incoherence between different methods is invalid. They claim that, if the theory of knowledge being employed perceives only one type of data as valid, then it would be wrong or invalid to employ two types of data. Bryman (1998) further explored this dilemma. Bryman's (1998) approach to mixed-methods research suggests that one type of technique must be used as the primary technique, while other techniques are used to enrich the research.

The alternative position to the traditional position, described in the previous paragraph, is to integrate different research methods (Olsen, 2004). According to Bryman (2001), the combination of different methodologies generally tends to have a leading strategy for starting out the research, and a follow-up strategy for rounding and widening the enquiry. However, triangulated research conducted by combining different methodologies, may run the risk of becoming too unfocused, except if the research has sequencing and there is a sense of which technique is primary (Olsen, 2004). There are also problems with the scientific validity of combining different methodologies. Mixing-up different epistemological viewpoints (objectivity or subjectivity) in one research study may cause problems in the validity of the overall research study. For instance, how does one know that a theory from one scientific method is good enough to be used to generate hypotheses to be tested by a next scientific method? Should the hypotheses not be tested within the same discursive terms (context) set by a given theory? However, integrating different research methods have been applied successfully, leading to multi-perspective meta-interpretations, making the research multi-disciplinary and holistic (Olsen, 2004). Methodological pluralism is furthermore relatively challenging because it involves pluralism of theories. The real word is too complex to be described by only one theory and the data we record about reality is rough, partial and incomplete (Olsen, 2004).

In conclusion, triangulation can cut across the qualitative-quantitative divide using different research methods, but it is challenging. This project does not make use of different research methods for triangulation.

2.6.3 Triangulation Decisions for this Research Study

The author decided to take a constructionist approach towards the research study that impacts the way how triangulation is applied in this research study. The constructionist approach argues that social objects in definition and visibility depend upon the lenses one wears when viewing them (Burr, 1995; Olsen, 2004). They are dependent on the assumptions and epistemological stance of the lens that was chosen to be suitable for the research project. In Section 2.3, the author explained and argued how the lens of Orlikowski (2000) was suitable to guide the research project.

For the purpose of this research study, the lens of Orlikowski (2000) dictates that the research phenomenon should be investigated from the perspective of designers (those that inscribe the BPMS with technological properties in support of corporate governance) and users (those that use the BPMS with the inscribed technological properties to understand how effective it is). A BPMSVC was investigated (Chapter 4), to determine from the perspective of designers, how a BPMS can support corporate governance. On the other hand, various BPMSUC's were investigated (Chapter 5), to determine from the perspective of users how effective a BPMS is to support corporate governance. These different perspectives (a technical perspective from the developers and various user perspectives) provided a richer description, understanding and a more balanced account of the research phenomenon in typical fashion of interpretive research. Triangulation was achieved by using the BPMSVC perspective (the designers), various BPMSUC perspectives and literature as dimensions for triangulation. In Chapter 7, the results from the various triangulation dimensions are synthesised to obtain the final set of research findings. In Chapter 7, the product (the final set of research findings) is used to develop a conceptual framework that explains the use of a BPMS in support of better corporate governance.

2.7 Research Design

2.7.1 Introduction

According to Mouton (2001: 55) the research design can be described as "…a plan or blueprint of how you intend conducting the research." The sections that follow describe the research design. The research project is explorative in nature and, as consequence, it involves multiple iterations of the research process (explained next) as new discoveries are made and explored.

2.7.2 The Research Process and Design

The research process that is used to inform this research project consists of six phases, as illustrated in Figure 2.3 and described in Table 2.7.

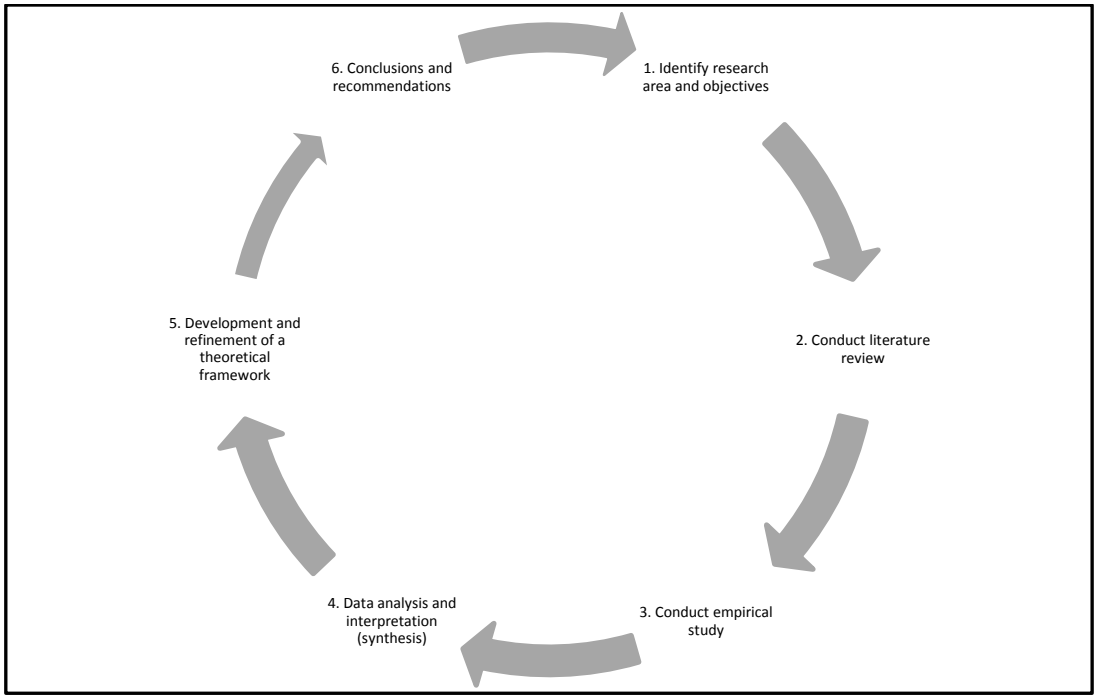


Figure 2.3 The research process (Mouton, 2001)

Table 2.7 The phases of the research process

Phases	**Description**
Phase 1	Identify research area and objectives.
Phase 2	Conduct literature review.
Phase 3	Conduct empirical study.
Phase 4	Data analysis and interpretation.
Phase 5	Development and refinement of a theoretical framework.
Phase 6	Conclusions and recommendations.

Multiple iterations of the research process take place. In each of these iterations of the research process, multiple iterations between the different steps occur. A number of important aspects of the research process are explained in the subsections that follow.

2.7.2.1 The Research Area and Objectives

According to Mouton (2001), the first phase of any research project involves transforming an interesting research idea into a feasible research problem. This was

also the case for this research project, which introduced the research problem and research objectives discussed in Chapter 1.

2.7.2.2 The Literature Survey

According Mouton (2001), the literature survey assists in determining what has been done in the field of study. It should be the most recent, credible and relevant scholarship in the specific area of interest.

The literature survey can be organised in a variety of ways (Mouton, 2001). It can be organised chronologically, by school of thought, by theme or construct, by hypothesis, by case study or by method (Mouton, 2001).

This research project is exploratory in nature. According to Mouton (2001) an organisation of the literature according to theme is more prevalent in exploratory studies. The central themes or constructs are normally directly evident from the research problem (Mouton, 2001). Most of the literature in this research project is organised by theme, depicted in Figure 3.1 in Chapter 3. According to Mouton (2001), the aim in these studies is not to test a theory or to review theories, but to find a classification or topology, or just a clear definition of key constructs of the study. In this study, Chapter 3 is dedicated to the literature survey, organised according to the central research themes of this research project. A chronological organisation of literature is also common in studies of explorative and empirical nature (Mouton, 2001). In this research project, Chapter 3 embarks with a historical overview of the origins of BPM. The historical overview of the origins of BPM was presented in a chronological manner, to deduct the historical nature, purpose and role of BPM in the organisation. The historical overview of the origins of BPMS addresses research question1 (Section 1.5).

One final concern is the size of the literature survey. According to Mouton (2001) different research designs have different implications. Meta-analytic studies have the primary aim of reviewing literature, theoretical studies, conceptual studies, historical and textual studies in the humanities. It, furthermore, has a long list of references. On

the other hand, studies that have a specific empirical focus may have a more moderate reference list, as in the case of this research project.

In summary, the literature in this research project, given in Chapter 3, is mainly organised around themes central to the research problem. However, the section in Chapter 3 that deals with the origins of BPM is organised in a chronological order to determine the historical nature, purpose and role of BPM. The next section describes the empirical research design of this study that involves the selection of the research groups and the BPMS vendor and user companies.

2.7.2.3 The Empirical Study

Three important categories of participants were identified (deducted) from the framework of Orlikowski (2000) that guides this project. The first identified participant group is the designers or developers who construct the technology with a specific intend in mind. Orlikowski (2000:409) states:

> *... technologies come with a set of properties crafted by designers and developers. These technological properties may be examined to identify the typical or expected range of activities associated with the use of the technology.*

It is essential to determine how the first research population (designers and developers) advance the technical properties of a BPMS in support of corporate governance when applying the King principles of governance to the BPMS. Orlikowski (2000) refers to this process as inscribing the technology with a set of properties. It is important to determine how the designers and developers think the inscriptions of the technology change the behaviour of individuals in the organisation in support of corporate governance. A BPMSVC was used as a case study to get insight into this process.

The second important participant group identified by Orlikowski (2000) is users of the technology. Orlikowski (2000: 409) states:

> *However, how these properties will actually be used in any instance is not inherent or predetermined; rather it depends on what people actually do with them in particular instances. And as numerous studies have shown, users can, and do, choose to use technologies in ways unanticipated by inventors and designers. Whether through error (misperception, lack of understanding or slippage) or intent (sabotage, inertia and innovation), users often ignore, alter, or work around the inscribed technological properties… Furthermore, users often add to or modify the technological properties on hand (e.g. installing new software, peripherals, or adding data, etc.) thus, actively shaping or crafting the artefact to fit their particular requirements or interests. The identification of technological properties and common activities associated with our conventional artefact, its inscriptions, or the intentions of its designers, cannot circumscribe the way in which people may use it.*

The users of BPMSs are organisations that purchase and use the BPMS software from various BPMSVCs. These user organisations are from numerous business sectors, which include banking, manufacturing, service organisations, insurance and others. Typically the designers and solution crafters of a BPMSVC configure the BPMS to the user's requirements to ensure that the BPMS is used by the users in its intended way for its intended purpose. However, users of the technology may not use the technology and its technological inscriptions or properties as was intended (Orlikowski, 2000). If the BPMS is not used in its intended way by the users, it is the responsibility of the designers and solutions crafters (Business Analysts and Solution Architects) to take corrective action. The designers, solution crafters (of the BPMSVC) and users of BPMS software are therefore excellent research groups to interrogate to understand the corporate governance issues that companies experience, how BPMS software addresses these problems and understanding the shortcomings of BPMS in addressing these problems.

The last important participant group is intermediaries that influence the way users use the technology (i.e., trainers, managers, etc.). With regards to intermediaries, Orlikowski (2000: 409) states:

> *Use of technology is strongly influenced by users' understandings of the properties and functionality of a technology, and these are strongly influenced by images, descriptions, rhetoric's, ideologies, and demonstrations presented by intermediaries such as vendors, journalists, consultants, champions, trainers, managers, and 'power' users… such intermediaries 'intervene in the interpretation ('reading') of the technology by the user through their comments on the product's nature, capacity, use and value.' Because some of the claims made in these commentaries are quite persuasive, they tend to be believed without concrete evidence to support them.*

The intermediaries in this research project are trainers, solution architects and business analysts. They are responsible for communicating the intended use of the BPMS to users.

In summary, the research groups to question were selected for their relevance to the research phenomenon rather than their representativeness. The researcher studied a BPMSVC case, to determine how a BPMS can be inscribed with the principles of corporate governance and how a BPMS can be used in support of corporate governance. The researcher also investigated organisations that use BPMSs (although some of these companies did not explicitly buy the BPMS software to address corporate governance problems, it had an indirect impact on corporate governance), to determine if BPMSs are effective in addressing their corporate governance problems and needs. In other words, the researcher wants to determine what works well when BPM software is used in support of corporate governance and what the shortcomings are.

Table 2.8 Summary of types of participants for this study

Business Process Management System Vendor Company (Case Study)[10]	
Participants from the BPMSVC	**Description**
Developers and designers (include Developers, Solution Architects, Business Analysts, Trainers and Management).	According to Orlikowski (2000), the designers and developers construct a technology with a specific intent in mind. In this research project, the developers of the BPMSVC are responsible for the development of the BPMS. The solution architects, business analysts and trainers are further responsible for process configurations in the BPMS and training, for clients. They know the BPMS and its features well. They also know is features are effective and causes desired behaviour (because of design feedback). The researcher also included the management of the BPMSVC that is closely involved with the product development and strategic decision making around the product. The participants at the BPMSVC were studied, questioned and interviewed to determine the following: • Firstly, how the technical properties (what Orlikowski (2000) refers to as inscriptions of the technology) of a BPMS can be configured to support the King principles of governance for better corporate governance (Specific BPMSVC participants involved: designers, business analysts and solution architects). See research question 2 (Section 1.5). • Secondly, how the inscriptions of the BPMS, when used, change behaviour, for example, intellectual honesty of individuals of the organisation in support of better corporate governance (Specific BPMSVC participants involved: business analysts and solution architects). See research question 4 (Section 1.5). • Thirdly, exploring what the typical corporate governance problems are that companies in South Africa experience (Specific BPMSVC participants involved). See research question 1 (Section 1.5) • Fourthly, to determine how effective a BPMS addresses the corporate governance problems that companies experience. (Specific BPMSVC participants involved). See research question 3.2 (Section 1.5)
Business Process Management System User Companies (BPMSUC's)[11]	
Participants from the	**Description**

[10] See the number of BPMVC participants in Table 2.10.
[11] Se the number of BPMUC participants in Table 2.10.

various BPMSUC's	
Users, BPMS Support Personnel, IT Managers, Managers.	The users use the BPMS, sometimes in ways unanticipated by inventors and designers (Orlikowski, 2000). This can be through error, intended or unintended (Orlikowski, 2000). They can also shape the artefact to fit their particular requirement (Orlikowski, 2000). In this project, the users, BPMS support personnel, IT Managers and even Managers in a company know if a technology tool such as a BPMS is effective in supporting and improving corporate governance in an organisation. The participants were questioned to confirm the following: • Firstly, to enquire whether the inscriptions of a BPMS, when used, is effective in supporting the King principles of governance for better corporate governance. See research question 2 and 4 (Section 1.5). • Secondly, if the inscriptions of the BPMS when used, is effective to change the behaviour (e.g. intellectual honesty) of individuals of the organisation, in support of better corporate governance. See research question 4 (Section 1.5). • Thirdly, to explore what the shortcomings are of a BPMS in supporting corporate governance. See research question 3.2 (Section 1.5). • Fourthly, to determine how users circumvent the BPMS, when it is used for corporate governance. See research question 3.2 (Section 1.5).

Now that the research groups have been nominated, the focus moves to how the specific BPMSVC and BPMSUC's were chosen for this research project.

Choosing the Business Process Management Vendor Company:

According to Halloway (1997) the sample size in qualitative research is relatively small and the sample size itself does not determine the significance of qualitative research (Cabtree and Miller, 1992). However, case study research sample cases must be "information rich" (Halloway, 1997) and must focus on an in-depth understanding of a phenomenon (Darke *et al.*, 1998). In the case of the BPMSVC, it was decided to investigate an information rich and geographically convenient company that the author as researcher was able to visit often and maintain contact with.

There are numerous reasons why the specific BPMSVC was selected as a case study. Firstly, although the South African economy is perceived as a developing economy, the BPMSVC in question is internationally recognised with client organisations across the globe. Although the focus of this research project is the South African context, the BPMSVC has global relevance. Secondly, the BPMSVC deployed its product (the BPMS) and process solutions in several business sectors in the South African context, which include banking, manufacturing, service organisations, insurance and others. Therefore, the research groups of the BPMSVC could share rich experiences. Thirdly, to further emphasise the rich and dynamic research environment, the BPMSVC involves a diverse set of societal cultures. The different societal cultures may respond differently to the research phenomenon. Fourthly, the BPMSVC touch and explore the everyday lives of a broad section of economically diverse groups of South African citizens and institutions. The economic inequalities between the different groups of South African citizens make these cases an interesting research phenomenon to explore, especially when it comes to the improvement of corporate governance between these diverse groups. Finally, the author adopted a convenient and pragmatic approach to conduct the fieldwork. The author was employed in the BPMSVC from 2004 to 2006. As a consequence, the author as researcher had access to data in ways which are not always possible from the perspective of full-time academics or others. The author had personal and professional relationships with many of the participants and even shared some of their experiences. The participants shared their opinions during the interviews, which is becoming more and more acceptable among academic researchers. Buchman *et al.* (1988: 55) state:

> *The pragmatic approach is supported by wider research trends. Research access has become more difficult to obtain, for at least two reasons. First, further education has widely recognised the value of project work across a range of courses and many organisations have been deluged with requests for research access. We have been denied in some cases only because someone else got there first. Second, as the economic climate becomes harsher in the private and public sectors, managers increasingly feel that they and their staff have little time to devote to non-productive academic research activities. These trends encourage the organisational*

researcher to become more innovative, devious and opportunistic in the research for sites and data.

A possible disadvantage is the close relationships that the author had with some of the participants. These participants were ready to disclose personal political agendas which could be perceived as spoiled and contaminated data. However, this is perceived as part of the nature of interpretive research, which is subjective in nature (Oates, 2008) and does not pose any new dangers that any other research studies may face.

Selection of the Business Process Management User Companies

As previously indicated, other organisations in South Africa that use BPMSs (from different vendors) also needed to be studied, to determine how well BPMSs support corporate governance in these companies. For the purpose of this study, it was decided to investigate BPMSUCs of different sizes and spread across different industries.

There are various enterprise size classifications. The Australian Bureau of Statistics (2001) provides a classification according to the number of employees. A micro enterprise, for example, employs 1-5 employees; small enterprise 6-19 employees; medium enterprise 20-199 employees; and a large enterprise has more than 200 employees. Germany, on the other hand, classifies a small enterprise as an enterprise that employs up to 9 employees, a medium enterprise employs 10-499 employees and a large enterprise employs 500 or more employees (IFM, 2004). In South Africa, the Department of Trade and Industry (2003) has their own enterprise size classification. They classify enterprise size according to the number of employees, the industry sector, the total turnover per year and the total gross asset value of the enterprise. The author as researcher used enterprise size and industry sector from the South African Department of Trade and Industry to categorise enterprises in sizes of small, medium and large (see Figure 2.4)., which was used to select a variety of BPMSUS's of different sizes and industry sectors.

Column 1	Column 2	Column 3	Column 4	Column 5
Sector or subsector in accordance with the Standard Industrial Classification	Size of class	The total full-time equivalent of paid employees	Total turnover	Total gross asset value (fixed property excluded)
Agriculture	Medium	100	R5m	R5m
	Small	50	R3m	R3m
	Very Small	10	R0.50m	R0.50m
	Micro	5	R0.20m	R0.10m
Mining and Quarrying	Medium	200	R39m	R23m
	Small	50	R10m	R6m
	Very Small	20	R4m	R2m
	Micro	5	R0.20m	R0.10m
Manufacturing	Medium	200	R51m	R19m
	Small	50	R13m	R5m
	Very Small	20	R5m	R2m
	Micro	5	R0.20m	R0.10m

Figure 2.4 Snapshot of enterprise size classification (South African Department of Trade and Industry, 2003)

The enterprise classification of the South African Department of Trade and Industry was used as criteria to select and classify the BPMSUCs for this research project. Table 2.9 presents a summary of the enterprise sizes of the BPMSUCs that was examined in this research project.

Table 2.9 Summary of Business Process Management System User Companies examined in this research project

Business Process Management System User Companies (use different BPMSs)		
Reference	**Enterprise Size**	**Industry Sector**
BPMSBPMSUC_A.	Large.	Banking.
BPMSBPMSUC_B.	Medium.	Financial (auditing, financial, risk and tax consulting services).
BPMSBPMSUC_C.	Large.	Manufacturing.
BPMSBPMSUC_D.	Medium.	IT (consulting services).
BPMSBPMSUC_E.	Large.	Energy and chemical (petro-chemical).

The next section elaborates on the data collection and analysis methods that were used in the research project.

2.7.2.4 Data Collection, Analysis and Interpretation

Both primary and secondary data sources were studied in the data collection process. Primary data was collected mainly through semi-structured interviews and surveys (from July 2010 to January 2011), while secondary data sources included company documents, company websites and internal reports. The participants represented different language groups, social backgrounds and gender. In most cases the participants were graduates. Table 2.10, presents a summary of the number of participants that was interviewed or surveyed during the research project. The interview guide in Appendix A1 was used in the BPMSVC and the interview guide in Appendix A2 was used for the various BPMSUC's.

Table 2.10 Summary of participants during the research project

Business Process Management System Vendor Company (BPMSVC) – Used Interview Guide in Appendix A1	
Participants	**Number of participants**
Management.	12
Business / Process Analyst.	14
Developers (BPMS development).	12
Trainers.	8
Other (mostly academics).	3
Business Process Management System User Companies (BPMSUC's) – Used Interview Guide in Appendix A2	
Participants	**BPMSBPMSUC_A**
IT Managers.	2
Operational Manager (Manager)	1
Participant group	**BPMSBPMSUC_B**
Process Consultant (Analyst/Support).	4
IT Management.	2
Participant group	**BPMSBPMSUC_C**
IT Management.	1
Process Analyst/Support.	3

Participant group	**BPMSBPMSUC_D**
Process Consultant (Analyst/Support)	8
IT Management	1
Management	1
Participant group	**BPMSBPMSUC_E**
Process Analyst/Support	2

The data collection process was conducted in an iterative manner ensuring richer and deeper interpretation. The data collection stopped when nothing new was discovered from the interviews. Data analysis[12] was not separated from data collection, with the intention that results of the analysis would help with theory elaboration and confirmation. The data collection process occurred in various phases and involved several field trips.

Questions in the interview guide were piloted as an open-ended online survey in which ten sampled participants participated. The pilot assisted in eliminating questions that were confusing. The online survey was used to collect information from participants, in cases where the participants were not available for interviews or were impeded due to difficult circumstances. Some discussions were captured by the researcher with the permission of the participants. In some cases additional research notes were taken. Taking notes ensured that important concepts were preserved for analysis. After the interview, the participant was given an opportunity to confirm his or her answer for a particular question, as suggested by Nandhakumar and Jones (1997). By reflecting on transcripts and research notes, the author improved his own questioning technique.

Due to the different perspectives or subjective opinions of individual participants, the open-ended questions asked during the discussions were less structured. However, an interviewing guide (Appendix A) was used to guide the interview process. Secondary data guided the author to learn more about the histories of the companies, but also assisted in providing an understanding of the companies and its workings.

[12] The data analysis process is discussed in Section 2.5.

During the data analysis, key themes were identified from the different perspectives of the participants. These themes acted as inputs to discussions with interviewees which guided further analysis and interpretation. Data was systematically coded into themes and categories as they emerged, using the constant comparative method (Oates, 2008). The author further investigated how the different themes and categories related to one another. *Mind Manager* was the software tool used to manage and code the data into the different themes and categories. Mind Manager (for mind maps) assisted in maintaining a string of evidence to support the findings of the research project as suggested by Darke *et al.* (1998) and Muhr and Friese (2004).

2.7.2.5 Development of a Theoretical Framework

During the research project a theoretical framework was developed. (*cf.* Chapter 7) that explains the use of a BPMS in support of corporate governance. The theoretical framework was developed from existing work of Schwarz *et al*. (2010). The work of Schwartz *et al.* (2010) was the most recent published work available in the current body of knowledge that touched the aspects addressed in the research project and therefore suited the research well. The newly developed theoretical framework drawn from the research findings and the work of Schwartz et *al.* (2010) contains the key findings of the research with its key relationships.

After the theoretical framework was developed, the framework was distributed to and critiqued by industry experts in the domains of Corporate Governance and BPM, to identify shortcomings. The experts where identified from referrals of practitioners and academics in the domains of Corporate Governance and BPM. A self-evaluation and interview evaluation by the researcher was completed to ensure that the participants were really experts in the domains of Corporate Governance and BPM. The experts were then presented with a description of the theoretical framework in electronic document format (Microsoft Word). Then an informal, semi-structured, face-to-face interview followed with each expert participant. The interviews with the expert participants were video recorded and common key points (identified from all the participants by using the constant comparative method) for improvement were identified and transcribed into text. The interviews lasted between 45 and 60 minutes

per participant and were conducted in December 2012. The improvements to the proposed theoretical framework, that was video recorded in most cases, are discussed in Chapter 7. A summative description of the industry experts are presented in Table 2.11.

Table 2.11 Summary of industry expert participants

Expert Description	**Self-rating in competency to review theoretical framework (5)**
Expertise description: Former Chief Information Officer (CIO) of the South African Department of Defence and independent Strategic ICT Management contractor. Academic: PhD (IT). Demographics and gender: White male. Age range: 60-65 years.	4.5+
Expertise description: Internal IT Auditor of a big Financial Institution in South Africa. Academic: Masters (IT). Demographics and gender: White female. Age range: 40-45 years.	3.5
Expertise description: Independent Business and ICT Consultant. Specialises in end to end business and ICT solutions for Small Medium Enterprises to large corporations. Academic: PhD (IT), MBA. Demographics and gender: White female. Age range: 50-55 years.	3.5+ (author's rating 4+)
Expertise description: Former Chief Business Architect of the State IT Agency (SITA) and independent Business and ICT Consultant. Academic: Graduate. Demographics and gender: White male. Age range: 50-55 years.	4.5
Expertise description: Senior Manager and Process Analyst in a BPMS Vendor Company. Consulted in the business process domain for the public and private sector. Academic: MBA. Demographics and gender: White male. Age range: 50-55 years.	4.0

2.8 Concluding Summary

The interpretive IS research paradigm is utilised in this thesis to understand, from different individual viewpoints, the inter-subjective meanings of social structures that are formed when users interact with a BPMS, a technology tool, and its corporate governance supportive structural features within an organisation in support of corporate governance. (*cf.* Section 2.2).

The framework of Orlikowski (2000) was selected as a suitable framework to analyse the inter-subjective structures that are formed, that causes behavioural change, when users in an organisation use a BPMS in support of corporate governance, e.g. through the technology's structural features that support the King principles of governance. (*cf.* Section 2.3).

In this chapter the researcher presents a theoretical overview of case study research in the light of the interpretive stance and the number of case studies that was adopted for this research project. (*cf.* Section 2.4).

Data coding was used as the main data analysis method in this research project and therefore the data coding process used, was explained.(*cf.* Section 2.5). This research project used triangulation to gain a richer and hopefully truer account of a research phenomenon. (*cf.* Section 2.6). Finally, the researcher explained the research process and design that guided this research project. (*cf.* Section 2.7).

A summary of the research approach and design decisions is presented in Table 2.12

Table 2.12 Summary of research approach and design decisions

Aspect	**Decision**
Epistemological and ontological assumptions.	Interpretive (Section 2.2).
Theoretical underpinning.	Using technology and constituting structures: A practice lens for studying technology in organisations (Section 2.3).
Research strategy.	Multiple case studies: Include a BPMSVC Case

	Study and multiple BPMSUCs (Section 2.4; Section 2.7).
Data collection.	Interviews, surveys and literature (Section 2.7).
Data analysis.	Data coding: Constant comparative method (Section 2.5).
Enhance accuracy, richness and description of the research phenomenon (interpretive nature).	Triangulation (Section 2.6).
Research product.	A theoretical framework that describes the use of a BPMS in support of corporate governance, critiqued by industry experts (Section 2.7). The theoretical framework answers the main research question of this study which is: "How can a BPMS be utilised and adapted to support the King principles of governance in support of better corporate governance in the South African context?"(Section 1.5). The different components of such a theoretical framework is also explained (Sections 1.5, secondary research question 5).

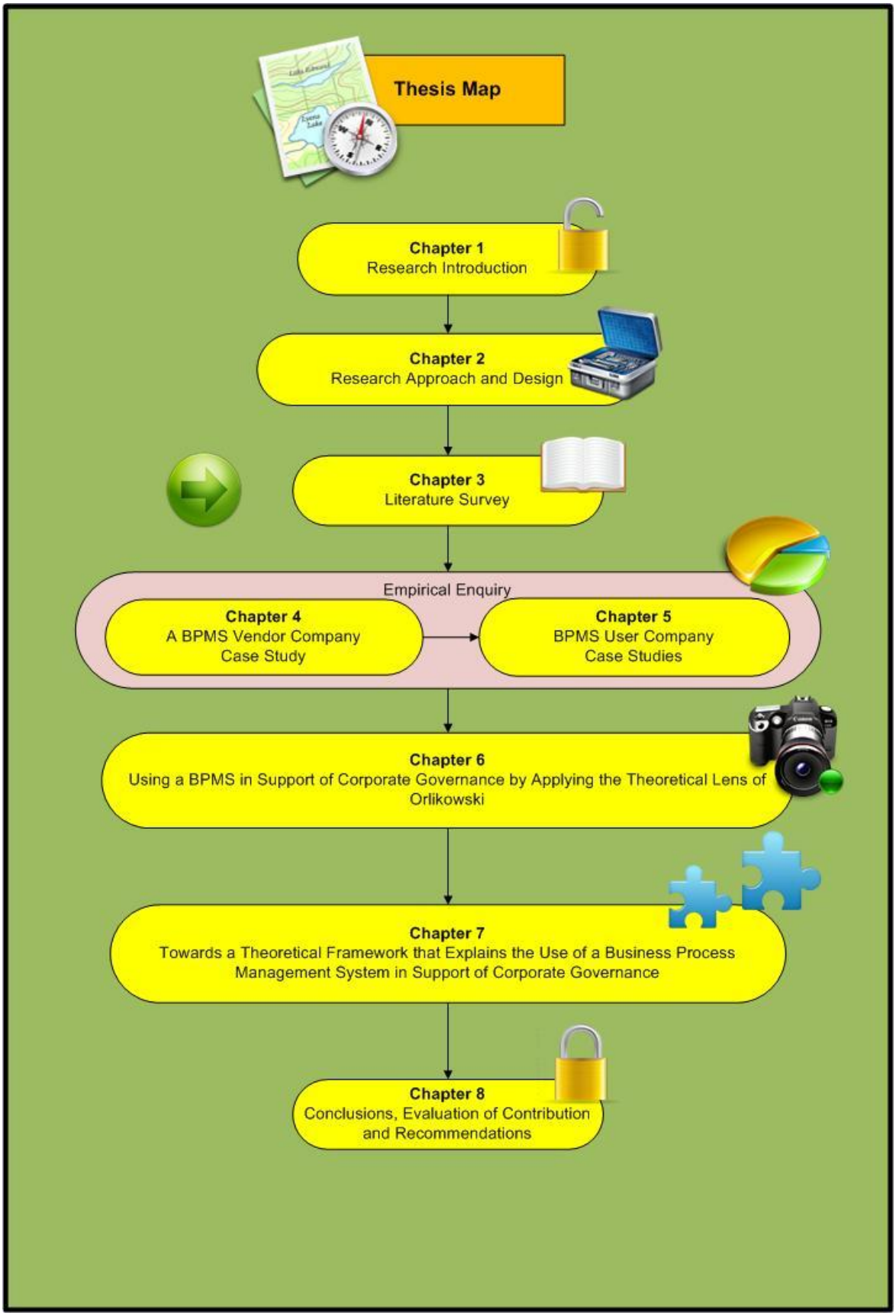
This chapter is concluded with the words of Merriam and Associates (2002: 423) that best describe the nature of qualitative research:

> *The nature of qualitative research is as much a social and psychological process as it is a systematic enquiry. Because the process is a journey, if not a struggle, it is crucial to study a phenomenon that you are really curious about, and that you care about and that you are passionate about. This interest will motivate and sustain you through the process. Second, the process will affect you; we learn a lot about ourselves as we design and carry out the study, write it up, and disseminate the results. Third, it is only in the doing of a qualitative study that we really learn what it means to be the primary instrument of data collection and analysis, how the design is really 'emergent' and not predetermined, how questions of authenticity, validity, and reliability become dealt with, and how ethics underlie all of these concerns. Finally it helps to have some*

companions on the journey; other people not only strengthen a study, but also provide the support that brings it to completion.

The next chapter embarks on the literature topics relevant to this research project.

Chapter 3: Literature Survey



3.1 Introduction

This chapter presents the literature for this research project. The literature is organised in relevant literature topics which is common for research projects of explorative nature (Mouton, 2001). However, Section 3.3 is dedicated to a historical overview of BPM and other process disciplines. The historical overview is important for the research to understand the nature and role of BPM from its origins. Before embarking on a discussion of the various literature topics in this chapter, the scope of the literature survey is presented.

3.2 Scope of Literature

The scope of the literature, as illustrated in Figure 3.1, depicts the different literature topics of this project. The relationship of the literature topics to each other and its relationship to the main research objective of this study are also illustrated in Figure 3.1.

The main research objective of this research project is to determine how a BPMS can be utilised in support of better corporate governance (depicted in area G of Figure 3.1). The literature topics (area C and E in Figure 3.1), nearest to the research problem (depicted in area G of Figure 3.1) is most important and relevant to the research. This includes BPMSs and principles of good governance. Other literate topics were also included to present a broader literature perspective of the various literature themes relevant to the research. Literature topics relevant to the main research objective include:

- *Business Process Management Systems (area C in Figure 3.1):* A BPMS is decomposed into its different architectural components from literature, to determine how the King principles of governance can be inscribed into these components in support of corporate governance.

- *Business Process Management (area B in Figure 3.1):* The BPM literature contributes to the research project in four ways. First, it defines BPM and presents an

understanding of what BPM is. Then, the BPM life cycle is explained. The BPM life cycle contributes to understanding the continuous improvement nature and role of BPM in the organisation. Thirdly, the business value of BPM in the organisation is described. When BPM is used in the organisation to improve corporate governance, by automating business processes in a BPMS, it must still deliver value to the business. Finally, the origins of BPM are investigated to understand its historical nature, purpose and role in the organisation, that impact and apply to the field of corporate governance today.

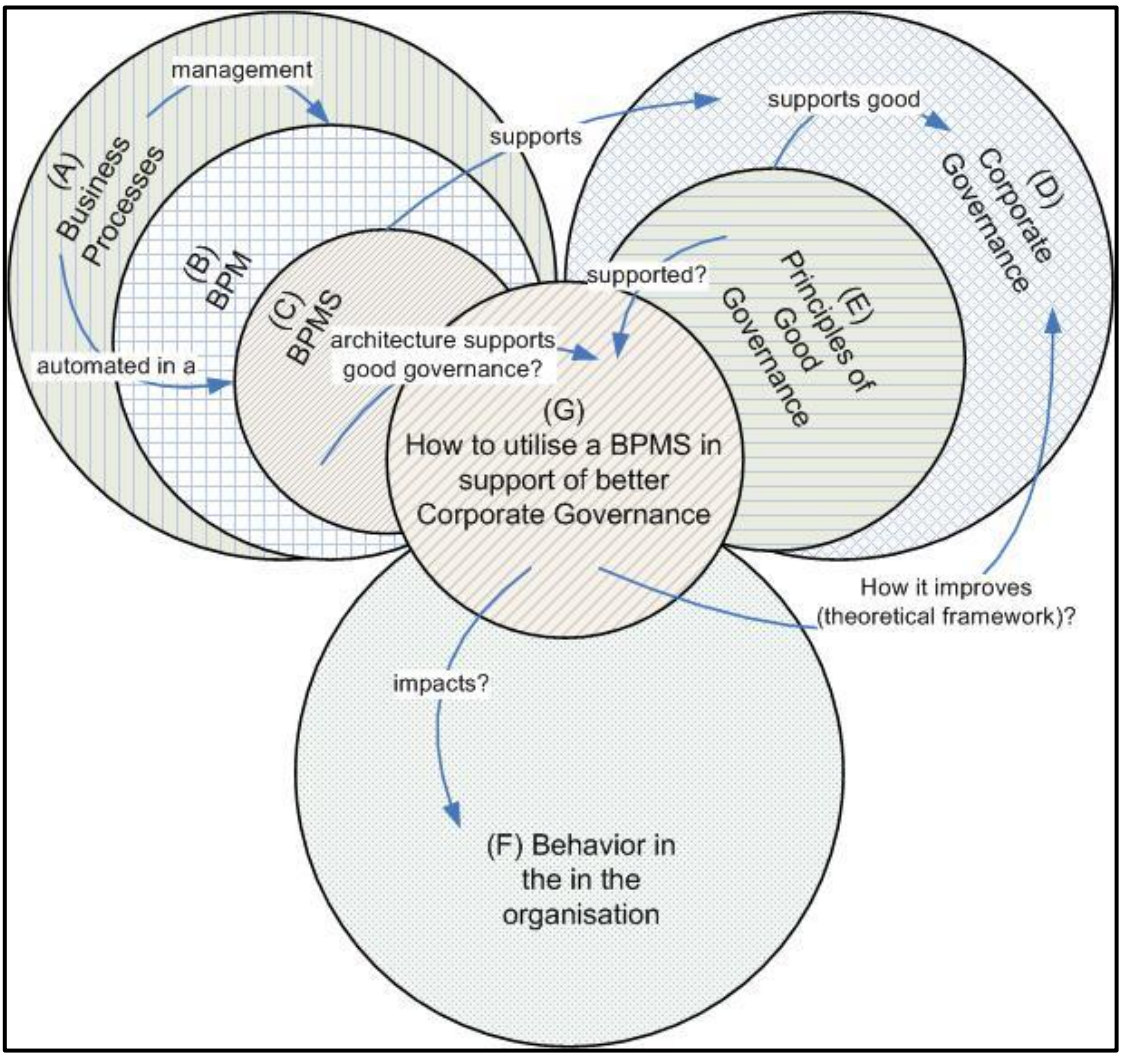


Figure 3.1 Schematic representation of the literature scope

- *Business processes (area A in Figure 3.1):* Business processes are discussed, because it presents a basic understanding of the fundamental characteristics of a business

process. These characteristics impact corporate governance when a BPMS is used to automate business processes in support of corporate governance.

- *The King principles of good corporate governance:* The King principles of governance are described and explained in the literature, as illustrated in area E in Figure 3.1. The literature further present different definitions and perspectives of what corporate governance are, as depicted in area D in Figure 3.1. Finally, the literature is used to explain what the root causes of corporate governance problems are.

- *The impact of technology on organisational behaviour (area F in Figure 3.1):* This part of the literature explores how technology changes and impacts organisational behaviour.

3.3 The Historical Nature and Role of Business Process Management

3.3.1 Introduction

This section investigates what the historical nature and role of BPM is, depicting its historical origins. During the historical journey, supporting process theories, perspectives and various process disciplines from the past are investigated. The aim of this section is to present a list of characteristics from process discipline history that defines the nature and role of BPM in organisations today.

3.3.2 The Origins of Business Process Management

The origins of BPM can be traced back to the work of Adam Smith, a political economist and a Scottish moral philosopher. His two most famous works include the: *The Theory of Moral Sentiments* (1759), and *An Inquiry into the Nature and Causes of the Wealth of Nations* (1776). The work of Adam Smith helped to create the modern discipline of economics, free trade (he viewed government intervention in the market with great scepticism) and capitalism. Adam Smith is widely acknowledged as the father of the science of economics and moral philosophy (Falkner, 1997).

Adam Smith was one of the first people to describe processes in his example of an English pin factory in his magnum opus: *An Inquiry into the Nature and Causes of the Wealth of Nations* (Kim and Ramkaran, 2004; Smith, 1776 [1977]).

The first principle drawn from Smith's (1776 [1977]) work, is the division of labour. Smith (1776a: n. pag.) describes the production of a pin in the following way:

> *One man draws out a wire, another straightens it, a third cuts it, a fourth points it, a fifth grinds it at the top for receiving the head: to make the head requires two or three distinct operations: to put it on is a particular business, to whiten the pins is another… and the important business of making a pin is, in this manner, divided into eighteen distinct operations, which in some manufactories are all performed by distinct hands, though in others the same man will perform two or three of them.*

Smith showed how productivity (output of a business process) could be increased through labour division. In Smith's example, the same number of workers produced 240 times as many pins as they had been producing before, by using labour division. This example shows how productivity increases by breaking a production process into smaller activities that is performed by workers who specialise in a specific activity. The skills of employees in an organisation must match their specific job activities in the organisation for increased productivity.

Smith further touched on the important factor of meritocracy, which is self-improvement (Smith, 1776 [1977]). Smith argued that self-improvement leads ultimately to more efficiency in the economy. Continuous improvement of tasks and business processes to increase business performance forms the very nature of BPM and other process disciplines, as discussed later in this chapter.

Other important factors that Smith (1776 [1977]) identified from the division of labour are that:

- Time should not be wasted when passing one task to the next. A more consistent and focused effort evolves when workers are working in one area.

- Machines, tools and specialised labour evolved. Specialised labour caused workmanship dexterity due to specialisation in a specific task.

Another principle taken from Smith's (1776 [1977]) work, is the size of the market that determines the degree of division of labour. In a small economy a person may not see the benefits of specialising only in one employment. One can deduce that context matters. Context (in the case the size of the market) is important and impacts the way in which one does business. This means that business processes and BPM are seen differently in different situations, depending on the situation and context (Rosemann, 2007). The application of best practices to business processes is different, depending on the situation and context.

A third principle taken from Smith's (1776 [1977]) work, is the origin and use of money in a monopoly. Smith (1776b: n. pg.) states:

> *A monopoly granted either to an individual or to a trading company has the same effect as a secret in trade or manufacturers. The monopolist, by keeping the market constantly under stocked, by never fully supplying the effectual demand, sell their commodities much above the natural price, and raise their emoluments, whether they consist in wages or profit, greatly above the natural rate. The price of monopoly is upon every occasion the highest which can be got.*

Any business, through its business processes, should strive to eliminate the competition to gain a monopoly in the market. If this occurs the business is able to sell their commodities at a price much higher than the natural price and therefore increases in profits can be expected. One can argue that one of the goals of BPM is to increase profits or stated simply, to make money. For organisations to make money, they should continue to improve their businesses and core processes. Organisations therefore

require an organisational strategy to be the best, or at least to be better than that of their competitors. Smith (1776c: n. pg.) further states:

> *Every man is rich or poor according to the degree in which he can afford to enjoy the necessities, conveniences and amusements of human life. But after the division of labour has once thoroughly taken place, it is but a very small part of these with which a man's own labour can supply him. The far greater part of them he must derive from the labour of other people, and he must be rich or poor according to the quantity of that labour which he can command, or which he can afford to purchase. The value of any commodity, therefore, to the person who possesses it, and who means not to use or consume it himself, but exchange it for other commodities, is equal to the quantity of labour which enables him to purchase or command. Labour, therefore, is the real measure of the exchangeable value of all commodities.*

As can be seen from the citation above, Smith argues that the price of any product should at least reflect the cost of manufacturing the product. The manufacturing cost includes the wages of the labourers that were involved in the manufacturing process of the product plus the cost of the location where the product was manufactured. This is a important principle to apply from a governance perspective. The cost to implement corporate governance must not eradicate business profits, it should make business sense.

The division of work and the competition between labourers, to command or own more activities in a business process, has led to the concept of the organisational management hierarchy, which Henry Ford and other successful business leaders have added (Kim and Ramkaran, 2004). The wages of the labourers higher up in the organisational hierarchy were typically compared to the amount of work (activities in the process) they owned or commanded (Smith, 1776 [1977]).

Smith's view of production processes were much limited to the same functional domain and consisted of sequential activities. Today's business processes include cross-

functionality over many functional organisational units (Rummler and Brache, 1995). From a corporate governance perspective, transparency between cross-functional business units is important. The one hand should know what the other is doing. Transparency may further increase efficiency and limit duplication of work. Today, businesses span the geographical borders of the world (King, 2006), which make the governance of such processes more complex. The author therefore agrees with King (2006) that the use of IT can assist organisations in the improvement of corporate governance across the geographical borders of the world.

3.3.3 Historical Theories and Perspectives

This subsection presents an overview of supporting theories and perspectives that originated from Adam Smith (1776 [1977]). These theories and perspectives had a major influence on BPM as we know it today.

First an overview of Scientific Management is presented, which was developed by Fredrick Winslow Taylor (Taylor, 1911). Then, span of control is discussed, which refers to the number of sub-ordinates that a manager manages within the organisation. Thirdly, the author presents an overview of departmentalisation according to process and purpose. The final theoretical perspective discussed is that of Information Management.

3.3.3.1 Scientific Management

Scientific Management (also known as Taylorisim or the Classical Perspective) was developed by Frederick Winslow Taylor during the 1880s and 1890s and was first published in one of his monographs: *The Principles of Scientific Management* (1911).

Scientific Management is a theory that analyses business to gain improvements in productivity (Taylor, 1911). Babcock (1917) describes Scientific Management as the kind of management which conducts a business by standards established by systematic observation, experiment or reasoning. Kreitner and Kinicki (2004) state that Taylor's approach focuses on using research and experimentation to determine the most

efficient way to perform jobs. According to Taylor (1911), Scientific Management involves the following five steps, as indicated in Table 3.1.

Table 3.1 Steps of Scientific Management (Taylor, 1911)

Steps	Description
Step 1.	The development of standard methods for performing jobs by using time and motion studies
Step 2.	The careful selection of employees with appropriate skills and abilities.
Step 3.	The training of workers to use standard procedures and methods.
Step 4.	Supporting workers and the minimization of interruptions.
Step 5.	The provision of incentives to reinforce performance.

Because jobs are highly specialised and standardised, Scientific Management targets efficiency, flexibility and employee productivity. Taylorism is often mentioned alongside Fordism, which was closely associated with mass production processes. Taylor (1911) proposes that precise procedures derived from scientific investigations should replace tradition and rules of thumb. Taylorism can be viewed as the logical extreme of the division of labour principle introduced by Adam Smith (1776 [1977]).

Taylor further highlighted the fact that a person with the right job skills needs to be selected for a specific job. Taylor (1911: 28) states:

> *Now one of the very first requirements for a man who is fit to handle the pig iron as a regular occupation is that he shall be so stupid and so phlegmatic that he more nearly resembles in his mental make-up the ox than any other type. The man who is mentally alert and intelligent is for this very reason entirely unsuited to what would, for him, be the grinding monotony of work of this character. Therefore, the workman who is best suited to handling pig iron is unable to understand the real science of doing this class of work.*

One can summarise Scientific Management as an attempt to treat business improvement and management as a scientific problem for increased productivity (Kreitner and Kinicki, 2004; Taylor, 1911). According to Drucker (1954), Taylor strived

to scientifically establish how much work of a specified quality an individual should be assigned each day. He proposed that bonuses be based on accomplishing those output standards. Scientific Management is however criticised for the dehumanisation of organisation (Ghoshal, 2005). Humans are often treated as production machines. Research further revealed that simplified repetitive jobs leads to job dissatisfaction, poor mental health, higher levels of stress and a low sense of accomplishment and personal growth (Melamed *et al.*, 1995; Melin *et al.*, 1999). However, Scientific Management influenced BPM and process disciplines. Traces of Scientific Management with the advancement of statistical methods is found in quality control in the 1920s, operational research in the 1940s and 1950s, TQM in the 1980s and re-engineering in the 1990s. Traces of Scientific Management are also present in Six Sigma and Lean Manufacturing. These fields, together with fields such as Industrial Engineering, Value Chains, Enterprise Resource Planning, Supply Chain Management and Service-Orientated Architectures, form part of the process disciplines (Rosemann, 2006) discussed later in this section.

3.3.3.2 Span of Control

A simple meaning for span of control is the number of people who are directly reporting to one manager (Kreitner and Kinicki, 2004). Span of control range from narrow to wide. An exact number cannot be given to the ideal span of control. Span of control is commonly used in military organisational theory and in business management.

Currently, organisational hierarchies are flattening because of inexpensive IT that replaces middle management, but for a long time a major challenge was to find the optimum span of control. Mackenzie (1978: 121) describes this phenomenon as follows:

> *One could argue that with larger spans, the costs of supervision would tend to be reduced, because a smaller percentage of the members of the organisation are supervisors. On the other hand, if the span of control is too large, the supervisor may not have the capability to supervise effectively such large numbers of immediate subordinates. Thus, there is a possible*

trade-off to be made in an attempt to balance these possibly opposing tendencies.

Massie (1965) and Pugh et al. (1972) rightfully stated that there is no generally accepted optimum for span of control, because there are several factors that can influence the balance between the manageability of an organisation and the desired level of control. A factor that may impact the span of control is, e.g. the capabilities of managers and subordinates. Kreitner and Kinicki (2004) rightfully confirm that organisational theorists have not arrived at a consensus regarding the ideal span of control.

Davis (1951) argued that managerial work can be divided into two categories. The first requires the supervision of physical work (blue collar workers) while the second requires the supervision of mental work (white collar workers). Depending on the type of work, a span of 3-8 workers were adequate for managers at higher levels while first-level supervisors that supervise floor personnel could have up to 30 subordinates. Wider spans of control complement the trend towards greater worker autonomy and empowerment. (*cf.* Davis, 1951; Kreitner and Kinicki, 2004).

Drucker (1954) used the principle that he refers to as: "the span of managerial control", to solve the problem of what the optimum span of control should be. Supervision should be reduced from direct control to exception handling. According to this principle, subordinates can take responsibility for making decisions but in difficult decision making circumstances should have access to a supervising manager.

In summary, there is debate to what the optimum span of control should be (Massie, 965; Pugh et al., 1972). Davis (1951) argues that work supervision should at least differentiate between supervision of blue collar workers and supervision of white collar workers. Important aspects can be derived from the theoretical perspectives of span of control. Business processes must have process supervisors or managers that are responsible for a given process or a given set of processes and the activities within that process. Furthermore, process managers must rather focus on exception handling

rather than direct process control. The optimum amount of processes that a manager may supervise depends on the capabilities of the supervisor, the employees, the business context and the complexity of the process. The process manager should further have visibility into the work performed by the subordinates to be able to manage processes properly. Technology can play an important role to assist managers to achieve process transparency and further may assist to establish sub-ordinate accountability and responsibility.

3.3.3.3 Departmentalisation

Departmentalisation refers to the process of grouping different activities into departments. The division of labour principle of Smith (1776 [1977]) caused the creation of specialists that required coordination. This was achieved by grouping specialists together in departments. The concept of departmentalisation originated.

There are different types of departments. Functional departments are the grouping of activities by functions. Product departments are the grouping of activities by product line. Typically, the activities that relate to a specific product is placed under one manager, the Head of the Department. Customer departments is the grouping of activities that relates to a specific type of customer. Geographic departments are grouping on the basis of location and territory. Finally, process departments are the grouping of activities based on processes.

According to March and Simon (1958) the distribution of work, authority and responsibility is hardly new in any organisation. Gulick and Urwick (1937) were the first to introduce different departmental strategies which were referred to as departmentalisation by process and departmentalisation by purpose. Departmentalisation by purpose is concerned with building work around products, customers or locations while departmentalisation by process is concerned with the efficiency of production (Gulick and Urwick, 1937).

According to Drucker (1954) and Kootz and O'Donnel (1964), departmentalisation may cause departments to have their own goals within an organisation. These cause

departments to lose organisational focus. Control systems are therefore required to align the goals of the different departments with the goals of the organisation. (*cf.* Drucker, 1954; Kootz and O'Donnel, 1964).

In summary, this section explained how a high degree of specialisation (division of labour principle of Smith (1776) leads to professional competence and centralised control (departmentalisation). Gulick and Urwick (1937) argue that, within a department different departmental strategies can be applied which are concerned with work around products and production efficiency. Drucker (1954) and Kootz and O'Donnel (1964) warn that departmentalisation may cause departments to pursue their own goals, different from the goals of the organisation. Control systems should therefore align the different goals of the departments to the goal of the organisation.

3.3.3.4 Information Management

According to March and Simon (1958), organisations are viewed as cooperative systems, processing information. This causes vast amounts of decision making at various levels within the organisation. A crucial factor is the limited cognitive ability of the individuals at the different organisational levels, to make decisions. There are usually factors that prevent decision makers to act strictly rational and therefore March and Simon (1958) propose that any decision would be sub-optimum due to the bounded rationality of the decision-maker. (*cf.* March and Simon, 1958).

March Simon (1958) did not propose any ideal organisational form that copes better with the cognitive limitations of decision makers. They considered two other important factors. The first is ability to collect and evaluate information from the environment, being relevant in making the specific decision. Secondly, organisational limitations such as rules and policies can prevent the decision maker from making the correct decision, typically visible in bureaucratic organisations. (*cf.* March and Simon, 1958).

Information Management is seen as the ability of the organisation to process information, which is at the core of any organisation and its managerial competencies, therefore organisational design must aim at improved information processing

capabilities. Organisational information is also derived from organisational processes. The way in which processes are configured may play an important role in the information needs and information management within an organisation.

Galbraith (1977) has identified several organisational design strategies to improve information processing. They are:

- *Reduction of Information Processing Needs:* First, an organisation can aim to modify its own environment (reducing information processing) instead of adapting to environmental circumstances. A good example is the reduction of uncertainty in the organisation's value system (suppliers and customers), by cooperating and integrating with other organisations. Secondly, a reduction in exception levels decreases the information load on the decision-making hierarchy, resulting in a flatter decision-making hierarchy. Thirdly, achieving conceptual closure on a task is another way to achieve a reduction in information processing. (*cf.* Galbraith, 1977).

- *Increasing the Organisational Processing Capacity:* To achieve increased organisational processing capacity, lateral decision processes that cut across functional organisational units can be established. Decision power is moved to processes, instead of to the organisational hierarchy, for decision making. The information flow for a task or set of tasks can be routed to the required business logic rather than the hierarchical organisation. (*cf.* Galbraith, 1977).

From a governance perspective, one can argue that the following is important:

- *Improved Information Processing:* Based on the work of Galbraith (1977), business processes should be designed for improved information processing. An organisation can decide what information is important, design the process to obtain that information and only filter that required information through to the decision-makers. The improves information processing and better decision-making, which further improve organisational and process governance.

- *Cross Functional Information:* Based on the work of Galbraith (1977), cross-functional information should be collected from business process that cut across different organisational functional units. Information should be collected at different organisational levels, which lead to balanced matrix organisations and decision making. The helps to maintain independence, visibility and transparency in decision-making, specifically in bureaucratic organisations. However, the management responsible for corporate governance should act where required if they have access to the information. If they do not act, all the visibility in the world may not enforce corporate governance, even if it is visible.

- *Context:* Based on the work of March Simon (1958), context is an important factor to consider for decision making.

3.3.4 Process Disciplines

This sub-section deepens the investigation to understand the characteristics that define the nature and role of BPM in the organisation by visiting various process disciplines (from the past and present).

3.3.4.1 An Overview of Process Disciplines

Organisations still use many process disciplines and principles from the past today. Table 3.2 presents an overview and explanation of the various processes disciplines, to further the understanding of what the purpose, nature and role of a BPM is, within the organisation.

Table 3.2 Various process disciplines

Process Disciplines	**Explanation**
Workflow.	Workflow is the automation of a business process in part or completely, in which tasks are performed by different participants of a business process. The participants perform actions on the task according to a set of procedural rules. (*cf.* Fischer, 2007; Lawrence, 1997). Fischer (2007) defines Workflow as a depiction of a sequence of operations which represents the work of a person, a

	group, an organisation or the work of a complex mechanism (such as an organisation). The history of workflow can be traced back to Taylor (1919), the father of Taylorism, whose work originated from Adam Smith (Smith, 1776 [1977]) who studied the nature of work and how it can be organised for optimisation and increased production. A Workflow Management System (WFMS) is a software system that defines, creates and manages the execution of workflows (Lawrence, 1997). Many people consider BPM as the next step, after the Workflow wave of the 1990s (Weske *et al.*, 2004).
Lean Manufacturing.	Lean Manufacturing or Lean Production (also known as "Lean") is the optimal way of producing goods with no waste. Lean Manufacturing is a generic process management philosophy derived from the TPS. As waste is eliminated quality improves while production time and cost is reduced. The TPS focuses on the elimination of three types of waste: the first is "non-value-adding" waste called muda; the second is "overburden" called muri and the last is "unevenness" called mura. (*cf.* Ohno, 1988; Womack *et al.*, 1991). The TPS has two pillar concepts namely "Just-in-Time (JIT) or flow" and "smart automation". If production "flows" perfectly, then there is no inventory, which forms the first pillar. The second pillar is achieved through automation with a human touch called "smart automation". Smart automation gives machines enough intelligence to recognise when they are working abnormally and flag abnormality for human attention. The purpose of humans is only to focus on abnormal or fault conditions. The reduction in human workload is desired by all involved since it removes routine and repetitive activity that humans often do not enjoy. Lean Manufacturing is therefore focused on getting the correct things to the correct place at the correct time in the correct quantity to achieve perfect work "flow", minimising waste and being flexible to change. (*cf.* Ohno, 1988). The concepts of waste reduction and improvement in Lean Manufacturing originated from Taylor (1911), the father of Scientific Management and Henry Ford during his mass assembly manufacturing system (Ford and Growther, 2003). Ford stresses the fact that poor arrangement of the workplace and doing a job inefficiently are major forms of waste (Ford and Growther, 2003). The main difference between Ford's mass production system and the TPS is the

	notion of "pull production" (build to order rather than target driven push).
Kaizen.	Kaizen is the Japanese word for continuous improvement. Kaizen focuses on continuous improvement in all aspects of life (Imai, 1986). When Kaizen is applied to an organisation it means continuous improvement in all aspects of the business, from production to management (Imai, 1986). Kaizen eliminates waste by improving standardised activities and processes. It was implemented in Japanese businesses to recover after World War II, including at Toyota (*cf.* Colenso, 1999; Liker and Meier, 2006). People at all levels of an organisation can participate in Kaizen. It can be done individually, in small group format or in large group format. Kaizen usually delivers small improvements and standardisation, but when put together yields large results in productivity. It teaches people how to do experiments in their work by using experimentation and scientific method which reduces waste in business processes. The Kaizen lifecycle is also known as the Shewhart (1939) and Demming (1986) cycle. The lifecycle consists of four phases, abbreviated PDCA, standing for: "Planning" to establish the objectives; "Doing" which is implementing the process; "Checking" to monitor or measure the results against the objectives; and "Acting" to apply the required improvements. The cycle allows for small improvements to production processes to improve productivity. Kaizen is a way to humanise the workplace because people are empowered with their intellectual abilities to improve their own working environment through scientific method and experimentation.
Total Quality Management.	TQM is a management philosophy to ensure quality and long term objective success. TQM meet stakeholder needs and expectations efficiently, effectively and ethically. Members contribute to the process that benefits all members of an organisation and society (*cf.* ISO 8402, 1994). The key concept of TQM originated from Feigenbaum (1951) in his book: *Quality Control: Principles, Practice, and Administration*. William Edwards Deming, a professor in statistics, also contributed to TQM by adding statistical process control. He was well known for his work in Japan that improved production quality thereby reducing expenses and increasing productivity (Aguayo, 1991). TQM is also applied in other environments such as management accounting. Sim

	and Killough (1998) indicated how incentive pay may improve customer and quality performance. Ittner and Larcker (1995) showed how production TQM was linked to solving problems in time.
Six Sigma.	Six Sigma is a process improvement and performance set of tools that focus to enhance customer satisfaction and bottom line results (Hoerl and Sneel, 2005). Companies such as General Electric, Honywell, Motorola, DuPont, American Express, Ford and many others have been using it to improve business performance to realise millions of dollars in bottom-line savings (Honeywell, 2002; Welch, 2001). Six Sigma uses quality management methods (e.g. TQM) that includes statistical methods, to improve business performance (Hoerl and Sneel, 2002; Hoerl and Sneel, 2005). Six Sigma uses the DMAIC (Define; Measure, Analyse; Improve; Control) life cycle to improve processes (Hoerl and Sneel, 2005). The different phases of the life cycle are described as follows: • *Define:* Involves the identification of process problems, defining requirements, defining project goals and defining customer deliverables (BizFlow, 2002). • *Measure:* Measurement is critical for improving business processes. Measurement allows one to determine which aspects of a process are working effectively and which aspects not (BizFlow, 2002). • *Analyse:* By analysing the performance of a process, further actions can be taken towards process improvement. Process reports assist in performance analysis (BizFlow, 2002). • *Improve:* Requires making changes to original processes. It normally means simplifying tasks and enhancing user support (BizFlow, 2002). • *Control:* Controls are required to ensure that revised processes operate according to its design. It also gives insights into new opportunities for improvement (BizFlow, 2002). The DMAI phases of the Six Sigma methodology (see life cycle) focuses on improvement, while the C phase of the Six Sigma methodology focuses on

	process control to sustain gains (Hoerl and Sneel, 2005). Several roles are important for the successful implementation of Six Sigma. They are: • *Executive Leadership (Six Sigma Council):* The Executive Leadership are the CEO and the members of top management. They are responsible for the vision and intent of a Six Sigma implementation. They also empower the other role holders (Hoerl and Sneel, 2005). • *Champions:* Champions are responsible for Six Sigma implementations and integration across the whole organisation. The Executive Leadership normally picks champions from upper management. Champions act as mentors for Master Black Belts, which are discussed next (Hoerl and Sneel, 2005). • *Master Black Belts:* Master Black Belts are identified by champions to act as in-house coaches for Six Sigma. They are dedicated Six Sigma resources that ensure the consistent application of the Six Sigma methodology across various departments and functions (Hoerl and Sneel, 2005). • *Black Belts:* Black Belts operate under Master Black Belts and apply the Six Sigma methodology to various projects in the organisation. Black Belts are also dedicated Six Sigma resources that focus on project execution rather than identifying Six Sigma projects, as is the case with Champions and Master Black Belts (Hoerl and Sneel, 2005). • *Green Belts:* Green Belts take up Six Sigma implementations along with other job responsibilities and operate under the guidance of Black Belts to achieve the required Six Sigma project objectives (Hoerl and Sneel, 2005). • *Yellow Belts:* Yellow Belts are employees, trained in the Six Sigma methodology and techniques, who have not completed a Six Sigma project and are not actively engaged in quality improvement projects (Hoerl and Sneel, 2005).
Business Process Reengineering.	Business Process Reengineering (BPR) is the radical redesign and rethinking of a business process to gain dramatic performance improvements (Hammer and Champy, 1993). Davenport (1993) states that BPR is about finding new working strategies to seek improvement (10 times better rather than 10 percent better). According to Johansson *et al.* (1993), BPR seeks radical improvement, rather

	than continuous improvement, by focusing on core business processes. BPR is therefore a management perspective that aims to improve the efficiency and effectiveness of core business processes through radical redesign (Hammer and Champy, 1993). According to Hammer (1990), one of the major challenges for managers is to eliminate non-value adding work instead of using technology to automate work. Hammer (1990) accused managers of focusing on the wrong organisational issues to improve competitiveness. Companies should redesign their core business processes to satisfy customer needs. This allows companies to gain competitiveness in ever changing market conditions. Business strategy is one of the primary drivers of BPR initiatives. Critics were fast to claim that BPR was just another way of dehumanising the workplace, a way of increasing managerial control and a way of reducing the workforce (Greenhaum, 1995; Industry Week, 1994). Was BPR a new form of Taylorism (a positivistic analytic approach)? Was it another way of increasing productivity to the maximum without any respect for aspects such as work environments and employee satisfaction? Are humans degraded to become machine like? There are similarities. Both BPR and Taylorism focus on productivity and the efficient use of resources. BPR further causes lay-offs and increases managerial control. Davenport (1995) criticised the notion of layoff's that he refers to as mindless bloodshed. BPR, on the other hand, can cause huge returns for companies. Companies like Procter and Gamble and General Motors Corporation succeeded through BPR , after heavy financial drawbacks. Probably the most famous example is Dell Incorporated.
Value Chains.	The Value Chain concept was introduced by Michael Porter (1985). The Value Chain is a chain of activities in which a product is developed. In every activity the chain adds value to the product (Porter, 1985). Every activity also adds cost to the development of the product. The final product must be worth more than the sum of costs for the individual activities to be able to make a profit (Smith, 1776). The Value Chain presents a macro perspective of how value is added to a product within the organisation. On the other hand, the micro perspective focuses on how value is added through business processes within the organisation. The Value Chain is used in organisations as strategic planning tool (Porter, 1985). It further distinguishes between primary activities and support activities. Primary activities include inbound logistics, operations (production), outbound logistics, marketing, sales and service. Support activities include infrastructure

management, human resource management, research and development (technology development in Figure 3.2) and procurement.

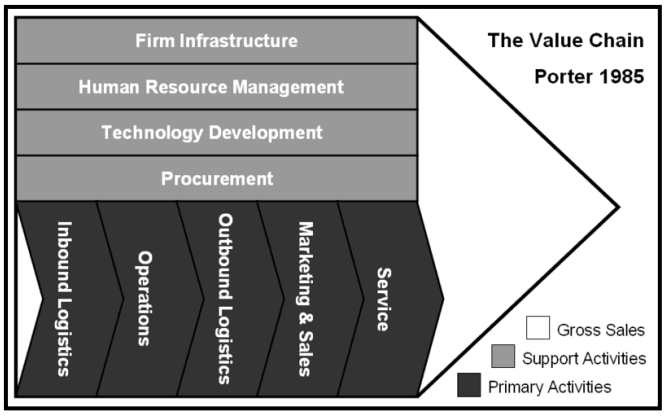


Figure 3.2 The Value Chain (Porter, 1985).

The different process disciplines contribute to understanding the purpose, nature and role of BPM in the organisation.

3.3.5 The Purpose, Nature and Role of Business Process Management in the Organisation

The historical origins of BPM and other process disciplines (Section 3.3.4) from the past and present, aided to define a set of characteristics that describe the purpose, nature and role of BPM in the organisation. A summary of characteristics of BPM in the organisation is presented in Table 3.3.

Table 3.3 A summary of process characteristics

Characteristic	Explanation
Increased productivity (through increased efficiency and effectiveness).	Productivity are increased by breaking business processes into smaller activities that is performed by workers (either alone or in departments) who specialise (workmanship dexterity) in these work activities (Gulick and Urwick, 1937; Smith, 1776 [1977]; Taylor, 1911). The order of work activities is important. Time should not be wasted by passing one task to the next in a business process. The elimination of waste is also important. (cf Colenso, 1999; Ford and Growther, 2003; Liker and

	Meier, 2006; Ohno, 1988; Smith, 1776 [1977]; Taylor, 1911; Womack et al., 1991). Appling scientific method in process thinking is essential to gain improvements in productivity (Demming, 1986; Hammer and Champy, 1993; Hoerl and Sneel, 2002; Hoerl and Sneel, 2005; Shewhart, 1939; Taylor, 1911). Waste elimination is specifically evident in Kaizen (Colenso, 1999; Imai, 1986; ISO 8402, 1994; Liker and Meier, 2006). Business Process Re-engineering (BPR) aims to improve efficiency and effectiveness through radical design (Davenport, 1993; Hammer and Champy, 1993). Six Sigma uses scientific and statistical methods to eliminate defects and enhance efficiency and effectiveness (Gower, 2001).
Improved quality.	Process thinking leads to improvement of quality aspects in organisational processes (Aguayo, 1991; Davenport, 1993; Feigenbaum, 1951; Hammer and Champy, 1993; ISO 8402, 1994). Improved quality can lead to increased customer satisfaction (Aguayo, 1991; Gower, 2001; Hoerl and Sneel, 2005; ISO 8402, 1994).
Increased business value.	Production should at least recover the cost of manufacturing (Smith, 1776 [1977]). Increased productivity, efficiency and the reduction of waste are factors that contribute to enhanced bottom line results (Hammer and Champy, 1993; Hoerl and Sneel; 2005; Honeywell, 2002; Porter, 1985; Welch, 2001). Businesses should further strive to eliminate the competition to gain market dominance to increase profit (Smith, 1776 [1977]). Processes
Improved management and control.	Process thinking causes improved management, supervision and control. (Davis, 1951; Fischer, 2007; Lawrence, 1997; Mackenzie, 1978; Massie, 1965; Pugh et al., 1972). Supervision should be reduced from direct control to exception handling with the assistance of machines (Drucker, 1954).
Consideration for context.	The collection and evaluation of information from the organisation in specific contexts are important to make the correct decisions (Galbraith, 1977; March Simon, 1958). Smith (1776 [1977]) shows that market size determines the degree of division of labour, therefore contextual circumstances must be taken into consideration.
Reduction in process variation.	Six Sigma strives to achieve stable processes (reduction in process variation) that are vital to business success (Erl, 2005; Hoerl and Sneel, 2005; Newcomer and Lomow, 2005). Process variation may lead to

	insufficiencies and ineffectiveness. Enterprise Resource Planning systems further assist organisations to standardise their business processes and adopt "best practice" processes (Dehing and Stratopoulos, 2003; Turban et al., 2008). However, organisations should be careful not to lose their competitive advantage when adapting to “Best Practice” business processes.
Increased autonomation (smart automation) and automation.	Machines should be used and given enough intelligence to recognise when they are working abnormally (Ohno, 1988). When they are working abnormally they should be flagged for human intervention (Ohno, 1988). Technology supports organisations to do business more efficiently (Drucker 1972, Ford and Growther, 2003; Ohno, 1988; Smith, 1776 [1977]).
Continuous improvement.	BPM, from its historical perspective, encourage a culture of continuous improvement (ISO 8402, 1994; Imai, 1986; Liker and Meier, 2006; Taylor, 911). This is evident in all process disciplines and the BPM lifecycle which forms the essence of BPM.
Improved information management and decision making.	Business processes are cross-functional, meaning that they cut across functional organisational units. Cross-functional processes improve information management, information integration and information sharing for improved decision making (Galbraith, 1977; Hoerl and Sneel, 2005; March Simon, 1958; Wainright Martin et al., 2002).
Reuse, modularity and interoperability for industry standards?	Organisational functions can be developed in small modules or service functions (Bell, 2008; Erl, 2005; Newcomer and Lomow, 2005). These modular functions or services are available for reuse and sharing. Shared services modules may increase standardisation across different organisations and in specific industries (Erl, 2005; Newcomer and Lomow, 2005). On the negative side, the management of metadata and the operability of services can become complex. Another problem is that shared services may jeopardise security. Security models built into an application may no longer be appropriate when the capabilities and functions of such a service are exposed. Lastly, the integration of suppliers (interoperability) and customers into an organisation may make the organisational boundaries and organisational system boundaries blur, which may result in problems of information sharing, accountability and responsibility.

The historical evolution of BPM and other process disciplines (Section 3.3.4) also aided in defining a set of potential pitfalls for BPM. These pitfalls possibly apply when BPM is used in organisations or when BPM is used in new research fields. A summary the potential pitfalls for BPM are presented in Table 3.4.

Table 3.4 Potential pitfalls for Business Process Management

Concept	**Description**
Dehumanisation of the workforce versus an empowered workforce?	Organisations should not only be focused to increase effectiveness and efficiency of an organisation. Such a focus may cause the dehumanization of the workforce. In this type of scenario humans are typically treated as production machines. (*cf.* Davenport, 1995; Greenhaum, 1995; Industry Week, 1994; Taylor, 1911). Kaizen, on the other hand, showed how the workforce could be empowered by allowing workers to use their intellectual abilities to improve their own working environment.
Waste reduction at the cost of the workforce?	Organisations can be influenced negatively if they cut workers for gains in effectiveness, efficiency and improved work performance (waste reduction). (Davenport, 1995; Greenhaum, 1995; Industry Week, 1994; Taylor, 1911). Job insecurity for example may cause stress that influences the well-being of workers.
Efficiency and effectiveness versus creativity and innovation?	One can argue that the focus on efficiency and effectiveness can be at a cost of losing creativity and innovation. Best practice process may lead to fewer creative processes and hinder innovation required to gain or maintain a competitive market advantage.

The characteristics and lessons learned (potential pitfalls) from the history of BPM and various process disciplines still impacts BPM today, when it is used in organisations or new research fields.

3.4 Business Process Management and Business Process Management Systems

3.4.1 Introduction

In this section an overview of BPM and business process automation through BPMS are presented.

First, the concept and characteristics of a business process is presented. Business processes form the foundation of BPM and business processes automation and therefore it is important to understand this basic concept with its characteristics.

Secondly, the author explains how BPM brings value to the business. Current mechanisms that are used to improve corporate governance lack business value[13]. This section specifically focuses on the value that BPM brings to organisations.

Finally, BPMS is discussed with its architectural components. The principles of governance from King and the King Committee[14] are applied to the architectural components of a BPMS, to show that a BPMS can be utilised to improve corporate governance.

3.4.2 Defining Business Processes

Business processes form the foundation of BPM and therefore its definition and characteristics are explored, which broaden the view of what the nature, purpose and role of BPMS is when it is used to improve corporate governance.

Hammer and Champy (1993: 35) define a process as:

> *...a collection of activities that takes one or more kinds of input and creates an output that is of value to the customer.*

[13] See Chapter 1, Section 1.2: Problem Description
[14] See Section 3.6.

Another definition is presented by Davenport (1993: 5) who defines a process as:

> *... a specific ordering of work activities across time and place, with a beginning and end, and clearly identified inputs and outputs: a structure for action.*

It is evident, from the citation above, that business processes have a transformative nature. Business processes take input and transforms it to output that has value to a specific customer or market (Davenport, 1993; Hammer and Champy, 1993). According to Davenport (1993), there is a strong emphasis in a business process on how work is done. Ordering of work activities across time and space is therefore important (Davenport, 1993). Davenport (1993) further reveals that business processes have definable inputs and outputs and a definite beginning and end. These properties provide a structure for action to increase business performance.

Business process can be compared to Porter's Value Chain Model (Porter, 1985). The Value Chain Model of Porter (1985) represents an organisation wide perspective of how value is added to the input that an organisation receives to produce an output or a set of outputs for a given customer or market. Business processes, on the other hand, add value to the input that it receives to produce an output of value for a specific customer or market.

According to Rummler and Brache (1995) business processes are *cross-functional*, meaning that they span several organisational functions and can produce a product or service of value to a customer. If the customer is an external customer the process is called a primary process. If the process is not visible to the external customer, but essential to the business for the effective management of the business, it is a support process. An important contribution of Johansson *et al.* (1993) is that business process can also move upstream to an upstream receiver.

The characteristics of a business process are summarised in Table 3.5. The characteristics of a business process contributes to define the nature and role of BPMS in which business processes are automated when it is utilised for corporate governance.

Table 3.5 A summary of characteristics of a business process

Characteristic	**Explanation**
Definability.	The inputs and outputs of a business can be defined within the boundaries in which it exists (Davenport, 1993). A business process further has a beginning and end (Davenport, 1993). Business processes can be classified as primary processes or supporting processes (Rummler and Brache, 1995).
Order.	A process consists of ordered and measured activities in time and space. Order implies a strong focus on how work is done (Davenport, 1993). Processes can further move upstream to an upstream receiver (to a previous activity) (Johansson *et al*., 1993).
Focused on specific recipient.	A business process produces valued output for a specific customer or market (Davenport, 1993; Hammer and Champy, 1993, Rummler and Brache, 1995).
Value adding.	The process transforms the process input into output of value for the recipient. The process can occur upstream or downstream in the value chain of an organisation (Davenport, 1993; Hammer and Champy, 1993; Johansson *et al*., 1993).
Measurability.	Processes and their activities are measured to gain improvement in efficiency and effectiveness. (Davenport, 1993).
Cross-functionality.	A process typically (not always) spans several organisational functions (Rummler and Brache, 1995).

3.4.3 Defining Business Process Management

This section defines BPM. Before presenting different definitions of BPM, the author revises the definition of a business process, which is central to the concept of BPM. According to Davenport (1993: 5) a business process is:

> *…a structured, measured set of activities designed to produce a specific output for a particular customer or market. It implies a strong emphasis on how work is done within an organisation…*

The definition of Davenport (1993) indicates that, within a business process there is a strong focus on how work is done within an organisation, therefore business processes require management. The concept of management (order and control) of business processes is clearly identified in the definition of a business process. The definition of Davenport (1993) indicates that customer focus is a key element of business processes. Fischer (2007: 19) defines BPM as:

> *The practice of developing, running, performance measuring, and simulating Business Processes to effect the continued improvement of those processes. BPM is concerned with the lifecycle of the Process Definition.*

In the citation, Fischer (2007: 18) defines Process Definition as:

> *The representation of a business process in a form which supports automated manipulation, such as modelling, or enactment by a workflow management system. The process definition consists of a network of activities and their relationships, criteria to indicate the start and termination of the process, and information about the individual activities, such as participants, associated IT applications and data.*

The definitions of Davenport (1993) and Fischer (2007) point out how BPM is concerned with continuous business performance improvement. This perspective is in line with the underlying philosophy of Scientific Management. Scientific Management treat business improvement and management as a scientific problem. However, it is criticised for the dehumanisation of organisations (Ghoshal, 2005). The given definitions can be criticised in a similar way. There is no strong focus on softer human and organisational aspects. Weske *et al*. (2004: 2) extends the definition of BPM by stating that BPM involves the use of:

> *…methods, techniques, and software, to design, enact, control and analyse operational processes involving humans, organisations, applications, documents and other sources of information.*

Rosemann (2007) further includes the impact of context. This phenomenon is explained in Figure 3.3. Rosemann (2007) shows that different perspectives of BPM exist, which is dependent on our own understanding of the concept of BPM and the organisational context in which we work.

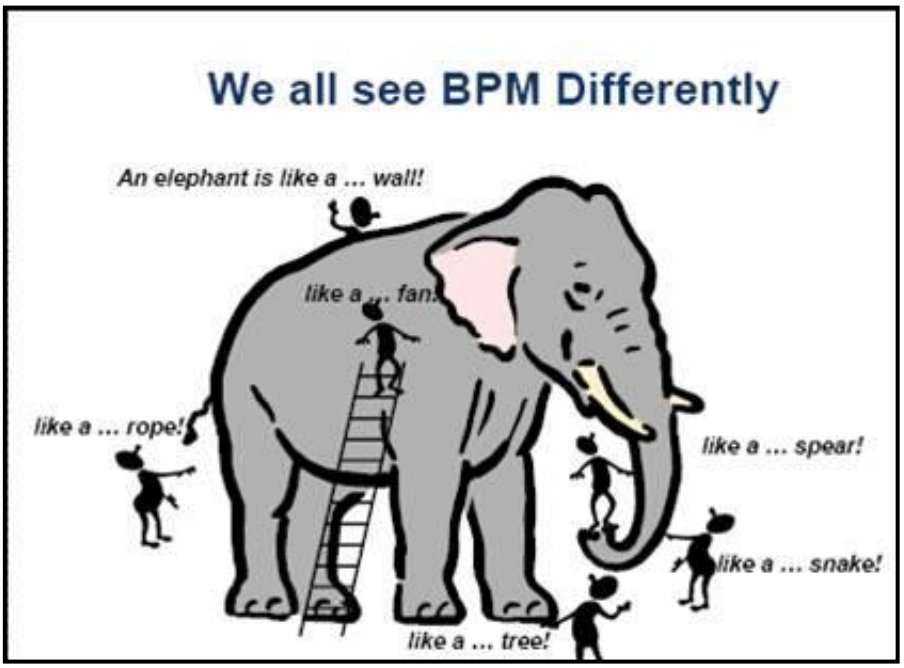


Figure 3.3 Different perspectives of Business Process Management (Rosemann, 2007).

One can now argue that the management of business process are seen differently, depending on the situation and context. Processes are contextual. This makes the management of business processes or BPM contextual. BPM involves contextual knowledge ("the know-how") of business people to do business the best way in their specific context. Martinsons and Hempel (1998) concluded with similar findings in a study that systematically compared differences in cultural factors and change between organisations of the U.S. and organisations in China, for Business Process Re-engineering. One last definition, that explicitly includes context of BPM is presented before the author provides his own definition of BPM.

The Australian BPM Community of Practice (2007) states that BPM is:

> *… a structured, coherent and consistent way of understanding, documenting, modelling, analysing, simulating, executing, and continuously changing end-to-end business processes and all involved resources in the light of their contribution to business improvement.*

This definition of BPM highlights the continuous improvement nature of BPM. The definition further points to the involvement of organisational recourses, which also include humans (and other softer organisational aspects) to improve business performance. Based on the arguments presented in this section, the author now presents a personal definition of BPM that specifically include context. This definition is based on the BPM Community of Practice's (2007) definition.

> *BPM is the structured, coherent and consistent management of end-to-end business processes in a specific business context, that continuously aim to improve business in that context. BPM further strives towards increased customer value. It involves organisational resources (hard and soft) and contextual knowledge, through all the stages of the BPM life cycle.*

The above definition explicitly shows the importance of context in BPM. Based on this definition one can argue that best practice business processes are different from organisation to organisation, depending on the organisational context. The role that a BPMS may play when it is used for corporate governance in different organisational contexts may be different from organisation to organisation, depending on the context. The next section highlights the value of BPM in the organisation.

3.4.4 The Business Process Management Life Cycle

BPM is used to improve the organisation by continuously improving its business processes (HandySoft, 2002; McDaniel, 2001). According to MacDaniel (2001) BPM benefits the enterprise tactically and strategically. BPM gives one the ability to control and manage the people in the organisation, the systems in the organisation and the business environment, through its processes (HandySoft, 2002).

The BPM life cycle is performed in a repeated fashion within an organisation to continuously improve that organisation. This illustrates the nature of BPM, namely that of continuous improvement. The BPM life cycle originated from the Shewhart (1939) and Demming (1986) cycle. Variations of the Shewhart (1939) and Demming (1986) cycle are also found in other process disciplines. The BPM life cycle is illustrated in Figure 3.4. The BPM life cycle consists of five distinct phases, namely design, configuration, execution, control and diagnosis (van der Aalst *et al*., 2007). Different variations of the BPM life cycle exist, such as representations by Pernici and Wekse (2006) and Khan (2004).

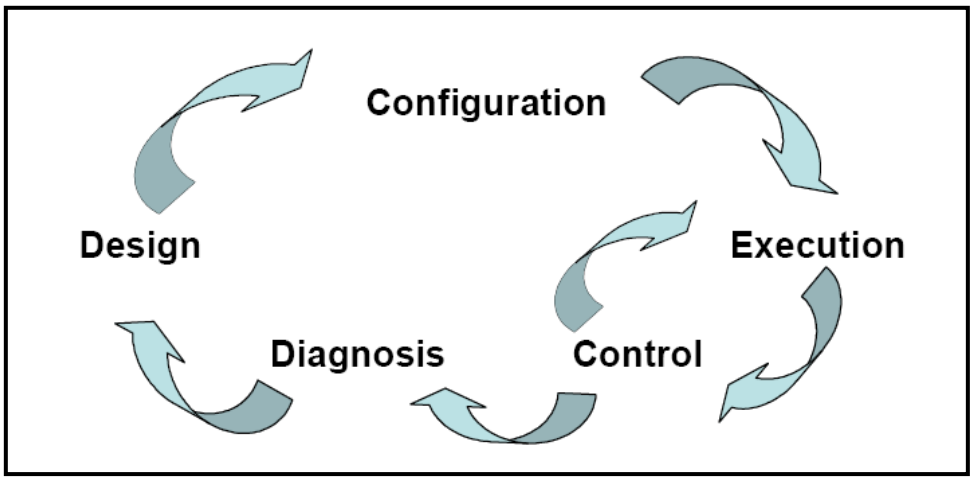


Figure 3.4 The Business Process Management lifecycle (van der Aalst *et al.*, 2007).

The different phases of the BPM lifecycle are now explained:

- *The design phase:* According to van der Aalst *et al*. (2007), the design phase is performed for the first time when existing organisational processes are identified and mapped in a specific modelling notation. Rosemann (2006a; 2006b) identified several common pitfalls when conducting process modelling, during the design phase of the BPM lifecycle. When the phase has been performed previously, the goal is to remedy process weaknesses (e.g. bottlenecks or other weaknesses) identified in the diagnosis phase of the lifecycle. The output of the design phase forms the input for the configuration phase. Modellers and designers typically experiment with their designs in the phase, referred to as a: “what if analysis”.

- *The configuration phase:* The second phase in the BPM lifecycle is the configuration phase. According to van der Aalst *et al*. (2007) the configuration phase focuses on detailing the process definition created in the previous phase. The focus shifts from an emphasis on performance (the design phase) to an emphasis on the realisation of the corresponding system.

- *The execution phase:* The third phase is the execution phase. According to van der Aalst *et al*. (2007), the execution phase is responsible for the automation and execution of business process in a process management system. These systems provide the agility to adapt business processes easily in changing market conditions, for a competitive advantage in the market place (Pantazi and Georgopoulos, 2006; Sommer, 2003). Process management software typically uses "visual" process model development rather than text based development to reduce development complexity. Current research is conducted to generate BPEL code from a graphical workflow language or graphical design (van der Aalst and Bisgaard Lassen, 2006).

- *The control phase:* The fourth phase in the BPM lifecycle is the control phase. According to van der Aalst et al. (2007) the control phase is responsible for the monitoring of individual processes. Process performance information is collected and is used as input into the diagnostic phase of the lifecycle to improve identified process problems through redesign or amendments (van der Aalst *et al*.; 2007). Certain amendments can be made directly, to specific types of problems in the control phase which do not require redesign (e.g., bottleneck may only require more resources). According to van der Aalst *et al*. (2007) the control phase may also provide input for the execution phase.

- *The diagnosis phase:* The fifth phase in the BPM lifecycle is the diagnosis phase. Data collected in the previous phase is used to disclose weaknesses in processes (van der Aalst *et al*.; 2007). The diagnosis phase typically focuses on process mining, data warehousing, business process intelligence and data mining techniques. The information in this phase is used to generate ideas for redesign in the next phase, which is the first phase namely the design phase.

In conclusion, van der Aalst *et al*. (2007) states that the inter-operability between the phases is of vital importance. It is not sufficient to support the five phases in isolation.

3.4.5 The Business Value of Business Process Management

According to Fischer (2007), human orientated BPM or Workflow is a critical component that addresses the agility demands of the business. Fisher, (2007: 18) explains that:

> *Workflow allows for a better alignment of IT with business because it allows the enterprise applications to be expressed in a way that makes sense to business users. We will also see that it helps business to be more agile by allowing business people control of the business aspects of applications, while IT people retain control of the application's more technical aspects.*

In the citation above, the business people are typically the people in the organisation who are concerned with achieving the direct goals of the business (Fisher, 2007). Furthermore:

> *The ultimate goal of workflow is to place, in the hands of business professionals, the ability to modify their processes, with no involvement from the IT organisation. (Micheal Melenasky, Gartner BPM Summit, 2006).*

The IT professionals, on the other hand, are responsible for providing IS (Fischer, 2007), which involves the installation and management of systems and sometimes the development of custom applications, to support the business (Fischer, 2007). The business people and IT professionals require agility to respond to change in the market place and to competitors. The business people and IT professionals therefore look at the same problem with different goals. The business people want to achieve the goals of the business while the IT professionals are concerned with reliable and secure systems to support the business. Workflow (human orientated BPM) applications are structured in

such a way that it isolates the business logic from the programming logic and therefore provide the unique ability to bridge the gap between business people and IT professionals. Furthermore, Workflow allows the business to respond to market competitors and change (Fischer, 2007).

According to Fischer (2007), one of the unique abilities of Workflow (human orientated BPM) is its ability to handle human and system processes. Janielle Hill (Gartner BPM Summit, 2006) states that:

> *By 2009, 20 percent of business processes in the Global 2000 will be supported by BPMS. These processes will be predominantly those that involve a lot of human work that differentiate the company from its competitors and that are poorly supported by existing IT systems.*

Pantazi and Georgopoulos (2006) continue describing the importance of business processes to deliver value to the organisation. In their study, Pantazi and Georgopoulos (2006) describe previous research that investigated the impact of IS investments on the productivity and economic results of the organisation showed that IS investments did not have a positive impact on business productivity, although companies went on investing in IS. This phenomenon was named the “the productivity paradox”. According to the productivity paradox technological investments in business process had no payoffs in business performance. It was discovered that this phenomenon was actually caused by the fact that enterprises were investing in the wrong business processes. Recent research suggests that an organisation can overcome the process paradox if it has well defined business processes, secondly, if it knows which business processes are valuable to invest in, and lastly, if the organisation has the ability to adapt its business processes easily and quickly (flexibility) when the need arises (Pantazi and Georgopoulos, 2006).

The strategic alignment of business processes to the organisational strategy is an important factor to consider in achieving optimal business value. According to Porter (1996), organisations can focus on operational efficiency and strategic positioning to

improve organisational performance. Operational effectiveness implies more efficient activities and better cost effectiveness than competitors. Tallon *et al.* (2000) took operational effectiveness and strategic positioning and translated it into direct IT goals, as indicated in Figure 3.6.

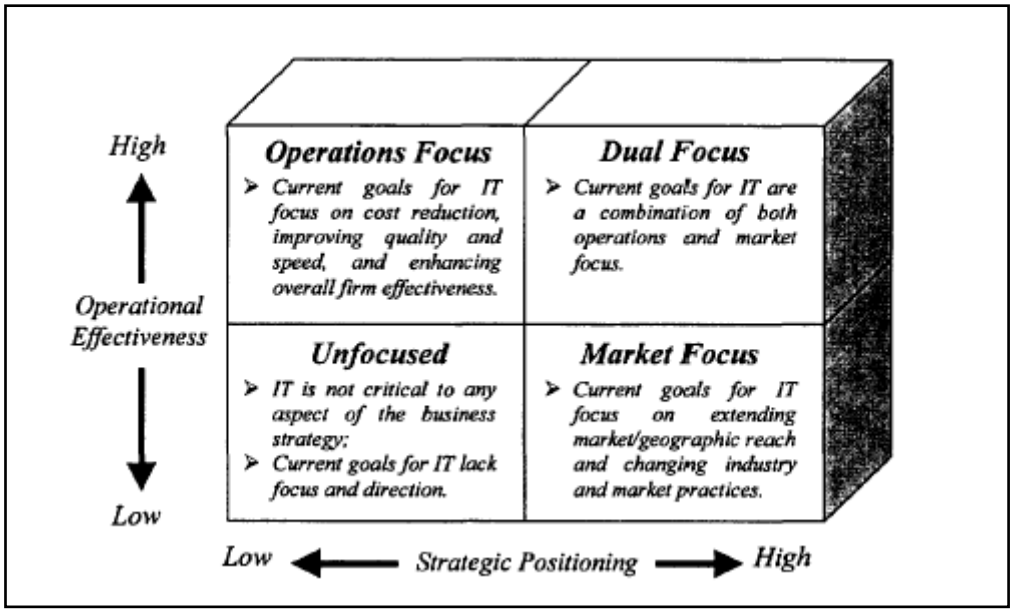


Figure 3.5 Corporate goals for Information Technology (Tallon *et al.*, 2000)

Figure 3.5 shows that the corporate goals for IT can be divided into four quadrants. The quadrants are:

- *Operational Focus (has high operational effectiveness and low strategic positioning):* In this case the goals for IT are to focus on cost reduction, improving quality and speed and improving overall firm effectiveness (Tallon *et al.*, 2000).

- *Unfocused (has low operational effectiveness and low strategic positioning):* In this quadrant, IT is not critical to any aspect of the business or business strategy. It lacks focus and direction (Tallon *et al.*, 2000).

- *Market Focus (has high strategic positioning and low operational focus):* In this case, IT focuses on extending market reach and changing the industry and market practices (Tallon *et al.*, 2000).

- *Dual Focus (has high strategic positioning and operational focus):* In this quadrant IT has an operational and market focus (Tallon *et al.*, 2000).

Research was conducted, to investigate in which of the four quadrants an organisation performs the best. A summary of the research results are displayed in the Figure 3.6.

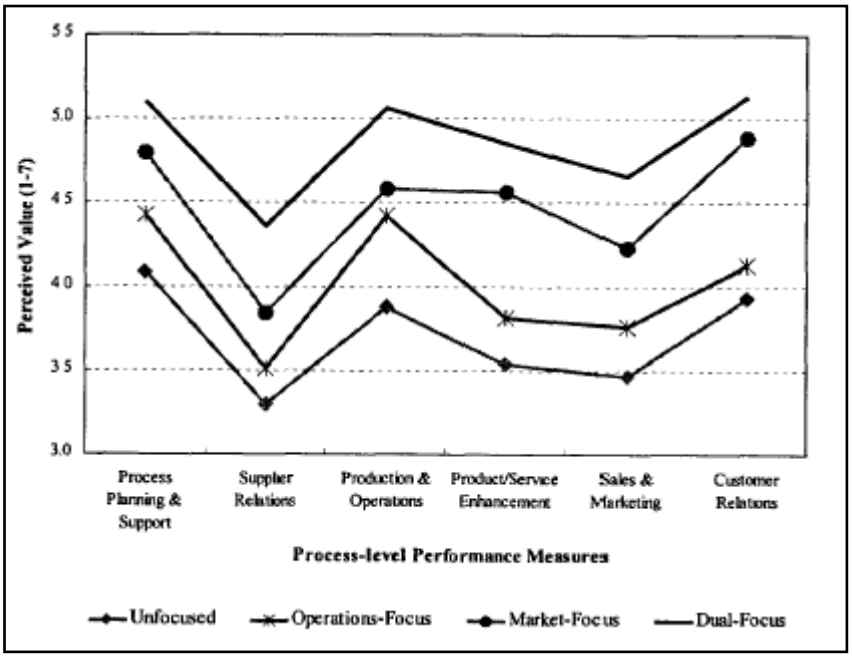


Figure 3.6 The research results (Tallon *et al.*, 2000)

The research results show that a dual focus organisation (high strategic positioning and high operational effectiveness) impacts the performance of an organisation most positively, followed by market focus and operational effectiveness (Tallon *et al.*, 2000). Business processes that have a dual focus (high strategic positioning and high operational effectiveness) impact the performance of an organisation most positively. A summary of how BPM further adds value to the organisation is presented in Table 3.6.

Table 3.6 A summary of the value of Business Process Management in the organisation

Value of BPM in organisation.	**Description.**
Efficient and effective business processes.	Simplified and streamlined processes increase efficiency. Resources can focus on tasks that have greater value and are not too time-consuming and complex to complete (HandySoft, 2002; McDaniel, 2001).

Adherence to best practice policies and processes.	BPM introduces best practices, policies and procedures in organisations (HandySoft, 2002; Reijers and Liman Mansar, 2004).
Improved quality.	Standardised processes resulting in less processes errors that results into improved business process quality results in less process errors (Aguayo, 1991; Davenport, 1993; Erl, 2005; Hammer and Champy, 1993; HandySoft, 2002; Hoerl and Sneel, 2005; Newcomer and Lomow, 2005; Lunt, 2003).
Enterprise Application Integration (EAI).	EAI helps with the integration and interoperation of disparate systems and applications in an organisation as part of a business process (HandySoft, 2002).
Agility.	The ability to rapidly change business processes to gain and maintain a competitive advantage in the market (Fischer, 2007; HandySoft, 2002; Pantazi and Georgopoulos, 2006; Sommer, 2003)
Improved collaboration and communication.	BPM fosters a culture of collaboration and communication between employees, partners and customers (Galbraith, 1977; HandySoft, 2002; Hoerl and Sneel, 2005; March Simon, 1958; Wainright Martin et al., 2002).
Process visibility.	Transparent process throughout the organisation (HandySoft, 2002).
Reduced process cycle times.	BPM can reduce business process cycle times by eliminating waste (Davenport, 1995; Greenhaum, 1995; HandySoft, 2002; Industry Week, 1994; Taylor, 911). Tasks in a process could be performed in parallel which reduces process cycle times (Khan, 2004).
Improved process integrity and accountability.	As process volumes and complexity increases, process incidents increase. Process automation allows for great volumes of work to be handled consistently and reliably which results in less process incidents, improved integrity and accountability (Khan, 2004).
Strategic business alignment.	Strategy implicitly or explicitly sets the direction of an enterprise, but it is through processes, people and technology that strategy lives. With these three entities an organisation can build its core competencies to sustain a competitive advantage. When the core competencies are identified within an organisation, it can be incorporated into a process configuration (by business people or IT Professionals) which becomes the organisational strategy. In this way strategy can be delivered (Fischer, 2007; Peppard, 1996).
Human and process supported business processes.	BPM supports human and system processes.

There are many advantages associated with using BPM in the organisation, as indicated in Table 3.6. Other business advantages and value that BPM delivers to the business include reduced operating cost, improved productivity, shortened end-to-end business process cycle time, improved process quality, improved customer service and satisfaction, enterprise application integration (EAI), improved process visibility, improved process agility and adaptation to the best business practices for a competitive advantage in the local and global market. (*cf.* BizFlow 8, 2002; Lee and Dale, 1998; Moore, 2002; Norwood, 2004; Pantazi and Georgopoulos, 2006; Peppard, 1996; Perkins *et al.*, 2002; Reijers and Liman, 2004; Rosemann *et al.*, 2005; Siew Kien Sia and Boon Siong Neo, 1996; Sommer, 2003; Smith H, 2003; Weerakkody *et al.*, 2003).

The Financial Express (2006) concludes:

> *The need of the hour, therefore, is a comprehensive BPM approach. This requires every business process to be documented in detail and with maximum clarity. All possible risks, whether financial, strategic, reputational, or operational, have to be identified, and controls for mitigating these risks have to be established. Processes have to be continually audited to ensure proper implementation and to identify the weakness. Finally, the processes have to be redefined to rectify the identified weaknesses and, thus, continuously improve and refine processes.*

3.4.6 Business Process Management Systems

According to Orlikowski (2000), a technology that becomes institutionalised in the organisation causes social transformation or reinforcement. The transformation or reinforcement is guided by the structural features and functionality of the technology, as well as the manner in which this technology is introduced and presented to its users. Therefore, the structural features and functionality of a BPMS is explored, by breaking the system up into its architectural components, after the defining of a BPMS.

3.4.6.1 Definition of Business Process Management Systems

Weske *et al.* (2004) defines a BPMS as a generic software system in which you can design, execute and manage operational business processes.

The sudden interest in BPM systems involves two recent changes in the past few years. First is the widespread use of the Internet and the development of XML, which changed the way in which organisations do business. XML made enterprise application integration much easier to any place in the world, which gives business owners the ability to do business anywhere in the world (Miers and Harmon, 2005; Miers *et al.*, 2007). Secondly, workflow systems used in the nineties matured. Previously, workflow systems fell short in the ability to integrate different applications into a single workflow engine. Workflow engines also had problems to communicate with each other (Miers and Harmon, 2005; Miers *et al.*, 2007). These problems have been overcome.

McGoveran (2001: part 1) states that BPMS gives you the ability to rapidly make changes to a real-time business environment. The effectiveness of the changes could be measured directly. Without this ability to rapidly adapt business processes in a BPMS in ever changing market conditions for a competitive advantage, an organisation can easily lose its marketplace. McGoveran (2001: part 1 and 2) argues that a BPMS hides the business process complexity from the user and helps with the strategic alignment of IT with the business. A BPMS further makes business processes visible to process owners, users and auditors, which are in line with the regularity pressures of acts like the SOX Act (Palmer, 2003).

3.3.5.2 The Architectural Components of a Business Process Management System

This section breaks a BPMS down into its architectural components. According to Miers and Harmon (2005) and Miers *et al.* (2007) a BPMS consists of several architectural components, depicted in Figure 3.7. A summary of these components are listed in Table 3.7.

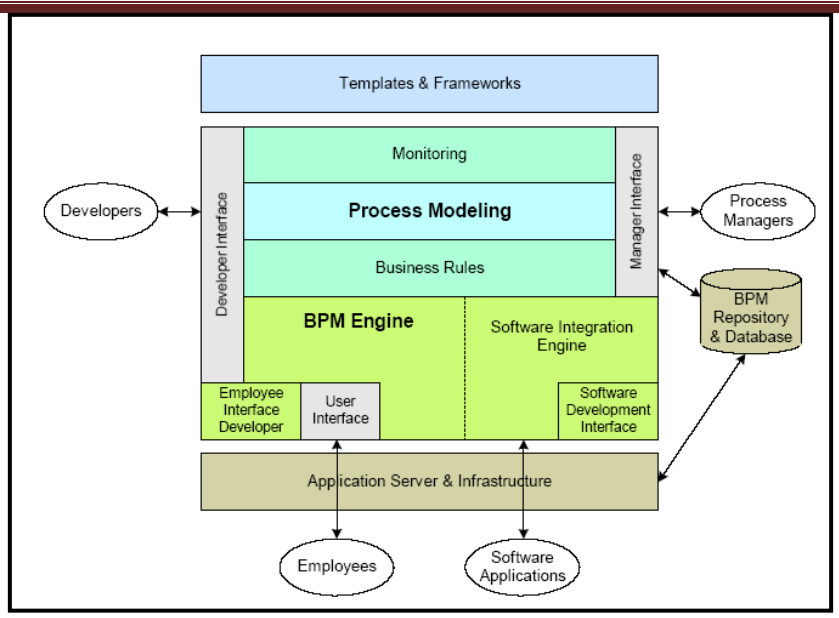


Figure 3.7 The architectural components of a Business Process Management System (Miers and Harmon, 2005; Miers *et al.*, 2007)

Table 3.7 An overview of the architectural components of a Business Process Management System

Architectural component	**Summarised description**
BPM Engine.	The BPM Engine is the core of any BPMS. The BPM Engine consists of a multi-tier architecture namely the server, the client and web services (Miers and Harmon, 2005; Miers *et al.*, 2007). In this multi-tier architecture the server component is responsible for the execution, monitoring and controlling of automated business processes. The server also handles user interaction and routing and ensures that work is accomplished. The server further supports enterprise application integration (EAI) and process versioning. (*cf.* Miers and Harmon, 2005; Miers *et al.*, 2007). The client component is normally a web portal or interface through which a user can access his work items. (*cf.* Miers and Harmon, 2005; Miers *et al.*, 2007). Web services may be used in the multi-tier architecture to expose specific functionality of the BPMS to external users and to support application integration (Miers and Harmon, 2005; Miers *et al.*,

	2007). To achieve this functionality, web service language standards are evolving. One such standard is Business Process Execution Language for Web Services (BPEL4WS), which is a notation for specifying business process behaviour based on web services. This language is in the process of being developed by BEA, IBM, Microsoft, SAP AG and Siebel systems (Andrews *et al*., 2003). BPEL4WS builds on IBM's Web Services Flow Language (WSFL) and Microsoft's XLANG which is Web Services for Business Process Design (Wohed *et al*., 2004; Van der Aalst and Bisgaard Lassen, 2006). BPEL4WS is layered on top of several XML specifications including WSDL 1.1, XML Schema 1.0, XPath 1.0 WSDL messages – which include support for data manipulation and XML schema definitions. (*cf.* Andrews *et al*., 2003). Web services contribute to a distributed environment across the globe to assist in global business-to-business (B2B) and business-to-consumer (B2C) process environments (McGoveran. 2001). BPESL4WS is currently emerging as the de facto standard for executable process specification (Van der Aalst and Bisgaard Lassen, 2006). Wohed *et al*. (2004) studied and evaluated the capabilities and limitations of BPEL4WS. In their study they identified a collection of 20 workflow and communication patterns that have been used as a framework to study and evaluate BPEL4WS. The conclusion was that BPEL4WS as a web service composition language provides constructs for communication modelling which distinguishes it from traditional workflow modelling languages. Negative comments include that BPEL4WS is a complex language which have many overlapping constructs. Secondly, the semantics of BPEL4WS is not always clear, which leaves room for multiple interpretations. (*cf.* Wohed *et al*., 2004; Van der Aalst and Bisgaard Lassen, 2006).
Process Modelling (referred to as the Process Modeller).	This is the part of the BPMS in which the user develops and designs business processes. (*cf.* Miers and Harmon, 2005; Miers *et al*., 2007; Megard, 2002; Palmer, 2003). The process modelling engine should strive to allow for real-time simulation of business

	processes. This ability gives process owners the opportunity to review the impact of business changes (time impact and the cost impact of a change) and to further identify potential process bottlenecks. The simulation requires real-time data for accurate results and normally, a simulation expert. (*cf.* Miers and Harmon, 2005; Miers *et al.*, 2007; Megard, 2002). The modelling engine may also have the ability to set and handle time constraints in processes or activities. When a time constraint fires, escalation and notification rules apply. The modelling engine should be able to handle scheduling. (*cf.* Miers and Harmon, 2005; Miers *et al.*, 2007). There should always be a balance between the modelling sophistication and the end-user ease of use (the user's experience of using the tool). The goal is to give the business process owner the ability to design, control and change his own business processes without the use of an IT resource. (*cf.* Miers and Harmon, 2005; Miers *et al.*, 2007; Megard, 2002). Van der Aalst and Bisgaard Lassen (2006) describe how to generate BPEL code from a graphical workflow language. Managers and Business Analysts who have difficulty in understanding complex BPEL code fancy this approach.
Business Rules (referred to as the Rule Builder).	The Rule Engine is mainly an extension of the Process Modelling Engine in the BPMS, to configure business process rules based on process variables. The rules engine helps to handle and manage exceptions in a business process, but allows the end-user to build other required process functionality around the business process (*cf.* Miers and Harmon, 2005; Miers *et al.*, 2007).
Software Integration Engine (referred to as the Integration Engine).	The integration engine consists of an Application Programming Interface (API) library, which allows third party applications and technologies to interface with the BPMS. (*cf.* Miers and Harmon, 2005; Miers *et al.*, 2007).
Organisation Modeller (which is a sub-component of Process Modelling).	The BPMS should have the capability to define groups, roles and users. Access permissions must also be given to the above entities. The permissions determine what process rights an entity has. (*cf.* Miers and Harmon, 2005; Miers *et al.*, 2007; Palmer, 2003).

Monitoring (using Activity monitoring, the Report Builder and the Audit Trail features).	The BPMS should store process data (real-time information) for analytical purposes. This data allows for the measurement of resources (e.g. the performance of users) and give information about processes, to be able to identify bottlenecks which can be optimised. The history and audit trail for every process for auditing and conformance purposes must be available. (*cf.* Miers and Harmon, Miers *et al.*, 2007; 2005; Megard, 2002; Palmer, 2003). Reporting should be in graphical as well as grid-based reporting format (Megard, 2002). The formats must be web-based to make it accessible from anywhere in the world. Users must be able to do an in-depth analysis on data using OLAP tools. Analysis is done by building cubes and doing "slicing and dicing". (*cf.* Miers and Harmon, 2005; Miers *et al.*, 2007). A user must be able to export process information and process variables to other data formats for further analysis. Excel is a popular exporting format. Finally, a user should be able to define custom report formats and templates in which process data is displayed. (*cf.* Miers and Harmon, 2005; Miers *et al.*, 2007).
BPM Repository and Database (referred to as Repository).	In the BPMS database business process definitions, integrity rules, process instance history, data flows, business metrics definitions, analytical and reporting definitions, transactions definitions, security information, audit trails, simulation and error logs can be stored. (*cf.* Miers and Harmon, 2005; Miers *et al.*, 2007).
Templates and Frameworks (referred to as template processes, reference processes or "blue prints" processes).	The BPMS may be accompanied with specific process templates for specific market segments. Process templates may reduce development time by providing a starting point for more complex client specific development. (*cf.* Miers and Harmon, 2005; Miers *et al.*, 2007).

3.5 Corporate Governance

3.5.1 Introduction

In this section various definitions of the concept of corporate governance is presented. By presenting different definitions of corporate governance the author wants to create

an understanding of the concept. The author specifically chooses not to discuss the different technical aspects involved in corporate governance, but only to present an understanding of the concept. Then, an overview of IT Governance (IT Governance) and Process Governance is presented, which are closely related in this research project to the domain of corporate governance and BPM. It is important to understand how these forms of governance are different from corporate governance, but also how they relate to corporate governance.

3.5.2 Definitions and Perspectives of Corporate Governance

Corporate Governance has many definitions that reflect the diverse roles of companies around the globe, but before defining corporate governance, the author first wants to visit the concepts of governance and a corporation.

The word governance is derived from Latin "gubernare", and means to steer (Hough *et al.*, 2009). Governance is further loosely defined by Hutton and Hamaker (2003: 2) as:

> *...the process of keeping everything under control.*

Governance in broad term refers to the process of running a government or organisation (Hough *et al.*, 2009). Governance is a management process and consists of mechanisms and institutions through which governments and organisations articulate their interests, exercise their legal rights, meet their obligations and mediate their differences (Hough *et al.*, 2009).

According to King (2006) the modern company or corporation as we know it today started in 1855. Entrepreneurs were able to implement their business ideas with limited liability since that time. Entrepreneurs, therefore, experienced some form of legal protection in the form of a corporation. A corporation has a separate legal personality, apart from its members.

Corporate Governance is the process to steer, direct and control a corporation. According to the King II Report (2002), corporate governance is simply the system by

which companies are directed and controlled. Today, corporate governance addresses the interests of a wide range of stakeholders and espouses the fundamental principle of social, ethical, environmental and good financial practices (Hough *et al.*, 2009). Corporate governance goes beyond regulation and financial aspects of governance and is the mechanism by which the values, principle management policies and procedures of any company are manifested in the real world, that directly impact organisational performance (Hough *et al.*, 2009).

Earlier, Fama and Jensen (1983) established Agency Theory as a way to understand corporate governance. The firm was seen as a series of contracts. Over the past three decades the duties of corporate directors have expanded greatly, beyond their traditional legal responsibility and loyalty to the corporation and shareholders (Crawford, 2007). Fama and Jensen (1983) further indicate that the board of directors makes out the core of corporate governance in the organisation, and that the structure of the board of directors is influential to the functions of the board. They argue that outside directors are more efficient in monitoring the management and will not collude with the management. Therefore, under the separation of ownership and control, outside directors facilitate the governance functions of the board. The Board of Directors often plays a key role in corporate governance, which is to endorse the organisation's strategy, to develop directional policy, appoint, supervise and remunerate senior executives and to ensure accountability of the organisation to its owners and authorities.

From the perspective of Vinten (2003), corporate governance dates back to the 19th century, when incorporation (formation of a new corporation) with limited liability became a reality. There was a need for regulation and legislation. Therefore, a corporation is a legal entity which has a separate legal personality (legal framework and body of law) from its members. The board of directors must define the purpose of the business, which can no longer be done in economic terms only (King, 2006). Furthermore, the value driver of the business must be determined and the stakeholders must be identified (King, 2006). The strategic business plan must be developed by

taking the purpose, value drivers and stakeholders into account (King, 2006). Finally King (2006: 128) states:

> *The conducting of a business is in itself an ethical enterprise. Nothing can be more ethical than creating employment for people in a local community in which a business operates and which gives men and women in that community the opportunity to improve their lives. Consequently, it behoves all directors of companies to conduct and direct their companies ethically in order to govern on a quality basis. The ethical conduct of the enterprise and practicing good governance has always formed the foundation of the great sustained companies of the world.*

Corporate Governance has many definitions. The definition adopted by the Organisation for Economic Cooperation and Development (OECD) in Paris 1999, is:

> *Corporate governance is the system by which business organisations are directed and controlled. The corporate governance structure specifies the rights and responsibilities among different participants in the corporation, such as the board, managers, shareowners and other stakeholders, and spells out the rules and procedures for making decisions on corporate affairs. By doing this, it also provides the structure through which company objectives are set, and the means of attaining those objectives and monitoring performance. (OECD, 1999).*

A shortcoming of this definition is that the definition excludes some of the fundamental aspects of a corporation such as profitability. According to Shleifer and Vishny (1997) corporate governance can be defined as dealing with the ways in which suppliers of corporate finance can be sure of getting a return on their investment. This is much in contrast with Wolfensohn (1999), President of the World Bank, who believes that corporate governance is about promoting fairness, transparency and accountability. Business author O'Donovan (2003) defines corporate governance as:

> *…an internal system encompassing policies, processes and people, which serves the needs of shareholders and other stakeholders, by directing and controlling management activities with good business savvy, objectivity and integrity. Sound corporate governance is reliant on external marketplace commitment and legislation, plus a healthy board culture, which safeguards policies and processes.*

In the definition of O'Donovan (2003) stakeholders include employees, customers, creditors, suppliers, regulators and the community at large. Shareholders include the shareholders, management and the board of directors. According to *The King II Report on Corporate Governance* the key challenge for good citizenship in the corporate world is to seek an appropriate balance between enterprise (performance) and constraints (conformance), taking into account the expectations of shareowners for reasonable capital growth and the responsibility concerning the interest of other shareholders of the company (King, 2002). According to the firm KPMG (N.D.: 8) corporate governance is:

> *The system or process by which corporate entities, exercise accountability to shareholders and responsibility to stakeholders, and are directed and controlled to achieve sustainable improvement in shareholder prosperity.*

According to Hough *et al.* (2009: 174) corporate governance:

> *...refers to the entire system by which companies are managed and monitored and encompasses the manifestation of personal beliefs, values and ethics which configure the organisational values, beliefs and ethics and hence the action of parties internal and external to the organisation.*

In summary, one can conclude that corporate governance is a multi-faceted subject (Dignam and Lowry, 2006). Corporate governance includes important aspects such as the controlling and the directing a corporation and much more. Corporate governance also requires that a corporation be accountable and responsible to shareholders for its

actions. Sound corporate governance is reliant on the external marketplace (external environment), commitment and legislation, plus a healthy board culture which safeguards policies and processes (O' Donovan, 2003). Finally, corporations should always strive to improve shareholders' prosperity, which is the prime purpose of any corporation. Good governance is the foundation of good business (Hough *et al.*, 2009).

3.5.3 Corporate Governance Frameworks

A number of corporate governance frameworks and acts were introduced in reaction to the major corporate and accounting scandals that includes Enron, Tyco International and WorldCom (Kaplan and Holstrom, 2003; King III Report, 2009, Pearlson and Saunders, 2009)[15]. This section presents a concise overview of some of these corporate governance frameworks and acts, of which the SOX Act of 2002 is the best known.

The SOX Act of 2002 is a U.S. federal law that set new and enhanced standards for U.S. public company boards, management and public accounting firms, to improve accountability and visibility (Pearlson and Saunders, 2009; Sarbanes – Oxley Act, 2002). This act affected 15 000 U.S. companies, 1200 non-U.S. based companies and over 1400 accounting firms in 76 countries (Pearlson and Saunders, 2009). The act is named after U.S. Senator Paul Sarbanes and U.S. Representative Micheal G. Oxley, who sponsored the act. The act contains 11 titles and sections, ranging from corporate board responsibilities to criminal penalties (Sarbanes – Oxley Act, 2002). A summary of the 11 titles of the Sarbanes Oxley Act, that describes specific mandates and requirements for financial reporting, follows. Every title consists of several sections:

- *Title 1: Public Company Accounting Oversight Board (PCAOB):* The board provides independent oversight of public accounting firms providing audit services. The board defines specific processes and procedures for compliance audits to enforce compliance with the specific mandates of the SOX Act (Sarbanes – Oxley Act, 2002).

[15] Also see Chapter one, Section 1.2: Problem Description.

- *Title 2: Auditor Independence:* Title two establishes standards for external auditor independence to limit conflicts of interest. It further restricts auditing companies from providing non-audit services (for example consulting) for the same client (Sarbanes – Oxley Act, 2002).

- *Title 3: Corporate Responsibility:* Title three mandates that senior executives take individual responsibility to the accuracy and completeness of corporate financial reports. The CEO and CFO should certify and approve the integrity of company financial reports (Pearlson and Saunders, 2009; Sarbanes – Oxley Act, 2002).

- *Title 4: Enhanced Financial Disclosures:* Title four describes enhanced reporting requirements for financial transactions, off-balance-sheet transactions, pro-forma figures and stock transactions of corporate officers (Sarbanes – Oxley Act, 2002).

- *Title 5: Analyst Conflicts of Interest:* This title includes measures designed to help restore investor confidence in the reporting of securities analysts. It further defines the code of conduct for securities analysts and requires the disclosure of knowable conflicts of interest (Sarbanes – Oxley Act, 2002).

- *Title 6: Commission Resources and Authority:* Title six defines practices to restore investor confidence in securities analysts. It includes the SEC's authority to ban a person from being a broker, advisor or dealer (Sarbanes – Oxley Act, 2002).

- *Title 7: Studies and Reports:* Title seven requires the SEC and other involved parties to perform various studies. The results of the studies are then reported. Studies include the consolidation effects of public accounting firms, securities violations, the role of credit rating agencies and the role and involvement of banks to manipulate earnings and true financial conditions of public companies such as Enron and WorldCom (Pearlson and Saunders, 2009; Sarbanes – Oxley Act, 2002).

- *Title 8: Corporate and Criminal Fraud Accountability:* This title describes criminal penalties for manipulation, destruction or alteration of financial records that interferes with investigations. The title also provides protection for whistle-blowers (Pearlson and Saunders, 2009; Sarbanes – Oxley Act, 2002).

- *Title 9: White Collar Crime Penalty Enhancement:* This title increases the criminal penalties associated with white-collar crimes and conspiracies such as failure to certify corporate financial reports (Sarbanes – Oxley Act, 2002).

- *Title 10: Corporate Tax Returns:* Title 10 states that the CEO should sign the tax return. The CEO is responsible and accountable for the company tax (Pearlson and Saunders, 2009; Sarbanes – Oxley Act, 2002).

- *Title 11: Corporate Fraud Accountability:* This title identifies corporate fraud and records tampering as criminal offenses and joins those offenses to specific penalties (Pearlson and Saunders, 2009; Sarbanes – Oxley Act, 2002).

Debate continues over the perceived benefits and compliance costs of the SOX Act (Butler and Ribstein, 2006; Cangemi, 2007; FEI Survey, 2007; Foley and Lardner Survey, 2007; Kaplan and Holstrom, 2003; King III Report, 2009; Velichety et al., 2007)[16]. Opponents of the bill argue that the bill reduced America's international competitive edge against foreign financial service providers by introducing an overly complex regulatory environment into the U.S. financial markets (Schumer Bloomberg Report, 2007). On the other hand, supporters of the Sarbanes Oxley Act contend that the legislation was required for restoring public confidence in the nation's capital markets and further strengthening corporate accounting controls, transparency and corporate financial statements (Institute of Internal Auditors, 2005; Lord and Benoit Report, 2006; Pearlson and Saunders, 2009).

[16] See Chapter 1, Section 1.2: Problem Description.

In other regions and countries[17], similar acts were introduced to improve corporate governance: Germany introduced the “Der Deutsche Corporate Governance Kodex ” (the German Corporate Governance Code); Japan introduced “J-SOX”, the Japanese equivalent of the SOX act; Australia introduced the Corporate Law Economic Reform Program (Audit Reform and Corporate Disclosure) Act in 2004, known as CLERP9; France introduced the "Loi sur la Sécurité Financière” (Financial Security Law of France); and the Combined Code on Corporate Governance (originally derived from the Cadbury Report) was introduced in the United Kingdom.

In South Africa the King Reports on Corporate Governance introduced principles for good governance.

3.5.4 Information Technology Governance and its Relation to Corporate Governance

IT Governance (IT Governance) is now defined and its role and interrelationship to corporate governance is explained.

According to Van Grembergen (2002) IT Governance can be defined as the capacity exercised by management (the Board, Executive Management and IT Management) to control the formulation and execution of IT strategy, to ensure the fusion of business and IT. There are, however, critics such as Carr (2004), who questions the idea or notion that IT confers strategic advantage. Carr (2004) does, however, recognize the need for effective IT risk management. ISO/IEC 38500 (2008) further helped to clarify IT Governance, which is often confused with IT management practices and IT control. According to ISO/IEC 38500 (2008), IT Governance is about the stewardship of IT resources on behalf of the stakeholders, who expect a return on their investment. The directors responsible for stewardshiplook to the required management involved to implement the required systems and IT controls with the focus of delivering business value. This involves risk management and ensuring compliance, which is an essential

[17] See Chapter 1, Section 1.2: Problem Description.

aspect of governance. The IT Governance Institute (2003: 10) defines IT Governance as follows:

> *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.*

From the citations above, IT Governance forms an essential part of corporate governance. IT Governance aims to control and execute the IT strategy of an organisation. The focus of IT Governance is IT and how IT can help to sustain, control and execute the organisation's strategy and objectives. IT Governance is thus a subset of corporate governance that focuses on IT to achieve the organisation's strategy and objectives. (*cf.* Grembergen, 2002; IT Governance Institute, 2009). Corporate governance include IT Governance and IT Governance forms a sub-set of corporate governance.

3.5.5 Information Technology Governance Frameworks

IT Governance frameworks are normally used to guide the implementation of IT Governance within an organisation. This section presents an overview of IT Governance frameworks. However, the IT Governance frameworks do not form part of the central research themes of this dissertation. As stated in the previous section, IT Governance only forms a sub-set of corporate governance.

The world's leading IT governance and control framework is Control Objectives for Information and related Technology (COBIT). COBIT is IT Governance's best practices framework and toolset, which was first created in 1996, by the ISACA and the IT Governance Institute (ITGI) (ISACA, 2010a; Pearlson and Saunders, 2009). COBIT provides a framework for linking IT processes, IT resources and IT information to a company's strategies and objectives (Pearlson and Saunders, 2009). COBIT 4.1 has been released and consists of 34 high level processes that cover 210 control objectives

(ISACA, 2010a). The control objectives are categorised in four domains namely: Planning and Organisation, Acquisition and Implementation, Delivery and Support and Monitoring and Evaluation (ISACA, 2010a). COBIT benefit managers, auditors and users. In the own text of ISACA (2010a):

> *Managers benefit from COBIT as it provides them with a foundation upon which IT related decisions and investments can be based. Decision making is more effective because COBIT aids management in defining a strategic IT plan, defining the information architecture, acquiring the necessary IT hardware and software to execute an IT strategy, ensuring continuous service, and monitoring the performance of the IT system. IT users benefit from COBIT because of the assurance provided to them by COBIT's defined controls, security, and process governance. COBIT benefits auditors because it helps them identify IT control issues within a company's IT infrastructure. It also helps them corroborate their audit findings.*

When a company identifies processes that it is going to manage, it sets up a control objective and then key goal indicators (Pearlson and Saunders, 2009). Control metrics is established to ensure that the key goals are being met - called key performance indicators (Pearlson and Saunders, 2009). Activities are selected to achieve the key goal indicators. These activities are the steps that need to be followed to provide controls for selected processes (Pearlson and Saunders, 2009).

Val IT is tightly integrated with COBIT Version 4 and extends and complements COBIT. Val IT allows business managers to get business value form IT investments, by providing a governance framework consisting of a set of guiding principles and processes that define a set of key management practices (ISACA, 2010b). Val IT focuses on the domains of Value Governance, Portfolio Management and Investment Management. Val IT defines the relationship between IT and business and other functions in the organisation with governance responsibilities and further addresses assumptions, costs, risks and outcomes related to a balanced portfolio of IT-enabled business investments (ISACA, 2010b). It also provides benchmarking capability and

allows enterprises to exchange experiences on best practices for value management (ISACA, 2010b). As with COBIT, Val IT can be adapted for use in other domains. (*cf.* ISACA, 2010b).

On the other hand, *ISO/IEC 38500: 2008 Corporate governance of IT* provides a framework for effective governance of IT, assisting those at the highest level of the organisation to understand their legal, regulatory and ethical obligations in respect of the organisation's use of IT. The standard provides guiding principles for those at the highest level of the organisation (normally the directors) on effective, efficient and acceptable use of IT in their organisations. ISO/IEC 38500 is based on the AS8015-2005 Australian Standard for corporate governance of Information and Communication Technology. (*cf.* ISO/IEC 38500, 2008).

Finally, the IT Infrastructure Library (ITIL) is a detailed best practice framework for IT Service Management (ITSM) (Office of Governance Commerce, 2010). ITIL was developed and maintained by the United Kingdom's Office of Government Commerce (OGC) in conjunction with the IT Service Management Forum. ITIL describes the organisation of IT resources to deliver business value, functions, processes and roles in ITSM (Office of Governance Commerce, 2010). ITIL is designed to focus on the people, processes and technology issues that IT organisations face (Office of Governance Commerce, 2010). OGC is committed to the maintenance of alignment between future versions of ITIL and ISO/IEC 20000 (Office of Governance Commerce, 2010). A refreshed version of ITIL was introduced in 2007.

Figure 3.8 The ITIL Lifecycle (Office of Governance Commerce, 2010)

The focus of ITIL today is integration of IT into the business, assuring the delivery of business value and the treatment of services as business assets (Office of Governance Commerce, 2010). The ITIL Lifecycle - based on the Planning, Doing, Checking and Acting lifecycle of Deming (1986) – is used to achieve the ITIL goal (Figure 3.8). The essential philosophy of the lifecycle is continuous improvement. ITIL benefits organisations as follows: It improves the use of IT investments, it helps with the integration of business and IT, it creates and manages portfolio driven service assets, it demonstrates ROI, it helps to link IT Service Assets to business services, it caters for agile and flexible service models and it includes performance and measures that are business value based (Office of Governance Commerce, 2010).

ITIL also has its critics. According to van Bon (2002) there is confusion about ITIL, stemming from the misunderstandings about its nature. For example: The OGC states that ITIL is a set of best practices, but doesn't claim that ITIL's best practices describe pure processes. The OGC also doesn't claim that ITIL is a framework, designed as a coherent model. Therefore, most of its users make of it probably what they want to make of it, because they have a need for such a model. Van Herwaarden and Grift (2002)

further claim the quality of the ITIL library's volumes as uneven. They say that the consistency that characterise the service support processes is largely missing in the service delivery books. In a survey by Bruton Consultancy (2004), organisations adopting ITIL were asked to relate their actual experiences having implemented ITIL. Most, 77 % of the survey participants, responded by strongly agreeing that "ITIL does not have all the answers". ITIL exponents accepted this finding by stating that the ITIL intention is to be non-prescriptive, expecting organisations to engage ITIL processes with existing process models. Lastly, Meyer (2005) also presents cautionary views of ITIL. Meyer (2005) states that one must not become slave to the out-dated definitions of ITIL, Meyer (2005) also states that ITIL does not describe the complete range of processes that is required to become world-class. ITIL is mostly focused on managing on-going services and one should definitely not allow t ITIL to become a religion.

3.5.6 Process Governance

A subject that might be closely related to BPM and corporate governance is process governance. In this section, the author presents an overview of process governance that forms part of the BPM Maturity Model of Rosemann *et al.* (2005).

The BPM Maturity Model has a governance dimension that aims to address BPM governance. The BPM Maturity Model of Rosemann *et al*. (2005) indicates which important factors to consider for maturity in process governance. The governance dimension in the BPM Maturity Model includes process management decision making, process roles and responsibilities, process metrics and performance linkage, process management standards and process management controls (Figure 3.9).

When the governance dimension of the BPM maturity model is compared to the principles of governance proposed in the King reports (King I Report, 1994; King II Report, 2002; King III Report, 2009), the BPM Maturity Model only addresses a limited number of the King principles of governance. The principles of independence, fairness, social responsibility and discipline, proposed by the King II Report (2002), are not supported in the governance dimension of the BPM maturity model. The model,

however, addresses some of the governance issues identified in Chapter 1, e.g. increased performance (that may leads to increased business value).

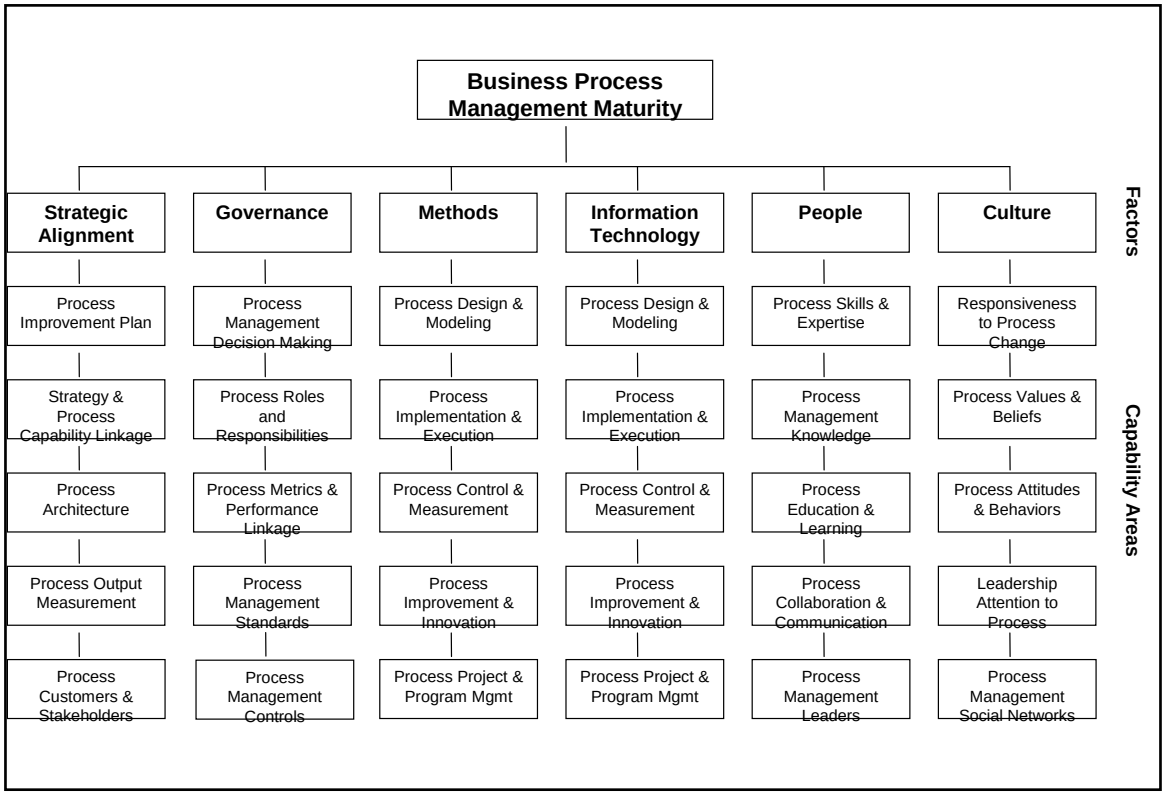


Figure 3.9 The multi-dimensional Business Process M anagement Maturity Model (Rosemann *et al.*; 2005)

One can argue that the governance dimension of the BPM Maturity Model partly supports the King principles of governance, which therefore can be improved by supporting more principles of governance.

Another interesting aspect for future research is how Process Governance would relate to and support corporate governance. If one takes such a stance, the research in this dissertation may contribute to future research in this area. It is almost logical to argue that if Process Governance improves, corporate governance improves, because the business processes of the Corporation improve. This, however, does not fall in the scope of this research project. The King's principles for governance, which fall into the scope of the research, are discussed next.

3.6 King's Principles for Governance

3.6.1 Introduction

The King Reports contain the most relevant and extensive work published with regards to corporate governance in South Africa. The *King Report on Corporate Governance* known as the "King Report of 1994" or "The King I Report", was first published in 1994 (King I Report, 1994; King 2006). Later, in 2002, the *King Report on Corporate Governance for South Africa 2002,* also known as "The King II Report" was published in South Africa (King II Report, 2002). King II is regarded as the world's most progressive inclusive model of corporate governance and has persuaded many foreign institutions to invest in South Africa (Hough *et al.*, 2009). The work was extended in the "Draft Report on Governance for South Africa" and the "Draft Code of Governance Principles" in 2009, also known as "The King III Report" (King III Report, 2009). The reports contain principles for governance that is specifically relevant to the South African context and aims to improve corporate governance in South Africa (Hough *et al.*, 2009). Judge Mervin King believes that a principle-based approach to corporate governance such as the King reports are more effective than rules, because it is easier to get around rules than principles (Hough *et al.*, 2009).

When the King reports are compared to the SOX Act of 2002, the King reports cover a broader scope, ranging from corporate governance to corporate citizenship (Hough *et al.*, 2009). The King reports place the roles and responsibilities of the board of directors (articulated in a formal charter disclosed in the annual report) at the heart of the discussion (Hough *et al.*, 2009). On the other hand, the SOX Act of 2002 focus on restoring public investor confidence in capital markets (Hough *et al.*, 2009). It limits the discussion of the board of directors and Audit Committee and their responsibilities and relies more on the SEC rules and U.S. stock exchange requirements (Hough *et al.*, 2009). However, both the King reports and the SOX Act of 2002 require the board of directors to appoint an audit committee to monitor and reinforce an effective internal control system (Hough *et al.*, 2009). The King Code differ from the SOX Act by requiring that the audit committee should consist of a majority of independent non-executive directors, whereas the SOX Act requires independence of all audit committee members (Hough *et*

al., 2009). The King Code further requires that all members of the audit committee be financially literate, while the SOX Act requires at least one financial expert (Hough *et al*., 2009). However, the King Code is not codified in law and cannot, like the SOX Act, mandate these requirements (Hough *et al*., 2009). The next section elaborates on the corporate governance principles contained in the King Code.

3.6.2 King's Principles for Governance

The SOX Act of 2002 was introduced in reaction to the corporate misconduct scandals mentioned in the problem statement (Fox and Zonneveld, 2003; Kaplan and Holstrom, 2003). Hamelink (2003) argues that the Universal Declaration of Human Rights is the only starting point for global governance, ethics and morality. The Commonwealth Association for Corporate Governance (CACG) was established in 1998 to promote excellence in corporate governance in the Commonwealth. They developed 15 principles, mainly aimed at the boards of directors of business enterprises (KPMG, N.D). In 1999 the Organisation for Economic Cooperation and Development (OECD) issued a statement called the "OECD Principles of Corporate Governance", which summarised the main elements of best practice in corporate governance (KPMG, N.D).

In South Africa the King I, King II and King III reports (King II Report, 2002; King III Report, 2009) play a similar role to the SOX act in preventing corporate misconduct. This section explains the principles of governance relevant in the South African context, coming from the three King reports.

According to King (2006), fairness, accountability, responsibility and transparency are principles of governance. The King II Report (2002) added three additional principles of governance namely independence, social responsibility and discipline. Lastly, the King III Report (2009) added the principles of leadership, sustainability and corporate citizenship. These principles are explained as follows:

- *Discipline:* Discipline is the commitment by a company's senior management to adhere to universally acceptable, correct and proper behaviour (King II Report,

2002; Hough *et al.*, 2009). Senior management should respect the underlying principles of corporate governance.

- *Transparency:* Transparency can be defined or considered as the ease in which an outsider to the company is able to meaningfully analyse the company's actions (King II Report, 2002; Hough *et al.*, 2009). Transparency includes financial and non-financial aspects of the organisation. Management should make information available in a candid, accurate and timely manner. Transparency should reflect if investors are able to obtain a true picture of what is happening inside the company.

- *Independence:* Independence is the extent to which mechanisms have been put in place to avoid potential conflicts of interest between parties (King II Report, 2002; Hough et al., 2009) such as the CEO or a large shareholder. Internal processes and decisions should be objective without undue influences. King (2006) suggests the segregation of duties as far as possible within a company, especially at board level. For example, the chairman of the board and the CEO should not be the same person. A company should have an independent audit committee consisting of outside directors of the company, to challenge the management of the company on various company issues which come before it (King, 2006). The committee must be dedicated to the causes of integrity, understanding, knowing the risks of the company and the controls to manage the risk (King, 2006). The committee or some of its members should be financially literate (king, 2006).

- *Responsibility:* With regards to management, responsibility concerns acceptance of consequences of the organisational behaviour that allows for corrective action and penalties for mismanagement (King II Report, 2002; Hough *et al.*, 2009). The board must act with responsibility towards stakeholders of the company. According to King (2006) the duties of directors of companies include good faith, care, skill and diligence. By good faith, a director must honestly act in the interest of the company he is governing (King, 2006). The duty of care involves acting

with that degree of care which would be expected of a reasonable person caring for another's assets (King, 2006). It is further expected that each director, whatever his ability, applies that ability in the interest of the company he represents (King, 2006). Finally, diligence simply connotes that a director must do his homework, must be fully informed and must understand the issues at stake when coming to the decision table (King, 2006). There are many aspects of a company that are ultimately the responsibility of its directors. Aspects includes Risk Management (strategic risk, operational risk, financial risk, compliance risk and non-financial risk), IT Governance, full and timely financial and non-financial reporting, company ethics and culture (King, 2006; King I Report, 1994; King II Report, 2002; King III Report, 2009).

Kreitner and Kinicki (2004) define responsibility as the work we do to improve our communities. Responsibility is serving the public interest (social responsibility) as well as the interest of our shareholders. Shared responsibility, on the other hand, involves the establishment of an environment in which all members of a team feel equally responsible for the performance of the work unit (Kreitner and Kinicki, 2004). Responsible managers should strive for socialised power instead of personalised power which increases organisational commitment amongst employees (Kreitner and Kinicki, 2004).

- *Accountability:* Individuals or groups (such as the board of directors) in a company, who make important decisions, should be accountable for their decisions and actions (King, 2006; King I Report, 1994; King II Report, 2002; King III Report, 2009). Accountability involves many aspects and duties (specifically for directors) in a company, such as Risk Management and IT Governance (King, 2006; King III Report, 2009). The board of directors is responsible for the effective control of the company's IT and is held accountable should they neglect this duty of care. This is especially important if IT becomes aligned with the company's strategic plans and IT is involved in achieving the business plan (King, 2006). The King III Report (2009) therefore insists that a Chief Information Officer (CIO) become a member of the board of directors to

exercise its duty of care[18]. This allows investors a means to query and assess the actions of individuals and groups (board and its committees) (Hough *et al.*, 2009). Accountability should further involve discipline and therefore should be measured (Kreitner and Kinicki, 2004). Organisations must also be careful not to replace traditional authority and accountability links (the organisational hierarchy) with teams (flatter organisational hierarchies) that lack authority and specifically accountability (Kreitner and Kinicki, 2004).

- *Fairness:* A balanced view must exist in the company, to take into account all those that have an interest in the company and its future (King II Report, 2002). Fairness basically means that the rights and interests of all stakeholders in the organisation have to be acknowledged and respected (Hough *et al.*, 2009). Kreitner and Kinicki (2004) state that fairness also involves fair performance appraisals and evaluations. Credit and recognition should be given to those who deserve it. Managers must be able to explain or give feedback on the rationale behind their decisions (Kreitner and Kinicki, 2004). Employees should also be empowered to have a "voice" in decision-making processes and performance appraisals thus helping to create a positive perception of fairness (Kreitner and Kinicki, 2004). Employees' perceptions of being treated fairly at work were highly related to overall job satisfaction (Kreitner and Kinicki, 2004).

- *Social Responsibility:* The Company should be aware and respond to social issues, placing a high priority on ethical standards (King II Report, 2002; Hough *et al.*, 2009). A good corporate citizen should be seen as non-discriminatory, non-exploitive, and responsible with regards to environmental and human rights issues. Individuals in companies are more likely to behave ethically when they have incentives to do so and therefore a company's reward system must reinforce this behaviour (Kreitner and Kinicki, 2004).

[18] See previous point

- *Leadership:* According to the King III Report (2009), leaders (typically the board of directors) need to define strategy, provide direction and establish ethics and values that influence and guide practices and behaviour with regards to sustainable performance. This is referred to as the performance role of the board (Hough *et al.*, 2009) and includes a CIO responsible for IT Governance and leadership. The board should further ensure conformance to policies, procedures and plans, referred to as the conformance role of the leadership (Hough *et al.*, 2009). The board should also reflect a balance of skills, experience and demographic diversity to provide effective leadership and control (Hough *et al.*, 2009), which include a balance of executive and non-executive directors and a "sufficient" number of independent directors (King II Report, 2002). The performance of the board should periodically be evaluated (Hough *et al.*, 2009).

- *Sustainability:* According to the King III Report (2009)[19], business, nature and society are interconnected in complex ways that must be understood by decision makers. Therefore, the concept of sustainability in the context of business means the achievement of balanced and integrated social, economic and environmental performance, referred to as the "triple bottom line" (Hough *et al.*, 2009). For organisations to be sustainable they need to be innovative (new ways of doing things), fair (with regards to social injustice: for example the legacy of apartheid) and collaborative (for large scale change), in a specific context. Companies are increasingly expected to grow their business, but at the same time meet human needs of societies around the world, while at the same time reducing the environmental and social footprint of their operations and products (Hough *et al.*, 2009). This is particularly relevant in South Africa in relation to black economic empowerment (BEE), HIV/AIDS, occupational health and safety, the advancement of previously disadvantaged individuals, environmental management, and the development of human capital (Hough *et al.*, 2009). King III requires companies to do sustainability reporting in a cost effective manner. Best practices in sustainability are only possible if leaders in the company set the

[19] Also see Hough *et al.* (2009: 180).

tone at the top in order for the company to achieve this integrated performance (King III Report, 2009). Sustainability has gained international importance since the publication of the King II Report (King III Report, 2009). By issuing integrated sustainability reports, a company increases the trust and confidence of its stakeholders and the legitimacy of its operations. It increases business opportunities of a company and improves the risk management of a company (King III Report, 2009). Risk Management involves the identification and evaluation of actual and potential risk areas of a business and the continuous development of programmes that are aimed at reducing any loss before it occurs (Hough *et al.*, 2009). Typically, internal controls are used proactively to measure and control risks and must be linked to the "triple bottom line" (Hough *et al.*, 2009). Still, the board of directors has the responsibility to run a degree of risk in business activities, in pursuit of financial gain (Hough *et al.*, 2009).

Local and global attention to sustainability is growing because a company is such an integral part of society. The company is considered as much of a citizen of a country as a natural person who has citizenship. Finally, sustainability requires management pay schemes that must not focus on short-term results at the expense of longer-term performance.

The principles of governance, introduced by the King Reports, have specific relevance to the South African context. A summary of the King principles of governance is presented in Table 3.8.

Table 3.8 The King principles of governance (King I Report, 1994; King II Report, 2002; King III Report, 2009)

Principle	**Description**
Responsibility.	Responsibility should concern behaviour that allows for corrective action and penalties for mismanagement (King I Report, 1994, King 2006). Roles and responsibility must be documented clearly. Business processes must be documented and owned by a business unit. The data which is created during the processes must be reliable, accurate, and should be protected from unauthorised control. Procedures should be well defined to identify, track and

	oversee the organisation's assets. (*cf.* Hutton and Hamaker, 2003).
Transparency (traceability and audit ability.	If events turn out to be different from expectations, an independent review can be held with an objective audience. The audience can take corrective action or decide what the next step should be. Internal controls such as auditing, risk management, loss prevention and quality assurance must be used to achieve improvement. (*cf.* Hutton and Hamaker, 2003; King I Report, 1994; King, 2006).
Independence (segregation of duties)	Organisational measures should be put in place to avoid potential conflicts of interests between parties such as the CEO or a large shareholder. Internal processes and decisions should be objective without undue influences (*cf.* King II Report, 2002; Weber, 1999).
Discipline.	An organisation (especially the senior management) should adhere to universally acceptable, correct and proper behaviour (King II Report, 2002).
Accountability.	Individuals or groups in a company, who make important decisions, should be accountable for their decisions and actions (King I Report, 1994; King, 2006).
Fairness.	A balanced view should be taken of all who have an interest in the company and its future. Fairness basically means that the rights of everyone in the organisation have to be acknowledged and respected (King I Report, 1994; King, 2006).
Social responsibility.	The company should be aware and respond to social issues, placing a high priority on ethical standards. A good corporate citizen should be seen as non-discriminatory, non-exploitive and responsible with regards to environmental and human rights issues. (*cf.* Hamelink, 2003; King II Report, 2002).
Leadership.	Leaders need to define strategy, provide direction and establish ethics and values that influence and guide practices and behaviour with regards to sustainability performance (King III Report, 2009).
Sustainability.	Organisations need to be innovative, fair and collaborative to be sustainable. Best practices in sustainability are only possible if leaders in the company set the tone at the top in order for the company to achieve this integrated performance. By issuing integrated sustainability reports, a company increases the trust and confidence of its stakeholders and the legitimacy of its operations. Finally, sustainability requires management pay schemes that must not focus on short-term results at the expense of longer-term performance (King III Report, 2009).

There are other principles that could also be considered as principles for governance internationally. However, it is not in the scope of this research project to determine

what the "ultimate" set of good governance principles are, but rather to show that a set of governance principles can be applied to a BPMS to improve corporate governance.

3.7 Root Causes for Problems in Corporate Governance

Departing from an international stance, the spectacular frauds at Enron, WorldCom and Tyco exposed problems with conflicts of interest (Hough *et al.*, 2009) and incentive compensation practices. Hough *et al.* (2009) state that many corporate collapses have, as their root cause, a conflict between the objectives of the corporation and those who act as custodians of the corporation's assets and undertakings, the directors and senior executives. This is known as the "agency" problem (Hough *et al.*, 2009). Managers do not always act in the best interest of shareholders. According to Farell (2005) and Senator Paul Sarbanes (Nance, 2004) the root causes of these problems can be summarised as:

- *Auditor conflicts of interest:* Auditing firms, the financial "watchdogs" for investors, performed non-audit consulting work for the companies they audited. This presents a conflict of interest.

- *Boardroom failures:* Board members did not exercise their responsibilities or did not have the expertise to understand the complexities of business. Audit Committee members were also not truly independent of management. A number of reasons have been listed for board failures. This include: Micro-managing an organisation; An ineffective nominating committee; The size of the board; A non-functioning committee structure; No strategic plan; No orientation plan and; No rotation plan (Hough *et al.*, 2009).

- *Securities analysts' conflict of interest:* Security analysts buy and sell recommendations on company stocks and bonds. Then investment bankers help provide companies' loans and further handle mergers and acquisitions, which provides opportunities for conflicts. Issuing a buy or a sell recommendation on a stock while providing investment banking services creates a conflict of interest.

- *Inadequate funding of the SEC:* The SEC budget has steadily increased to double the pre-SOX level. Previously the SEC was inadequately funded.

- *Banking practices:* Lending to a firm sends signals to investors regarding the risk of the firm. Banks provided large loans to companies (such as the case with Enron) without understanding, or ignoring the risks of the company.

- *Internet bubble:* Investors were hurt around the year 2000 by the sharp declines in technology stock and the overall market. Fund managers advocated the purchasing of particular technology stocks while selling them. The losses created a feeling of anger amongst investors.

- *Executive compensation:* Stock options, bonuses with the volatility in stock prices, resulted in pressure to maximize earnings. With these types of compensation at risk, managers were pressured to meet their targets.

In the words of Senator Paul Sarbanes (Nance, 2004):

> *The Senate Banking Committee undertook a series of hearings on the problems in the markets that had led to a loss of hundreds and hundreds of billions, indeed trillions of dollars in market value. The hearings set out to lay a foundation for legislation. We scheduled 10 hearings over a six-week period, during which we brought in some of the best people in the country to testify... The hearings produced remarkable consensus on the nature of the problems: inadequate oversight of accountants, lack of auditor independence, weak Corporate Governance procedures, stock analysts' conflict of interests, inadequate disclosure provisions and grossly inadequate funding of the SEC.*

On the other hand, King (2006) states, from a South African perspective, that the corporate failures during the past decade have resulted from self-interest, self-concern,

conformance overriding performance, pride and arrogance. King (2006) refers to these root causes of problems in corporate governance as "The Corporate Sins".

Self-interest occurs if a director fails to exercise his duty of good faith to act in the in the interests of the company he represents, but act in his own interests (King, 2006). A director acting in conflict of the interest of the company he represents normally does so out of greed, to increase his own wealth (King, 2006). One of the best case examples of self-interest instead of acting in the best interests of the company is the Enron case, discussed in Chapter 1.

Self-concern occurs when the directors of a company are in a situation where they fear that something adverse may happen to them and the fear drives them to act in conflict with the best interests of the company (King, 2006).

Too much conformance results in a director being merely administrative rather than focusing on the enterprise side of the business (King, 2006). According to King (2006), the plethora of legislation about how to govern, the compliance side of governance, is starting to weigh down or "dilute" the enterprise side of a company. The focus on compliance issues and administration tend to make managers and directors slothful (King, 2006). As an example it is estimated that section 404 of the SOX Act in America incurs 25 000 hours of work for companies with an annual income of in the 5 to 20 billion dollar range and 100 000 hours of work for companies with an income greater than than 20 billion dollars (King, 2006).

Pride occurs when a business judgement call turns out to be wrong and the board of directors takes too long to fix it because of damaged pride (King, 2006). It is better for a company to fix an error as quickly as possible, acting in the best interest of the company (King, 2006).

The corporate sin of arrogance is committed when directors of a company believe they have devised the correct formula on how to conduct the company's business in a particular industry (King, 2006). The directors believe they have outwitted their

competitors and that nothing may go wrong. Normally something does go wrong and therefore directors must constantly be aware of the corporate sin of arrogance.

The corporate sins of King (2006) are in accord with what Mtimunye (2009), the acting CEO of the SITA regards as the roots of corruption and fraud. According to Mtimunye (2009), corruption is motivated by economic reasons such as greed, prestige, recognition, moral superiority or by the organisational environment -for example, employees may wish to punish management, or systems maybe poor, or processes are not followed or a difficult organisational atmosphere exists (Mtimunye, 2009).

Although SOX was not originally aimed at IT departments, it soon became clear that IT played a major role in ensuring accuracy of financial data. According to Pearlson and Saunders (2009) five IT control weaknesses were uncovered by auditors. They are:

- Failure to segregate duties within applications, and failure to set up new accounts and terminate older ones in a timely manner (Pearlson and Saunders, 2009).

- Lack of proper oversight when making application changes and ensuring quality control (Pearlson and Saunders, 2009).

- Inadequate review of audit logs to ensure that systems run smoothly (Pearlson and Saunders, 2009).

- Failure to identify abnormal transactions in a timely fashion (Pearlson and Saunders, 2009).

- Lack of understanding of key configurations (Pearlson and Saunders, 2009).

On the other hand, there are several benefits of practicing good governance (King, 2006). When practicing good governance, even in the event of a bad business judgement, a scandal can be avoided. One of the great attributes of practicing good

governance is that a well-governed company attracts better employees (King, 2006). Such a company is able to raise capital more cheaply (King, 2006). Finally, one of the most important assets of any company is its reputation (King, 2006). Quoting King (2006: 126):

> *The best way to protect a company's reputation is not only to ensure the quality of the product or service provided, but also that quality governance is practiced... Bad governance and a bad business judgement call is usually a death knell for a company.*

In summary, this section provides insight into the root causes for problems in corporate governance (from an international perspective and a South African perspective). Specifically in South Africa, directors must be aware of the corporate sins of self-interest, self-concern, conformance overriding performance, pride, and arrogance, which are present in any company (King, 2006).

3.8 The Social Impact of Information Systems on Organisations

3.8.1 Introduction

The section embarks by describing the mechanistic and romantic world views of technology. The section then explains the impact of IS on organisations. Finally an argument is presented that, when a technology such as a BPMS, is inscribed with principles of governance, the technology causes a change in social behaviour that can be either positive or negative.

3.8.2 The Mechanistic and Romantic World Views of Technology

Society views technology as a blessing which means progress (including social progress). Western society in general is fascinated by all forms of technology and views technology as essential and good (Hamelink, 2003). This phenomenon is called Technological Utopianism (Hamelink, 2003). This fascination originated from a mechanistic world view, which is based on the assumption that the world is ordered

and unchanging. Technology is therefore viewed as progress or a solution to many of the problems in the world (Hamelink, 2003).

On the other hand, the romantic world view originated in reaction to the mechanistic world view (extreme rationalism, technological determinism and an analytical style of thinking) which did not leave a lot of room for feelings and interpretation. Nevertheless, Klein and Hirscheim (1987) discovered that there is a shift away from effectiveness and efficiency (as in the mechanistic world view) towards *social acceptability* and appropriateness (the romantic world view) as goals for IS and IT. Many social aspects need to be considered when dealing with IS and IT because it relates to a wide range of disciplines, e.g. Management, Psychology, Organisational Behaviour and Anthropology.

Dahlbom and Mathiassen (1993) describe these two views as follow:

> *...the mechanistic philosophers of the 17th century tended to think horizontally, mapping the casual sequences of controllable machines, the romantics developed a vertical way of looking at things, always enquiring into the deep, uncontrollable forces behind everything.*

In summary, the mechanistic view of technology must be combined with a romantic appreciation for the complexity of humans and social orders. The philosophy of IS and IT is a mixture of Positivistic and Non-Positivistic sciences. It is a mixture of hard and soft system theory and a mixture of the mechanistic and romantic world views.

3.8.3 The Social Impact of Information Technology on the Organisation

According to Hamelink (2003), the contemporary world is undergoing major changes because of factors like globalisation, modernity and because of its risk society (nuclear disasters, AIDS, global warming, genetically modified foods). Globalisation refers to the compression of time and space, which indirectly means a shift to global business. Globalisation leads to a decrease in different cultures, nations, companies and individuals. Information and Communication Technology (ICT) is involved in this change process and supports societal transformation, organisational transformation

and communication (Kaye and Little, 1996). Rauterberg (2004) shows how entertainment technology, television (TV), video cassette recorders (VCRs) and computer games may cause transformation in social human behaviour. On the negative side, entertainment technologies may lead to racism, sexism and violence, which is basically an accepted reflection of the underlying dimensions and values of a specific society (Breuer, 2001). On the other, hand entertainment technologies assist to develop critical thinking skills, visualisation, social skills development, communication, discovery, learning (e.g. reading, grammar, mathematics and computer knowledge), problem solving and memory (Clements, 2000; Cole, 1996; Rauterberg, 2004; Saracho *et al.*,1998; Subrahmanyam *et al.*, 2001). Entertainment technology can have therapeutic effects. Turnin *et al.* (2000), found a positive influence of a computer game on 2000 children for nutritional teaching. In other words, children can learn good eating habits by playing games. It is not the technology but the *content* and *context of use* of the technology that really matters (Rauterberg, 2004). Technology impacts the way in which people behave. The impact can be either positive or negative, depending on the content and context of technology use.

The research of van der Heijden (2004) shows that factors such as perceived *enjoyment* and *ease of use* (referred to as the hedonic nature of technology) play an important role, stronger than perceived usefulness, in the successful acceptance of technology. Enjoyment refers to the extent to which the activity of using the computer is perceived to be enjoyable (Davis *et al.*, 1992). Ease of use refers to the degree to which a person believes that using a particular system would be free of effort (Davis, 1989) and usefulness refers the degree to which a person believes that using a particular system would enhance his or her job performance (Davis, 1989). Van der Heijden (2003) also suggests that IS that are visually more attractive are easier to use.

Organisations, on the other hand, adopt IT for many reasons. Reasons are; optimisation, automation, collaboration, improved control, preserving knowledge, empowerment, technological strategy, organisational learning, aiding in political goals and improved productivity (reduced error rates, improved flow of information and increased processing power) (Drucker, 1995; du Plooy, 1998; Frampton *et al.*, 1988).

Organisations can be defined as consciously created arrangements to achieve goals by collective means (Thompson and McHugh, 1995). Organisations are also defined as behavioural processes which live on influence and power (Hunt, 1992). An organisation can be viewed as a collection of people working together (the planned co-ordination of activities) in a division of labour and through a hierarchy of authority and responsibility to achieve a common purpose (Schein, 1980).

Organisational behaviour is concerned with the behaviour of individuals and groups in the organisation (Schermerhorn *et al.*, 1995). It involves the understanding, prediction and control of human behaviour and factors that affect the performance of employees (Luthans, 1985). The study of organisational behaviour requires consideration of the interaction between the formal structure, the tasks to be undertaken, the technology employed and methods of carrying out work, the behaviour of people, the process of management and the external environment (Mullins, 1990).

According to Postman (1992), IT affects organisational work practice, the overt and covert structures of the organisation, the organisational culture, organisational power and organisational politics. Postman (1992) calls this the conditioning effect of IT. The conditioning effect sometimes turns out differently from its intended purpose (Orlikowski, 2000; Postman, 1992). IT is a business enabler (King, 2006) but it brings change, sometimes different from the original intention.(cf Bolter, 1989; Dahlbohm and Mathiassen, 1993; Davenport *et al*., 1992; Orlikowski, 1992; Orlikowski, 2000; Postman, 1992).

Organisations have realised that the use of IT changes the organisation. IT is not value neutral and its adoption and use within an organisation changes the organisation. IS support, lead, guide, steer and change the organisation that, in turn, determines and shapes IS, as depicted in Figure 3.11 (Dahlbom and Mathiassen, 1993; du Plooy, 1998; Postman, 1992). Lyytinen (1988) states that 50-75 percent of IS development is never completed or used. Incomplete and unused development is a result of the neglect of human factors (Davis et. al., 1992; Wastell and Newman, 1996). The major problems in work are not so much technological as sociological in nature (du Plooy, 1998). Rogers

(1995) suggest that the diffusion process of a new technology or innovation in the organisation depends on five attributes, namely:

- *Relative advantage:* defined as the degree to which an innovation or technology is perceived as being better.

- *Compatibility:* the degree to which an innovation or technology is perceived as consistent with the existing values, past experiences and need of potential adopters.

- *Complexity:* defined as the degree to which an innovation or technology is perceived as relatively difficult to understand and use.

- *Trail ability:* defined as the degree to which an innovation may be experimented with on a limited basis.

- *Observability:* defined as the degree to which the results of an innovation are visible to others.

Other studies introduced their own categories of technology adoption. Tornatzky and Klein (1982) suggest cost, communicability, divisibility, profitability and social approval.

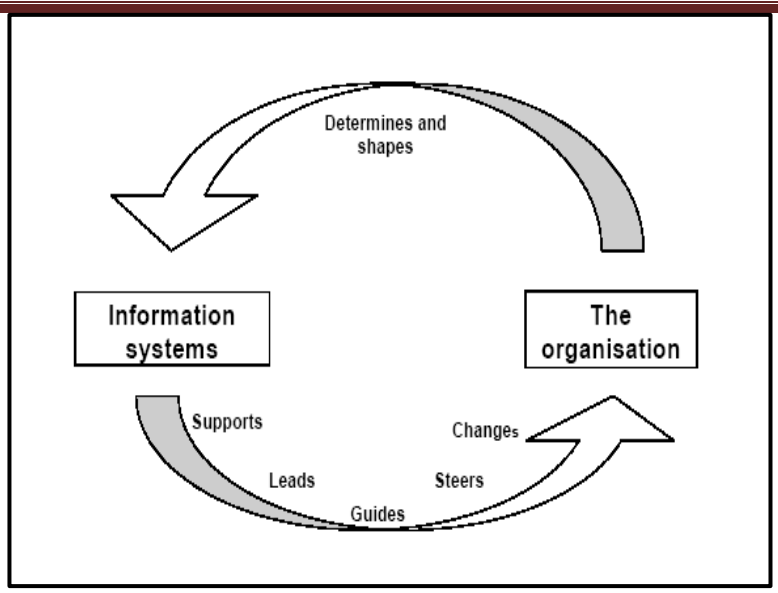


Figure 3.10 The relationship between Information Technology and the organisation during adoption and use (du Plooy, 1998)

In summary, the use of IT in the organisation causes change in the organisation (Orlikowski, 2000; Postman, 1992), which, in turn, shapes the IS (du Plooy, 1998, Figure 3.10). Dahlbom (1997) suggests that people and technology become intertwined. The use of IT causes change in social behaviour in the organisation that can either be positive or negative, depending on the technology content and technology context of use (Rauterberg, 2004). One can reason that, when the principles of governance are inscribed in a technology such as a BPMS – the content – and its use in a specific organisational context causes social behaviour change in the organisation. The change in social behaviour can be either positive or negative. Other factors, such as perceived *enjoyment* and perceived *ease of use* of the information system, play an important role, stronger than perceived usefulness, in user acceptance of the information system.

3.9 Concluding Summary

The origins of BPM can be traced back to the work of Adam Smith (Smith, 1776 [1977]). Historical theories and perspectives (Scientific Management, Span of Control and Departmentalisation) that originated from the work of Adam Smith (Smith, 1776 [1977]) still impact and define what the nature, purpose and role of BPM is in the organisation today. Some of the characteristics (Table 3.2 and Table 3.3) also define the

purpose, nature and role of BPM when it is applied to new research fields such as corporate governance (as in the case of this research project).

This chapter continued to explain the concept of a business process and typical characteristics of a business process (Table 3.4). Then, the author visited various definitions of BPM. Context was added to current definitions, because the meaning and definition of BPM change, depending on the context and how real world actors perceive BPM–as stated by Rosemann (2007): "We all see BPM differently." The BPM life cycle was discussed after defining BPM. The BPM life cycle is performed in a repeated fashion within an organisation to continuously improve that organisation. This illustrates the nature of BPM namely that of continuous improvement. This chapter also disclosed how BPM brings business value to organisations (see Table 3.5). In Chapter 1, as part of the problem, it was identified that current mechanisms that are used to improve corporate governance lack business value[20]. BPM brings business value to organisations. Now, when BPM is used for corporate governance (by using a BPMS) it has a dual focus. It may increase business value, but at the same time it may also improve corporate governance.

The chapter progressed to explain corporate governance. Corporate governance is a multi-faceted subject (Dignam and Lowry, 2006). Corporate governance includes important aspects such as the controlling and the directing of a corporation , but much more. Corporate governance also requires that a corporation be accountable and responsible to shareholders for its actions. Sound corporate governance is reliant on the external marketplace (external environment), commitment and legislation, plus a healthy board culture which safeguards policies and processes (O' Donovan, 2003). Finally, corporations should always strive to improve shareholders' prosperity, which is the prime purpose of any corporation. IT Governance, on the other hand, forms an integral part of corporate governance. IT Governance aims to control and execute the IT strategy of an organisation. IT Governance therefore has a strategic IT focus that defines how IT can help to sustain, control and execute the organisation's strategy and

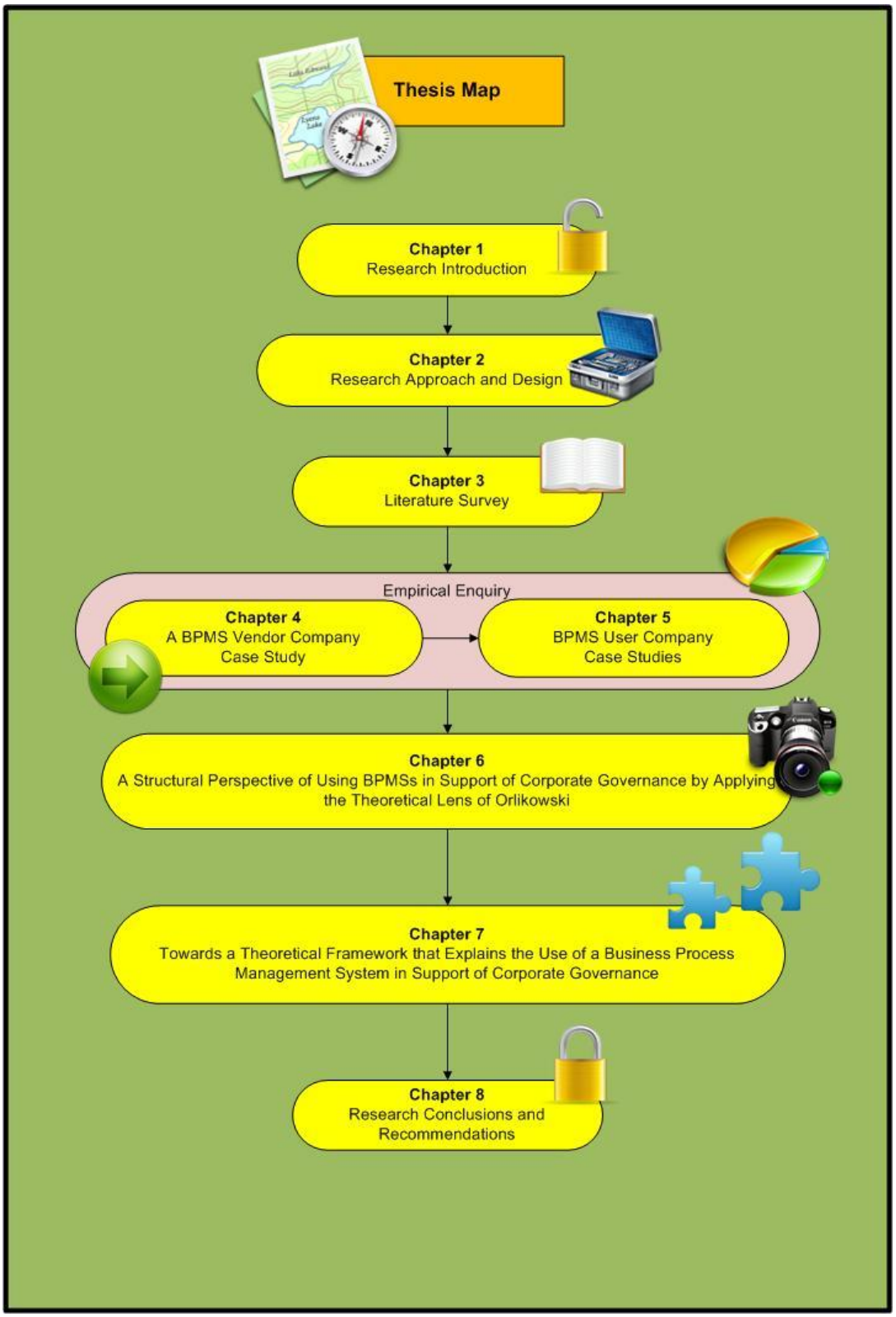
[20] See Chapter 1, Section 1.2: Problem Description.

objectives. IT Governance is therefore a subset of corporate governance that focuses on IT to achieve the organisations strategy and objectives. (*cf.* Grembergen, 2002; IT Governance Institute, 2009). While an overview of IT Governance frameworks was presented in the chapter, IT Governance does not form part of the primary focus of this study.

Despite the long historical evolution of BPM, little has been articulated of how BPM and particularly BPMSs can be utilised to improve corporate governance, specifically in the South African context. The author therefore explored the central research themes of the research project, common for explorative research (Mouton, 2001), to take the research forward. This included the decomposition of a BPMS into its architectural components (Table 3.6) with the aim to apply King's principles of governance (King I Report, 1994; King II Report, 2002; King III Report, 2009), relevant to the South African context to these architectural components (Table 3.8). The author further explored, from King's (2006) point of view, what the root causes for the corporate governance problems are, internationally and in South Africa, with the aim to address these root causes through the use of a BPMS.

Finally, the author explored, through literature, as one of the central research themes of this research project, how IS impact organisational behaviour. The next chapter, Chapter 4, embarks on the empirical investigation by investigating a BPMSVC.

Chapter 4: A Business Process Management System Vendor Company Case Study



4.1 Introduction

This chapter presents a case study of a BPMSVC. The purpose of this case study is to give the reader insight into the daily operations and workings of a BPMSVC (Section 4.2). This includes an overview of what the BPMSVC offer and do (Section 4.2.1), how the company and its product, the BPMS originated (Section 4.2.2), how the BPMSVC operates and develops (built) its product (Section 4.2.3), an overview of the culture and make-up of the organisation (Section 4.2.4), key strategic thrusts of the organisation (Section 4.2.5) and an overview of IT that is used for the daily operations and product development in the company (Section 4.2.6).

The case study is further used to investigate, how the King principles of corporate governance such as responsibility and transparency. (*cf.* Chapter 3, Section 3.6) can be inscribed into a BPMS and its components (*cf.* Chapter 3, Section 3.4.6) and what the shortcomings are in this process (*cf.* Section 4.3.4); also to gain insight and understanding of typical corporate governance problems that South African companies experience and the forces that impact it from a BPMSVC perspective (Section 4.3.2); and how organisational behaviour is changed when a BPMS is used in support of sound corporate governance (Section 4.3.5).

The chapter is concluded with a summary of case findings from this chapter. Chapter 5 extends Chapter 4, by confirming research results obtained in this chapter, in companies that use BPMSs. In Chapter 6, the theory of Orlikowski (2000) is used to interpret the findings which include the findings of this and the next chapter (Chapter 4 and Chapter 5).

4.2 Case Description

4.2.1 Introduction

The BPMSVC offers a BPMS as product and a range of services to the South African and international BPM market, which is central to the existence of the organisation

(Interview with Managing Director Africa and Middle East and Group Chief Operations Officer, 2010).

4.2.2 Organisation Origins

The company was formed in 2000. The founder of the BPMSVC describes the origins of the company as an evolutionary process that evolved from the implementation of quality assurance systems by clients. The initial solution was web-based procedural manuals that prescribed quality management processes to which work instructions could be added. However, organisations were faced with the challenge to implement and enforce the work instructions. The clients required a proactive solution to the problem at hand. (*cf.* Interview with founder, 2008).

The initial version of the product allowed users to create a basic web form and define business rules in a simple business rule engine. The business vision and technical excellence of the organisation provided a platform for developing a leading edge product. The solution, however, lacked integration capabilities, specifically to Enterprise Resource Planning (ERP) solutions. ERP systems were key data repositories in organisations (In Section 4.3.4, Participant 6 explains how a BPMS is currently being used as a Knowledge Management tool). It was important to create integration components in the product, that would allow process owners of companies to integrate into and utilise existing organisation systems, such as ERP systems. The company advanced the product into an enterprise level solution, scalable across many businesses, industries and applications. The latest version of the product is based on the Microsoft.Net platform, designed with the information worker in mind. Currently, the suite allows users to construct their own processes graphically by drag-and-drop capabilities. The company has grown to a global business with value added reseller and customers across the world. (*cf.* Interview with founder, 2008).

In summary, the BPMSVC's product offers a fundamental shift in how organisations can automate and control their businesses and how they operate, putting the business owners, who do not have extended IT knowledge, in charge of their own business processes (BPMSVC website, 2010).

4.2.3 Structure and operations of the Organisation

Because of tremendous growth of the BPMSVC in 2004, the company started to provide specialised services in conjunction with its product. The company expanded into three main divisions namely: "Technologies", responsible for product development and enhancement; "Professional Services", responsible for offering specialised consulting services and training to customers in conjunction with the product; and "Business Development", responsible for sales and marketing of the product and services.

The organisational structure is fairly flat to enable effective communication. Much of the business structure still exists today, as illustrated in Figure 4.1.

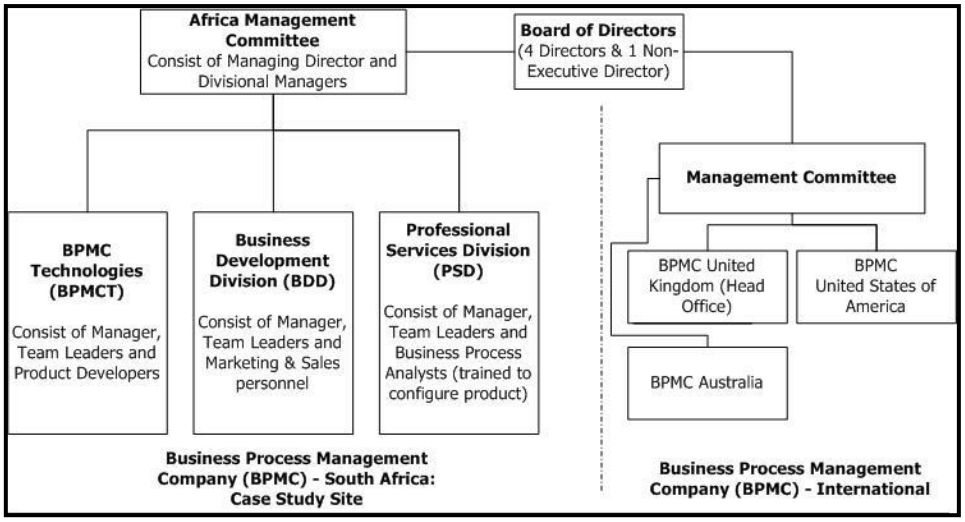


Figure 4.1 Company structure (Interview with Managing Director Africa and Middle East and Group Chief Operations Officer, 2010)

The product is improved mainly in three different ways: first, formal research is conducted; secondly, feedback from clients is used and; finally, feedback from personnel (those personnel that work directly with clients) are used to enhance the product. The company uses its external environment and the internal environment to improve the product. As soon as the features are released in a new version, the business development division markets these features as part of the product. (*cf.* Interview with Managing Director Africa and Middle East and Group Chief Operations Officer, 2010).

In 2005-2006 the company extended its operations into the international BPM market with offices in the United Kingdom (U.K.), Australia, Europe and the U.S. At this time the company extended its employees to more than 40 employees in the South African offices. At the moment of the interview, the staff in the South African offices consisted of:

- Product Developers (15% of staff);
- Business Process Analysts, Project Managers, Trainers and Solution Architects (55% of staff) working in Professional Services and;
- Sales and Marketing personnel (15% of the staff) working in business development (Interview with MD and Group COO, 2010).

The remaining workforce represents Management, Human Resource personnel and Administrative personnel. Although employees have their specific job descriptions and responsibilities in their business units, they often assist in performing functions in other business units. (*cf.* Interview with Managing Director Africa and Middle East and Group Chief Operations Officer, 2010).

4.2.4 Organisational Values, Culture and Make-up

The BPMSVC is a learning organisation whose strength lies in the values and knowledge of their workers. The values of the company (Figure 4.2) play a big role in its success.

The culture of the organisation is described as “can do” and “entrepreneurial” with a strong focus on finding solutions for technical and business problems. According to the founder:

> *The employees of the company consist of a number of highly qualified individuals and continuous development and education are key values of the business (Interview with founder, 2008).*

Employees are encouraged to socialise with each other to minimise the communication gaps that may exist between developers, those employees who bring in suggestions to new features and those that have to sell the features. Most of the communication within the BPMSVC is via email and informal meetings, e.g. focus group discussions and brainstorming sessions. (*cf.* Interview with Managing Director Africa and Middle East and Group Chief Operations Officer, 2010).

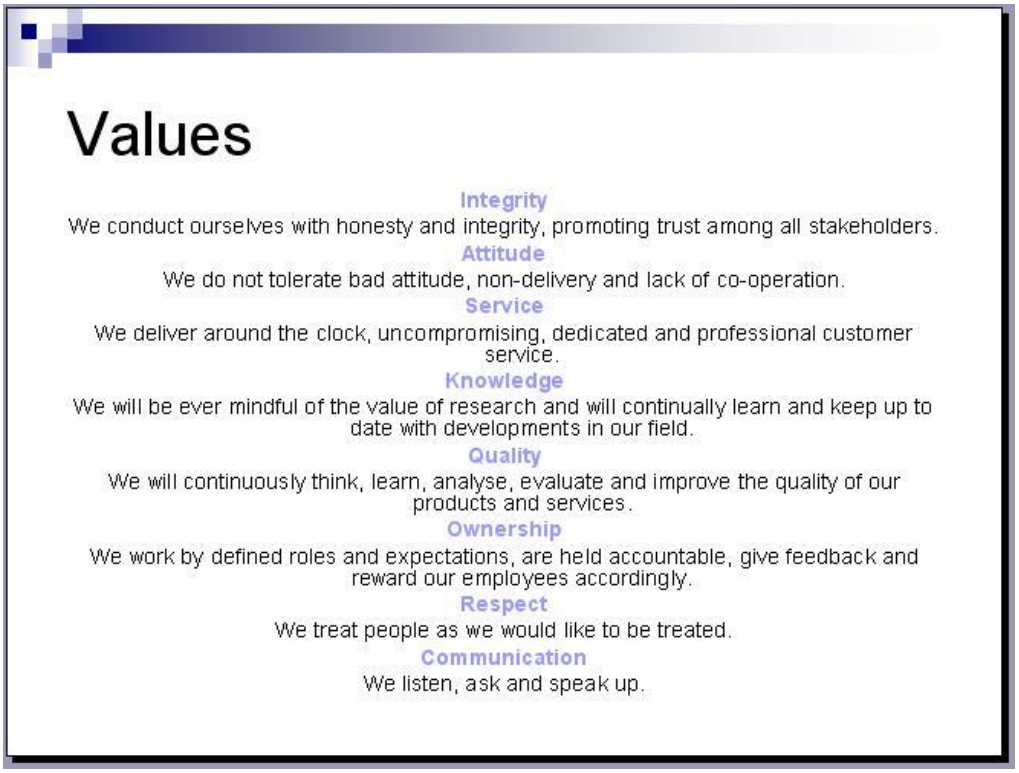


Figure 4.2 Values of the Business Process Management System Vendor Company (Internal document: Business Process Management System Vendor Company, 2010)

The organisation make-up is complex. There are differences in age, gender, race, social backgrounds, occupational disciplines and functional set-up. The only consistent factor in the organisational make-up was the fact that management decided to hire employees with a formal educational background (mostly a degree in IT). These differences added

to the interesting mix of social and political dimensions. (*cf.* Interview with Managing Director Africa and Middle East and Group Chief Operations Officer, 2010).

4.2.5 Key Strategic Thrusts

Organic growth is currently the key strategic thrust for the company. To ensure organic grown in the local and international market, the organisation positions itself to take advantage of new market opportunities, market requirements and market changes, which require changes to the sales strategy, the product development strategy and the professional product support services strategy. These strategies are described in the paragraphs that follow. (*cf.* Interview with Managing Director Africa and Middle East and Group Chief Operations Officer, 2010).

Two major strategic decisions were made in the Technologies division to increase product sales. The first was to fully integrate the BPM product with Microsoft applications and to make it fully operational on any Microsoft platform. In 2006 the company became a Microsoft Independent Software Vendor (ISV) and Gold Certified Partner, enabling them to get access to Microsoft source code for proper Microsoft platform and application integration. The second strategy was to form affiliations with established software providers (e.g., ERP Vendors and Business Intelligence Solutions). The BPMSVC uses these affiliations to aggressively sell and market its product. The product is often embedded and integrated into the software of other vendors. (*cf.* Interview with Managing Director Africa and Middle East and Group Chief Operations Officer, 2010).

The new product capabilities required the Professional Services division to adapt their services strategy in support of the product. Specialised collaboration (specifically with Microsoft applications) and integration services (to other applications such as ERP systems) were established by the Professional Services division in support of the product (BPMSVC Website, 2010). Except for the newly introduced services, the Professional Services division also still offers the original process management consulting services and training. The process management consulting services are described as follows:

> *The Process Management Consulting practice provides specific expertise to assist clients in managing processes throughout the process lifecycle. Typical services include: Process Maturity Assessment and Organisational Alignment consulting; Enterprise and Process Risk consulting; Process Analysis and Architecture consulting; Process Design and Configuration services; Programme and Project Management for Process Management projects and Process Management Training such as BPMN modelling. (BPMSVC Website, 2010).*

The Business Development division makes use of a channel sales strategy and channel marketing strategy. The channels consist of: first, Value Added Re-sellers (VARs) that sell the product and product services. The added value lies in the supporting consulting services that a re-seller can offer additionally; secondly, Re-sellers that only sell the product, without any services. The supporting services of such sales are normally handed to the Professional Services division; thirdly, referral agents that normally do telephone sales; fourthly, direct sales that are the responsibility of the Business Development Division and; finally, product embedded sales that include the product of the BPMSVC, embedded in the product of another vendor. Often, Black Economic Empowerment (BEE) partnerships are formed with VARs, Re-sellers and other companies (Direct Sales) to win tenders, specifically in the South African public domain. This is necessary to comply with government policies. (*cf.* Interview with Managing Director Africa and Middle East and Group Chief Operations Officer, 2010).

The company generates income through product consulting and training services and product license fees (Interview with Managing Director Africa and Middle East and Group Chief Operations Officer, 2010).

4.2.6 Information Technology Overview

The BPMS product is at the heart of the BPMSVC. The company ensures that clients (especially business owners with little IT background) enjoy a tool that offers sustained and affordable visibility and control over their business processes. As described by the company:

> *Processes are the organisational infrastructure that links people to policies, procedures, systems, and other people like customers, suppliers, peers, management and subordinates. It controls the flow of information. It describes the urgency of actions and houses the controls for good governance. It aims to deliver the right information to the right person at the right point in time…*
>
> *The lack of visibility into the performance of the processes, the consequence of inadequate controls and the impact on the operational effectiveness of the organisation keeps executives awake at night…*
>
> *We strive to empower business users to be in control of their processes. Our objectives are to make processes clear, visible and easy to manage. Business may be complex but processes needn't be…*
>
> *The product (name changed) increases process visibility with real-time process monitoring and analytical capabilities to support continuous process improvement. It integrates information from various sources across the organisation and extends the reach of ERP and CRM solutions to support the processes that drive these applications. (BPMSVC Website, 2010).*

The first product version was developed in 2000, on a Microsoft Access platform. At this stage, one developer was responsible for product development and improvement. Then, as the company grew, more developers were hired. The product development environment advanced from Microsoft Access to Microsoft Visual Studio with Microsoft SQL Server as database management system and Microsoft Visual Basic as the primary programming language. (*cf.* Interview with founder, 2008).

During the formative years of the company, the product earned a reputation of being stable, enabling organisational to automate and control their business process. The developers were known for being able deliver new product features fast. Big companies started to invest in the product, resulting in more income, more developers and faster product delivery cycles. Although the product was fairly stable, faster delivery cycles resulted in notable product flaws. (*cf.* Interview with founder, 2008).

In 2005-2006, with the launch of the new Microsoft Integrated Development Environment (IDE) that featured C# (C Sharp), the company made a strategic decision to re-develop its entire product. This occurred at the same period when the decision was made to make the product fully operational on any Microsoft platform and integrate the product with other Microsoft applications. From a technical perspective, the product became complex. The company began to rely heavily on its product developers. Much of the company's operational costs resulted from product development. Later, the development costs resulted in cost-cutting and restructuring actions. However, the stability of the product was of utmost strategic importance for the survival of the organisation. (*cf.* Interview with Managing Director Africa and Middle East and Group Chief Operations Officer, 2010).

Beside the product development, the company mainly use Microsoft applications (such as Microsoft Office and Microsoft Outlook) for its daily operations. The applications run on Microsoft Operating Systems. Microsoft Network Operating Systems are used for interconnectivity. Other applications in which the product of the company is embedded, are often installed on the technology infrastructure of the company, to develop and enhance vendor product integration and collaboration abilities. (*cf.* Interview with Managing Director Africa and Middle East and Group Chief Operations Officer, 2010).

4.3 Analysis of Empirical Investigation at the Business Process Management System Vendor Company

4.3.1 Introduction

As indicated in the introduction (Section 4.1), the purpose of this section is to investigate, through empirical enquiry at the BPMSVC, how the King principles of corporate governance such as responsibility and transparency. (*cf.* Chapter 3) can be inscribed into a BPMS and its components (Chapter 3, Section 3.4.6) and what the shortcomings are in this process (Section 4.3.4); also, to gain insight and understanding of typical corporate governance problems that South African companies experience and

the forces that impact it (Section 4.3.2); and how organisational behaviour is changed when a BPMS is used in support of corporate governance (Section 4.3.5).

The narrative presented in this section is mainly based on data collected from interviews at the BPMSVC. Constant comparison coding was used to organise data for theory building. An interview guide was used to guide the interview process. However, the interview guide was extended to an on-line survey and was used to collect data from participants that were unavailable for face-to-face interviews. The interview guide further served as directive to structure the narrative that follows.

4.3.2 The Nature of Corporate Governance Problems that South African Companies Experience

This subsection provides insight into typical corporate governance problems that South African companies experience, from the perspective of the BPMSVC. The BPMSVC in this case study provides a range of consulting services that offers process solutions to various business problems, including corporate governance problems (Section 4.2.3). The BPMSVC, therefore, has extended experience and knowledge about typical corporate governance problems that South African companies experience. The forces behind corporate governance that impacts and drives corporate governance are also explored from the perspective of the BPMSVC.

The data analysis from the BPMSVC indicates that there are different sets of corporate governance problems that South African companies experience:

- First, South African companies experience a lack of adherence to business rules, controls, acts and legislation. According to some participants, the lack of adherence to business rules, business controls, accreditations, acts, legislation and standard business practice is a corporate governance problem that typically leads to criminal behaviour, unlawfulness, human error, human biasness, inconsistency and loss of quality.

- South African companies also experience a lack of organisational transparency and traceability. According to the participants, lack of transparency and tracebility often leads to corporate misconduct.

- Companies in South Africa further experience a lack of accountability and responsibility. Vague or unclear assigned responsibility and accountability cause problems.

- The participants finally indicated that the governance of improvement is a corporate challenge. Organisations require effective ways to manage business improvement for their businesses to grow and survive. Improvement involves automation, optimization, increased production or throughput, and quality improvement.

The findings are reflected in some interview responses obtained at the BPMSVC:

> *Corporate clients need to comply with Sarbanes Oxley due to their international listing. They need to implement process controls and need to report on them. (BPMSVC Interview: participant 3, 2010).*
>
> *...It was a law making process in the Gauteng Provincial Legislature. They needed to make sure that every person follows the same procedure when dealing with law making. (BPMSVC Interview: participant 7, 2010).*
>
> *The client needed an automation of their tendering procurement processes… we made sure that the points allocated to a winning bidder were done fairly. (BPMSVC Interview: participant 24, 2010).*
>
> *In other companies there was quite a lot of financial fraud. The problems are usually resolved by putting controls in place and making everything visible... In the financial area transactions and the audit trail was recorded... (BPMSVC: Interview: participant 8, 2010).*

The findings reveal that corporate governance problems are found everywhere in organisations. That is, in all aspects and on all levels of a business. However, corporate governance ultimately stays the responsibility of the company directors (King, 2006; The King II Report, 2002; The King III Report, 2009). Furthermore, process automation plays a significant role in providing solutions to corporate governance problems[21], as illustrated in the words of one of the participants:

> *Most companies have governance issues because processes are written on paper and forgotten. Electronically driven solutions provide fool proof ways to manage governance. Solutions I had to provide varied from financial to organisational and operational governance on all levels. (BPMSVC: Interview: participant 11, 2010).*

The study also investigated the forces that impact and drive corporate governance in the South African context[22]. In other words, what makes corporate governance different in South Africa from that in other countries?

The data analysis presents a balanced view to the question of differences. Some of the participants indicated that corporate governance problems experienced by companies in South Africa are different from companies outside South Africa, while others indicated that it is the same. Some forces that drive corporate governance in South Africa are similar to driving forces in other countries and some are different The balanced perspective is summarised by one participant:

> *Governance always depends also on the social, legal and cultural conditions... You can find similarities to other countries but also differences. (BPMSVC Online survey: participant 12, 2010).*

The social, legal, political, technological, economic and cultural aspects of an organisation and a country influence the way in which companies are governed.

[21] Further investigated in Section 4.3.3.
[22] See Chapter 1, Section 1.4: Research Objective 1.

Except for the mentioned aspects, the empirical analysis further indicated that there are other factors that may influence the way in which companies are governed. The factors include organisational culture, organisational strategy, organisational politics, the size of the organisation, differences in industry sectors (different industry sectors have different standards and different forms of legislation), organisational standards and corporate governance maturity. Corporate governance maturity is a constructed concept from this research analysis that depends on factors such as top management's commitment to corporate governance, the implementation and enforcement of corporate governance frameworks and acts within the organisation, the setup of proper governance structures in the organisation and organisational maturity. These findings are reflected in the comments of the participants:

> *There are different issues on all levels such as legal, social and political, which influences corporate governance. (BPMSVC Interview: participant 4, 2010).*

> *Governance (corporate governance) in SA might have to be handled differently due to different cultures. (BPMSVC Interview: participant 19, 2010).*

> *Legislation and acts are different in different countries. The company rules are also different in different countries that one has to adhere to therefore it will be definitely different in different countries. (BPMSVC Interview: participant 8, 2010).*

> *Different associations enforce compliance in certain sectors... (BPMSVC Interview: participant 9, 2010).*

> *My thesis would be that problems experienced are more likely dependent on the organisations maturity and culture. (BPMSVC: Interview: participant 7, 2010).*

> *BPMS for governance is mostly applicable to large organisations (vs. smaller that use it for process efficiency)... (BPMSVC: Interview: participant 3, 2010).*

It depends on top management commitment to corporate governance. It also depends on legislation as corporate governance is impacted by legislation. Example: Telkom is listed on the JSE and NY stock exchange. (BPMSVC: Interview: participant 1, 2010)

4.3.3 The Role and Nature of Business Process Management Systems towards Corporate Governance

In this section nature of and the role that BPMSs play towards corporate governance is described from the perspective of the BPMSVC[23]. The section further describes, from the perspective of the BPMSVC, what types of corporate governance problems can be resolved by the use of a BPMS and what types of corporate governance problems cannot be resolved by the use of a BPMS[24].

According to the participants from the BPMSVC, corporate governance is improved in the following ways:

- A BPMS provides a way to enforce compliance to business rules through automation of business rules in the rule builder and automated decision making.

- A BPMS advances optimization of business processes, resulting in improved governance and profit.

- A BPMS provides visibility into the business by using audit trails (for traceability) and explicitly documented processes that enhance understanding of business processes and therefore the business.

- A BPMS minimise human interference through automation that results in fewer human errors and criminal activities.

[23] See Chapter 1, Section 1.4: Research objective 3.
[24] See Chapter 1, Section 1.4: Research objective 3.

- A BPMS provides a way to enforce and ensure accountability and responsibility (through audit trails, role based activities, clearly defined responsibilities and access control).

- A BPMS provides a way to implement corporate strategy, by implementing business processes that is aligned to business objectives.

- A BPMS advances standardization of business processes resulting in stable and safe processes, which further enhance common understanding of the business.

- BPMSs provide agility by providing capabilities to adapt business processes and controls quickly, to take advantage of new market opportunities.

- A BPMS provides capabilities to monitor and report on business processes.

- A BPMS changes human behaviour in the organisation.

The tendencies mentioned are reflected in some comments of the participants:

> *Using a BPM/BMPS in order to automate/improve business processes enables a company to include the proper controls required to improve corporate governance. (BPMSVC Interview: participant 15, 2010).*

> *BPM and the accompanying BPMS software contribute to improving corporate governance in an organisation in a number of ways. Firstly, the mapping of- and improving processes will allow the business to identify existing governance measures and add necessary additional ones. Secondly, the BPMS allows for the monitoring of process execution and allow actions to be tracked to specific users. A by-product of this increased level of awareness will be that control is increased. Furthermore, reporting will allow for on-going monitoring and identification of areas where further control is required. (BPMSVC Interview: participant 27, 2010).*

> *BPMSs' inherently brings control. Processes are automated and roles/functions are usually clearly defined. This means that a clear separation of concerns should be part and parcel of a BPMS implementation, meaning that every participant in a process would be accountable.... With a process being automated it can easily be updated to include changes in the market or to adhere to new laws and regulations. (BPMSVC Interview: participant 19, 2010).*
>
> *BPM/BPMS can contribute to improve corporate governance because roles and responsibilities are clearly defined and accountability is key. There is less human intervention since processes are automated and are executed according to delegated authorities. Management and control of processes is easily managed and an audit trail can be undertaken to verify changes in processes. (BPMSVC Interview: participant 6, 2010).*
>
> *Online BPM/BPMS systems can greatly improve corporate governance, for example: Paperless environments, forced user processes, transparency where needed, and User tracking and auditing. (BPMSVC Interview: participant 26, 2010).*

The research findings indicate that, while a BPM approach automate and continuously improve business processes in a business, at the same time, directly or indirectly a BPM approach improve corporate governance. There is a duality playing out: While a BPM approach adds value to a business, it also improves corporate governance. This defines the nature, purpose and role that a BPMS approach plays towards corporate governance, as illustrated in the words of one participant:

> *The continuous improvement of business processes also enables the natural evolution of corporate governance in the organisation. (BPMSVC Interview: participant 16, 2010)*[25].

[25] Also see Chapter 3, Section 3.3: The Nature and Role of Business Process Management, and Chapter 3, Section 3.4.4: The Business Process Management Life-Cycle.

According to the participants, structured corporate governance problems, those that can be codified or automated as text or pictures in a BPMS, can be resolved by using a BPMS. Structured codifying occurs through:

- Explicit defined business rules.
- Explicit defined business processes.
- Explicit defined and codified reports.
- Explicit defined roles in the BPMS.

The findings are reflected in the comments of some participants:

> *Anything that can be represented as text or images. The reason is that these media formats are intrinsic to the mechanisms used in BPM systems. (BPMSVC Interview: participant 9, 2010).*
>
> *Those that are very structured and can be captured by rules and processes. (BPMSVC Interview: participant 21, 2010).*
>
> *Accountability, fairness, independence, responsibility and transparency can be greatly addressed using a BPMS because 'hard' rules can be enforced using the BPMS. (BPMSVC Interview: participant 23, 2010).*
>
> *Ownership and accountability issues are the most easily solved by a BPMS. Due to roles and business rules that form a central part of BPMS systems, it basically enforces accountability and any transgression not only becomes easily transparent and auditable, but also much more difficult to do. (BPMSVC Interview: participant 5, 2010).*

The participants further indicated that corporate governance problems that are unstructured, ad-hoc and vague are difficult to resolve with the use of a BPMS. These

problems are difficult to codify in a BPMS. Unstructured, ad-hoc and vague corporate governance problems include:

- Unclear roles and responsibilities.
- Problems that cannot be captured or codified in the business rule engine.
- Processes with unstructured or ad-hoc process flows, e.g. top management decision processes.
- Soft corporate governance problems, e.g. organisational culture that cannot be logically captured or codified in a BPMS.
- Corporate governance problems that involve human nature and behaviour. Human nature and behaviour are unpredictable and in some cases tacit. It is difficult to change or enforce desired human behaviour.

Some participants indicated that a BPMS is not a flawless way to resolve corporate governance problems, e.g. if the system, is bypassed by insufficient system or network security settings. Comments in support of the finding include:

> *'Softer aspects of corporate governance are more difficult to resolve using a BPMS because they are difficult to enforce with the logic in a software program. (BPMSVC Interview: participant 27, 2010).*
>
> *If all 'back doors' are closed and good practice is built into the system I am sure all corporate governance problems can be solved. (BPMSVC Interview: participant 26, 2010).*
>
> *Ad-hoc, unstructured problems are difficult to capture in a process or system. (BPMSVC Interview: participant 8, 2010).*

Organisational culture and individual behaviour are problems which a BPMS solution might not be able to resolve. These are subjective traits which cannot be resolved by IT solutions. (BPMSVC Interview: participant 6, 2010).

The next subsection describes, from a BPMSVC perspective, how the King Principles of governance are inscribed and supported by a BPMS.

4.3.4 Inscribing[26] and Supporting the King Principles of Governance in a Business Process Management System

The King Committee on Corporate Governance in South Africa established a set of governance principles for better corporate governance (Chapter 3, Section 3.6). This subsection[27] describes, from the perspective of a BPMSVC, how the set of governance principles can be supported during design-time and run-time by a BPMS and its architectural components (Chapter 3, Section 3.4), in support of corporate governance.

4.3.4.1 Accountability

The first King principle of governance investigated is accountability (Chapter 3, Section 3.6). Table 4.1 indicates, according to the respondents, how accountability is supported by a BPMS during design-time and run-time (see analysis in Appendix B: Figure B.1).

Table 4.1 Proposed guidelines to support the King principle of accountability in a Business Process Management System during design-time and run-time

King principle	Proposed configuration guideline (design-time)	BPMS component involved
Accountability	Setup clearly defined organisational governance structures and roles.	Organisational modeller.
	Setup notification and escalation rules.	Process modeller.
	Setup security and access rights for every role in the BPMS (RACI table).	Organisational modeller.
	Assign roles to process activities in process models.	Process modeller.

[26] Built in by designers during technology development (Orlikowski, 2000).
[27] See Chapter 1, Section 1.4: Research Objective 2.

	Assign process owners.	Process modeller.
	Implement\automate clear workflow routing rules between roles in processes as required by business.	Process modeller.
	Implement traceability reports in order to improve accountability, so that people can be held accountable for their actions.	Report builder (monitoring).
	Implement\automated business and accountability rules.	Rule builder.
	Implement accountability performance reports.	Report builder (monitoring).
	Implement\import best practice processes that improves accountability.	Template or reference processes.
	Proposed guideline during run-time	**BPMS component involved**
	Use the audit trail feature. People are held accountable for their actions.	Audit trail (monitoring).
	Use real-time accountability performance reporting, when process information is stored.	Report builder (monitoring), Repository.
	The BPMS enforce accountability through automation of defined business rules; defined process rules and routing; and notification and escalation (a person is notified about outstanding work activities and if no action occurs, the problem is escalated to a higher level).	BPMS engine.

Comments of the participants, with regards to how accountability is inscribed and supported by a BPMS include:

> *Business rules should include accountability principles. These accountability rules can be created in the Rule Builder and executed by the BPM engine. (BPMSVC Interview: participant 16, 2010).*

> *People will be held accountable for what they are responsible. If you are assigned a specific role (organisational modeller, Process modeller) in a process or activity, you will be held accountable for that activity, process or piece of work. The audit trail (storage, activity monitoring) of such a system will also help you to trace actions and therefore accountability. From reports and information coming from reports of processes, a person, division or*

business unit can be held accountable for specific actions, in other words, the information that comes from processes may help to determine and improve accountability. Finally, the rule engine may help to avoid certain action by inserting specific rules in the system. Best practice processes can be used (template processes) to have best of breed processes for the company as a whole to be more accountable. If you do not act on a specific activity (notification and escalation), you will be held accountable for not acting on that activity. (BPMSVC Interview: participant 8, 2010).

Accountability can be incorporated into the BPMS through responsibilities and the audit trail. When a process is configured, responsibilities for actions are assigned to users. Through the BPMS, it is possible to see who performed which action. This will increase accountability. (BPMSVC Interview: participant 27, 2010).

4.3.4.2 Fairness

The second King governance principle investigated is fairness (Chapter 3, Section 3.6). Table 4.2 indicates, according to the respondents, how fairness is supported by a BPMS during design-time and run-time (see analysis in Appendix B: Figure B.2).

Table 4.2 Proposed guidelines to support the King principle of fairness in a Business Process Management System during design-time and run-time

King principle	**Proposed planning guideline (pre-design-time)**	
Fairness	All stakeholders have a fair opportunity to give their input during the design of a business process and the business rules of the process.	
	Proposed guideline during design-time	**BPMS component involved**
	Creating processes (process rules) that balance workload.	Process modeller.
	Setup consistent approval/governance and decision structures that does not favour anyone.	Organisational modeller.
	Setup business rules in support of fairness (e.g. distribution of work for fair and consistent treatment of	Rule builder.

	users). The eliminates human bias and error.	
	Setup fair responsibilities and roles that measure against employees with suitable skills for specific role.	Organisational modeller.
	Implement fairness reporting.	Report builder (monitoring).
	Integration to other applications to push work and information and to pull work and information (e.g. fair workload distribution).	Integration engine.
	Proposed guideline during run-time	**BPMS component involved**
	Consistent applied processes cases and business rules, resulting in unbiased (replace human biasness) organisational process cases. Consistent application governances (notification and escalation rules).	BPM engine.
	Real-time fairness performance reporting about stored process case information (e.g. comparing workload statistics and employee performance). Audit reports for any unfair process case exceptions that occurred. Reporting and auditing provide a fair and accurate view of how the organisation is performing. Reporting and auditing involves organisational outsiders (investors, clients, stakeholders, auditors and directors) and organisational insiders (employees, managers, directors).	Report builder (monitoring), Repository, Audit trail.

Some comments of the participants with regards to how fairness is supported by the use of a BPMS include:

> *Seeing that all users of the BMPS are handled in much the same way (via business rules and other controls), there exists no room for any form of discrimination - all are treated equally. (BPMSVC Interview: participant 15, 2010).*

Metrics and measures that are built into the BPMS can be used (perhaps via a report) to determine the need to re-allocate work to ensure that all end-users share an equal and fair workload. (BPMSVC Interview: participant 10, 2010).

A BPMS helps to eliminate unfair human aspects (emotions, bias and greed). Processes can be developed (process builder) to split work evenly amongst employees. Accurate information from the reporting system may help to share accurate information to outsiders who invest in the company. May also help directors to get visibility (BPM engine, storage) into the company to get an accurate and fair picture of how the company is doing. The rule builder does not take specific human aspects such as biasness into consideration, allowing the same rule to apply to everyone. The Report builder may provide information that will indicate if some people are doing more work than others. (BPMSVC Interview: participant 8, 2010).

The principle of fairness can be incorporated in such a way that all stakeholders are involved in the design of the BPMS solution. Role clarification must be done in a fair and equitable manner. (BPMSVC Interview: participant 6, 2010).

4.3.4.3 Independence

The third King good governance principle is independence (Chapter 3, Section 3.6). Table 4.3 indicates, according to the respondents, how independence is supported by a BPMS during design-time and run-time (see analysis in Appendix B: Figure B.3).

Table 4.3 Proposed guidelines to support the King principle of independence in a Business Process Management System during design-time and run-time

King principle	Proposed guideline during design-time	BPMS component involved
Independence	Provide for segregation of duties in process designs. Segregation of duties may involve independent process activities and roles.	Process modeller.

	Setup independent decision and reporting structures.	Organisational modeller.
	Setup business rules in support of independence (e.g. making sure that different people or parties do not have vested interests).	Rule builder.
	Import\use best practice processes that already reflect independence in processes, business rules and decision making.	Template\reference processes.
	Implement independence reporting (e.g. decision making patterns).	Report builder (monitoring).
	Proposed guideline during run-time	**BPMS component involved**
	Enforce independence through automated processes and business rules.	BPM engine.
	Real-time independence reporting and metrics (e.g. flag exceptions).	Reporting (monitoring), Repository.
	Store process case history for auditing purposes (e.g. audit to investigate vested interests).	Audit trail, Repository.

Some comments of the participants of how independence is supported by using a BPMS include:

> *Each participant fulfils an independent role in the process and the process history will quickly display any discrepancies. (BPMSVC Interview: participant 15, 2010).*

> *A BPMS Rule Builder can be configured to ensure that departments or individuals that might have a vested interest in the outcome of a particular process do not participate in the process. (BPMSVC Interview: participant 10, 2010).*

> *External auditors can audit processes (process builder); processes can also be developed so that certain activities are independent from other activities to eliminate fraudulent activities (segregation of duties). The audit trail will provide visibility into how actions were performed in the organisation and if someone behaved dishonestly or unethically. (BPMSVC Interview: participant 8, 2010).*

Independence can be incorporated into the BPMS to improve independence in the organisation through reporting, business rules and the BPM engine. In the process engine, business rules can be used to ensure independence in the automated version of the process by ensuring that the correct steps are taken. Reporting can be used to monitor the levels of independence and flag any exceptions. (BPMSVC Interview: participant 27, 2010).

4.3.4.4 Responsibility

The next King governance principle is responsibility (Chapter 3, Section 3.6). Table 4.4 indicates, according to the respondents, how responsibility is supported by a BPMS during design-time and run-time (see analysis in Appendix B: Figure B.4).

Table 4.4 Proposed guidelines to support the King principle of responsibility in a Business Process Management System during design-time and run-time

King principle	**Proposed guideline during design-time**	**BPMS component involved**
Responsibility	Set up clear governance and reporting structures.	Organisational modeller.
	Set up clear notification and escalation rules (the amount of time a person has to complete a task).	Process modeller.
	Set up process roles and responsibilities for these process roles.	Organisational modeller.
	Set up rules to route work to the correct process roles.	Process modeller.
	Import\use best practice processes that enhance responsibility.	Template\reference processes.
	Implement responsibility reporting.	Report builder (monitoring).
	Design and implement business rules to enhance responsibility.	Rule builder.
	Proposed guideline during run-time	**BPMS component involved**
	Enforce responsibility through automated processes and business rules.	BPM engine.
	Real-time responsibility reporting and metrics.	Reporting (monitoring), Repository.

	Store process and process case information. Various parties (e.g., auditors or managers) can use the audit trail and repository to trace business decisions, process information and actions that were taken by specific roles, therefore enhancing responsibility.	Audit trail, Repository.

Comments of the participants with regards to how responsibility is inscribed and supported by the use of a BPMS, include:

> *BPM works with roles therefore people learn to be responsible as roles define clearly what is expected of an individual in a task. (BPMSVC Interview: participant 24, 2010).*

> *By setting up the system so that the person responsible for the task has a certain amount of time to complete the task before it gets routed to a superior. (BPMSVC Interview: participant 21, 2010).*

> *Both the BPMS and rules engines can be used to enforce responsibility by the required parties as per the organisation's rules and regulations. In other words, in order to complete an automated process successfully, the responsible parties must complete the activities and tasks assigned to them. (BPMSVC Interview: participant 10, 2010).*

> *As in accountability, the tracking and reporting will monitor and the rules will enforce responsibility. (BPMSVC Interview: participant 5, 2010).*

4.3.4.5 Transparency

The next King good governance principle is transparency (Chapter 3, Section 3.6). Table 4.5 indicates, according to the respondents, how transparency is supported by a BPMS during design-time and run-time (see analysis in Appendix B: Figure B.5).

Table 4.5 Proposed guidelines to support the King principle of transparency in a Business Process Management System during design-time and run-time

King principle	Proposed guideline during design-time	BPMS component involved
Transparency	Setup explicit and transparent governance and reporting structures.	Organisational modeller.
	Transparent and visible access rights.	Organisational modeller, Process modeller.
	Processes are explicit and visible.	Process modeller.
	Simulate processes to make process outcomes more visible.	Process modeller.
	Explicit template or reference processes that assist organisations to have standard and visible processes that minimise inconsistent behaviour and ways of working that may lead to misconduct.	Template\reference processes.
	Transparent and visible business rules.	Rule builder.
	Proposed guideline during run-time	**BPMS component involved**
	Monitoring of processes make process exceptions and transgressions visible.	BPMS engine
	Reporting makes actions and decisions visible.	Reporting (monitoring), Repository.
	Process case information and decision information can be audited (with the use of the audit trail) to determine if there was any foul play within an organisation. The repository makes information visible to different parties.	Audit trail, Repository.

Comments of the participants with regards to how transparency is supported by the use of a BPMS include:

> *Any decision made is recorded as part of the audit trail of a process. So if someone (an external auditor or ...) needs to go back and check who decided what it can easily be done. (BPMSVC Interview: participant 19, 2010).*

> *Internal and external people may see all the processes of the organisation. Processes may be standardized throughout organisations to help getting information in a standard way (process templates). The audit trail of any process provides visibility into that process. One can also see how the organisation is put together (organisational modeller). The rule builder will*

provide a way for transparent decision making - to see how a decision was made. (BPMSVC Interview: participant 8, 2010).

Transparency can be supported by explicit process models that are available and by having access to cases, e.g. previous instances of the processes. (BPMSVC Interview: participant 12, 2010).

First of all, having the processes defined and modelled make the process flow and activities that need to be executed, visible. Inclusion of business rules and linking of the process to the supporting policy will greatly create and enhance transparency. (BPMSVC Interview: participant 1, 2010).

4.3.4.6 Discipline

The next King governance principle is discipline (Chapter 3, Section 3.6). Table 4.6 indicates, according to the respondents, how discipline is supported by a BPMS during design-time and run-time (see analysis in Appendix B: Figure B.6).

Table 4.6 Proposed guidelines to support the King principle of discipline in a Business Process Management System during design-time and run-time

King principle	**Proposed guideline during design-time**	**BPMS component involved**
Discipline.	Set up clear responsibilities for rules so that users know exactly what their responsibilities are.	Organisational modeller.
	Breaking processes down into manageable activities that can be assigned to employees.	Process modeller.
	Implement standard processes that reduce process case errors, which enhance discipline.	Process modeller.
	Set up clear and standard notification and escalation rules in support of discipline.	Process modeller.
	Implement business rules that improve discipline in the organisation.	Rule builder.
	Proposed guideline during run-time	**BPMS component involved**
	Activity monitoring where the BPMS engine constantly	BPMS engine.

	check if users adhere to business and process rules.	
	Real-time discipline reporting that reflect discipline metrics. Also where there was a lack of discipline.	Reporting (monitoring), Repository.
	The notification and escalation feature of the BPMS plays a big role to enforce discipline. If a user does not perform a work task in the allocated amount of time, a notification is send to the users by the BPMS engine. If no reaction is received, the problem is escalated to a higher level of authority.	BPMS engine.
	With the use of the audit trail, a process case is stored, which can be used to trace where there was a lack of discipline and even foul play in the organisation.	Audit trail, Repository.

Comments of the participants with regards to how discipline is supported by the use of a BPMS include:

> *Clearly defined roles in the BPM forces people to be disciplined in doing their work. Processes are broken down into sequential tasks, thus forcing people to finish certain activities before engaging in others and making sure that people are disciplined. (BPMSVC Interview: participant 24, 2010).*

> *Discipline can be incorporated into the BPMS to improve the discipline in the organisation through the automation of processes. Certain processes can be configured to automatically launch and prompt employees to perform required actions. Furthermore, escalations can be used to prompt users to complete required activities and, if necessary, escalate the process to the employee's direct report. Reports can be used to highlight exceptions or lack of discipline. (BPMSVC Interview: participant 27, 2010).*

> *By setting up the system so that the person responsible for the task has a certain amount of time to complete the task before it gets routed to a superior. (BPMSVC Interview: participant 21, 2010).*

> *By employing mechanisms like notification, escalation and business activity monitoring (BPMSVC Interview: participant 16, 2010).*

Processes can be executed in a specific standard fashion. The rule builder also assists in helping to execute decision in a similar way by taking out human unfairness, biasness. Process notification and escalation may help to keep to process and business deadlines. (BPMSVC Interview: participant 8, 2010).

4.3.4.7 Social Responsibility

The next King governance principle is social responsibility (Chapter 3, Section 3.6). Table 4.7 indicates, according to the respondents, how social responsibility is supported by a BPMS during design-time and run-time (see analysis in Appendix B: Figure B.7).

Table 4.7 Proposed guidelines to support the King principle of social responsibility in a Business Process Management System during design-time and run-time

King principle	**Proposed guideline during design-time**	**BPMS component involved**
Social responsibility.	Visible and transparent processes that caters for social responsibility (e.g. visibility into non-discriminatory processes and integrity).	Process modeller.
	Use best practice processes that enhance social responsibility (e.g. best practice financial processes that enhance social responsibility towards investors).	Template\reference processes.
	Implement business rules in support of social responsibility (e.g. financial controls).	Rule builder.
	Proposed guideline during run-time	**BPMS component involved**
	BPMS engine enforce social responsibility processes, controls and business rules in support of social responsibility.	BPMS engine.
	Reporting that reflects social responsibility metrics and exceptions, based on stored information in the repository.	Reporting (monitoring), Repository.
	Audit trial information (stored in the repository) assists and enforce the organisation to be more socially responsible (e.g. auditors may audit process and company information in support of social responsibility).	Audit trail, Repository.

Comments of the participants with regards to how social responsibility is supported by the use of a BPMS include:

> *Social responsibility can be incorporated into the BPMS to improve social responsibility in the organisation using business rules and the BPM engine. The processes of the organisation can be designed to include the necessary social responsibility measures and controls and these can be enforced using the business rules. Reports can be used to highlight exceptions and to ensure that all processes adhere to the social responsibility policies and KPIs set by the organisation. (BPMSVC Interview: participant 27, 2010).*

> *...process history allows for external analysis (via e.g. auditors) allowing for social transparency and therefore social responsibility (BPMSVC Interview: participant 15, 2010).*

> *By providing visibility in your processes and by getting honest audit reports (no creative accounting), you are not hiding information (report builder, process modeller, storage) from people outside the company. In other words you act socially responsible to those people that invest in the company. The outside people and people inside the organisation) will have a view into the company. Buy buying best of breed processes will help to sustain the company therefore one will act socially responsible for those who invested in the organisation. (BPMSVC Interview: participant 8, 2010).*

> *This can be done by using the Green IT principle. Each organisation must have asset disposal policies and strategies in place so that they adhere to the good governance principle of Social Responsibility. The same concept can be used in the asset disposal policies for BPMS. (BPMSVC Interview: participant 6, 2010).*

> *Processes can be designed / developed around social issues such as racism, discrimination and civil rights. As these are not necessarily something which one can design a direct rule for, it might be possible to design extra steps in let's say the hiring of new employees, which might take racial balances into account before an offer or appointment can be made. So, a certain process*

must be followed to ensure that all the checks have been done (BPMSVC Interview: participant 19, 2010).

4.3.4.8 Good Leadership

The next King principle of governance is good leadership (Chapter 3, Section 3.6). Table 4.8 indicates, according to the respondents, how leadership is supported by a BPMS during design-time and run-time (see analysis in Appendix B: Figure B.8).

Table 4.8 Proposed guidelines to support the King principle of leadership in a Business Process Management System during design-time and run-time

King principle	**Proposed guideline during design-time**	**BPMS component involved**
Leadership.	Visible, explicit and transparent processes that enhance understanding of the business, empowering management, resulting in better organisational performance.	Process modeller.
	Set up notifications and escalation rules. Managers only manage process case exceptions, resulting in better leadership.	Process modeller.
	Set up clear roles, responsibilities and governance structures, thereby improving leadership.	Organisational modeller.
	Use best practice processes that showcases good leadership.	Template\reference processes.
	Implement explicit business rules that are transparent and visible in the organisation.	Rule builder.
	Proposed guideline during run-time	**BPMS component involved**
	BPMS engine enforce automated rules, processes and decision making with no human biasness, resulting in better control and leadership.	BPMS engine.
	The report builder uses stored information in the repository, for improved decision making. The report builder can be used to measure leadership performance areas.	Reporting (monitoring), Repository.
	Audit trial information (stored in the repository) assists	Audit trail, Repository.

	managers to reflect on decisions being made.	

During design-time and run-time, the BPMS as a whole can support leadership by:

- Helping leaders through business processes to adapt to a required leadership philosophy.
- Inscribing and supporting the King principles of governance as indicated in this research project.
- Improving the business through improved and automated business processes which showcase leadership.
- Providing skills development business processes with regards to leadership, as indicated by the participants.

Comments of the participants with regards to how good leadership is supported by the use of a BPMS include:

> *Good leadership is achieved through fairness, consistently and transparency. So BPM offers rule based engine, everyone knowing their roles and report capabilities that open up the organisation to the outside world. (BPMSVC Interview: participant 24, 2010).*
>
> *Having proper processes in place (and optionally automated) allows for better control, empowering management. (BPMSVC Interview: participant 15, 2010).*
>
> *The report builder may provide information to leaders to make better and accurate decisions about the company. The rule builder will help managers to make fair decisions, taking unfair human emotions and actions out of the equation. Purchasing best of breed processes may help to improve leadership. (Interview: participant 8, 2010).*

By enforcing the responsibilities of all role players, including that of the leaders. (BPMSVC Interview: participant 2, 2010).

Good leadership leads by example, first of all by embracing processes, emphasising the value to be gained from having processes transparent and improvement potential. (BPMSVC Interview: participant 1, 2010).

4.3.4.9 Sustainability

The next, King governance principle is sustainability (Chapter 3, Section 3.6). Table 4.9 indicates, according to the respondents, how sustainability is supported by a BPMS during design-time and run-time (see analysis in Appendix B: Figure B.9).

Table 4.9 Proposed guidelines to support the King principle of sustainability in a Business Process Management System during design-time and run-time

King principle	**Proposed guideline during design-time**	**BPMS component involved**
Sustainability.	Streamlined processes that capture knowledge and the know-how of employees.	Process modeller.
	Quickly adapting processes in the process modeller (agility) to take advantage of new market opportunities.	Process modeller.
	By defining accountability and responsibility in functions that is associated with roles in the organisation.	Process modeller; Organisational modeller.
	Implement explicit business rules that are transparent and visible in the organisation, with preventive controls, ensuring for example better spending of money in the organisation.	Rule builder.
	Best-practice template or reference processes can improve sustainability, because it drives improvement.	Template\reference processes.
	Proposed guideline during run-time	**BPMS component involved**
	BPMS engine assist in the monitoring of business process activities. Furthermore, the automation and monitoring of business processes results in less human biasness, human error when enforcing adherence to process and	BPMS engine.

	business rules, resulting in improved sustainability.	
	The report builder uses stored information in the repository to report on sustainability performance measures, on errors, on problems which contribute to sustainability.	Reporting (monitoring), Repository.
	Making information visible, traceable and transparent to identify errors and problems in the organisation, which drives improvement for sustainability.	Audit trail, Repository.

Sustainability is also improved by the BPMS as a whole, because it reduces organisational costs and continually improves the business through automation and optimisation. The BPMS is a way to capture and retain the intellectual property of the organisation in the business processes of the organisation. Finally the BPMS is a way to implement strategy through processes and that can be adapted to take advantage of new market opportunities.

Comments of the participants with regards to how sustainability is supported by the use of a BPMS include:

> *By streamlining processes so that overhead costs in manpower are kept to a minimum (BPMSVC Interview: participant 21, 2010).*
>
> *Business processes automation allows for improvement and optimization (resulting in cost reduction). (BPMSVC Interview: participant 15, 2010).*
>
> *By continuously improving processes and by quickly adapting processes to new strategic market opportunities IT will help to make the financial condition of the company visible to those responsible, to take the correct actions. The modeller also provides visibility into the organisation that will help to see where there are problems in a process (for example a bottleneck). The report builder will assist the manager to make better decisions for the survival of the company. Rules can be built to help the company not to waste money or to stop fraudulent activities. You can use best practice processes, for the best of its kind in the industry that has been proven and tested may help to*

execute processes as well as possible. (BPMSVC Interview: participant 8, 2010).

BPM/BPMS can be used as a Knowledge Management tool where the company's Intellectual Property can be housed. An organisation can be sustainable and improve its operation through the use of such technologies. (BPMSVC Interview: participant 6, 2010).

The ability to improve process efficiency and performance through Activity Monitoring will add to the long term sustainability of process governance. (BPMSVC Interview: participant 3, 2010).

4.3.5 Changing Organisational Behaviour

The aim of this subsection is to determine how a BPMS may improve the behaviour of individuals in the organisation[28] in support of corporate governance.

The participants indicate that when a BPMS is used for corporate governance, behaviour of employees that use the system changes in the following way:

- Automation of processes causes changes in the working behaviour and working practice of employees. In an automated process environment, users use structured and explicit processes that enforce consistency and standardization in work practice. Explicit and clearly defined processes further leads to clearly defined responsibilities and skills required in processes. Clearly defined, structured and consistent processes result in the elimination of process shortcuts and processes uncertainty, which often causes problem situations in organisations. This cause employees to do things correctly and eliminate any shortcuts.

[28] See Chapter 1, Section 1.4: Research objective 4.

- The King principles of governance (Chapter 3, Section 3.6), inscribed in a BPMS, become more evident and visible in the organisation if a BPMS is used in support of corporate governance. The BPMS enforces behaviour in support of the King principles of governance for better corporate governance (Chapter 3, Section 3.6).

- A BPMS can be used to monitor if the correct organisational behavioural outcomes are achieved. A participant indicated that organisational culture plays a significant role in achieving the correct behavioural outcomes. A few of the participants further indicated that there may be resistance to change. However, the biggest issues identified by the participants are increased control and less privacy. The participants indicated that change should be accompanied by a Change Management strategy and/or plan. The Change Management plan should further be supported by top-management to implement the change initiative successfully.

Comments of the participants include:

> *Since a BPMS enables all the principles discussed in the previous questions, these principles should become more evident in the process used and the company as a whole (BPMSVC Interview: participant 15, 2010).*
>
> *They will do things with more diligence knowing that it is more possible to hold them accountable (BPMSVC Interview: participant 9, 2010).*
>
> *The BPMS will force employees to do their work (activities) in a certain way, with specific rules and controls in place. Managers can always have visibility in how an employee performed his work which will let him think twice before he wants to act in a dishonest way. If an employee did not act in the required way exception notification will be generated and forwarded to a manager for action. All action is recorded in an audit trail which could be audited by an independent auditor. (BPMSVC Interview: participant 8, 2010).*
>
> *The system ensured that the line is now much more defined and employees will not take chances that previously could either be hidden or "not seen" by*

management. Employees are much less inclined to transgress. (BPMSVC Interview: participant 9, 2010).

Initially there is a resistance to controls but as the organisation matures employees prefer to follow well-structured processes. (BPMSVC Interview: participant 16, 2010).

The behaviour of employees will always change but not because of the BPMS but because people tend to resist all forms of change of any kind. The success or failure will not depend on what is implemented but rather how it is implemented. If done properly with enough user feedback and interaction and strong drive from management, all projects will be successful. (BPMSVC Interview: participant 17, 2010).

I would say that people will feel more involved as they would know the system and their role in BPMS. Mostly if people feel they are a part of something that can benefit them and the company they will also be more positive. (BPMSVC Interview: participant 22, 2010).

It will enforce awareness for example in cases where tenders we given out based on friendships and bribery. BPM can enforce standard process to be followed in awarding thus making sure that human behaviour changes as it will be useless whether an individual is bribed he/she needs to adhere to the process. (BPMSVC Interview: participant 24, 2010).

Dependent on organisational culture... sometimes BPMS can be seen negatively, as a mechanism for control and reason for loss of privacy for employees. (BPMSVC Interview: participant 7, 2010).

The participants further indicated that when a BPMS is used for corporate governance, behaviour of users change, sometimes in ways different from what is expected, because:

- Human nature is unpredictable. Humans react differently to control and change. For example, humans may try to circumvent controls for different reasons:
    - Some are just lazy and do not want to get measured.
    - Others may want to take shortcuts by skipping controls.
    - Others may be involved with wilful corporate misconduct.

- The BPMS solution may be incomplete resulting in behaviour different from what is anticipated. The solution for example:
    - Might not offer the required functionality and features, resulting in different, but needed behavioural outcomes that were not anticipated.
    - Might not be fully automated, resulting in inconsistency and inconsistent behaviour.

- There may be a lack of user-support for the BPMS solution and implementation. The results in behaviour different from what is anticipated.

- There are also other organisational factors that may influence the behaviour of users that result in behaviour different from what is anticipated. Factors include:
    - Organisational culture.
    - Leadership support or lack of leadership support.

- User creativity. Fixed processes may hamper the more creative users or employees.

Comments of the participants include:

> *Employees will always try to circumvent organisational controls and structures. This could be because of malice or less serious issues like laziness or 'getting the job done'. (BPMSVC Interview: participant 16, 2010).*

> *In any system implementation, people behaviour can be different from what is anticipated. This is due to soft issue aspects such as organisational culture and change. People are affected differently by change, thus their behaviour is not guaranteed. The internal and external forces can determine whether they*

accept or reject the change. A strong and weak organisational culture will also determine how people will behave when a BPMS is introduced within the organisation. (BPMSVC Interview: participant 6, 2010).

It rests upon leadership and acceptance by team members and the way the BPMS was introduced in the organisation. (BPMSVC Interview: participant 2, 2010).

The human behaviour is still one of the unpredictable variables in an organisation (BPMSVC Interview: participant 23, 2010).

If the employee has criminal intentions he / she will try to circumvent the system. A fixed process might also hamper the more creative employees, so one would need to carefully evaluate which processes are 'codified' and which are not… (BPMSVC Interview: participant 19, 2010).

Employees might show resistance towards BPMS because there is much more control over their activities. The fact is that management can better control their duties and that management might find that some of them are not needed any more. (BPMSVC Interview: participant 25, 2010).

The participants also indicate that different people might be involved in the solution process and the training process. Trainers that were not involved in the solution process may train the users in a different way from what was anticipated by the solution designers, resulting in different behavioural outcomes (See Orlikowski in Chapter 2, Section 2.3.4).

4.3.6 Concluding Remarks

The narrative that follows in this subsection serves to capture the final remarks of the participants during the closing stages of the interview process. The aim at this stage during the interview processes was to determine, from the participants, in their opinion, if a BPMS is effective to improve corporate governance.

The participants that indicated that a BPMS partly improves corporate governance said that corporate governance also depends on factors which are difficult to resolve with the use of a BPMS. Factors include:

- The knowledge of people.
- The willingness of people to address corporate governance problems.
- The support of top-management to use a BPMS for corporate governance.
- The nature and complexity of corporate governance problems, which could not all be resolved with a BPMS.
- Change management that goes with the implementation of a BPMS.

The participants that indicated that a BPMS improves corporate governance indicated that a BPMS contributes to solve corporate governance problems in the following ways:

- A BPMS supports and improves the King principles of governance (improve responsibility, improve transparency and improve accountability) in the organisation.
- A BPMS may help to enforce compliance to business rules, business controls, processes (standardisation and consistency) and compliance and required business behaviour (monitoring and flagging unacceptable behaviour).

The chapter is now concluded with a summary of findings from this case study.

4.4 Concluding Summary

A summary of the case study findings obtained from the BPMSVC is presented in Table 4.10.

Table 4.10 Summary of findings from the Business Process Management System Vendor Company case study

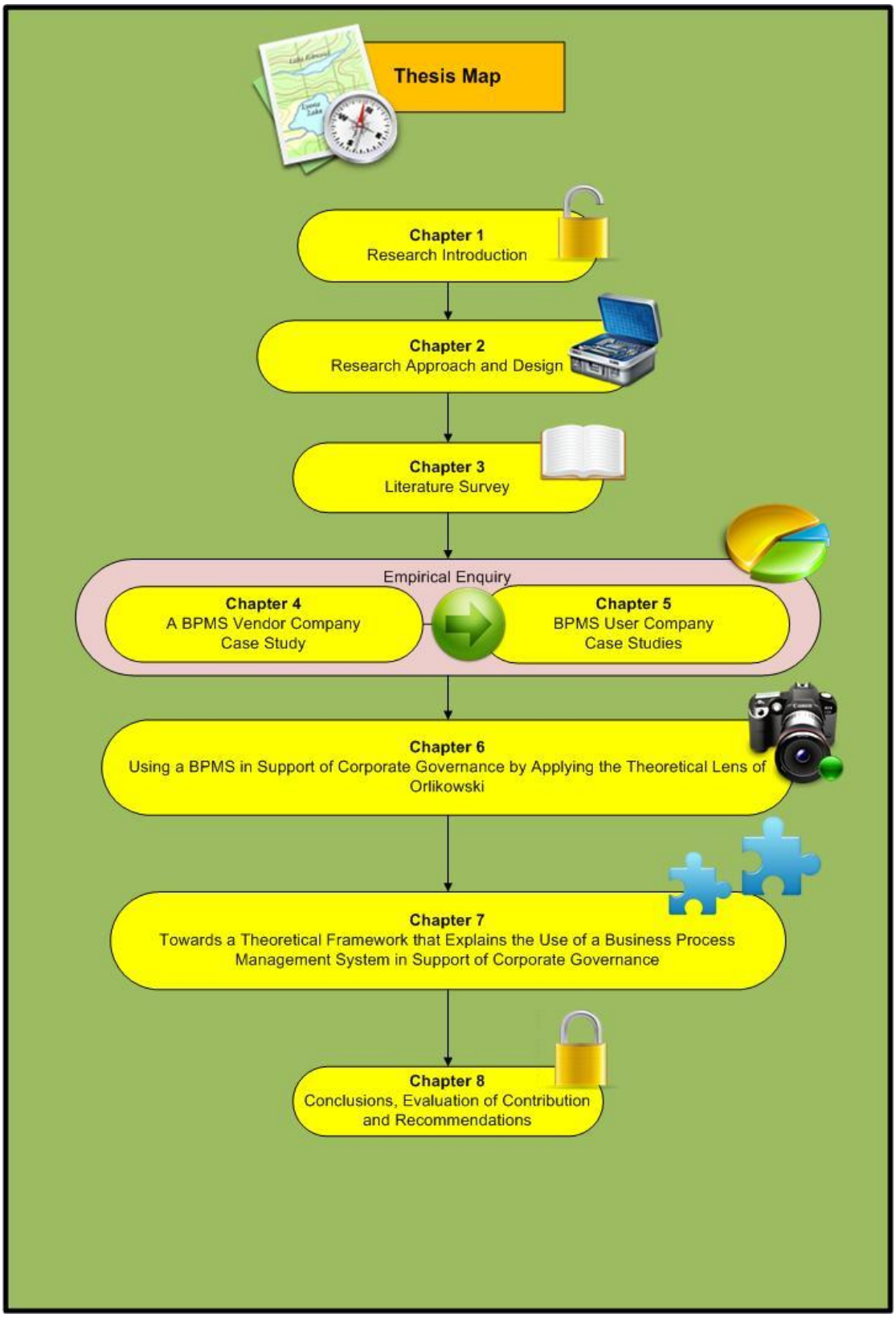
Finding	**Description of finding from case study**
1: Corporate governance problems.	From Section 4.3.2 in this chapter: Corporate problems include (see Section 1.5, Secondary research question 1): • Lack of adherence to business rules, controls, acts and legislation. • Lack of transparency, visibility and traceability. • Vague or unclear assigned responsibility and accountability. • Governing to improve (automation, optimisation and improved quality). When these problems are not addressed it typically leads to criminal behaviour, human error, human biasness, inconsistency, loss of quality in the organisation and corporate governance problems such as fraud and stealing.
2: Factors that influence corporate governance.	From Section 4.3.2 in this chapter: Factors that influence corporate governance include (Additional finding): • Social, legal, political, technological, economic and cultural factors. • Business rules and corporate governance acts. • Organisational culture, strategy and politics. • The size of the organisation. • Differences in industry sectors (e.g. laws and legislation). • Organisational standards. • Corporate Governance Maturity. All these factors cause corporate governance to be different and sometimes the same in companies inside and outside South Africa. By understanding the forces behind corporate governance that drive corporate governance one may better understand how to improve it.
3: The role and nature of BPMS's towards corporate governance.	From Section 4.3.3 in this chapter: Corporate governance is improved by a BPMS in the following ways (see Section 1.5, Secondary research question 3.1, 4): • By enforcing compliance to rules, controls, processes and through process automation (including automated decision making). • By optimization of business processes (less waste), resulting in more profit.

	• By providing visibility (though audit trails and explicit defined business processes) into the business that enhances understanding of the business. • By minimising human interference, through automation, resulting in fewer errors and possibilities for criminal behaviour. • By enforcing accountability and responsibility (through audit trails, role based activities, clearly defined roles and responsibilities). • By implementing corporate strategy through automated business processes that is aligned to the business objectives and corporate strategy. • By advancing standardizations of processes that further enhance common understanding of the business. • By providing agility to adapt business processes and controls quickly to take advantage of new market opportunities. • By providing reporting and monitoring capabilities e.g. user performance reposting. • By changing human behaviour. The research findings of the BPMSVC directly or indirectly indicate that while a BPM approach automate and continuously improve business processes in a business it at the same time, directly or indirectly improves corporate governance.
4: Limitations of a BPMS in addressing corporate governance problems.	From Section 4.3.3 in this chapter: Problems which are difficult to resolve with the use of a BPMS include (see Section 1.5, Secondary research question 3.2): • Unstructured, vague problems. • Ad-hoc, unpredictable problems that involve no specific process e.g. human nature and top management decision making. The finding shows that a BPMS is not a “silver bullet” or a comprehensive solution to resolve all types of corporate governance problems.
5: Strengths of a BPMS in addressing corporate governance problems. (Section 1.5, Secondary research question	From Section 4.3.3 in this chapter: Corporate governance problems which are well resolved with the use of a BPMS include (Section 1.5, Secondary research question 3.2): • Structured problems. • Problems that could be codified or automated.

3.2)	
6: Inscribing the King principles of governance into a BPMS (Section 1.5, Secondary research question 2)	From Section 4.3.4 in this chapter: The King principles of governance can be inscribed into a BPMS and its architectural components in support of corporate governance. (Section 1.5, Secondary research question 2).
7: Changing organisational behaviour, sometimes different from anticipated, by using a BPMS. (Section 1.5, Secondary research question 4)	From Section 4.3.5 in this chapter: When a BPMS is used for corporate governance, it changes the behaviour of users in the organisation in the following way (Section 1.5, Secondary research question 4): • The King principles of governance become more evident in the organisation. • The users behave more honestly. According to King (2006) the foundation of good governance is intellectual honesty. The research indicated that behaviour of users is sometimes different from what is anticipated. There are various factors contributing to this phenomenon such as (Section 1.5, Secondary research question 4): • Organisational factors. • Personal characteristics. • An incomplete solution. • How the solution is communicated to users from the solution providers. It is not always the solution providers who provide the training to the users, which in terms may result in miscommunication and misunderstanding. However, the research findings indicate that the use of a BPMS improves the behaviour of users to support better corporate governance.
8: Identified gaps of using a BPMS to address problems in corporate governance.	• There must be a commitment and willingness from management (including top-management) to address and eradicate corporate governance problems. A BPMS may, for example provide leaders with the required and good information to make good decisions, but what if they are corrupt? (Additional finding). • Our research indicates that typically, only medium to large organisations would purchase a BPMS to improve corporate governance. What about corporate governance then in smaller companies and organisations? (Additional finding).

In Chapter 5, BPMSUCs are explored to determine how effective such companies are in supporting the King principles of corporate governance, but also to determine what the limitations are of a BPMS in such a process.

Chapter 5: Business Process Management System User Company Case Studies



5.1 Introduction

This chapter offers diverse views from BPMSUCs regarding the role and support BPMSs provide in terms of corporate governance.

The chapter includes the views of seven user companies. Data was collected from the first five user companies mainly through interviews that occurred at the premises of the companies. First, the five user companies are described. The data analysis of the five user companies follow. Then, the last two user companies are presented as case studies. The cases described involve personal experiences at BPMSUCs when the author was employed as a Business Process Analyst.

5.2 The Business Process Management User Companies

5.2.1 Introduction

The organisational environments and contexts of the first five BPMUCs (companies of different sizes and from different industry sectors) are described in the next subsection. Organisational environments played an important role in understanding and interpreting the research data obtained from these companies. Next follows a description of the research results obtained from the combined data analysis of the five user companies. The description of the research results, obtained from the five BPMUCs are structured according to the interview guide that was used during the data collection process. The background description and classification of the different BPMSUCs follow:

5.2.2 Background Description and Classification of the Business Process Management System User Companies

The BPMSUCs is described by using an adapted version of the research constructs of Lamb and Kling (2003) for giving a background description of companies.

5.2.2.1 Background description of BMPSUC A: Banking Industry

- *Overview:* BPMSBPMSUC_A (established in 1862) is a leading African and South African banking group that is focused on emerging markets globally. The Head Office is located in London, England. The group offers personal banking and investment services to individuals, as well as banking, financial, investment, trading, risk management and advisory services to larger corporates and financial institutions, specifically in developing economies around the world. (*cf.* BPMSBPMSUC_A website, 2011).

- *Company strategies:* The "Personal and Business Banking" division's strategy is to serve the full value chain of customers in their domestic operation – from the most basic to the most sophisticated of financial services needs – and to maintain high standards of customer service and cost effective delivery channels. (*cf.* BPMSBPMSUC_A website, 2011). The strategy of the "Corporate and Investment Banking" division is to grow their capacity in strategically important countries and regions, while also strengthening their specialist product teams and global distribution capability. (*cf.* BPMSBPMSUC_A website, 2011). The strategy of the "Wealth" division is to expand its reach in Africa and developing additional distribution channels to meet the changing wealth needs of its customers. (*cf.* BPMSBPMSUC_A website, 2011).

- *Organisational classification:* This is a large sized enterprise[29] that employs over 10 000 employees only in the South African Head office (Interview with Head Data Centre Facilities and IT Operations, 2011).

  The company consist of three main divisions namely: "Personal and Business Banking" that offers banking and financial services to individual customers and small and medium enterprises (SME) in South Africa, 13 sub-Saharan African countries and Argentina; "Corporate and Investment Banking" that serves a wide range of client requirements around the world for banking, finance, trading, investment, risk management and advisory services and; "Wealth" that is

[29] See Chapter2, Section 2.6: Selection of the BPMSUC's.

responsible for a comprehensive range of wealth management solutions for both private and institutional clients. (*cf.* BPMSBPMSUC_A website, 2011).

The organisational organogram is structured around its three main divisions and is typical of that of a large organisation with the entire range of organisational functions, e.g. Human Resources and IT. (*cf.* BPMSBPMSUC_A website, 2011).

- *Internal company interaction:* There is no preferred way of communication. Communication is done in various forms (e.g. via email, telephone, face to face formal and informal meetings). Team building events and socialisation are encouraged (Interview with Head Data Centre Facilities and IT Operations, 2011).

- *External company interaction:* Communication to existing clients range from formal and informal meetings, to email communication, to web communication, Short Message Service (SMS) messages and telephone conversations. The preferred method of communication is normally agreed upon with the client (individual or corporate). Sales and marketing occurs through the above mentioned channels. The main operations in South Africa are run from the Head Office in Johannesburg, South Africa. (Interview with Head Data Centre Facilities and IT Operations, 2011).

- *Company affiliations:* Strategic affiliations include investment corporations and wealth management corporations. Affiliations include strategic software vendors (e.g. ERP software, BPMS software and office applications).

- *Company identity:* The culture of the organisation can be described as performance, proud and innovative culture. Currently, the employee morale is low, after a restructuring process occurred in the organisation to decrease company overheads. The organisation make-up is further complex in terms of diversity. There are differences in age, gender, race and social backgrounds. (*cf.* Interview with Head Data Centre Facilities and IT Operations, 2011).

5.2.2.2 Background description of BMPSUC B: Financial Consulting

- *Overview:* BPMSBPMSUC_B (established in 1833) is a consulting firm that offers a broad range of audit, consulting, financial advisory, risk and tax services to nearly 3600 people in eight cities in South Africa. The client service teams help to create powerful business solutions for organisations not only in South Africa but anywhere in the world. In South Africa BPMSBPMSUC_B has an independent consulting entity namely "Business Process Solutions" that functions and exists on its own. The entity provides niche business process solutions in key focus areas, e.g. Procurement and Supply Chain Management, Skills development and Payroll. (*cf.* BPMSBPMSUC_B website, 2011).

  The entity does not use any preferred BPMS of a specific BPMS Vendor, but provides consulting services for various BPMSs of different BPMS vendors, depending on client requirements (Interview with Process Consultant, 2011).

- *Company strategy:* The strategy of BPMSBPMSUC_B is to collaborate with other firms across the geographical, functional and business borders of the world. In doing that BPMSBPMSUC_B strives to deliver excellence in the services they provide to other firms, directly and through their partners. (*cf.* BPMSBPMSUC_B website, 2011).

- *Organisational classification:* "Business Process Solutions" is a medium sized entity[30] that employs around 50 - 80 employees depending on market circumstances (Interview with Process Consultant, 2011).

  The employees of this entity mainly consist of Account Managers, Project Managers and Process Consultants (Analysts/Developers). (*cf.* Interview with Process Consultant, 2011).

- *Internal company interaction:* There is no preferred way of communication. Communication is done in various ways. However, email and telephone conversations are quite popular between team members. Employees normally work at client premises, but at regular intervals meet with account mangers either at the client or at the premises of BPMSBPMSUC_B. Employees need to integrate into the

[30] See Chapter 2, Section 2.6: Selection of the BPMSUC's.

client environment. Team building events and socialisation are encouraged, not only between team members, but also with clients. (Interview with Process Consultant, 2011).

- *External company interaction:* There are various ways of communication to clients that include formal and informal meetings, email and telephone conversations. The preferred method of communication is normally agreed on with the client. Sales and marketing are direct but mostly through partner organisations. The services of the company are available on the web. The main operations in South Africa occur in Johannesburg, South Africa. (Interview with Process Consultant, 2011).
- *Company affiliations:* Strategic affiliations include partner organisation that allow BPMSBPMSUC_B to engage in new contracts and software vendors, e.g. BPMS software of different BPMSVCs (Interview with Process Consultant, 2011).

- *Company identity:* The culture of the organisation can be described as an absolute performance culture. As contractors, employees need to perform to survive in client organisations (Interview with Process Consultant, 2011). The organisation make-up is further complex in terms of diversity. There are differences in age, gender, race and social backgrounds. (*cf.* BPMSBPMSUC_B website, 2011).

5.2.2.3 Background description of BMPSUC C: Manufacturing

- *Overview:* BPMSBPMSUC_C (founded in 1895 in Johannesburg, South Africa) is one of the world's largest brewers, with brewing interests and distribution agreements across six continents. The African operations produce lagers (13.476 hl), soft drinks (10.442 hl) and other beverages (3.992 hl) such as spirits and ciders. The Africa operations consist of 16 large breweries, 14 sorghum breweries and 21 non-beer bottling plants. The Head office for the Africa operations is located in Johannesburg, South Africa. (*cf.* BPMSBPMSUC_C website, 2011).

- *Organisational strategy:* The strategy of BPMSBPMSUC_C is centred around four priorities namely: Creating a balanced and attractive spread of businesses that

allows growth in volumes and value in beer markets around the world; Developing strong, relevant brand portfolios that win in the local market that meet consumers' needs and expand the company's offering to new consumer segments; Constantly raising the profitability of local businesses (sustainability) and; Leveraging company skills on a global scale (e.g. standardising of the business globally). (*cf.* BPMSBPMSUC_C website, 2011).

- *Organisational classification:* BPMSBPMSUC_C is a large sized company[31] that employs 12 182 employees in its Africa operations alone (BPMSBPMSUC_C website, 2011). The organisational make-up of this company is typically that of a large scale manufacturing company. It spans organisational silos' (e.g. IT, Human Resources and Finance). However, BPMSBPMSUC_C employs a large number of blue-collar workers who are illiterate. Blue collar workers work on brewery floors throughout Africa. (Interview with IT Manager (Process Division), 2011).

- *Internal company interaction:* There is no preferred way of communication. Communication is done in various ways. White collar, skilled employees (typically located in the Head Office in Johannesburg, South Africa) are required to travel and work in other African breweries for knowledge and skill sharing. Communication from the Head Office in Johannesburg to other African breweries poses a challenge because of the poor infrastructure (specifically IT infrastructure and power failures) that exists in Africa. Data communication in African counties is a challenge, although mobile networks provide new opportunities for better communication. However, data communication in South Africa is good. (Interview with IT Manager (Process Division), 2011).

- *External company interaction:* There are various ways of communication to consumers. This involves the Sales and Marketing Division. Different campaigns and promotions (very dependent on the environment of each African country) are launched through different market channels to market new products. The company

[31] See Chapter 2, Section 2.6: Selection of the BPMSUC's.

also contributes to a number of social and environmental projects that include: responsible drinking, reuse and recycling, reducing the carbon footprint, benefitting communities in various ways, and contributing to the reduction of HIV/AIDS. (*cf.* Interview with IT Manager (Process Division), 2011; BPMSBPMSUC_C website, 2011).

- *Company affiliations:* Strategic affiliations mainly include raw material suppliers, normally from Europe. Strategic affiliations also include software vendors with software that supports the daily operations of the organisation. This includes the BPMS software of a South African BPM vendor. (*cf.* Interview with IT Manager (Process Division), 2011; BPMSUC_C website, 2011).

- *Company identity:* The culture of the organisation can be described as strong English combined South African, diverse, honest and accountable (reputation is important). Skilled employees continuously provide the company with their competitive advantage and teamwork is encouraged. Clients and consumers are also respected. Finally, the culture can also be regarded as a performance culture that strives to expand its operations globally and raise profits in local businesses, as stated in the company strategy. (*cf.* Interview with IT Manager (Process Division), 2011; BPMSUC_C website, 2011).

5.2.2.4 Background description of BMPSUC D: IT Consulting

- *Overview:* BPMSUC_D is a South African Information and Communications Technology company listed on the Johannesburg Stock Exchange (JSE). It has gained recognition as the complete ICT partner to a considerable client base of large technology users in the public and private sector. BPMSUC_D provides clients with sophisticated and diverse options in IT infrastructure, IT solutions, system integration and networking. (*cf.* BPMSUC_D website, 2011).

- *Company strategy:* BPMSUC_D strive to broaden and penetrate the market in the financial, manufacturing, mining, retail and telecommunication market sectors as

well as National and Provincial Government departments and State-owned enterprises. Almost 90% of the top 100 JSE-listed companies, including nine of South Africa's leading companies, are serviced by this company. (*cf.* BPMSUC_D website, 2011).

- *Organisational classification:* The "Systems Integration" division, under which BPM fall is a medium sized entity[32] although BPMSUC_D in total is regarded as large sized company[33] that employs around 3200 professionals (BPMSUC_D website, 2011).

- The employees of this entity consist mainly of IT Professionals that function as IT Consultants. It includes Account Managers, Project Managers, Management and Human Resources. (Interview with Process Consultant, 2011).

- *Internal company interactions:* There is no preferred way of communication. Communication is done in various ways. Email and telephone conversations are quite popular between team members and employees. Many of the employees work at client premises. These employees need to integrate well into the client environment. (Interview with Process Consultant, 2011).

- *External company interaction:* There are various ways of communication to clients and vendors that include formal and informal meetings, email and telephone conversations. The preferred method of communication is typically agreed on with the other party. The company also makes use of recruitment agencies that place IT professionals at clients. (Interview with Process Consultant, 2011).

- *Company affiliations:* Strategic affiliations include partner organisations that allow BPMSUC_D to engage in new contracts. BPMSUC_D also have a special strategic affiliation with the National Government and Provincial Governments department as preferred supplier to government ICT needs. Further affiliations include various

[32] See Chapter2, Section 2.6: Selection of the BPMSUC's.
[33] See Chapter2, Section 2.6: Selection of the BPMSUC's.

software vendors and recruitment agencies (Interview with Process Consultant, 2011).

- *Company identity:* The culture of the organisation is a performance-driven and diverse culture (ranked as the top Black Economic Empowerment (BEE) ICT company in South Africa, with 45% combined black shareholding, 50% black executives and an AA Empowerdex rating) which can be described as knowledgeable (the IT professionals have some degree of formal education and need to perform well in client organisation). As contractors, employees need to perform in client organisations. There are, furthermore, differences in age, gender, race and social backgrounds. (*cf.* Interview with Process Consultant, 2011, BPMSUC_D website, 2011).

5.2.2.5 Background description of BMPSUC E: Energy and Chemical

- *Overview:* BPMSUC_E was formed in 1950 in South Africa, to make oil from coal in a country with no large crude oil reserves. Currently, BPMSUC_E is an integrated energy and chemicals company consisting of a family of businesses with its Head Office in Johannesburg, South Africa. BPMSUC_E add value to coal, oil and gas reserves, using these feedstock to produce liquid fuels, fuel components and chemicals through unique proprietary technologies. The chemical and marketing operations of BPMSUC_E span the globe. BPMSUC_E describes itself as an "integrated energy and chemicals company". (*cf.* BPMSUC_E website, 2011).

- A philosophy of continuous improvement ensures that the business is run profitable and in the best interest of shareholders and key stakeholders.

- *Company strategies:* BPMSUC_E commercialise their products to ensure the long-term growth and profitability as part of their strategic agenda. The strategy of BPMSUC_E ensured that they remain a leading alternative energy player and the only company in the world that operates a commercial coal-to-liquids facility. Growth drivers include: Commercialising and expanding proprietary gas-to-liquids

and coal-to-liquids technologies; growing the chemical portfolio; exploiting complementary upstream hydrocarbon opportunities and; optimising the performance of existing businesses. The strategy is reviewed annually to ensure the company remain robust and competitive. In response to the growing international interest in coal-to-liquids and gas-to-liquids offerings, BPMSUC_E has continued to expand and grow its international presence. (*cf.* BPMSUC_E website, 2011).

- *Organisational classification:* BPMSUC_E is a large sized company[34] that employs almost 34 000 employees. The board consists of 11 directors of whom three are executive directors, while the others were chosen for their business skills and acumen. The board further comprises 55% historically disadvantaged South Africans. The nomination and governance committee of the board considered gender and racial diversity, business diversity and diversity in geographical and academic background in their appointment of the board of directors. (*cf.* BPMSUC_E website, 2011).

- *Internal company interaction:* There is no preferred way of communication. Communication is done in various ways. (Interview Process Consultant, 2011).

- *External company interaction:* BPMSUC_E strive to be a respected global business. The chemical and marketing operations of BPMSUC_E span the globe. The products (mostly petroleum) are sold directly to consumers. Various types of campaigns, e.g. television commercials, are used to sell the product across the globe. BPMSUC_E is also active in various community projects that highlight their presence in the market. (*cf.* BPMSUC_E website, 2011).

- *Company affiliations:* The Company functions as a family of businesses that contain the most important strategic affiliations, although other affiliations with petroleum companies exist. Strategic affiliations also include software vendors with software

[34] See Chapter2, Section 2.6: Selection of the BPMSUC's.

that supports the daily operations of the organisation. Daily operations include the BPMS software of a South African BPM vendor. (*cf.* BPMSUC_D website, 2011).

- *Company identity:* BPMSUC_E has evolved a strong culture of lifelong learning, collaboration and innovation. Since it was established in 1950 BPMSUC_E has maintained a strong compliment of well-trained and highly motivated people to ensure productivity, safety and innovation. BPMSUC_E strives to be an employer of choice and pay competitive, market-related salaries. BPMSUC_E also provides managed healthcare to its employees that includes an integrated HIV/AIDS programme. The company is furthermore diverse in gender, social backgrounds, race and academic backgrounds. Finally, the company and its employees promote a positive and ethical company value system (integrity). (*cf.* BPMSUC_E website, 2011).

The next subsection describes the research results from the combined data analysis of the five BPMSUCs.

5.3 Description of Research Results

5.3.1 Introduction

This section contains a description of the research results obtained from BPMSUCs. The BPMSUC data was mainly collected from face-to-face interviews at the different company sites. In difficult circumstances, the interview guide was presented as an online survey to gather data from the required respondents. The interview guide was further used to structure and guide the narrative that follows.

5.3.2 The Effectiveness of Business Process Management Systems to Improve Corporate Governance

This subsection investigates, from the perspective of user companies, how effective BPMSs are to improve corporate governance.

The data obtained from the five BPMSUCs indicate that a BPMS is effective when it is used to improve corporate governance. As motivation, the respondents concurred that:

- BPMSs are effective in supporting and enforcing principles of governance, e.g. the King principles of governance. The research results indicate that a BPMS strongly supports the governance principles of accountability, fairness, transparency and visibility.

- BPMSs further increase business performance in support of better corporate governance. Business performance is increased through faster process cycle times, better management and control (including workload management), increased standardisation through standard business processes, and better accountability.

- A BPMS also causes people to change their behaviour in support of corporate governance. Behaviour changes are achieved, e.g. by enforcing work discipline through standard processes that people have to use, by incorporating process controls and checks.

However, some respondents agreed that a BPMS is only effective in improving corporate governance if:

- The systems are supported and trusted by stakeholders (such as management).

- Processes are well developed and implemented.

- Proper change management is applied to minimise resistance to change whatever the nature of change.

- There is a proper BPM strategy in support of corporate governance.

- There is a good understanding of the principles of governance and how these should be applied in the specific context.

- Companies are mature enough (currently not all companies are mature enough to use BPMSs) to use BPMSs.

- Situations are structured enough to be managed by a BPMS (not ad-hoc unstructured situations).

Comments of the participants with regards to the effectiveness of BPMSs to support corporate governance include:

> *BPMS creates accountability and allows all work to be monitored which in turn ensures transparency (BPMSUC_A Interview: respondent 25, 2011).*
>
> *It provides a means of monitoring any bottlenecks, service levels and managing performance of the process and ultimately the people driving the process. (BPMSUC_B Interview: respondent 21, 2011).*
>
> *…however some situations are difficult and too complex to support with a computer system and require human intervention and ad-hoc thinking. (BPMSUC_C Interview: respondent 19, 2011).*
>
> *…BPMS must also be managed properly. Must be used properly and implemented correctly with proper change management and adoption. (BPMSUC_B Interview: respondent 18, 2011).*
>
> *…certainly, but most companies are not mature enough to use BPMS. Operational management still want to manage and control and do not have enough confidence in a system. Need a change in mind-sets. (BPMSUC_D Interview: respondent 10, 2011).*
>
> *It can definitely ensure standardisation of processes. It enables transparency and transparency in measurement of processes. Performance management of people can be done better in using a BPMS. All these can result in improved*

discipline by people using the BPMS in the organisation. (BPMSUC_E Interview: respondent 7, 2011).

5.3.3 The Effectiveness of Business Process Management Systems to Change Behaviour of Employees in Support of Corporate Governance

This subsection investigates, from the perspective of user companies, how effective BPMSs are to change the behaviour of employees in support of corporate governance.

The data obtained from the five BPMSUCs indicate that a BPMS influences employee behaviour in support of corporate governance. The following reasons were presented by the respondents:

- Work activities are system driven (automated), forcing people to do work in a specific way, e.g. standardised processes and enforced business rules.

- Employees also behave more honestly (indicated by 80.8% of the respondents), responsibly and are more aware of their actions because the BPMS provides process visibility (that creates awareness of actions and eliminates improper behaviour), process accountability (e.g. notification and escalations to higher management levels when employees do not do their work, enforced controls and business rules) and ways to measure employees (e.g. reporting) forcing them to change their behaviour in the way they are measured.

- A BPMS also provides process visibility that assist in cross-skilling employees or in the training of new employees.

However, some respondents indicated that a BPMS only changes employee behaviour in support of corporate governance if:

- There is buy-in and support from management and other stakeholders. Management must also trust the system, which can be achieved through proper change management.

- Furthermore, everyone must be forced to use the system so that there is no way to bypass the system.

- The production system must also be tested well so that there are no loopholes for employees to bypass the process and process controls.

A few respondents also warned against human nature:

- Humans always try to find ways to bypass a system (manual or electronic) e.g. finding creative ways to steal.

A minority of the respondents indicated that a BPMS does not influence the behaviour of employees in support of corporate governance, where:

- BPMSs do not cater for every business situation that might present opportunities in which bad corporate governance occurs.

- Furthermore, people resist the use of the system and the changes that goes with adopting the system.

Comments of the participants with regards to the effectiveness of BPMS's to change employee behaviour in support corporate governance include:

> *…it makes people more aware of what they are doing (BPMSUC_A Interview: respondent 26, 2011).*

> *…a BPMS creates transparency which in turn creates responsibility and accountability (BPMSUC_A Interview: respondent 23, 2011).*

…changes the way people work. People know they are measured on certain criteria. You get what you measure. Their behaviour will change in line with the measurement … (BPMSUC_B Interview: respondent 22, 2011).

When implementing the systems there needs to be buy in from the organisation and change management must be executed together with the implementation of a BPMS. (Opportunistic Interview: respondent 14, 2011).

As noted… BPMS's will definably improve corporate governance and related behaviour, assuming it was part of an organisation wide corporate governance strategy. You are no longer relying on users to follow implicit business rules. The rules become part of everyday work in the system. Nonconforming cases become easy to detect and remedy. (BPMSUC_C Interview: respondent 16, 2011).

You get people who function better. You also get people who try to bypass the process and system because they do not do things correctly and the system highlights the problems... That is why people resist systems. People who underperform show high resistance against change. (BPMSUC_D Interview: respondent 10, 2011).

…it changes attitude and behaviour. But human nature will still prevail. In other words they will look for different ways to steal for example... It only makes it more difficult. Systems cannot cater for every situation (where system can be used). Also where there are loopholes in the system that users know about. (BPMSUC_C Interview: respondent 1, 2011).

…On the negative side… it limits creativity and solution crafting abilities. But it can be worked around for those that are creative –e.g. putting people in charge in process or in a place where this skill can be used. (BPMSUC_B Interview: respondent 20, 2011).

5.3.4 A Perspective of Anticipated Usage of Business Process Management Systems in Support of Corporate Governance

This subsection investigates, from the perspective of user companies, if users of BPMSs always use the system as it was anticipated. Secondly, if the BPMS is not used in its anticipated way, how is this corrected?

The data obtained from the five BPMSUCs indicate that users do not always use the BPMS in the anticipated way. There are several reasons, listed by the respondents:

- Processes in the BPMS can be wrongly defined, causing it to be used in an unanticipated way

- It is not always possible to foresee and address all process problems that exist in processes the first time around, allowing the user to use the system in ways that were not anticipated.

- Employees might be resistant to change, causing them to revert back to their old ways of working. This may have as deeper consequence, that employees do not use the BPMS at all.

- Employees may not understand the workings of a BPMS, or the workings of a process causing them to use it in a different way from what was anticipated.

The respondents further indicated that if the BPMS is not used in its anticipated manner, it could be corrected by:

- Correcting the process problems that were identified during testing, training and use of the product. Process problems are typically discovered through the transparency, visibility and monitoring features or capabilities of a BPMS.

- Implementing new process possibilities that were identified. New processes and tasks are formalised by automating them in the BPMS that enforces process discipline and compliance.

- Implementing proper change management that users use the BPMS in its anticipated way. This involves initiatives such as making users aware of the benefits of using such as system, letting them take ownership of the system (e.g. departments must design and improve their own processes) and by going through proper training.

A minority of the respondents indicated that users use the BPMS in its anticipated way, but only when:

- There was proper end-user training.

- When there was enough buy-in from users. In other words, proper change management occurred.

- When the system was properly designed and tested.

- When processes are well understood.

Participant comments with regards to the anticipated usage of BPMSs in support corporate governance include:

> *... They will always try and revert back to the old way of working until the change has settled. Correct the problem through dedicated change management. (BPMSUC_B Interview: respondent 22, 2011).*

> *... If the BPMS has been properly scoped, designed and tested (to make sure it caters for the max number of cases) you will see a number of employees behaving more honestly. Unfortunately the solution is not always used in the intended way because of dishonest or even ignorant users. A possible solution to this unwanted behaviour is a monitoring and feedback loop. Where the*

environment is constantly monitored and any oversights corrected in a feedback loop to the implementation team. (BPMSUC_C Interview: respondent 16, 2011).

... If BPMS is introduced for the 1st time and the change management is not done properly, people will be against it due to the transparency and accountability it leads to. I am not sure how else to correct the problem except for training, change management and discipline. (BPMSUC_D Interview: respondent 12, 2011).

...in general they do, but there is no guarantee as to how it will be applied. It can be corrected by enforcing the transparency and accountability and building in checks. (BPMSUC_D Interview: respondent 13, 2011).

In my experience... ensuring users understand the processes behind the BPMS, their associated metrics and benefits go a long way to create buy-in and acceptance from end-users. (BPMSUC_B Interview: respondent 23 2011).

...there are circumstances that occur during operational business that may present an employee with a new way of solving the challenge e.g. discovering new ways of working. Ultimately, the process should always be consistent unless changes are introduced to support this. (BPMSUC_B Interview: respondent 21, 2011).

... I always find the idealised processes and the actual processes to be usually different. This could be corrected by letting each department design their own processes within a set framework of governance guidelines. I maintain that it is the departments that know how they do their job and how they interact with other departments and it should be left upon their managers to come with improved processes that will inform the overall BPMS. (BPMSUC_E Interview: respondent 6, 2011).

5.3.5 The Shortcomings of Using Business Process Management Systems in Support of Corporate Governance

This subsection focuses, from a BPMSUC perspective, on the shortcomings of using a BPMS in support of corporate governance.

The data obtained from the five BPMSUCs indicate that the following shortcomings may exist when a BPMS is used in support of corporate governance:

- It is time consuming to implement a BPMS in support of corporate governance. Some of the respondents even believe this is not possible if it does not form part of a bigger corporate governance strategy.

- There may be loopholes in processes, that the users will use to bypass corporate governance controls and measures that are incorporate and automated in a BPMS.

- There are employees (typically blue-collar employees) that are illiterate and computer illiterate, that is not able to use a BPMS. Other employees may find it difficult to use the BPM software, because it is not user friendly.

- A BPMS further requires good IT custodianship. Proper skills are required to support the technical (typically developers) and business (process analysts) level aspects of a process management system. System integration into other enterprise systems, e.g. may be extremely complex and require the correct and proper technical skills.

- A BPMS further requires the correct IT infrastructure to work, e.g., proper data lines. In Africa this is a problem. Poor data communication infrastructure exists in African countries and even a constant source of power is a problem (Africa often suffers from power failures). Normally IT systems require “thin-clients” to function over the slow speed data communication lines.

- Fifthly, business processes are not always effective and efficient, resulting in additional overhead ("red-tape") in processes.

- Process users may also be absent from work and because of poor management and planning this may cause "bottlenecks" in processes.

- Furthermore, an organisation requires flexibility and diversity in its organisational processes to maintain or gain a competitive advantage in the market. BPMS strive to achieve the opposite namely standardisation.

- BPMS removes human intervention or the "human feeling" in work activities. On the negative side, this may for example result in too rigid decision making processes. Customers, on the other hand, may prefer to deal with humans rather than machines or software, resulting in negative customer experiences.

- A BPMS discourages teamwork that may be essential for organisational survival and knowledge sharing.

- BPMSs with rigid processes may limit employee creativity and solution crafting. Limited creativity may influence profits negatively because users are not creative enough to invent new business.

- The improper use of BPMSs may cause employee resistance. Employees may be measured in the wrong way or measurements may be recorded wrongly, reflecting negative on employees.

- Employees also dislike to be monitored (through transparency and accountability) and this may cause employee resistance to use the system.

- Cultural norms may work against the adoption and use of a BPMS, e.g. in Africa the cultural norm of "ubuntu" exists that encourages togetherness, while a BPMS encourages individual performance.

- Employees furthermore, do not always understand the complete process (even if it is not required) and work with limited information (typically on activity level) that may be frustrating to them and may cause them to be negative about the system.

- A BPMS is normally used in bigger companies and not in smaller companies, that excludes the use of a BPMS in support of corporate governance for smaller companies.

Comments of the participants, with regards to the shortcomings of BPMSs to support corporate governance include:

> *Sometimes removes the human 'feel' from the process. It could also become 'black' and 'white' decision making with no grey areas. (BPMSUC_B Interview: respondent 22, 2011).*

> *Often a BPMS has integrations built within the framework such as to content management and Line of Business Systems which provide a single point for a user of a BPMS to manage their work. During any unexpected downtime of any system with integration, the user will often associate this with the BPMS due to this single view and create a negative perception which often impacts user and in some cases customer experience of an often sound and robust BPMS. (BPMSUC_B Interview: respondent 21, 2011).*

> *BPMS assume literacy - not everybody is literate (blue-colour worker not always working with computer). Infrastructure (data lines) in Africa is a problem. Thin-clients are essential in Africa. Skills are a very big problem (together with literacy problem). Culture differences and language barriers are a problem. Culture for example: Western mind-set does not always apply to Africa culture - for example segregation of duties: in Africa the culture is to share. Diversity of own operations of an enterprise (all countries do things [manufacturing] different). Integration with other application is complex and is critical for operations. (BPMSUC_C Interview: respondent 1, 2011).*

Rigid rules. Unfortunately, with BPMSs come rules that are not easy to change. Simple and small requests end-up being affected by red tape. (BPMSUC_E Interview: respondent 6, 2011).

It takes too long to implement the processes (also getting the correct processes) the first time. (BPMSUC_D Interview: respondent 9, 2011).

Production processes are used for administration. People stop thinking out of the box, they only follow automated processes. Nobody can do the thinking anymore. This is demotivating for people. (BPMSUC_D Interview: respondent 11, 2011).

Users are scared by the transparency and accountability and it places more stress on change management teams. (BPMSUC_D Interview: respondent 12, 2011).

It is typically used in bigger companies and requires good IT custodianship. People stop to think for themselves and loose creativity (BPMSUC_C Interview: respondent 6, 2011).

5.3.6 The Benefits of Using Business Process Management Systems in Support of Corporate Governance

This subsection focuses, from a BPMSUC perspective on the benefits of using a BPMS in support of corporate governance.

The data obtained from the five BPMSUCs indicate that the following benefits exist when a BPMS is used in support of corporate governance:

- A BPMS provides a mechanism to standardise business processes that eliminate process shortcuts (work activities), resulting in better governance of unwanted, unforeseen scenarios. A BPMS further promotes application integration to provide standard user interfaces.

- With a BPMS, organisational knowledge is shared among employees (Knowledge Management), resulting in better skills in a controlled fashion - only certain information in an organisation must and can be shared.

- Better business management. A BPMS allows for continuous improvement of business processes, resulting in an effective and efficient process, which again results in an improvement in bottom line savings, e.g. improved process performance, improved time management, improved process cycle times and improved controls. According to the respondents, the BPMS further assists in changing the culture of the organisation into a performance driven culture. BPMSs also provide agility in the organisation by allowing easy adaption of processes for new market and organisational requirements. A BPMS also assist in improving workload management and provide structure to organisational processes and employees. Business processes can easily and visibly be aligned to the organisational strategy with the use of a BPMS.

- The BPMS boosts the morale of employees, e.g. when the bottom line is improving or the business process runs with fewer process errors, through process controls and business rules.

- A BPMS assists and forces organisations to comply with principles of corporate governance.

Comments of the participants, with regards to the benefits of BPMSs to support corporate governance, include:

> *Performance driven culture. Management of work. Traceability and transparency including billing, customer satisfaction, continuous improvement, controlled up skilling through visibility. (BPMSUC_B Interview: respondent 20, 2011).*

Less time is spent on training. Less time is spent on checking. Rules become the norm. Sense of belonging is created as everyone, everywhere in the Corporation acts the same. (BPMSUC_D Interview: respondent 4, 2011).

Process consistency for users. Adherence to business rules. Transparency of where work is, who is working on it and how long is it taking. Measurements of performance both teams and individuals. End process result is consistent for the customer. Should provide flexibility in line with organisation design and operational challenges. (BPMSUC_B Interview: respondent 21, 2011).

Fairness - helps a lot with regulating workload and relieving pressure from users. If this is done, users feel that their wellbeing is taken into account, which assists with motivation. (BPMSUC_D Interview: respondent 12, 2011).

Enforce rules and standardisation. (BPMSUC_C Interview: respondent 19, 2011).

It promotes good business management in general-ensures that problems are identified at an earlier stage and rectified. Employees feel more part of and loyal to the team. (BPMSUC_D Interview: respondent 13, 2011).

Follow same process (standardized). Easy to see where problems occurred in process (visibility). Every instance of process follows the correct process rules and goes to correct people (enforce process and discipline). (BPMSUC_D Interview: respondent 9, 2011).

Standardization of rules. Everyone will know the rules of the organisation and any deviance can be attended to immediately. (BPMSUC_E Interview: respondent 6, 2011).

The next section embarks on three short case studies in which BPMSs were employed in BPMS users' companies.

5.4 Business Process Management System User Short Case Studies

5.4.1 Introduction

This section contains two short case studies in which a BPMS was used to improve corporate governance. The case studies involve personal experiences of the author. Positive and negative points of using a BPMS in support of corporate governance are highlighted during the case studies.

5.4.2 Case Study 1: The Public Department of Trade and Industry

5.4.2.1 Case Background

The South African Department of Trade and Industry (dti) strive to create a dynamic industrial, globally competitive South African economy. The characteristics of the South African economy are inclusive growth and development, and decent employment built on the full potential of all citizens. (*cf.* dti website, 2011).

The mission of the dti is to promote structural transformation towards a dynamic, industrial and globally competitive economy; To provide a predictable, competitive, equitable and socially responsible environment, conductive to investment, trade and enterprise development; To broaden participation in the economy to strengthen economic development; and to continually improve the skills and capabilities of the dti to effectively deliver on its mandate and respond to the needs of South Africa's economic citizens. (*cf.* dti website, 2011).

To achieve its mission, the dti strives to achieve the following strategic objectives: To facilitate transformation of the economy to promote industrial development, investment, competitiveness and employment creation; To build mutually beneficial regional and global relations to advance South Africa's trade, industrial policy and economic development objectives; To facilitate broad-based economic participation through targeted interventions to achieve more inclusive growth; To create a fair regulatory environment that enables investment, trade and enterprise development in an equitable and socially responsible manner; and to promote a professional, ethical,

dynamic, competitive and customer-focused working environment that ensures effective and efficient service delivery. (*cf.* dti website, 2011).

These objectives are to be achieved through the collective efforts of the dti's internal divisions and its Council of Trade and Industry Institutions (COTII) (Figure 5.1), which is linked through a value chain (Figure 5.2) to generate public value for the country's economic citizens and deliver high-quality products and services to the dti's varied clients and stakeholders. (*cf.* dti website, 2011). The products and services of the dti include policies, legislation and regulations, financial support and investment incentives, information and advisory support as well as value-added partnerships or dti agencies. (*cf.* dti website, 2011). One can deduce that the agencies of the COTII mainly consist of regulatory agencies, specialist service agencies and finance and small business development agencies (Figure 5.1), e.g. the National Credit Regulator (NCR), South African Bureau of Standards (SABS), National Consumer Commission (NCC), and Small Enterprise Development Agency (seda).

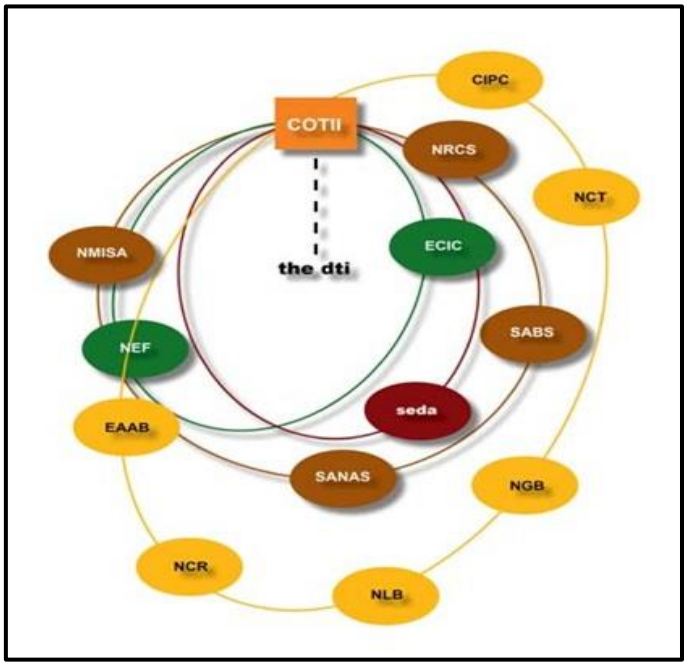


Figure 5.1 The agencies of the Council of Trade and Industry Institutions (dti website, 2011)

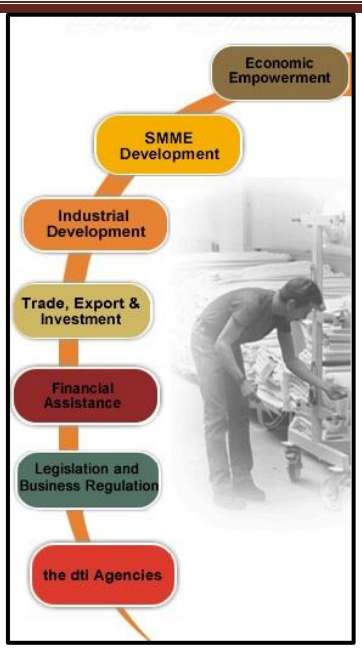


Figure 5.2 The value chain of the Department of Trade and Industry (dti website, 2011)

The dti has clustered its work on the basis of core themes, which collectively seek to promote a more effective and co-ordinated approach to the implementation of the dti's strategic objectives (dti website, 2011). The themes are:

- *Industrial Development:* Industrial Development focuses on the development and implementation of the up-scaled Industrial Policy Action Plan, which seeks to promote long-term industrialisation and industrial diversification. It further aims to expand production in value added sectors, places emphasis on more labour-absorbing production and services sectors and the increased participation of historically disadvantaged individuals in the economy, as well as interventions in diversified clusters, e.g. metals fabrication, auto motives and components, advanced materials and aerospace. (cf. dti website, 2011).

- *Trade, Export and Investment:* Focuses on increasing levels of international trade, foreign direct investment and economic co-operation on regional, continental and international levels. Trade, export and investment also aims to encourage global competitiveness of exports and beneficiation of products, expand market access and develop programmes to encourage trade and investment activities. It

further seeks to provide strategic direction in terms of South Africa's trade position in multilateral form such as the South African Development Community (SADC) and the World Trade Organisation (WTO). (*cf.* dti website, 2011).

- *Broadening Participation:* This theme focuses on developing interventions and strategies that broaden the participation of previously marginalised groups in the mainstream economy. The theme area further aims to align the Broad-Based Black Economic Empowerment (B-BBEE) policy with the country's industrial policy and legislative frameworks, upscale and accelerate delivery of programs to bolster economic empowerment among previously disadvantaged individuals, the women and the youth. It further seeks to transform the informal economy via, Small, Medium and Micro-sized Enterprise (SMME) development and channel support measures to the Co-operative sector. (*cf.* dti website, 2011).

- *Regulation:* Focuses on the development and implementation of a coherent, predictable and transparent legislative and regulatory framework, which facilitates easy access to redress and creates a fair and competitive business environment in South Africa. (*cf.* dti website, 2011).

- *Administration and Co-ordination:* Focuses on the effective co-ordination and implementation of the Department and its group of specialised agencies programmes, as well as integration of the dti's work into government's broader Plan of Action. (*cf.* dti website, 2011).

5.4.2.2 Project Background and Case Description

The case played out in the Trade, Exports and Investment theme[35] of the Department of Trade and Industry (dti). Trade, Exports and Investment, strives to promote economic development and meaningful participation in the global economic trade environment by working to build an equitable multilateral trading system that facilitates development and strengthens trade and investment links with key economies. This involves work to

[35] See previous subsection that describes the different themes of the dti

support African regional economic integration and development co-operation, aligned to the objectives of the NEPAD. (*cf.* dti website, 2011).

The dti recognises the importance of promoting trade and inward investment and building trade and investment relations, through the establishment of collaborative agreements with existing trading partners and dynamic fast-growing emerging markets. This further involves trade policies that require on-going efforts to shape the terms and conditions of South Africa's integration into the global economy, in a manner that supports South Africa's national economic and industrial developmental objectives. (*cf.* dti website, 2011).

Custom Tariff Investigations, *Trade Remedies* and *Import and Export* controls fall within the domain of the International Trade Administration Commission of South Africa (ITAC). ITAC was established through an Act of Parliament, the International Trade Administration Act 71 of 2002, which came into force on 1 June 2003. The aim of ITAC is to foster economic growth and development in order to raise incomes and promote investment and employment in South Africa and within the Common Customs Union Area, by establishing and efficient and effective systems, for the administration of international trade subject to the Act and the South African Customs Union (SACU) agreement.

The project described in this case study involved the three domains of ITAC namely *Custom Tariff Investigations*, *Trade Remedies* and *Import and Export.* These are described now:

- *Tariff Investigations:* ITAC operates in a complex and dynamic trade and industrial policy environment with sustained pressure to reduce or eliminate ordinary customs duties through unilateral, bilateral, regional and multilateral trade agreements. Ordinary customs duties, especially for high value added products, remain an industrial policy instrument in the environment. The tariff investigations division is geared towards the lowering of cost structures on industrial inputs through tariff reform, promoting downstream value-added industrialisation which is

more labour intensive. The tariff investigations division also investigates and administers rebate drawback of duty provisions for promoting manufacturing or export. (*cf.* ITAC website, 2011).

The Commission has set comprehensive criteria for adjudicating tariff applications through rigorous processes, which is evidence based and carried out on a case by case basis. The criteria is applied to applications and include extensive analysis of various factors for example: whether a product is produced domestically or not, or whether there is tangible potential to produce a particular product domestically; import and export data; domestic demand and supply; comparison of domestic prices with import prices; productivity; productive capacity; market share; profitability; effective rate of protection; employment and investment. (*cf.* ITAC website, 2011).

- *Trade Remedies:* ITAC has the function to conduct investigations of anti-dumping protection, countervailing duties to counteract subsidisation in foreign countries, and safeguard measures when a surge of imports is threatening to overwhelm a domestic producer, in accordance with domestic law and regulations and consistent with WTO rules. Collectively, these types of investigations are termed trade remedy investigations. These functions are critical government interventions to protect jobs and investments. (*cf.* ITAC website, 2011).

  Dumping, despite its name, has nothing to do with the importation of inferior, defective, or hazardous goods. Dumping is defined as a situation where imported goods are being sold at prices lower than in the country of origin, and also causing financial injury to domestic producers of such goods. There should be a demonstrated causal link between the dumping and the injury experienced. To remedy such unfair pricing, ITAC may recommend the imposition of, at times, substantial duties on imports, duties that are equivalent to the dumping margin or to the margin of injury, if this margin is lower. (*cf.* ITAC website, 2011).

  Countervailing investigations are conducted to determine whether to impose countervailing duties to protect a domestic industry against the unfair trade practice

of proven subsidised imports from foreign competitors that cause material injury to a domestic producer. (*cf.* ITAC website, 2011).

The last trade remedy, the safeguard measure, can be introduced to protect a domestic industry against unforeseen and overwhelming foreign competition and not necessarily against unfair trade, like the previous two instruments. In the WTO system, a member may take a safeguard action, such as, restricting imports temporarily in the face of a sustained increase in imports that is causing serious injury to the domestic producer of like products. Safeguard measures are universally applied to countries, unlike anti-dumping and countervailing duties that are aimed at a specific firm or country. (*cf.* ITAC website, 2011).

- *Import and Export:* Import and export control measures or restrictions are limited to those allowed under the relevant World Trade Organisation (WTO) Agreements. (*cf.* ITAC website, 2011).

  Out of a total of 6618 product tariff lines identified in the South African version of the International Harmonised Commodity Description and Coding System, the internationally accepted customs clearing system for traded goods, there are only approximately 276 tariff lines that, in South Africa, are under import control and 177 tariff lines that are under export control. (*cf.* ITAC website, 2011).

  Import and export control measures are essentially applied to enforce health, environmental, security and safety, and technical standards that arise from domestic laws and international agreements. Turnaround times in issuing permits to industry, given their economic significance, are strictly met. (*cf.* ITAC website, 2011).

ITAC envisioned that an automated processes solution assist the organisation to streamline its rigorous processes. Automated processes may further assist the organisation to enforce process control measures and implement sections of the International Trade Administration Act 71 of 2002 in the organisation. Other advantages of an automated process solution include applying criteria for adjudicating

tariff applications consistently to incoming applications, implementing the classifications and tariff requirements of products, and building an electronic interface to the South African Revenue Service (SARS). A request for proposal (RFP) to automate the processes of ITAC was publically announced.

After the ITAC tender process, which the BPMSVC of the author won, the top management teams of the two companies had an initial meeting to plan the way forward. It was decided that the Chief Information Officer (CIO) of ITAC would be the primary contact person on the ITAC side, while a Senior Project Manager on the BPMSVC side, would be the primary contact.

The BPMSVC used its own project methodology for the project. The methodology involves a high-level process design performed by a Process Analyst. After the high-level design is signed off, the Process Analyst and a Senior Solution Architect (Developer) take the high-level design and develop it further into a detailed technical design that involves a prototype shell, focusing on user functionality and interfaces. This also allows the users to get a good look and feel of the process solution. After this stage is complete, the Senior Solution Architect (Developer) hand the prototype shell over to a design team to complete the technical implementation (e.g. coding the system interfaces between SARS and ITAC). Finally, the system is tested and implemented in the live environment. A service level agreement (SLA) is negotiated between ITAC and the BPMSVC for the effective running of the system.

During the first two phases of the project methodology (the high-level design and the more detailed prototype design phase), it was agreed with the CIO of ITAC that the members of the required ITAC divisions must be present during the design meetings. If there were any burning points in these meeting, e.g. disagreement on process functionality, the CIO or another top-management member was called into the meeting and assisted to resolve the issue. Divisional managers also had the opportunity to review the designs before the designs got signed-off. The author was the process analyst involved in the process designs in the first two phases of the project methodology of the BPMSVC.

The technical team had some difficulties in building the system interface between ITAC, who had newer systems, and SARS, who still used a lot of mainframe technology. However, the system interface between SARS and ITAC was successfully created and the system was tested and went live. During the testing phase there were only a few minor changes to processes, but the prototype approach that was followed during the process design phases played a big role in minimizing changes to the system. In the go-live phase the system initially performed poor under workload stress. Changes were made to the ITAC technology infrastructure and the inner-workings of the BPMS for it to perform sufficient under workload stress.

After three months of process design and another four months of technical design and implementation, the solution was successfully signed-off by ITAC, after which the necessary service level agreements were established between ITAC and the BPMSVC.

5.4.2.3 Case Findings

The following findings are deducted from the dti-ITAC case study:

1. The dti-ITAC processes, which are structured and rigorous (e.g. the implementation of sections of the International Trade Administration Act 71 of 2002, classifications rules of products and controls) in nature, lends itself well towards an automated process solution in a BPMS. The automation of processes enforces process rules and acts, improving the governance and decision making involved in these processes.

2. The process solution further provided business value to the organisation by optimizing business processes, e.g. eliminating unnecessary decision structures (replaced by automation), an automated system interface between ITAC and SARS (no more human resources required for these functions), automated classification of products and tariffs. Through the process design phases unnecessary process activities were identified and eliminated, e.g. there were too many approval activities in every process which is a typical characteristic of a government

organisation. In other words, not only corporate governance was improved, but the solution also provided business value to the organisation.

3. The automated processes allowed for consistent application of criteria for adjudicating tariff applications. The same is true for process controls and act compliance.

4. Top-management commitment of ITAC played a major role in making the solution a success. Top-management got everyone involved in the design and delivery of successful processes that contributed towards adoption of the new system. The prototype approach adopted in the project methodology of the BPMSVC played a major role in the active participation of stakeholders in the design process, which is an example of active Change Management.

5. The process designs and automated processes explicitly capture the intellectual property, knowledge and functions of ITAC. Previously, these were kept in the heads of employees. This posed a risk to the organisation if they lost the employee trough unforeseen circumstances. The BPMS is a way to explicitly capture the intellectual property, knowledge and functions of the organisation.

6. After the processes had been automated, process instances were transparent and visible to management and managers, who could track process instance information and process instance decisions that were made. This was also a helpful tool to trace any possible misconduct that occurred in processes instances.

7. Activities or tasks in ITAC processes were assigned to specific ITAC employees who were responsible to perform these activities. When an activity is not completed by an ITAC employee in the required time, the BPMS notifies that employee that the specific task or activity is still outstanding. After notification, the employee has a chance to act on the outstanding activity. If the employee does not act on the activity or task, the request is escalated to the employee's manager for further action. The automated processes improved accountability by assigning specific activities to

employees and enforcing employees, through notification and escalation, to perform these activities.

8. The BPMS provides real-time reporting capabilities to managers (top-management or line managers). At any given stage a manager can draw reports that provide accurate real-time information and statistics about the business that assist them to govern better, e.g. making certain financial decisions based on financial statistics in a financial report.

9. Communication between the dti –ITAC and external stakeholders such as the South African Revenue Services (SARS) has been improved through an automated process interface. For example, financial transactions and SARS requests are now directly moved and registered on SARS computer systems without any human interference. This allows for shorter process cycle times and fewer human errors. Automated communication to employees and managers also improved e.g. notifying employees and managers if work falls behind.

The next case study discusses a process implementation project at a manufacturing plant that offers a wide range of automation and power technologies.

5.4.3 Case Study 2: Engineering Company: Automation and Power Technologies

5.4.3.1 Case Background

As one of the world's leading engineering companies, the engineering company assist clients to use electrical power effectively. The engineering company further helps clients to increase their industrial productivity. (*cf.* Engineering company website, 2011).

In South Africa, the company was established in 1992 and employs more than 2400 people across South Africa. The company offers a wide range of power and automation technologies locally. This includes complete solutions to utilities including electrical

power infrastructure for transmission and distribution networks, and associated products and systems such as substations, reactive power compensation, utilities automation (including protection and control) and power plant automation. On the industry side, the company offers systems, products, and services in the areas of pulp and paper, mining, metals and minerals, cement, chemicals and petrochemicals as well as manufacturing and customer industries. The offerings mentioned are supported by field maintenance and asset performance services. In South Africa, the group has a strong local manufacturing capability with seven manufacturing sites around the country. (*cf.* Engineering company website, 2011).

The strategy of the engineering company is to be a global leader in power and automation technologies that enable utility and industry customers to improve performance, while lowering environmental impact. By focusing on their core capabilities, the company strive for organic profitable growth. Customers should have easy access to the top quality products and systems that the company offers, whether they buy from distributors, wholesalers, system integrators or other partners. (*cf.* Engineering company website, 2011).

The mission for the company in 2011 is to:

- Improve its operational performance, grid reliability and productivity, while saving energy and lowering environmental impact.

- Drive innovation in product, systems and service offerings.

- Attract talent (dedicated and skilled people) and offering employees an attractive and global work environment.

- To act responsibly, ensuring that sustainability, lowering environmental impact and business ethics are at the core of the companies' market offering and operations.

In the companies' own words their vision is described as follows:

> *As one of the world's leading engineering companies, we help our customers to use electrical power efficiently, to increase industrial productivity and to lower environmental impact in a sustainable way. Power and productivity for a better world. (Engineering company website, 2011).*

The culture of the company is characterised by good leadership, competence, ambition and integrity. Integrity (high moral and ethical standards) is expected from every employee in every country where business is done. The characteristics of good leadership, competence, ambition and integrity ensure that value is created by fulfilling customer commitments, employee commitments and commitments to communities and societies in which the company operates, in line with the corporate values. The core business principles of the company are to build value, performance, leadership, responsibility, respect and determination, with a shared determination to win. (*cf.* Engineering company website, 2011).

The company has launched a series of sustainability objectives in late 2009. These sustainability objectives are reflected across the business processes of the company. According to the company, sustainability is achieved by balancing economic success, environmental stewardship and social progress to benefit stakeholders. Sustainability further covers how the company design and manufacture products, what the company offers to customers, how the company engage with suppliers, how risks and opportunities is assessed and how the company behave in communities ensuring the health, safety and security of employees and others affected by the company's activities. (*cf.* Engineering company website, 2011).

5.4.3.2 Case Description

High Voltage Direct Current (HVDC) and HVDC Light are systems for the transmission of electric power. Both systems are used to meet special requirements in power grids and consist of a cable or line for direct current transmission and two or more converter stations. (*cf.* Engineering company website, 2011).

The power lines carry alternating current (AC) that oscillates with 50 or 60 cycles per second, whether they are for extra high voltage, medium voltage or low voltage distribution. These lines form a large interconnected network that ties the power generation plants (coal, gas, nuclear, hydro and wind) to the consumers (homes, industries and offices).

The classical HVDC technique was first introduced in Sweden in 1954 by a company called ASEA. Typically, a classical HVDC transmission has a power of more than 100 Megawatt (MW) and many are in the 1000 – 3000 MW range. Classical HVDC transmissions use overhead lines and undersea cables (or combinations of cables and lines). (*cf.* Engineering company website, 2011).

HDVC Light is called the "invisible power transmission", since it is based on underground cables, although overhead cables are also a possibility. The technology extends the economic power range of HVDC transmission down to just a few tens of Megawatts (MW). In the upper range, the technology can reach 1200 MW and 320 kV. (*cf.* Engineering company website, 2011).

The engineering company engaged with the BPMSVC on two projects that were established through personal business networks. The projects included:

- The automation of some critical human resource processes; and

- The automation of manufacturing processes for the steel towers (see Figure 5.3) required to carry overhead transmission power lines.

Figure 5.3 Steel towers carrying overhead transmission power lines

The project team for the BPMSVC consisted of a project manager, a business analyst and two solution architects (process developers). On the side of the engineering company, the project team consisted of a project manager, relevant line managers and key personnel, who understood key details of the relevant processes of the engineering company.

The key driving force behind the project was to increase control and visibility over both the human resource processes and the tower manufacturing processes. It was critical to deliver towers on time to international clients and even give them visibility into the manufacturing processes.

With good co-operation and communication between the two project managers and project teams, the human resource processes were delivered and implemented in time. The BPMSVC used human resource (HR) processes templates from their own process libraries as basis for the process designs of the engineering company. The two project teams analysed the template HR processes together and made specific recommendations and enhancements to these processes, for the engineering company. As soon as processes were approved for development, it was handed to the Solution Architects for development. A prototype approach was adopted to deliver the final product. Managers and key users had two or three opportunities to recommend minor changes to the product before it was implemented. Users received the required training

to use the process system. A service-level-agreement was established between the BPMSVC and the engineering company, before the final sign-off for the HR processes was received.

The automation of the manufacturing processes did not succeed. After stepping through the manufacturing processes, both the project teams realized that the software integration between the robots that control the manufacturing process of the steel tower components and the BPMS software are too complex. The robotics in the manufacturing plant was controlled by specific machine software. However, the machine software was not based on an open standard and was difficult to integrate with any other software. Even with good management support and project collaboration, the total automation of the steel tower manufacturing processes was abandoned because it was technically impossible to interface and integrate the BPMS with the robotics software.

5.4.3.3 Case Findings

The following findings are deducted from the engineering company case study:

1. The automating of the manufacturing processes did not succeed. It was not technically feasible to integrate the BPMS with the robotics software in the manufacturing plant. Therefore, a process solution is not always possible in every situation, even if the processes are structured and rigorous.

2. Top-management support and commitment played a major role in achieving project success in the HR solution.

3. Good communication between the project teams of the engineering company and the BPMSVC ensured that no additional money was wasted by trying to automate the manufacturing processes and integrating the BPMS with the manufacturing robotics, which was technically not feasible.

4. The Human Resource processes ensured consistency (for example granting leave), control (for example adherence to company policies and rules), standardisation, accountability and visibility in work processes. The BPMS assisted the company to manage and optimise their work processes better. Managers had better visibility into the work practices of their employees, for performance purposes.

5. The intellectual property of how the company performed their working activities that give them a competitive advantage above other companies was explicitly captured in the process models and designs.

The next section gives a summary of the research findings from this chapter.

5.5 Concluding Summary

This section contains the findings obtained from the BPMSUCs in Table 5.1. Table 5.1 also include cross references to other parts or sections in this dissertation, where similar results are found or where there is more information on the specific subject matter.

Table 5.1 Summary of findings from the Business Process Management System User Companies

Finding	**Description of finding**
1: The effectiveness of BPMSs to improve corporate governance.	From Section 5.3.2, Section 5.3.3 and Section 5.4 (case studies) in this chapter: • The types of corporate governance addressed by BPMUCs are similar to those that were identified by the BPMSVC. (Section 1.5, secondary research questions 1). • The majority of respondents in the user companies indicated that a BPMS is effective in improving corporate governance, other aspects of business and employee behaviour, in support of governance. This is partly due to the fact that a BPMS can support principles of governance such as the King principles of governance. (Section 1.5, secondary research questions 2). • Some respondents of the user companies indicated that a BPMS is only be effective in improving corporate governance under specific conditions (e.g.

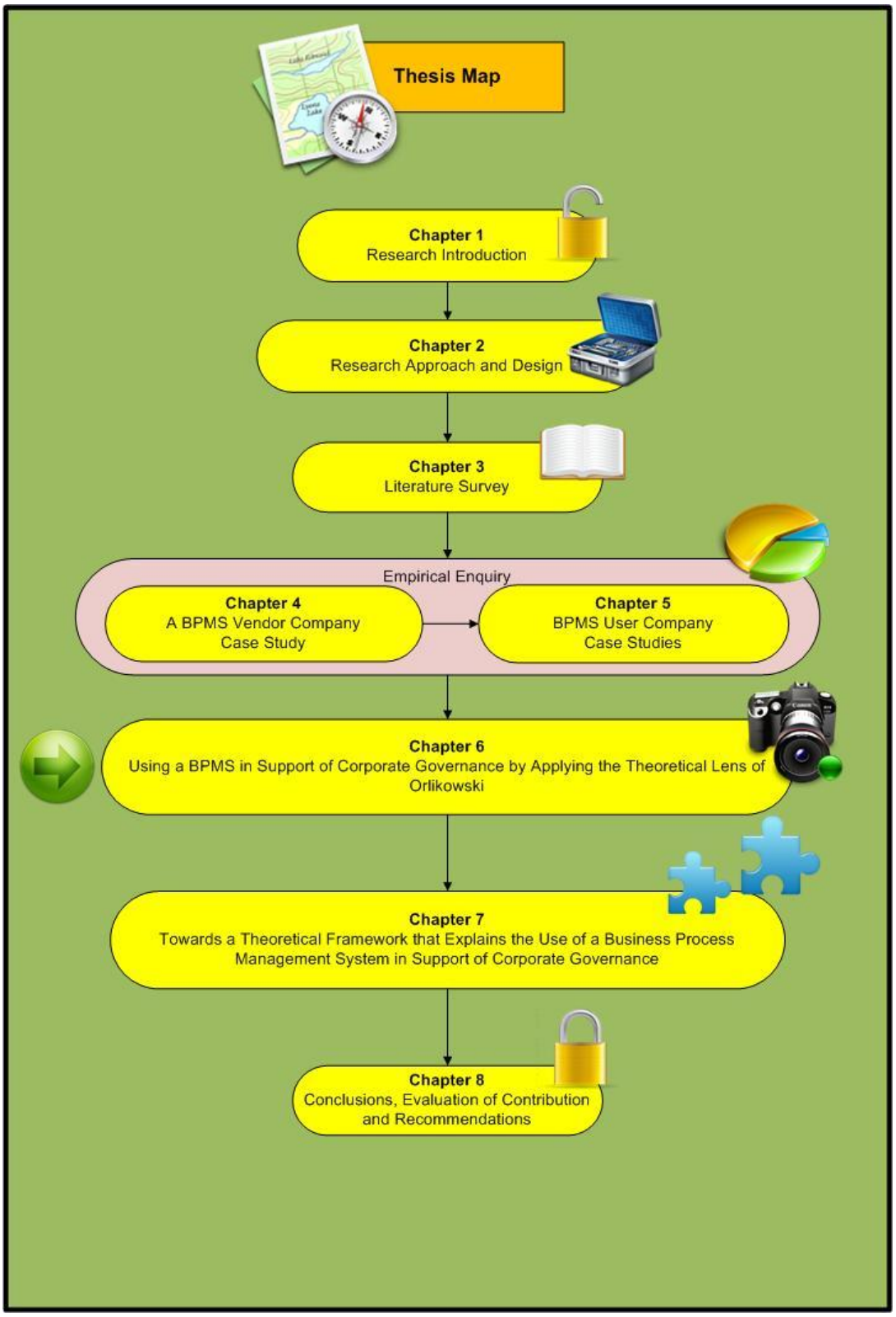
	Top-Management buy-in and support, proper change management, if problems are not of ad-hoc nature and if solutions are technically feasible). (Section 1.5, secondary research questions 3.2).
2: Effectiveness of BPMSs to change behaviour in support of corporate governance.	From Section 5.3.3 and Section 5.4 (case studies) in this chapter: • The respondents indicated that a BPMS changes behaviour in support of corporate governance. (Section 1.5, secondary research questions 4). • Behaviour is system driven, forcing people to do work in a specific way. (Section 1.5, secondary research questions 4). • Employees also behave more honestly (supported by 80.8% of the respondents), and be responsible and aware of their actions because BPMSs provide process visibility, process accountability and ways to measure employee performance. (Section 1.5, secondary research questions 4). • However, some respondents indicated that a BPMS only changes employee behaviour in support of corporate governance if there is buy-in and support from Top-Management and other stakeholders. Furthermore, everyone must be forced to use the BPMS so that there is no way to bypass the system. The "live" production system must also be tested well so that there are no loopholes for employees to bypass the process and process controls. (Section 1.5, secondary research questions 3.2). • Respondents also warned against human nature that always tries to find ways to bypass any system. A BPMS is never the ultimate solution in providing corporate governance. (Section 1.5, secondary research questions 3.2).
3: The anticipated use of BPMSs in support of corporate governance.	From Section 5.3.4 and Section 5.4 (case studies) in this chapter: The respondents indicated that users may not use the BPMS in its anticipated way. There are several reasons: • Processes in the BPMS can be wrongly defined causing it to be used in an unanticipated way. (Section 1.5, secondary research questions 3.2, 4). • It is not always possible to foresee and address process problems that exist in processes the first time around, allowing the user to use the system in a way that was not anticipated. (Section 1.5, secondary research questions 3.2, 4). • Employees might be resistant to change causing them to revert back to old ways of working. (Section 1.5, secondary research questions 3.2, 4). • Employees may not understand the workings of a BPMS or the workings of a process, causing them to use it in a way that was not anticipated. (Section 1.5, secondary research questions 3.2, 4).

	The respondents further indicated that if the BPMS is not used in its anticipated manner, it could be corrected by correcting the process problems identified during testing, training and use. Process problems are typically discovered through the transparency, visibility and monitoring capabilities of a BPMS. New process possibilities identified can also be implemented. Furthermore, processes and tasks that enforce process discipline and compliance are formalised. (Section 1.5, secondary research questions 3.2). Proper change management should be implemented in an organisation so that users use the BPMS in its anticipated way. The respondents indicated that users only use the BPMS in its anticipated way when: • There was proper end-user training. (Section 1.5, secondary research questions 3.2, 4). • There was buy-in from users (in other word proper change management occurred). (Section 1.5, secondary research questions 3.2, 4). • The system was properly designed and tested. (Section 1.5, secondary research questions 3.2, 4). • Processes are well understood. (Section 1.5, secondary research questions 4).
4: Shortcomings of using BPMSs in support of corporate governance.	From Section 5.3.5 and Section 5.4 (case studies) in this chapter: The following shortcomings exist when using a BPMS in support of corporate governance (see Section 1.5, secondary research questions 3.2): • It is time consuming to implement a BPMS in support of corporate governance. • There may be loopholes in processes that the users use to bypass corporate governance controls and measures. • There are employees that are illiterate and computer illiterate that may not be able to use a BPMS. • Other employees may find it difficult to use the BPM software, because it is not user friendly. • A BPMS requires good IT custodianship. Proper skills are required to support the technical and business level aspects of a process management system. • A BPMS requires the correct IT infrastructure to work. • Business processes are not always effective and efficient, resulting in additional overhead (“red-tape”) in processes. • Sometimes an organisation requires flexibility and diversity in its organisational processes to maintain or gain a competitive advantage in the

	market. BPMS strive to achieve the opposite namely standardisation. • BPMSs removes human intervention or the "human feeling" within organisations that may cause negativity. • A BPMS with rigid processes may limit employee creativity and solution crafting. • The improper use of BPMSs may cause employee resistance. • Cultural norms may also work against the adoption and use of a BPMS (e.g. in Africa the cultural norm of "ubuntu" exists that encourages togetherness, while a BPMS encourages individual performance). • A BPMS is normally used in bigger companies and not in smaller companies that excludes the use of a BPMS in support of corporate governance.
5: Benefits and strengths of using BPMSs in support of corporate governance.	From Section 5.3.6 and Section 5.4 (case studies) in this chapter: The following benefits exist when using a BPMS in support of corporate governance (see Section 1.5, secondary research questions 3.2): • A BPMS provides a mechanism to standardise business processes that eliminate shortcuts resulting in better corporate governance. • A BPMS further promotes application integration to provide one user interface to users, again standardising on the user interface. • With a BPMS, organisational knowledge is shared among employees, resulting in better skills in a controlled fashion. • A big advantage of that a BPMS provide in terms of better corporate governance is better business management. • The BPMS assist to change the culture of the organisation into a performance driven culture. • BPMSs also provide flexibility in the organisation by adapting business process to market and organisational requirements. • A BPMS further improves workload management and provide structure to organisational processes and employees. • Business processes can easily and visibly be aligned to the organisational strategy with the use of a BPMS. • Fourthly, a big advantage of using a BPMS is the ability of the system to boost the morale of employees e.g. when bottom-line is improving or business process runs with fewer process errors. • BPMSs assist and enforce organisations to comply with principles of corporate governance.

In Chapter 6, the research phenomenon is studied, by applying the theoretical lens of Orlikowski (2000).

Chapter 6: Using a Business Process Management System in Support of Corporate Governance by Applying the Theoretical Lens of Orlikowski



6.1 Introduction

In the previous two chapters an empirical investigation was conducted at a Business BPMSVC and various BPMUC's to investigate the research objectives that was set out in this study.

This chapter is devoted to deepen understanding of the research phenomenon by applying the theoretical lens of Orlikowski (2000). The theoretical lens of Orlikowski (2000) is used as a complementary research method to provide a richer and more complete picture of the use of a BPMS in support of corporate governance in South Africa[36]. However, any theoretical lens allows the examination of some details of a research phenomenon, to the exclusion of other details (Truex *et al.*, 2006), as discussed in Section 6.2 of this chapter.

This chapter is structured in the following way:

- First, the use of multiple theoretical lenses in contrast to a single theoretical lens is discussed.

- Secondly, a motivation is presented for selecting and using a single theoretical lens perspective.

- Lastly, the theoretical lens of Orlikowski (2000) is applied to the research phenomenon of this project.

[36] See Triangulation in Chapter 2, Section 2.6.

6.2 Multiple Theoretical Lenses versus a Single Theoretical Lens

6.2.1 Introduction

This section examines the insights of applying multiple theoretical lenses to a research phenomenon as opposed to applying a single theoretical lens. This section concludes with the motivations why a single theoretical lens was chosen in this study to deepen understanding of the research phenomenon in this project.

6.2.2 Applying Multiple Theoretical Lenses versus a Single Theoretical Lens

Theory plays a central role in IS research and is described by Neuman (1991) as a web of meaning about a phenomenon. According to Truex *et al.* (2006), theory guides the process of making sense of complicated real-world phenomena that are often contradictory. One can apply multiple theoretical perspectives or lenses to a research phenomenon or one can apply a single theoretical lens to a research phenomenon. These approaches are explored.

Multiple theoretical lenses have the potential to further deepen understanding of a research phenomenon. Van de Ven and Poole (1995) argue that combining theoretical lenses and juxtaposing them have benefits for researchers. Multiple theoretical lenses that focus on different details of the research phenomenon have the possibility to add greater understanding of the research phenomenon. However, combining theoretical lenses is not commonly used in information system (IS) research.

Okhuysen and Bonardi (2011) reveal two ways to use and apply multiple theoretical lenses in research:

- The first is to combine lenses.
- The second is to apply multiple lenses separately.

Okhuysen and Bonardi (2011) argue that the first approach of combining lenses, provide value when tackling complex, real-world problems, or where there is isolated silos of knowledge that require richer or more complete understanding. However, they acknowledge the challenges in combining the differences in the underlying assumptions of theories to study a research phenomenon. In other words, there are concerns with studying the phenomenon of interest from different epistemological, ontological and methodological viewpoints. These worries are also echoed by Truex e*t al.* (2006).

Truex e*t al.* (2006), are further concerned about the temptation to adapt and use the bits of a specific theory that seems applicable to the task at hand, without understanding and considering the limits and problems that may be associated with that theory.

More effective than combining theories, is to apply multiple lenses separately on similar research areas, but with incompatible assumptions (Okhuysen and Bonardi, 2011). In this case, researchers may aim for more powerful or complete explanations of a research phenomenon. The challenge for researchers still remains, to bridge the different perspectives to construct a coherent and plausible explanation. Okhuysen and Bonardi (2011) challenge researchers to do a thorough examination of the soundness and realism of each theory's underlying assumptions and to identify common rather than incompatible areas, which assist researchers to identify areas where additional explanations of a research phenomenon are required. This is where combining lenses offers the greatest leverage. For this approach it may be better to use one theory in the foreground while other theories are used to enrich the theory in the foreground (Okhuysen and Bonardi, 2011). Van de Ven and Poole (1995) suggest applying different theories in studying different aspects of a research phenomenon. In such a case, the interplay between these theories is the basis of more complex theories of change that may explain real-world change processes. According to Van de Ven and Poole (1995), these theories have stronger and broader explanatory power. To close, combing

theories may provide alternative and unique pictures, insights and explanations of a research phenomenon.

On the other hand, a single theoretical lens typically brings some forces, variables or concepts to the fore, but it also obscures others (Truex *et al.*, 2006). As stated in the words of Truex *et al.* (2006:800):

> *Theory acts as a lens through which we focus and magnify certain things, while filtering out other things presumed to be noise.*

The application of one theory can blind us. It influences what we see, but it also influences what we do not see (Weick, 1985). According to Okhuysen and Bonardi (2011), the "compartmentalising" of perspectives has produced isolated and impoverished lines of research. However, as indicated before, multiple lenses may threaten parsimony, epistemological purity and clarity of perceptions. Next, a motivation is given of why a single theoretical lens perspective was applied to this research project.

6.2.3 Motivation for Applying the Single Theoretical Lens Perspective

In this part, a motivation is presented why a single lens perspective was chosen and applied to the research.

First, the challenge in combining the differences in the underlying assumptions (ontology, epistemology and methodology) of different theories to study the research phenomenon is a great concern that may jeopardise the validity of the research findings. These worries are also echoed by Truex e*t al.* (2006). Truex e*t al.* (2006), further warns researchers about the temptation to adapt and use the bits of a specific theory that seems applicable to the task at hand, without understanding and considering the limits and problems that may be associated with that theory. Multiple lenses may threaten parsimony, epistemological purity and clarity of perceptions. Therefore, the use of one

appropriate theoretical lens seems plausible to guide the process of deeper understanding of the research phenomenon, as motivated in Chapter 2.

Secondly, the remaining concern that a single lens approach may limit a deepened understanding of a research phenomenon is addressed through the process of triangulation. As explained in Chapter 2 (Section 2.6), triangulation involves complementary research methods to provide a richer, more accurate and more complete picture of a research phenomenon (Jick, 1979). Triangulation in this study is achieved through:

- A BPMSVC case study investigation of the research phenomenon. (*cf.* Chapter 4).

- An investigation of the research phenomenon in seven companies that use BPMSs, called BPMSUCs. (*cf.* Chapter 5).

- By applying the single theoretical lens of Orlikowski (2000) to the research phenomenon. (*cf.* Chapter 6).

Therefore, instead of applying multiple theoretical lenses to the research phenomenon to provide deeper and richer understanding of the research phenomenon, other complementary research methods were used for this purpose. Although a single theoretical perspective may be prescriptive and selective in how the researcher looks and understands the research phenomenon, the other complementary research methods assisted the researcher to provide a more complete, broader and accurate description of the research phenomenon.

6.3 The Enactment[37] of Corporate Governance Supportive Technologies in Practice: Using a Business Process Management System

6.3.1 Introduction

Organisations and technology go through dramatic changes in form and function (Orlikowski, 2000). On the other hand, researchers have long studied the relationship between technology and organisational processes, structures and outcomes (Orlikowski, 2000). Notions of innovation, learning and improvement were often used to understand the role, implications and influence of new technologies on the organisation (Ciborra, 1996; Cook and Brown, 1999; Orlikowski, 1996; Orlikowski, 2000).

Orlikowski (2000) designed a theoretical framework for studying technology in organisations that builds on earlier articulated research of structuration introduced by Anthony Giddens (1984), as explained in Chapter 2. Orlikowski's (2000) framework advances the view that structures are not located in organisations or technology, but are enacted by users of the technology in the organisation (*cf.* Chapter 2, Section 2.3). This is resonated by Orlikowski (2000: 404) that describes her framework as an:

> *..extension to the structurational perspective on technology that develops a practice lens to examine how people, as they interact with a technology in their on-going practices, enact structures which shape their emergent and situated[38] use of that technology. Viewing the use of technology as a process of enactment enables a deeper understanding of the constitutive role of social practices in the on-going use and change of technologies in the workplace.*

[37] The process through which humans structure and shape their reality (Weick, 1995).

[38] Suchman (1987) defines the organisation of situated action as: "as an emergent property of moment-by-moment interactions between actors, and between actors and the environment of their action."

Orlikowski and Iacono (2001) state that any analysis and usage of an IT artefact must acknowledge that the IT artefact is:

- Shaped by the interest, values and assumptions of designers and users[39].
- Embedded in a historical context and therefore consideration must be given to the cultural aspects of the implementation journey.
- Composed of a multiplicity of fragile and fragmentary components.
- Emerges from on-going social, political and economic practice.

All of these aspects form part of the discussion when applying the theoretical lens of Orlikowski (2000) to the use of a BPMS in support of corporate governance. The implications (structuration) that the use of this technology has on the organisation are also discussed.

6.3.2 Applying the Theoretical Lens of Orlikowski

6.3.2.1 Introduction

The theory of Orlikowski (2000) is now applied to the research phenomenon, as illustrated in Figure 6.1. Before explaining the workings of the applied framework, the components of the framework are presented. The applied structural framework comprises the following components, as indicated in Figure 6.1:

[39] Throughout the study, the roles of these two important groups of actors are investigated and discussed. Also in the theoretical framework developed in Chapter 7.

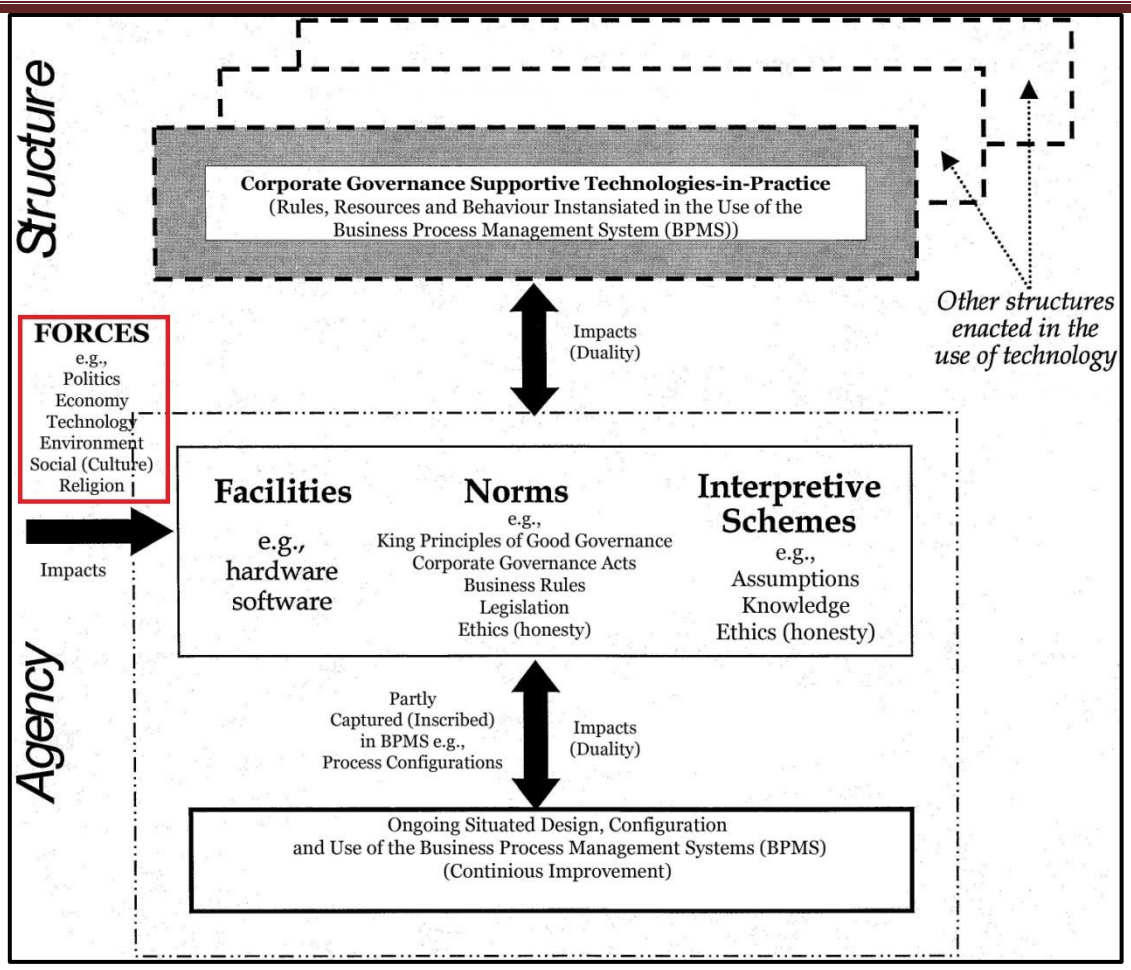


Figure 6.1 The enactment of corporate governance supportive technologies-in-practice by using a Business Process Management System (adapted from Orlikowski, 2000)

- Human actors: Technology designers who design and configure the system, users that use the system and decision makers who use information from the system to make better decisions.

- Technology: Material artefacts mediating task execution in the workplace. In the case of this research project the technology is a BPMS.

- Agency: Refers to the capacity of human actors, when interacting with the technology, a BPMS, to do things that make a difference in the organisation. Chapter 3 discusses the value that a BPMS brings to the organisation.

- Facilities: Human actors draw on facilities such as hardware and software in a specific organisational context.

- Norms: Human actors draw on norms such as rules, protocols and etiquette in their on-going practices and use of technology in a specific context. In this study, King's principles of corporate governance were investigated as norm.

- Interpretive schemes: Human actors (e.g. designers, users and decision makers) draw on their own capabilities e.g. tacit and explicit knowledge of prior and current experiences, assumptions and ethical frameworks.

- Forces: Refers to external and internal organisational forces that influence facilities, norms and interpretive schemes. It impacts and influences corporate governance.

- On-going situated design, configuration and use of a BPMS: Human actors recursively draw upon facilities, norms and their interpretive schemes in their on-going design, configuration and use of a BPMS. The on-going situated design, configuration and use of a BPMS, on the other hand, impacts facilities, norms and interpretive schemes of human actors. There is a duality or interplay between these aspects. This recursive action by actors leads to continuous improvement of corporate governance in organisations.

- Structure: Refers to the social structures that emerge from the recurrent use of technology, in this case a BPMS.

- Rules: Techniques or procedures applied in the enactment or reproduction of social practices (Giddens, 1984). In the case of this project, techniques or procedures applied in the enactment or reproduction of social practices in support of corporate governance.

- Resources: Refers to resources that structures social action.

- Corporate governance supported technology-in-practice: Refers to the specific corporate governance supported structures routinely enacted as we use a BPMS in our everyday situated activities.

- Other structures: The enactment of a corporate governance supportive technology-in-practice (explained in the next section) is situated within a variety of nested and overlapping social systems. The interaction between users and a BPMS always enacts other social structures along with the corporate governance supportive technology-in-practice.

The working of the applied theoretical framework, as indicated in Figure 6.1, is now explained and includes the following discussions:

- A discussion of the on-going situated design, configuration and use of a BPMS in the organisation, collectively referred to as *agency* in Figure 6.1, addressed under sub-heading 6.3.2.2: Agency: Using a BPMS approach.

- A discussion of the external and internal organisational forces that impact agency as indicated in Figure 6.1, addressed under sub-heading 6.3.2.3: Forces that influence agency.

- Discussing the impact (structuration that occurs) of using a BPMS in support of corporate governance collectively referred to as *structure* in Figure 6.1, addressed under sub-heading 6.3.2.4: Structuration: The impact of agency when using a BPMS in the organisation.

The discussions follow:

6.3.2.2 Agency: Using a BPMS approach

In revision of Orlikowski's (2000) framework, a technology is constructed and inscribed, with the developer's assumptions and knowledge about the world or context at that specific time. According to Orlikowski (1992), a technology only comes into existence through creative human action and is sustained by human action through the on-going maintenance and adaption of technology.

As specified earlier, Orlikowski and Iacono (2001) state that any analysis and usage of an IT artefact must acknowledge that the IT artefact is composed of a multiplicity of fragile and fragmentary components. A BPMS consists of several architectural components (*cf.* Chapter 3, Section 3.4.6).The components are; the BPM Engine, the Process Modeller, the Business Rule Engine, the Software Integration Engine, Monitoring (Reporting Engine) and the BPM Repository and Database.

This research project partly investigated how King's principles of corporate governance, as set out in this study, are supported by a BPMS in support of better corporate governance.

According to Orlikowski (2000), the inscription process is typically conducted by human agents namely the technology designers of a technology, with their own assumptions and knowledge about the world at that time. The designers proactively play a role in bringing forth their own realities of "how things are", through their interpretive schemes, facilities and norms in the organisational context, despite the reality of "the way things are" (Orlikowski, 2000). Therefore, designers are both constrained and enabled in their own sense and by existing structures in the organisational setting.

On the negative side, when a new set of norms, such as King's principles of corporate governance (fairness, accountability, responsibility, transparency, discipline, independence, social responsibility, leadership and sustainability) are inscribed into a BPMS by technology designers, the intended result of the technology inscribing process

may be different from that, that was anticipated. It may even be wrong. This may require multiple iterations of the inscribing process. As an example, a business process may be wrongly inscribed into a BPMS during the technology design time by the technology designers, causing users of the BPMS, to use the system and its inscribed properties in ways that was not foreseen, which typically results in the technology designers having to re-design or correct the business process, so that the users use the system in its intended way.

Further on the negative side, the inscribing process itself may have consequences of its own. Technology designers may have difficulty to inscribe concepts or business rules that are unstructured, vague, ad-hoc, unpredictable and abnormally complex. The explicit inscribing of any technological artefact involves programming that requires explicit, externalised (not tacit), logical, structured and codifiable solutions. This is also the case for a BPMS that has its own programmable and modelling languages, conventions and standards (*cf.* Chapter 3, Section 3.4.6).

As consequence, one can argue that a BPMS may not be able to resolve all corporate governance problems. A BPMS may better support corporate governance problems for which the solutions are explicit, externalised (not tacit), logical, structured and codifiable. Therefore, the King principles of corporate governance can partly be inscribed into a BPMS as norm. This is in line with the romantic world view of technology (*cf.* Chapter 3, Section 3.8.2).

On the other hand, on the positive side, the mechanistic view of technology (*cf.* Chapter 3, Section 3.8.2) advocates technology as a blessing which means progress, including social progress (Hamelink, 2003). This phenomenon is called Technological Utopianism (Hamelink, 2003). The mechanistic world view is based on the assumption that the world is ordered and unchanging. Technology is, therefore, viewed as progress or a solution to many of the problems in this world (Hamelink, 2003), even in terms of corporate governance. There is definitely truth in adopting the mechanistic world view of technology as well. Technology such as a BPMS may indeed assist organisations in

their quest to achieve better corporate governance. This argument is expanded by illustrating how the King principles of corporate governance can be inscribed into a BPMS consisting of various architectural components.

First, the author illustrates how the Business Process Modeller component of a BPMS. (*cf.* Chapter 3, Section 3.4.6) can be applied in support of the corporate governance:

> According to Davenport (1993), a business process consists of a sequence of activities or tasks. Someone in the organisation, with the correct skills, have to perform these tasks or responsibilities. The Business Process Modeller component of a BPMS (the part in which the designer designs business processes) can be used to assign *responsibility*, a governance principle, in a *fair* manner, to specific roles or groups in the organisation, as indicated in Figure 6.2.
>
> Furthermore, some BPMSs allow only specific designers to have access to certain processes. The designers can make changes to the processes, by checking out the specific processes. Nobody else is able to access the processes until it is checked in again. (*cf.* Miers and Harmon, 2005). This process of checking in and checking out processes, enforced by the BPMS, furthers the corporate governance principle of *discipline*. Designers are forced to work only with the processes they are allowed to work with.

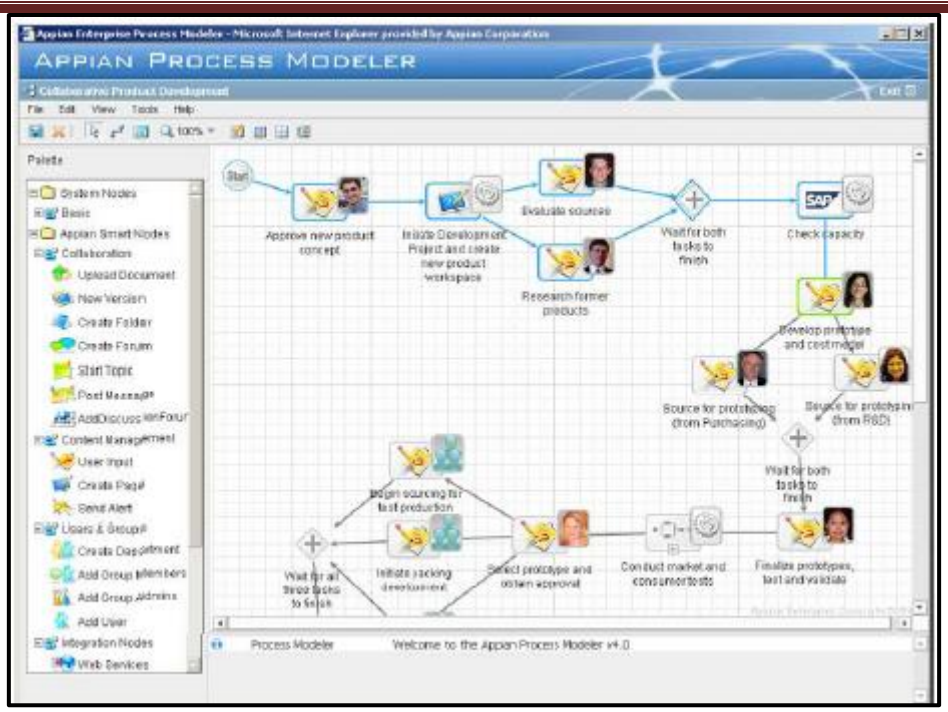


Figure 6.2 An example of the Process Modeller of a Business Process Management System (Miers and Harmon, 2005)

The process modeller should also have the ability to set and handle time constraints on a process or activity. Those responsible for certain tasks only have a given time to complete an activity. When an activity is not completed in time, a time constraint (business rule) fires and escalation and notification functionality rules execute, which informs someone of a higher authority, typically a manager, who needs to take the required action. (*cf.* Miers and Harmon, 2005). This example illustrates how the governance principle of *discipline* is enforced by using a BPMS.

Finally, the process modelling tool may allow for simulation of real-time execution of business processes. Owners of processes have the ability to review the impact of business process changes, identify potential bottlenecks, review the time impact, and review the cost impact. (*cf.* Miers and Harmon, 2005). The governance principle of *sustainability* is therefore supported. In similar fashion, the simulation capabilities of the BPMS are used to save cost and time.

> These examples indicated how one of the architectural components of a BPMS, the Business Process Modeller is used to improve corporate governance by applying the governance principles of accountability, responsibility, fairness, discipline and transparency.
>
> Furthermore, when a given task in a given process in an organisation was not completed, or not completed in time, someone in the organisation is *responsible* and can be held *accountable* for not completing that task. At the same time, if there was mismanagement or any form of corruption in an organisation, the responsible ones in a given process in the organisation can be traced (*transparency*) by using the Process Modeller component and seeing who was responsible and accountable for a given activity in the process. Accountability and responsibility are assigned to given activities in a process transparency throughout that process. The Process Modeller can also assist the organisation to determine how *fair* certain resources were used in the organisation and if there is some sort of discrimination towards certain groups in the organisation, e.g. gender groups and ethnical groups. The Process Modeller is also used in the design of processes that furthers the principle of *independence*, which include processes with independent check-points and audit-points.

Then, the Report Builder component, the Integration Engine component and Audit Trail capabilities of a BPMS, can also be applied in support of corporate governance principles, as the author illustrates:

> A BPMS stores process data (real-time information) for analytical purposes. This data allows the measurement of resources (performance of users) and give information about processes, to be able to identify bottlenecks which can be optimised. (*cf.* Miers and Harmon, 2005; Megard, 2002; McGoveran, 2001: part 4; Palmer, 2003).

Reporting, based on the process data, should be in graphical as well as grid-based reporting format (Megard, 2002). The formats should preferably be web-based to make it accessible from anywhere in the world. It must also be possible to do an in-depth analysis on process, by building cubes on data and doing "slicing and dicing", as indicated in Figure 6.3. (*cf.* Miers and Harmon, 200; McGoveran, 2001: part 4).

Figure 6.3 An example of a reporting dashboard of a Business Process Management System (Miers and Harmon, 2005)

Users should be able to export process information and process variables in the form of reports to other formats for further analysis. Excel is a popular exporting format. Finally, a user should be able to define custom report formats and templates. (*cf.* Miers and Harmon, 2005). The Integration Engine component of a BPMS can now be used to export information from the BPMS into any other system for better decision making (Decision Support Systems or Expert Systems) resulting in better *leadership*.

It is also possible to have the history and audit trail for every process for auditing and conformance purposes when process data is stored (Miers and Harmon, 2005; McGoveran. 2001: part 3).

All the governance principles are supported by different kinds of reports. One can report on the performance of users, if they have performed their duties in time, supporting the principles of *discipline*, *fairness*, *accountability* and *responsibility*. One also is able to identify those employees with "vested interests" in the organisation by studying audit trails, which links to the principles of *independence*. At the same time, financial reporting and honest process data (ensured through audits by using the audit trail) again supports the corporate governance principle of *social responsibility* and *sustainability* towards shareholders who invest in the organisation. Managers can use report data to make better decisions for the survival and improvement of their organisation. In other words, the principles of *sustainability* and *leadership* are supported.

Finally, the Rule Engine component of a BPMS can be used to support corporate governance as discussed next:

The Rule Engine is mainly an extension of the process modelling capability in the BPMS to configure business process rules based on process variables. The rule engine helps to handle and manage exceptions in a business process, but allows the end-user to build other required process functionality around the business process. (*cf.* Miers and Harmon, 2005). Figure 6.4 and figure 6.5 represent two examples of BPMS Rule Engines.

Figure 6.4 The Rule Engine of a Business Process Management System product (Miers and Harmon, 2005)

The second example of a rule engine consists of a Script Editor that is fully VBScript compatible. This gives the rule engine of the BPMS enormous power to handle process exceptions and additional required build-in functionality around a specific business process. The specific Script Editor also has its own custom process functions (e.g. fcCustom as indicated Figure 6.5), which cater for common functionality used in many business process solutions.

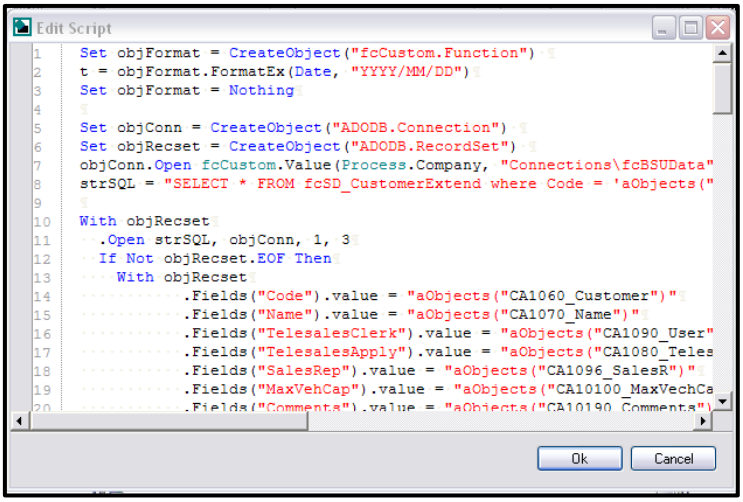


Figure 6.5 An example of a Rule Engine of a Business Process Management System product

One can argue that any of the corporate governance principles can be supported by the Rule Engine component of a BPMS. Business rules can be inserted into the Rule Engine components in support of these principles. These rules are different from organisation to organisation.

The literature and arguments presented indicate that King's corporate governance principles can be inscribed into a BPMS and its architectural components. There are positive and negative implications of inscribing King's principles into a BPMS, which is discussed later in this chapter. Next, the contextual forces that influence corporate governance are discussed.

When people use the BPMS, they draw on the properties of the BPMS, those that were inscribed by the designers and those that were later added by the users (Orlikowski, 2000). Users also draw on their own abilities, assumptions, experiences, ethical frameworks, skills, knowledge and expectations associated with the technology, referred to as the interpretive schemes of the users (Orlikowski, 2000). However, facilities, norms and interpretive schemes are influenced by forces inside and outside the organisation, for example politics, culture and religion that influence agency, which is discussed in the next section.

6.3.2.3 Forces that Influence Agency

As indicated by Orlikowski and Iacono (2001), any analysis and usage of an IT artefact must acknowledge:

- That the IT artefact is embedded in a historical context and therefore consideration must be given to the cultural aspects of the implementation journey.

- That the IT artefact emerges from on-going social, political and economic practice.

There are on-going forces that influence the usage and design of an IT artefact. If the IT artefact is used in support of corporate governance, it implicates that there are on-going forces that play out on corporate governance, such as on-going social, political and economic forces as indicated by Orlikowski and Iacono (2001). By understanding how these forces play out in the framework of Orlikowski (2000), one may better understand how to manage these forces with corporate governance supportive technologies for better corporate governance.

A number of checklists have been developed as way of cataloguing the vast number of possible issues that might affect an organisation. A PEST analysis is a framework that categorises environmental influences as political, economic, social and technological forces. Sometimes two additional factors, environmental and legal, are added to make a PESTEL analysis, but these themes can easily be subsumed in the others (Pearlson and Saunders, 2009). The analysis examines the impact of each of these factors (and their interplay with each other) on the organisation. The results can then be used to take advantage of in the case corporate governance opportunities, and to make contingency plans for corporate governance threats when preparing business and strategic plans. (*cf.* Byars, 1991; Cooper, 2000; Pearce and Robinson, 2005; Pearlson and Saunders, 2009).

Examples of the PESTEL forces follow, to indicate how these forces impact and play-out on corporate governance when a BPMS is used in support of better corporate governance.

Different industry sectors have different laws, legislation, acts and regulations that organisations have to adhere to in these industries, which influence the way of how actors of the organisation may implement or apply corporate governance. An organisation in the health care sector for example, must adhere to total different laws, acts, legislation and standards from that of an organisation in the mining or educational sector. Therefore, legal forces in an industry sector influence the way in which corporate governance is implemented and enforced in an organisation by human actors.

The same argument applies to differences and similarities in laws, legislation and acts that different countries may have.

One can further argue that social, legal, political, technological, economic and a combination of cultural factors within a country may impact the way in which human actors of an organisation govern the organisation. Two literature examples are used in support of this argument. The first example contrasts high and low context cultures (social forces), while the second example contrasts different societal cultures of the world that involve social, legal, political, technological and economic forces.

- Differences between high-context cultures (meaning derived from non-verbal situational cues) and low-context cultures (meaning derived from written and spoken words) are discussed, which makes a difference on how one approaches and do business with these cultures. (*cf.* Kreitner and Kinicki, 2004).

  High-context cultures, which include countries like China, Korea, Japan, Vietnam, Mexico and Arab cultures, rely heavily on situational cues for meaning when dealing with others. Non-verbal cues can be one's official position, status or family connections, which carries more power than spoken words. With these countries first encounters are not necessarily unfriendly; time is just taken to collect contextual information. Low-context cultures include countries like Germany, Switzerland, Scandinavia, North America and Great Brittan. Written and spoken words carry the burden of shared meanings. A handshake in these counties can be seen as a signal to get a signature on a detailed lawyer-approved contract. (*cf.* Kreitner and Kinicki, 2004).

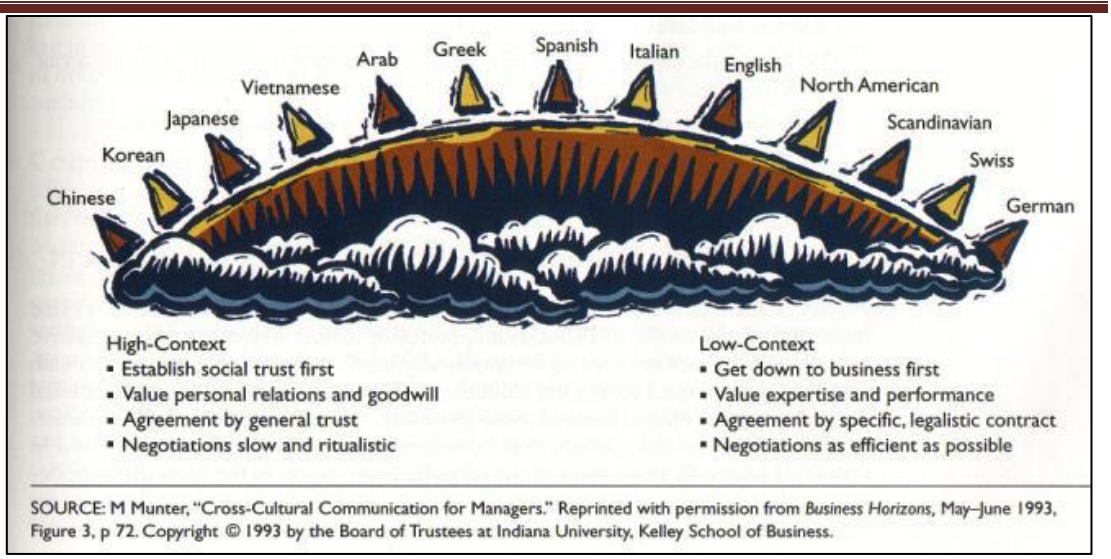


Figure 6.6 Contrasting high-context cultures against low-context cultures (Kreitner and Kinicki, 2004)

- In Figure 6.7, one can see the differences in values that societal cultures have. There are, for example, differences in religion and differences in GNP, closely related to the economies of that county. Religion and the lack of religion cause huge differences in how Middle-Eastern companies are governed, different from western companies. Just think about the role of women in these different worldly contexts. Many of these factors that can be subsumed into the PESTEL forces may influence how human actors govern a company.

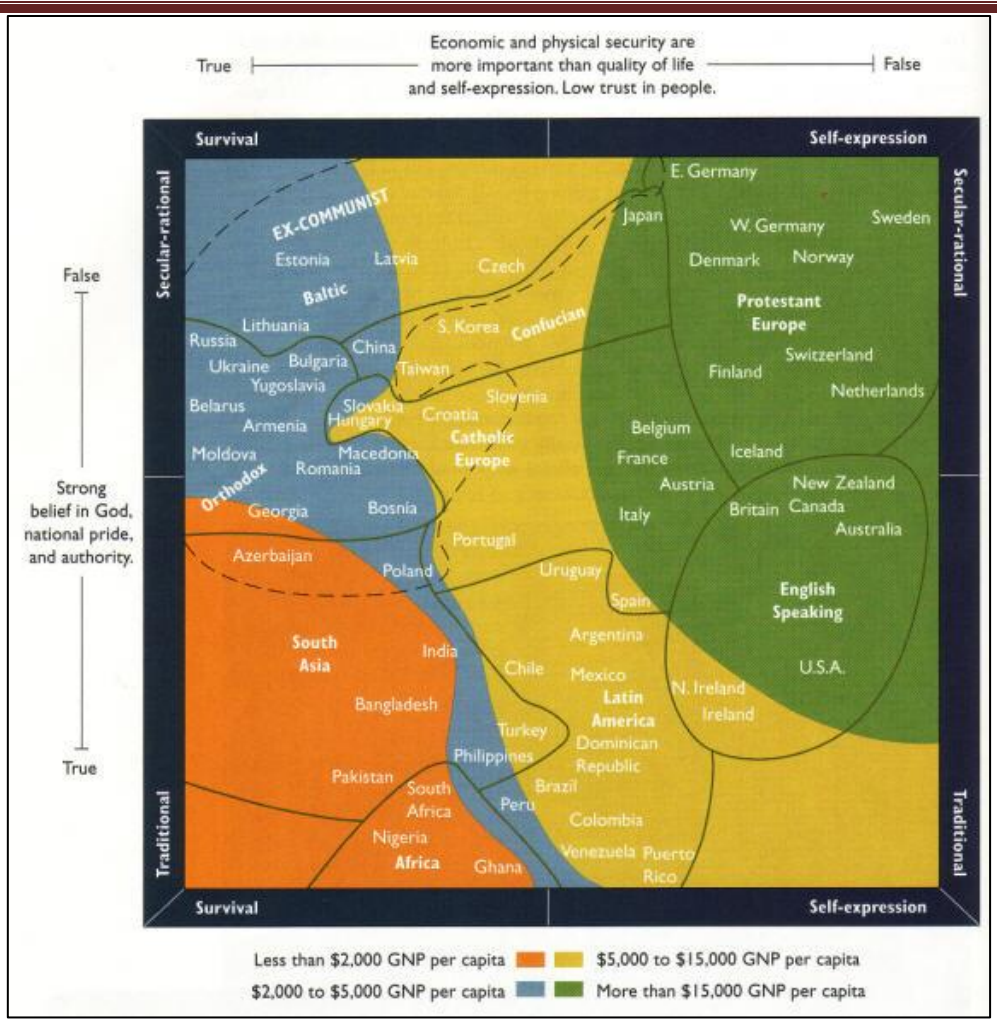


Figure 6.7 Societal cultures of the world (Kreitner and Kinicki, 2004)

One can further argue that organisational culture (a social force) and politics may impact the way in which human actors govern organisations. Organisational culture and politics are discussed in more detail in support of this research argument.

Kreitner and Kinicki (2004: 575) define organisational politics as:

> *…intentional acts of influence to enhance or protect the self-interest of individuals or groups.*

Organisational politics is a popular subject, probably because of Hollywood films, where corporate villains get their way by stepping on everyone and everybody. In the modern work-life, executives spend 19% of their time dealing with organisational politics, which

can become quite annoying. There is actually an acronym: "WOMBAT" – waste of money, brains and time - to describe the negative influence of organisational politics in an organisation. (*cf.* Kreitner and Kinicki, 2004).

According to Kreitner and Kinicki (2004), the emphasis of organisational politics is on self-interest and influence and therefore managers must keep the balance between self-interests of employees and the organisation's interests. When the balance is kept, self-interests of an individual may serve the interests of the organisation. Skilful and well-timed politics can help an individual to make his point, neutralise resistance to a project or get a favourable job assignment.

There is no way that organisational politics could be totally eliminated within an organisation. Managers should strive to keep it within reasonable bounds for organisational politics to be constructive. Too much energy wasted on organisational politics means less energy available to attend to the problems at work. (*cf*. Kreitner and Kinicki, 2004).

Uncertainty is the main cause of organisational politics. Uncertainty is created because of unclear objectives, vague performance measures, ill-defined decision processes and strong individual or group competition and change. An individual's degree of being actively involved in politics is a matter of personal values, ethics and temperament. People who are too much involved in politics or who are too little involved in politics normally pay the price. (*cf*. Kreitner and Kinicki, 2004).

One can argue that organisations require active management of organisational politics that influence the way in which human actors govern organisations. Politics is a matter of personal values, ethics and temperament that are different across national boundaries (Kreitner and Kinicki, 2004).

On the other hand, the culture of an organisation also influence the way in which an organisation is governed and shaped. The key components that shape organisational

cultures are; the founder of the organisation's values, the business environment, the national culture and the behaviour and vision of senior leaders. (*cf.* Kreitner and Kinicki, 2004).

Kreitner and Kinicki (2004: 81) define organisational culture as follows:

> *Shared values and beliefs that underline a company's identity.*

Figure 6.8 presents a conceptual framework that explains organisational culture. According to Kreitner and Kinicki (2004), important aspects are highlighted by this framework:

- An organisation's culture is passed on to new employees in the organisation through a process of socialisation (values, norms and required behaviours are learned) and mentoring.

- Organisational culture influences organisational structures, practices, group and social processes, employee attitudes and employee behaviour that in turn influence organisational outcomes.

Organisational culture influences an organisation in more than one way, which in turn influences organisational outcomes. It, therefore, requires active management and control to achieve the desired organisational outcomes and have an impact on corporate governance in a specific organisational setting within a country.

As indicated earlier, when users use a technology, they draw on the properties of that artefact, in this case the BPMS technology, that was inscribed by the designers and those properties that were added by the users (Orlikowski, 2000). Users also draw on their own abilities, assumptions, experiences, ethical frameworks, skills, knowledge and expectations that are associated with the technology referred to as the interpretive schemes of the users (Orlikowski, 2000).

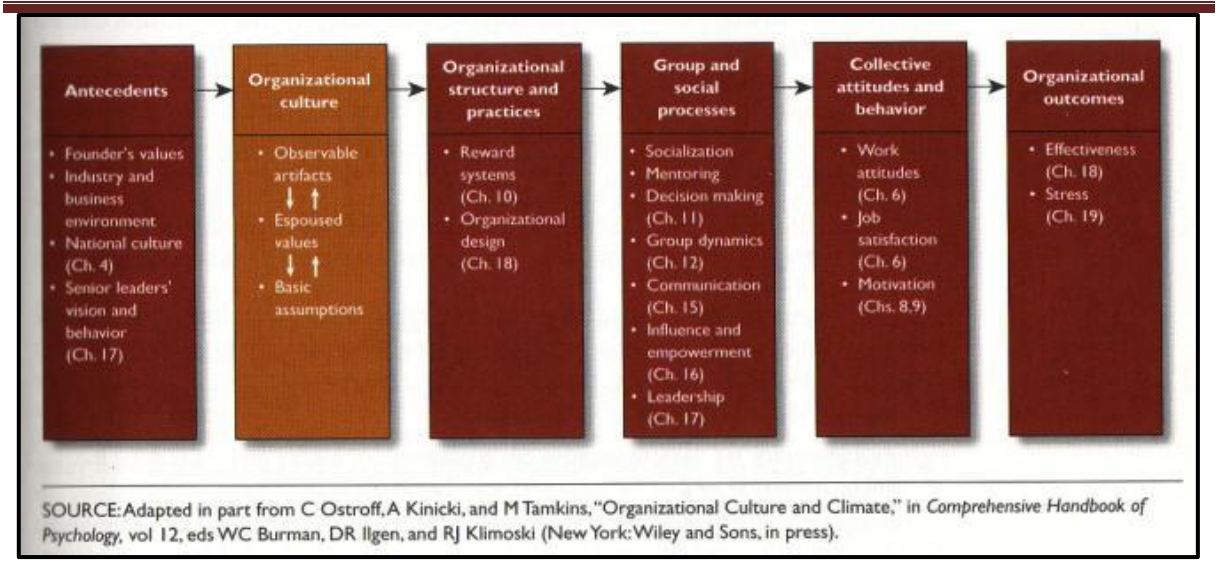


Figure 6.8 Conceptual framework for organisational culture (Kreitner and Kinicki, 2004)

Users also draw on facilities in a specific institutional context, and the social and cultural conventions or norms that are associated with these contexts (Orlikowski, 2000). However, facilities, norms and interpretive schemes are influenced by forces inside and outside the organisation, for example politics, culture and religion, as discussed. Therefore, there is no absolute definition or understanding of corporate governance because it is contextual. In different contexts there are similarities, but also differences in corporate governance, depending on similarities and differences in the forces, inside and outside an organisation, that influence facilities, norms and interpretive schemes in an organisation. In accordance, King (2006: 117) himself states:

> *There is no global governance framework for a holding company with many foreign subsidiaries, which lead to a number of issues, such as operating under different legal and governance frameworks... The rules laid down by the holding company might even be illegal in one or more of the countries in which a subsidiary operates. Further, health, social and environmental legislation differs from country to country*.

Next, the impact of agency when using a BPMS, in the organisation, in support of corporate governance, is investigated.

6.3.2.4 Structuration: The Impact of Agency when using a BPMS in the Organisation

When people use a technology, they draw on the properties of the artefact, those that were inscribed by the designers and those that were later added by the users (Orlikowski, 2000). Earlier, it was argued how Kings' principles of governance could be inscribed into a BPMS and its architectural components, to achieve better corporate governance. Consequently, the users of a BPMS draw on Kings' inscribed principles of corporate governance when they use the BPMS. However, users also draw on their own abilities, power, assumptions, previous experiences, training, skills, knowledge and expectations associated with the technology (Orlikowski, 2000), the BPMS. Lastly, users draw on their knowledge and experiences within specific institutional contexts in which they live and work, and the social and cultural conventions associated with these contexts (Orlikowski, 2000). In this way, the people's use of technology (in this case a BPMS inscribed with Kings' principles of corporate governance) becomes structured by these experiences, knowledge, norms, habits, meanings and technological artefacts. (Orlikowski, 2000).

According to Orlikowski (2000), the on-going situated use of a technology-in-practice reinforces that technology in the organisation. It becomes regularised and routinised through habitual and repeated use of the technology (Orlikowski, 2000). Re-enactment of the same technology-in-practice occurs through habitual use of the technology, thus further reinforcing it in the organisation that it becomes taken for granted in the organisation (Orlikowski, 2000). The technology-in-practice becomes or serves as a behavioural and interpretive template for people who use the technology (Orlikowski, 2000). As stated in Orlikowski's (2000: 410) own words:

> *Such structuring enacts a specific set of rules and resources in practice that then serves to structure future use as people continue to interact with the technology in their recurrent practices. Thus, over time, people constitute and*

reconstitute a structure of technology use, that is, they enact a distinctive technology-in-practice.

From a corporate governance point of view, one can argue that specific BPMS-use serves as behavioural template to improve behaviour that supports better corporate governance. The author termed this behavioural template of technology-use in support of corporate governance, *corporate governance supportive technologies-in-practice*.

Earlier, the author indicated how Kings' principles of governance become more evident in the organisation if a BPMS is inscribed with the King principles of corporate governance. In the case of the King principles, they become more evident in the organisation. Therefore, organisational behaviour is changing in support of corporate governance. BPMS-use serves as behavioural template in support of corporate governance. Furthermore, aaccording to King (2006), intellectual honesty is the foundation of all Kings' principles of governance and if these principles improve it implicates that intellectual honesty is improving.

As mentioned earlier, Orlikowski and Iacono (2001) state that any analysis and usage of an IT artefact must acknowledge that an IT artefact emerges from on-going social, political and economic practice.

Social, political and economic practice is an on-going process in organisations. The framework of Orlikowski (2000) also caters for continuous improvisation and change as designers reconfigure the BPMS, or as users alter their habits of use (Orlikowski, 2000). Users deliberately or inadvertently use a technology in ways that was not anticipated by the developers of the technology (Orlikowski, 2000). There are no exceptions in the case of a BPMS. Users, typically ignore, alter or work around the inscribed properties of a technology. They typically modify the technological artefact so that it suites their particular interests or requirements (Orlikowski, 2000).

Earlier, the author argued and described how the King principles of governance can be inscribed into the physical properties of a BPMS and how the change behaviour in

support of corporate governance. However, the change in behaviour may be different from what was anticipated, because users may deliberately or inadvertently use the BPMS in ways that was not anticipated by the developers and designers of the BPMS. Users typically modify the BPMS to their particular interests or requirements. Luckily, the physical properties of artefacts ensure that it is not totally open to any and all possibilities of use (Orlikowski, 2000). The physical properties of artefacts ensure that there are always boundary conditions in how the technology is used. Many employees use organisation politics to further their own interests, but the more a particular technological artefact is integrated into a larger system or network or technological configuration, the narrower the range of alternative uses that may be crafted with it by users or designers of the technology (Orlikowski, 2000).

According to Orlikowski (2000), users with similar work practices enact similar technologies-in-practice. Similar technology work practices enact similar behaviour templates, also in the case of a BPMS. Similar technology work practices occurs through common training sessions, shared socialisation, comparable job experiences, and mutual coordination and storytelling (Orlikowski, 2000). Over time and through repeated enforcement the technologies-in-practice may become institutionalised in the organisation (Orlikowski, 2000). At the point of institutionalisation the technologies-in-practice become predetermined and firm inscriptions for social action and change (Orlikowski, 2000).

Continuous improvisation and change is in essence part of BPM (Chapter3, Section 3.3), therefore, when the BPMS is altered to improve corporate governance with BPMS use, or when users alter their BPMS use habits, they enact different corporate governance supportive technologies-in-practice.

Finally, the technology is situated in a number of overlapping social systems (Orlikowski, 2000). As a consequence, people's interaction with technology enacts other social structures along with technologies-in-practice (Orlikowski, 2000). Human actors draw on structures that have previously been enacted in the organisation and with such

action reconstitute those structures (Orlikowski, 2000). Reconstruction normally occurs in two forms: Reinforcement where actors enact the same structures; or transformation where actors enact changed structures (Orlikowski, 2000). Changes may be modest or substantial (Orlikowski, 2000), also in the case for a BPMS that is located in a number of overlapping social systems. The use of a BPMS in an organisation and the changes in organisational behaviour that it causes may influence other overlapping social systems. It may cause a ripple-effect of corporate governance supportive behaviours inside and outside the organisation. Investors, for example, have better trust in organisations that have corporate governance supportive measures in place.

Next, a summary of findings is presented, when applying the framework of Orlikowski (2000) to the research phenomenon (also see Figure 6.1).

6.3.3 Summary of Findings

A summary of the findings is presented in Table 6.1, when applying the lens of Orlikowski (2000) to the research phenomenon.

Table 6.1 A summary of findings.

Finding	Description of Finding
1	The King principles of corporate governance can be inscribed into a BPMS. However, designers are constrained and enabled by their own sense making (their interpretive schemes and norms) in the organisational context and the facilities in that context. Therefore the result of the inscribing process may be different from that, which was anticipated or even wrong, which may require designers to re-design or correct the technology for users to use the system in its intended way. (Section 1.5, secondary research questions 2).
2	A BPMS may not be able to resolve all corporate governance problems. A BPMS support problems better, for which solutions are explicit, logical, structured and codifiable. Concepts or business rules that are unstructured, vague, ad-hoc, unpredictable and abnormally complex are difficult to inscribe into a BPMS. (Section 1.5, secondary research questions 3.2).
3	There are on-going forces that influence the usage and design of an IT artefact (Orlikowski and Iacono, 2001). When an IT artefact is used in support of corporate governance, it

	implies that there may be on-going forces that may play out on corporate governance such as social, political and economic forces as indicated by Orlikowski and Iacono (2001). Forces may include: • Different laws and regulations in industry sector. • Different laws and regulations in countries. • Societal and organisational cultures. • Economics (external and internal to an organisation). • Politics (internal and external to the organisation). Therefore, no fixed definition of corporate governance exists. Corporate governance is contextual, depending on similarities and differences in the forces inside an outside an organisation. (Additional finding: No research question).
4	Users draw on the inscribed properties, such as the King principles of corporate governance, of the technological artefact (the BPMS), their own abilities, assumptions, experiences, ethical frameworks, skills and expectations in the use of the BPMS. Users also draw on facilities in the institution and norms associated with a specific context. The technology becomes or serves as a behavioural and interpretive template for people who use the technology (Orlikowski, 2000). From a corporate governance point of view the technology may serve as behavioural template to improve corporate governance supportive behaviour. The implication is: • Better corporate governance compliance and control. • More process information for informed decision making by decision makers. (Section 1.5, secondary research questions 4).
5	A possible concern in South Africa is that the King III code is not mandatorily imposed like the SOX Act in the U.S. However, parts of the King code are included in new legislation in the South African companies act. (Additional finding: No research question).
6	According to King (2006), good governance principles are based on a foundation of intellectual honesty. The research indicate that, when a BPMS is used in support of corporate governance, fairness, accountability, responsibility and transparency is improving, therefore one can deduct on the basis of King's (2006) statement that intellectual honesty must be improving. (Section 1.5, secondary research questions 4).
7	Users typically ignore, alter or work around the inscribed properties of a technology (Orlikowski, 2000), in this case the BPMS. Therefore, the applied and adapted framework of Orlikowski (2000) caters for continuous improvisation and change as designers reconfigure the BPMS when users alter their habits of use or work around the inscribed properties of the technology. There may be on-going improvisation and change of the corporate governance supportive technology in favour of better corporate governance as the context changes. (Section 1.5, secondary research questions 3.1).

8	According to Orlikowski (2000), the use of a BPMS in an organisation and the changes it may cause, may influence other overlapping social systems. It may cause a ripple-effect of corporate governance supportive behaviours inside and outside the organisation. Investors may, for example, have better trust in organisations that have corporate governance supportive measures in place. (Additional finding: No research question).

6.4. Concluding Summary.

This chapter presented a perspective of using a BPMS to improve corporate governance by drawing on the premises of Orlikowski's (2000) theoretical framework, namely "technologies-in-practice". Orlikowski's (2000) framework appears to be well suited to discuss the nature of using a BPMS in support of corporate governance. Orlikowski's (2000) framework was used in this chapter to explain the organisational impact of inscribing the King principles of corporate governance into a BPMS and its architectural components (see Table 6.1).

Users of the BPMS draw on the inscribed corporate governance properties in their everyday use of the technology. In this way, corporate governance supportive norms and human behaviour were facilitated, sustained and yet at the same time changed. Social practices in support of corporate governance emerged, or were reproduced and enforced.

However, the BPMS technology also changes over time as users use the technology in ways that were not anticipated by the designers or builders of the technology. Different interpretations of technology-use emerged with consequences that yielded valuable insights for understanding technology-use in different organisational contexts. In cases like this, alterations to the BPMS technology are normally required. Over time, as the organisation experimented, tested and used the technology, different assumptions and diverse interactions with the BPMS shaped corporate governance supportive organisational behaviour and norms.

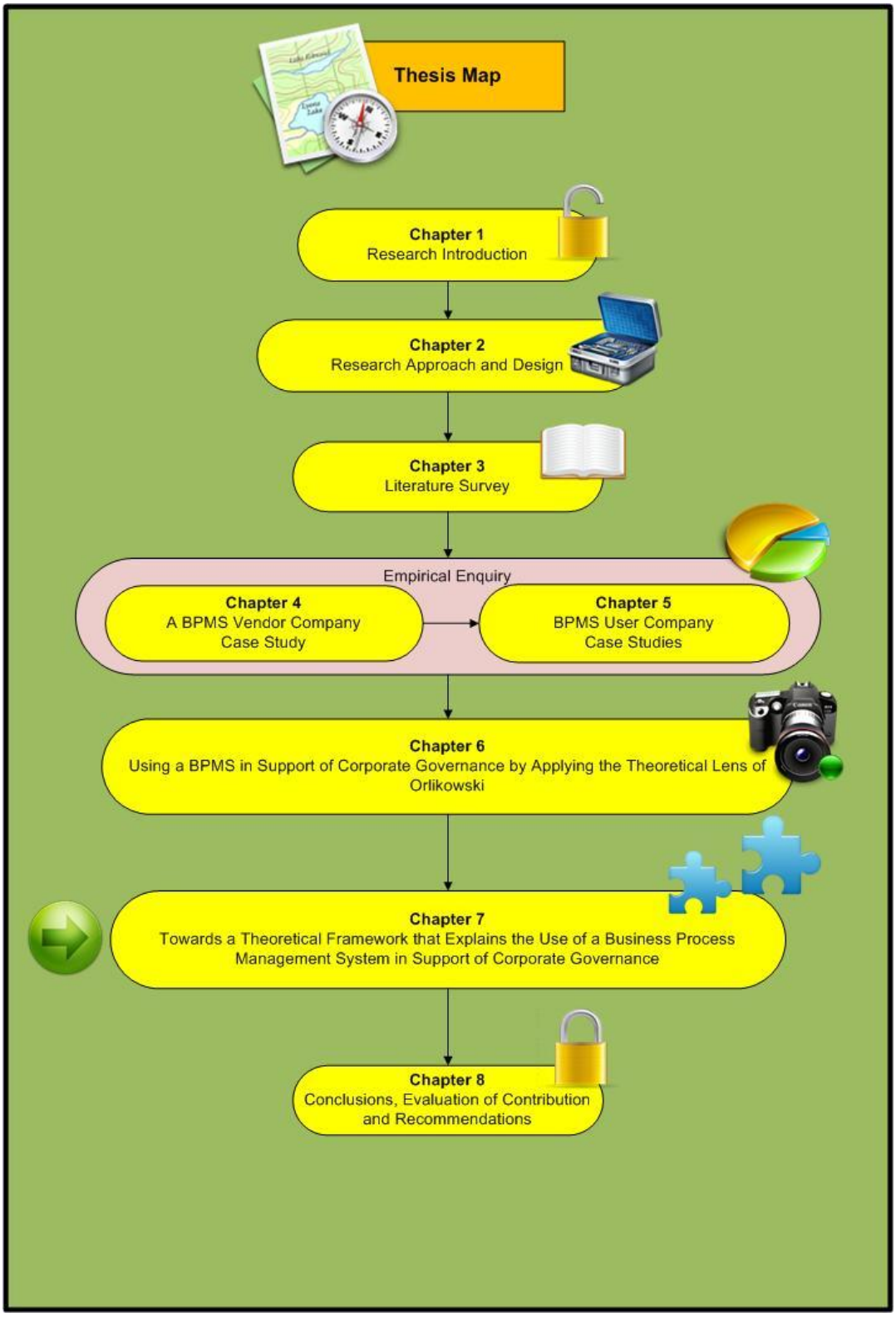
It also appears that builders and designers of the technology cannot inscribe all of the everyday corporate governance complexities. Builders and designers do not have the detailed everyday corporate governance information the organisations deal with and therefore draw on their own knowledge, assumptions and interpretive schemes to inscribe the technology with corporate governance supportive properties on which the users can draw, when using the technology. Some of these corporate governance complexities for example are not structured, logical or codifiable enough to inscribe in a BPMS. The implication is that complex, unstructured and illogical corporate governance problems are difficult to code and support in a BPMS.

Finally, the use of a BPMS may influence other social systems that overlap with a specific organisational context, which could either be positive or negative, but this is not the focus of the study. Based on the analysis in this chapter, one should perhaps remain cautious about the optimistic belief that technology, in this case a BPMS, may resolve almost all corporate governance problems in an organisation. It may therefore be appropriate to conclude this chapter with the eloquent words of Giddens (1990: 153):

> *No matter how well a system is designed and no matter how efficient its operators, the consequences of its introduction and functioning, in the contexts of other systems and of human activity in general, cannot be wholly predicted. One reason for this is the complexity of systems and actions that make up world society... For all these reasons we cannot seize 'history' and bend it readily for our collective purposes. Even though we ourselves produce and reproduce it in our own actions, we cannot control social life completely.*

In Chapter 7, the next chapter, a theoretical framework is developed, which explains the use of a BPMS in support of corporate governance.

Chapter 7: Towards a Theoretical Framework that Explains the Use of a Business Process Management System in Support of Corporate Governance



7.1 Introduction

This chapter is devoted to construction of a theoretical framework that explains the situated use of a BPMS in support of corporate governance. The newly constructed framework uses the Dynamics Capabilities Theory Model of IT-Enabled Organisational Performance of Schwarz *et al*. (2010) as point of departure.

The chapter is structured as follows:

- To arrive at the new theoretical framework, the product of the triangulated research process was used, which is the research findings from the different research and data collection methods, as presented in Section 7.2.

- Section 7.3, is dedicated to the construction and improvement of the theoretical framework.

- Section 7.4, presents the concluding summary of the chapter.

The findings from the different research and data collection methods follow.

7.2 Findings

7.2.1 Introduction

Research methods have positive and negative aspects, but problems typically arise when relying solely on just one research method (Kennedy, 2009). Triangulation in qualitative research aims to increase the credibility and plausibility of the research results, by using and mixing data methods to obtain different perspectives on a research phenomenon (Olsen 2004). This may map out or explain more fully the richness and complexity of a research phenomenon by studying it from more than one standpoint (Cohen and Manion, 2000). Triangulation is useful in capturing more detail, but triangulation also minimises the effects of bias, ensuring a more balanced research

study. Olsen (2004) further argues that triangulation plays an important role in good social and interpretive research, such as this research study. As stated in the words of Olsen (2004: 5):

> *I would argue that too much time is spent by statisticians on statistics, when it would be interesting for them to spend more time on developing alternative interpretations (and triangulated re-interpretations) of the data they have.*

Earlier (*cf.* Chapter 2; Chapter 6), it was motivated that the lens of Orlikowski (2000), namely "Technologies-in-Practice" is used as the leading strategy to guide the formulation of the research findings in this research project. Additionally, the BPMSVC investigation, as described in Chapter 4 and the BPMSUC investigations, as described in Chapter 5, were conducted to achieve triangulation. These were used as follow-up strategies to provide richness, plausibility, creditability and a more balanced view of the research study, minimising the effects of bias.

7.2.2 Research Findings

The research findings from the triangulation process are now explained:

1. As indicated in Chapter 1 and confirmed through the empirical enquires, the corporate governance problems identified in this study relate back to a lack of adherence, willingly or unwillingly, to the King principles of governance. The King principles of governance are fairness, accountability, responsibility, transparency, discipline, independence, social responsibility leadership and sustainability (King, 2006; King I Report, 1994; King II Report, 2002; King III Report, 2009; Maharaj *et al.*, 2006). These problems typically result in criminal behaviour (e.g. fraud and stealing), human bias, inconsistency, loss of work performance, loss of work quality and human error. (*cf.* Chapter 1; Table 4.10 in Chapter 4;).

2. Furthermore, there are forces that influence corporate governance, which make the concept and definition of corporate governance different from one organisation to

another. There exist many classifications of forces that influence an organisation. One such a classification is PESTEL which is an acronym for political, economic, social, technology, environmental and legal. (*cf.* Chapter 1; Table 4.10 in Chapter 4; Table 5.1 in Chapter 5; Table 6.1 in Chapter 6).

3. One way to improve corporate governance is to inscribe principles of corporate governance into a technology and then use this technology to enforce and support governance. This research indicates that a BPMS could be inscribed with principles of corporate governance. (*cf.* Table 4.10 in Chapter 4; Table 5.1 in Chapter 5; Table 6.1 in Chapter 6).

4. However, the research study also indicated that there are shortcomings when using a BPMS to address corporate governance problems. A BPMS is not well suited to address corporate governance problems for which the solutions are unstructured, ambiguous or ad-hoc. It is difficult to inscribe or code these solutions into a BPMS. Various other organisational or management aspects such as top-management support can also be critical success factors when a BPMS is utilised in support of corporate governance. (*cf.* Table 4.10 in Chapter 4; Table 5.1 in Chapter 5; Table 6.1 in Chapter 6).

5. On the other hand, a BPMS is capable of addressing corporate governance problems for which the solutions are structured, logical and codifiable, so that it can be inscribed into a BPMS. (*cf.* Table 4.10 in Chapter 4; Table 5.1 in Chapter 5; Table 6.1 in Chapter 6).

6. A BPMS further supports corporate governance, by changing organisational behaviour in support of corporate governance. The principles of corporate governance may become more evident in the organisational behaviour, while honesty may also be improving. (*cf.* Table 4.10 in Chapter 4; Table 5.1 in Chapter 5; Table 6.1 in Chapter 6).

7. However, organisational behaviour may sometimes be different than anticipated. There are various reasons, for example incomplete automated solutions, inadequate training, and misunderstanding of the problem and personal employee characteristics. (*cf.* Table 4.10 in Chapter 4; Table 5.1 in Chapter 5; Table 6.1 in Chapter 6).

8. The characteristic of a BPM towards corporate governance involves continuous improvement, automation and the enforcement of governance principles. This does not only result in better corporate governance, but improvements in all aspects of the business. (*cf.* Table 4.10 in Chapter 4; Table 5.1 in Chapter 5; Table 6.1in Chapter 6; Chapter 1, Section 1.4; Chapter 3, Section 3.3).

9. Finally, the use of a BPMS for process automation and the changes it may cause may influence other overlapping social systems. This may cause a ripple-effect of corporate governance supportive behaviours inside and outside the organisation. (*cf.* Table 6.1 in Chapter 6; Chapter 2, Section 2.3.5; Chapter 2, Section 2.3.6).

A summary of the findings is presented in Table 7.1, which further reference the sources for achieving triangulation.

7.2.3 Summary of Triangulated Research Findings

This subsection presents a summary of the triangulated research findings from the study as depicted in Table 7.1 (also see Section 2.6). The sources for obtaining the triangulated research results are also shown.

Table 7.1 Summary of research findings

Triangulated Research Finding	**BPMSVC (Chapter 4) 1 Case**	**BPMSUC's (Chapter 5) 7 Cases**	**Literature (Chapter 3)**
1: Corporate governance problems identified in this study relate back to a lack of	Supported	Supported	Supported

adherence to the King principles of corporate governance. These problems typically result in criminal behaviour (e.g. fraud and stealing), human bias, inconsistency, loss of work performance, loss of work quality and human error.			
2: There are forces that influence corporate governance. Therefore corporate governance is different from organisation to organisation.	Supported	Not investigated	Supported
3: The principles of corporate governance can be inscribed into a BPMS and its architectural components.	Supported	Supported	Supported
4: There are limitations and shortcomings when using a BPMS to address corporate governance problem, which include problems for which the solutions are unstructured, vague and ad-hoc so that it cannot be codified in a BPMS. Top-management support and various other aspects are also critical to address corporate governance problems with a BPMS. Therefore, a BPMS may not be the solution to all types of corporate governance problems.	Supported	Supported	N/A
5: A BPMS is capable of addressing corporate governance problems for which the solutions are structured, logical and codifiable.	Supported	Supported	N/A
6: The use of a BPMS changes organisational behaviour in support of corporate governance e.g. the King principles of corporate governance becomes more evident in the organisation and honesty improves.	Supported	Supported	Supported
7: The use of a BPMS changes organisational behaviour sometimes different that was anticipated. There are several reasons for this, e.g. incomplete solutions to corporate governance problems, personal	Supported	Supported	Supported

characteristics, training and misunderstanding.			
8: The role and nature of BPMSs towards corporate governance involves continuous improvement, that includes the automation and enforcement of corporate governance principles, resulting in better governed organisations that improves all aspects of business.	Supported	Supported	Supported
9: The use of a BPMS in an organisation and the changes it may cause may influence other overlapping social systems. It may cause a ripple-effect of corporate governance supportive behaviours inside and outside the organisation.	Supported	Supported	Supported

Next, the findings are used in the construction of a theoretical framework that explains the situated use of a BPMS in support of corporate governance.

7.3 Construction of Theoretical Framework

7.3.1 Introduction

In this section, a theoretical framework is constructed from the research findings given in the previous section. The Dynamics Capabilities Theory Model of IT-Enabled Organisational Performance of Schwarz *et al.* (2010) is used as a point of departure to construct the theoretical framework.

7.3.2 Towards a Theoretical Framework that Describes the Use of a Business Process Management System in Support of Corporate Governance

As defined in Chapter 3, a business process is: "the specific ordering of work activities across time and place, with a beginning and end, and clearly identified inputs and

output" (Davenport, 1993: 5). However, the focus of this study is on IT-enabled and IT-enforced business processes, therefore, IT-enabled and IT-enforced business processes are defined as the extent to which IT enables and enforces "the specific ordering of work activities across time and place, with a beginning and end, and clearly identified inputs and output" (adapted from Davenport, 1993).

According to Schwarz *et al*. (2010), the availability of IT resources, which include business applications, can lead to the creation of IT-enabled or automated business processes, as depicted in Figure 7.1. IT-enabled business processes is the extent to which IT enables the specific ordering of work activities across time and space, with a beginning and an end, and clearly identified inputs and outputs (Schwarz *et al*., 2010).

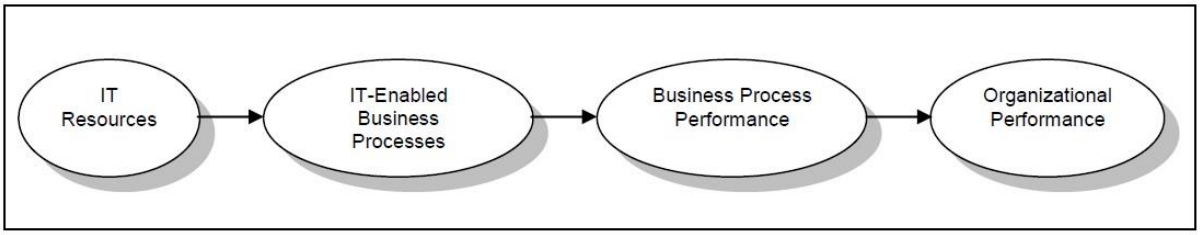


Figure 7.1 A Dynamics Capabilities Theory Model of Information Technology-Enabled Organisational Performance (Schwarz *et al*., 2010).

Schwarz *et al*. (2010) further argue that IT-enabled business processes in themselves do not lead to organisational performance, but the efficiency gains through such business processes leads to organisational performance, which to Schwarz *et al*. (2010), is defined as the operational efficiency of business processes, and this leads to organisational performance.

The framework of Schwarz *et al*. (2010) is now adapted to illustrate how a BPMS is utilised in support of corporate governance when applying the research findings of this study, as depicted in Figure 7.2. The framework demonstrates how corporate governance and business performance are improved through IT-enabled and IT-enforced business processes, supported by IT Resources in the organisation. (*cf*. triangulated research finding 8 in Table 7.1).

IT resources (see 1 in Figure 7.2) typically include technologies or technological artefacts and human agents that design, develop, configure and adapt the technology or artefact for a specific organisational purpose. In this research project, a BPMS was inscribed and configured by designers with the King principles of governance for improved corporate governance. (*cf.* triangulated research finding 3, 4 and 5 in Table 7.1).

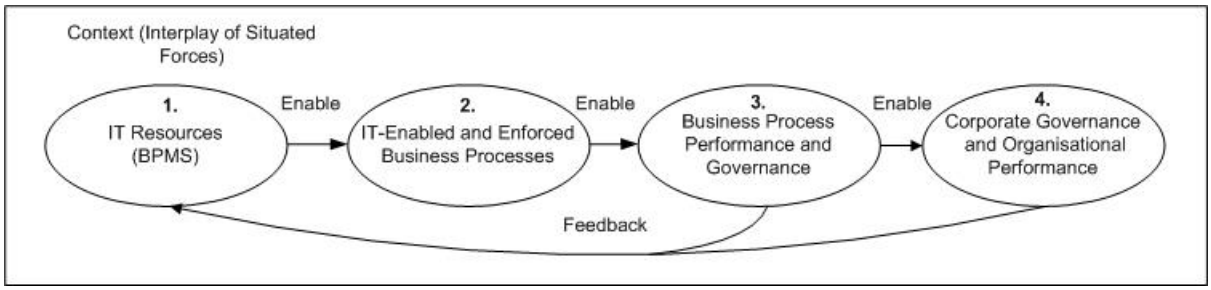


Figure 7.2 A Theoretical Framework that Describes the Use of a Business Process Management System in Support of Corporate Governance (adapted from Schwarz *et al.*, 2010).

To continue, users use IT-enabled and IT-enforced business processes (see 2 in Figure 7.2), which in turn results in business process performance and improved business process governance (see 3 in Figure 7.2). A necessary condition for improved process performance and improved process governance are technological resource support for IT-enabled ordering and enforcement of work activities. Without these resources, the efficient ordering and enforcement of work activities cannot be accomplished. IT-enabled and IT-enforced business processes in themselves do not lead to operational performance and improved corporate governance, but it is the efficiency and control gains through IT-enabled and IT-enforced business processes that leads to organisational performance and improved corporate governance (cf. triangulated research finding 6, 7, 8 in Table 7.1), especially if the business processes are strategically aligned to the business objectives of the business (Schwarz *et al.*, 2010). The competitiveness of the firm lies in the ability of the firm to leverage these IT-

enabled and IT-enforced business processes to provide gains in business performance and control.

Finally, to support the dynamic and changing business environment (see triangulated research finding 2 in Table 7.1) that organisations face, IT-resources need to be strategic and tactically flexible to cope with these environmental changes, as indicated by the feedback loops in Figure 7.2. Furthermore, IT-enabled and IT-enforced business processes must be flexible enough on strategic and tactical level to cope with changing and dynamic business environments that organisations face for gains in business performance and control (Schwarz *et al*., 2010). This is exactly one of the benefits that a technology such as a BPMS offers (*cf.* Chapter 3).

The various phases of the new theoretical framework, that describes the situated use of a BPMS in support of corporate governance (*cf.* Figure 7.2) are now described in more detail. The description of the framework is broken down into the following sub-sections:

- *7.3.2.1 The context of the theoretical framework:* This part shares some insights about the context and the forces in this contexts in which the framework may function.

- *7.3.2.2 Phase 1: IT-Resources - The design and configuration of a Business Process Management System.* This phase involves the situated design-time configuration of a BPMS by the designers.

- *7.3.2.3 Phase 2: IT-enabled and enforced business processes.* This phase describes the contextual use of IT-enabled processes in a BPMS.

- *7.3.2.4 Phase 3: Business process performance and governance.* This phase describes the structuration that occurs when using a BPMS (IT enabled business processes) in support of corporate governance.

- *7.3.2.5 Phase 4: Improved corporate governance and organisational performance.* This phase discusses the implications of using a BPMS in support of corporate governance.

A description of the various phases follows.

7.3.2.1 The context of the theoretical framework

According to Orlikowski and Iacono (2001), there are on-going situated forces that influence the usage and design of an IT artefact. If an IT artefact is used and designed in support of corporate governance, these forces also impact the design and usage of the artefact for the purpose of corporate governance.

A number of checklists have been developed as way of cataloguing the vast number of possible issues that might affect an organisation. A PEST analysis is a framework that categorizes environmental influences as political, economic, social and technological forces. Sometimes two additional factors, environmental and legal, are added to make up a PESTEL analysis, as indicated in Figure 7.3. A PESTEL analysis examines the impact of each of these factors and their interplay with each other on the organisation. These forces also impact the way in which an organisation is governed (*cf.* triangulated research finding 2 in Table 7.1). By better understanding these forces inside and outside the organisation, organisations may better understand how to manage these forces with corporate governance supportive technologies, such as a BPMS that causes corporate governance opportunities and threats. (*cf.* Byars, 1991; Cooper, 2000; Pearce and Robinson, 2005).

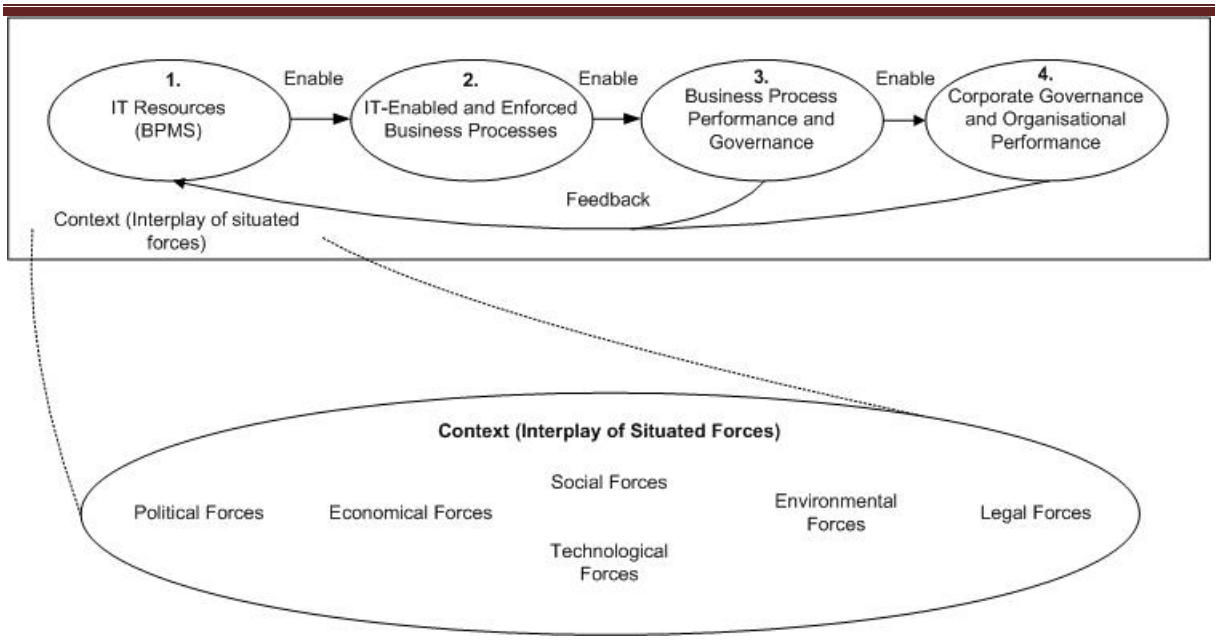


Figure 7.3 The Context of the Theoretical Framework.

One can further conclude, from the discussion in 7.3.2.1, that there is no absolute definition for corporate governance, because in different contexts there are similarities and differences in the forces that influence how organisations experience and interpret corporate governance, which is in accordance with King (2006: 117) that states:

> *There is no global governance framework for a holding company with many foreign subsidiaries, which lead to a number of issues, such as operating under different legal and governance frameworks... The rules laid down by the holding company might even be illegal in one or more of the countries in which a subsidiary operates. Further, health, social and environmental legislation differs from country to country*.

7.3.2.2 Phase 1: IT-Resources

As mentioned earlier, a BPMS is a generic software system in which you can design, configure, execute and manage operational business processes. (*cf.* Chapter 3). According to Orlikowski and Iacono (2001), the analysis and usage of an IT artefact must acknowledge that the IT artefact is composed of a multiplicity of fragile and

fragmentary components. This is also true in the case with a BPMS, which consists of several architectural components (*cf.* Chapter 3). The components of the BPMS are the BPM Engine, the Process Modeller, the Business Rule Engine, the Software Integration Engine, Monitoring (Reporting Engine) and the BPM Repository and Database.

This research project investigated how to inscribe the King principles of corporate governance into a BPMS during design-time in support of better corporate governance, as illustrated in Figure 7.4.

According to Orlikowski (2000), the situated technology configuration process is typically conducted by human agents namely the technology designers of a technology. Therefore, a technology only comes into existence through creative human action and is sustained by human action through the on-going maintenance and adaption of technology (Orlikowski, 1992). During the configuration process, the technology designers make use of their own assumptions and knowledge about the world at that specific time (Orlikowski, 2000), even under project or organisational directive. The designers, therefore, proactively play a role in bringing forth their own realities of "how things are", through their interpretive schemes, organisational facilities and norms such as the King principles of corporate governance in the organisational context, despite the reality of "the way things are" (Orlikowski, 2000). Therefore, designers are both constrained and enabled in their own sense making and by existing structures in the organisational setting, as stated in triangulated research finding 3 in Table 7.1.

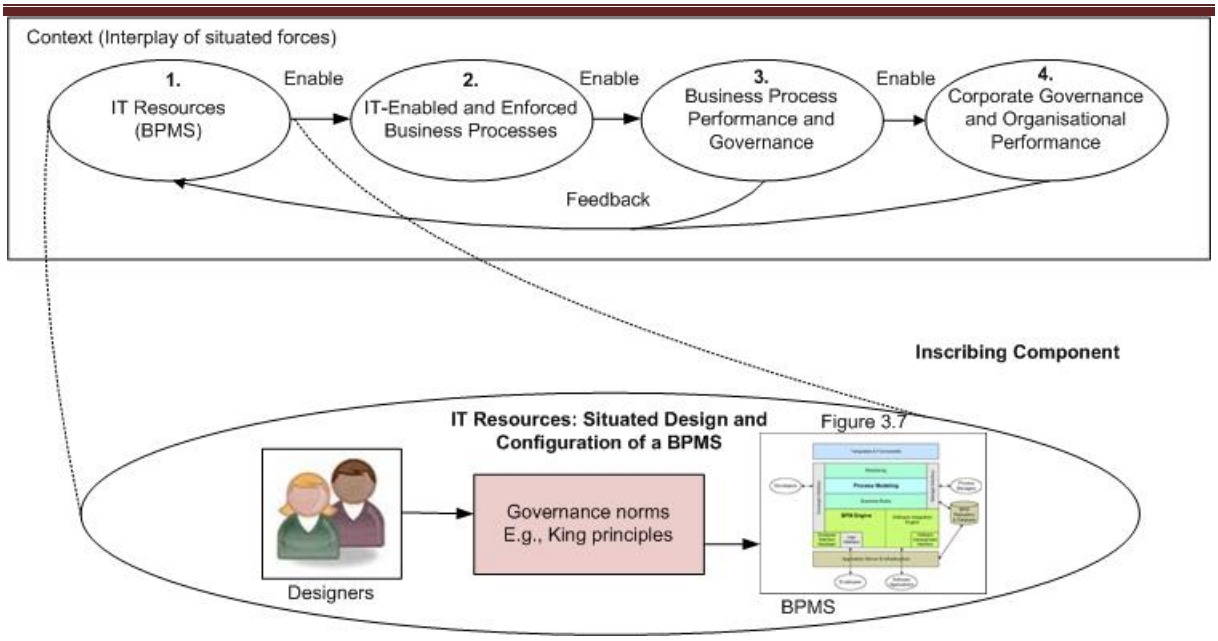


Figure 7.4 IT Resources Design and Configure the Business Process Management System

This project presented guidelines of how to inscribe the King principles of governance for better corporate governance during design-time and how these principles are supported by a BPMS during run-time, as indicated in Table 4.1 to Table 4.9 in Chapter 4.

There are, however, limitations when inscribing the King principles of corporate governance into a BPMS for better corporate governance. Technology designers may have difficulty to configure or inscribe concepts or business rules that are unstructured, vague, ad-hoc, unpredictable and abnormally complex (*cf.* triangulated research finding 4 in Table 7.1). The explicit inscribing of any technological artefact involves programming that requires explicit, externalised (not tacit), logical, structured and codifiable solutions.

On the other hand, a BPMS is capable of addressing corporate governance problems for which the solutions are structured, logical and codifiable during the configuration or inscribing process. (*cf.* triangulated research finding 5 in Table 7.1).

7.3.2.3 Phase 2: IT-enabled and enforced business processes

This study explained how the King principles of governance can be inscribed into a BPMS and its architectural components for better corporate governance (*cf.* triangulated research finding 6 in Table 7.1; Chapter 4: Section 4.3.4). Now, when human agents (users) use the BPMS, they draw on the properties of the artefact, those that were configured or inscribed by the designers and those that were added by the users (Orlikowski, 2000), as depicted in Figure 7.5.

Users of the BPMS may draw on the inscribed principles of corporate governance when they use the BPMS. According to Orlikowski (2000), users also draw on their own abilities, power, assumptions, previous experiences, training, skills, knowledge and expectations associated with the BPMS. Lastly, Orlikowski (2000) states that users draw on facilities within specific institutional contexts in which they live and work and the social and cultural conventions associated with these contexts. In this way, the people's use of a BPMS inscribed with the principles of corporate governance becomes structured by these experiences, knowledge, norms, habits, meanings and technological artefacts (Orlikowski, 2000), referred to as structuration. The principles of corporate governance may be enforced through situated BPMS use and monitoring (IT-enabled use and monitoring) during run-time, as indicated in Figure 7.5.

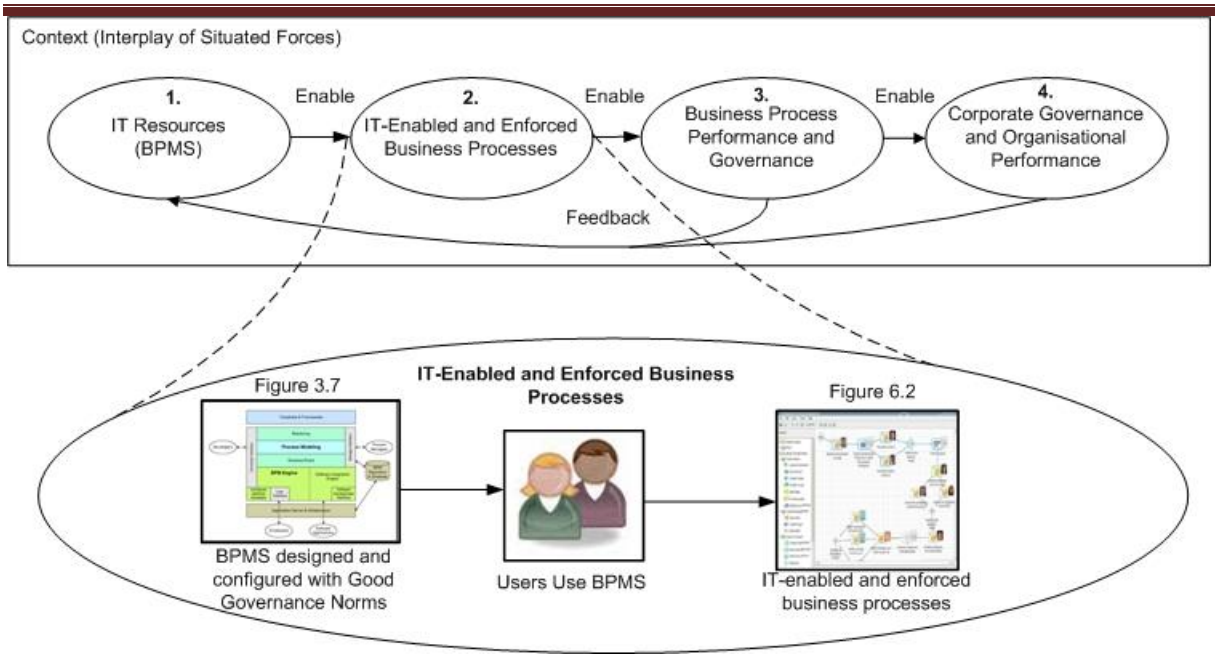


Figure 7.5 Situated[40] Use of a Business Process Management System

In Chapter 4 (Table 4.1 to Table 4.9) it is explained how a BPMS at run-time, can be used in support of corporate governance, e.g. auditors use process case data to track or monitor for abnormalities in processes. Next, the structuration that occurs when using a BPMS for corporate governance is discussed.

7.3.2.4 Phase 3: Business process performance and governance

Structuration, dependent on the context, occurs when using a BPMS in support of corporate governance. According to Orlikowski (2000), the on-going enactment of a technology-in-practice reinforces that technology in the organisation. It becomes regularised and routinised through habitual and repeated use of the technology. Re-enactment of the same technology-in-practice occurs through habitual use of the technology, thus further reinforcing it in the organisation so that it becomes taken for granted in the organisation (Orlikowski, 2000). The technology-in-practice becomes or

[40] Term used by Orlikowski (2000) meaning: in the current context or environment. Suchman (1987) defines the organisation of situated action as: "as an emergent property of moment-by-moment interactions between actors, and between actors and the environment of their action."

serves as a behavioural and interpretive template for people who use the technology (Orlikowski, 2000). From a corporate governance point of view, BPMS-use serves as behavioural template to improve corporate governance. This is termed *corporate governance supportive technologies-in-practice*, by the author.

The research study specifically indicates how the King principles of governance become more evident in the organisation if a BPMS is inscribed with the King principles of corporate governance (*cf.* triangulated research finding 6 in Table 7.1). BPMS-use therefore serves as behavioural template in support of better corporate governance, as indicated in Figure 7.6.

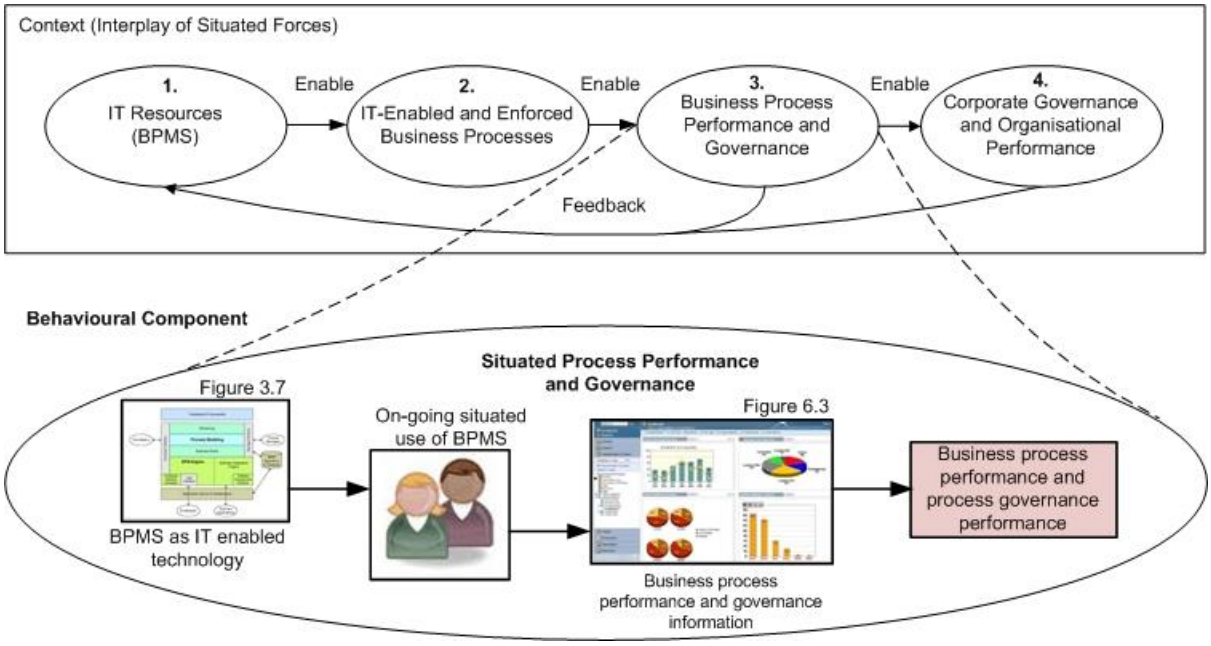


Figure 7.6 Corporate Governance Supportive Structuration

Furthermore, when the corporate governance principles are improving, intellectual honesty is improving. According to King (2006), intellectual honesty is the foundation of the King principles of governance and if these principles improve it implies that intellectual honesty is improving.

However, on the negative side, when a new set of norms, such as the King principles of corporate governance, are inscribed into a BPMS by technology designers, the intended

result of the technology inscribing process may be different from that anticipated. It may even be wrong (*cf.* triangulated research finding 7 in Table 7.1), which typically results in behaviour different from what was anticipated. Technology designers then have to re-design or correct the corresponding processes, so that the users can use the system in its intended way to also achieve the intended corporate governance supportive behaviour, as indicated by the feedback loop in Figure 7.6.

7.3.2.5 Phase 4: Improved corporate governance and organisational performance

A technology is situated in a number of overlapping social systems. As consequence (Orlikowski, 2000), people's interaction with technology may enact other social structures along with technologies-in-practice (Orlikowski, 2000). Human actors draw on structures that have been previously enacted in the organisation and with such action reconstitute those structures (Orlikowski, 2000). Reconstruction normally occurs in two forms: Reinforcement where actors enact the same structures; or transformation where actors enact changed structures (Orlikowski, 2000). Changes may be modest or substantial (Orlikowski, 2000). This may also be the case for a BPMS that is a corporate governance supportive technology-in-practice that is located in a number of overlapping social systems, as indicated in Figure 7.7. This may cause a ripple-effect of corporate governance supportive behaviours inside and outside the organisation (*cf.* triangulated research finding 9 in Table 7.1). Investors for example, may have more trust in organisations that have corporate governance supportive measures in place.

Furthermore, social, political and economic practice is an on-going process in organisations (Orlikowski and Iacono, 2001). Typically, an IT artefact also emerges from on-going social, political and economic practice (Orlikowski and Iacono, 2001). Therefore, there may always be continuous improvement and change as designers reconfigure the technology (the BPMS) or as users alter their habits of use (Orlikowski, 2000) or as social, economic and political practices play out, as depicted in the feedback loop in Figure 7.7.

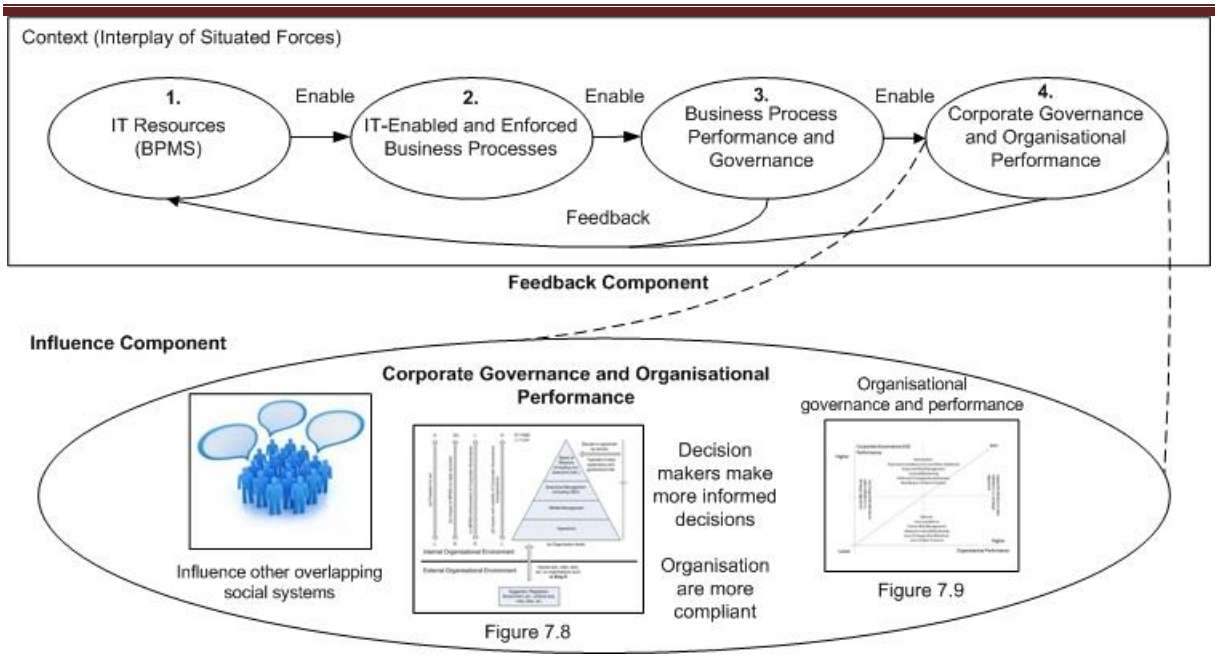


Figure 7.7 Implications of using a Business Process Management System in support of corporate governance.

Furthermore, users deliberately or inadvertently use a technology in ways that were not anticipated by the developers of the technology (Orlikowski, 2000). There is no exception in the case of a BPMS. Users, typically ignore, alter or work around the configured or inscribed properties of the technology to suit their purpose or need (Orlikowski, 2000), sometimes in a positive way and sometimes not. However, the physical properties of artefacts ensure that they are not totally open to any and all possibilities of modification and use (Orlikowski, 2000). The physical properties of artefacts ensure that there are always boundary conditions in how the technology is used.

To summarise, there are continuous changes in the technology as designers reconfigure the technology (the BPMS) or as users alter their habits of use (Orlikowski, 2000) or as social, economic and political practices play out. Continuous improvisation, corrective action and change are in essence part of BPM (see Figure 7.7). From a corporate governance perspective, when the configuration of a BPMS changes, users again alter their BPMS use habits and therefore may enact different corporate governance supportive technologies-in-practice. Therefore, the role and nature of BPMSs towards

corporate governance is continuous improvement, which involves automation and enforcement of corporate governance principles and norms. Continuous improvement of corporate governance results in better governed organisations, best corporate governance practices and improved intellectual honesty, which improve all aspects of business, as indicated in Figure 7.7. (*cf.* triangulated research finding 8 in Table 7.1).

The management classification of Anthony (1965) resulted in a three-level pyramid view of the organisation. The strategic planning (SP) levels of managers controls the long-term activities and decisions of the organisation. The management control (MC) level focuses on the medium-term activities of the organisation and the operational control (OC) level manages the day-to-day activities of the organisation.

Thus, the scope of each function in an organisation narrows as one moves down in the organisational hierarchy (Ahituv *et al.*, 1994). Therefore, bottom-level managers deal with more detailed data and shorter time periods, other than high-level managers. The implication is that controls in lower levels are more concrete and structured. Therefore, a BPMS may enforce corporate governance in more detail at lower operational levels where information and processes are more structured and concrete, as indicated in Figure 7.8 (see (b) and (c)).

Currently there are many types of organisational structures, namely traditional, vertical, flat and matrix. Organisations seek to arrange people and jobs in the most effective and efficient way to achieve the goals of the organisation (*cf.* Chapter 3). A small organisation may not need a formal organisational structure, while in a larger organisation structure is essential for the delegation of tasks. Other factors that may influence organisational structure include revenue, geographic dispersion of its facilities, size, range of businesses, nature of business, job separation and task specialisation, departmentalization and span of control (*cf.* Chapter 3).

Typically, at the top of the organisational structure, the board of directors of an organisation are involved in the strategic decision making processes of an organisation

(King, 2006), as indicated by Figure 7.8 (see (e)). The board of directors is a body of elected or appointed members (by stockholders or owners) who jointly oversee the activities of a company (King, 2006). Their company duties involve that of acting in good faith (acting *bona fide*), care, skill and diligence (King, 2006). The activities, powers, duties and responsibilities of a board of directors are typically detailed in the bylaws of the organisation, delegated to it by an authority outside itself, such as a code of conduct like the King III Report. Typically the board chooses one of its members to be the chairman (King, 2006).

Directors are the members of a board of directors. Directors who are owners and managers are referred to as inside directors, insiders or interested directors, while directors who are not owners or managers are referred to as outside directors, outsiders or disinterested directors (King, 2006; King II Report, 2002; Hough *et al.*, 2009). Managers in the organisation are referred to as executive directors.

Directors must act honestly and in the interest of the company (King, 2006). A director must not look to feather his or her own nest at the cost of the company, or be in a situation where he or she competes with the company at the cost of the company, called conflict of interests.

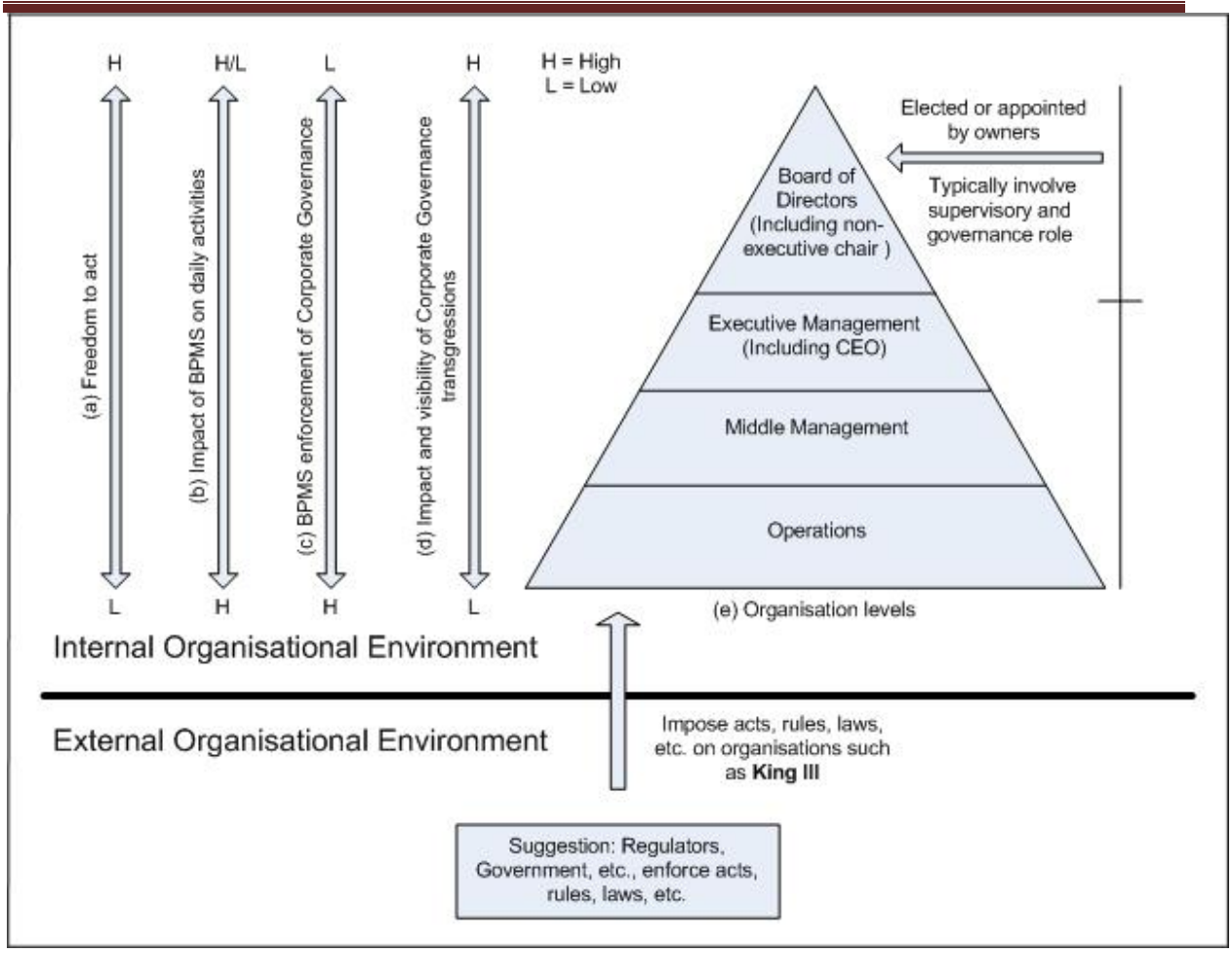


Figure 7.8 The Implications of using a Business Process Management System in Support of Corporate Governance

When directors neglect to perform their duties (neglecting to act in good faith, care skill and diligence) the impact and visibility of such corporate governance transgressions are high. Directors may cause damage to the image of an organisation when they neglect their duties, as indicated in Figure 7.8 (see (d)). In response to the transgressions by directors that caused company failures, regulators and governments have imposed rules, acts and laws on organisations such as the Sarbanes Oxley Act (*cf.* Chapter 1). The author proposes that, in the South African context, regulators and governments must impose rules, acts and laws on organisations, as indicated at the bottom of Figure 7.8. Government and regulators may need to enforce the King III code from the external organisational environment upon organisations in South Africa, in support of corporate governance.

This research study also indicates that a BPMS enforces corporate governance at run-time much better at operational level where work is more structured, than at strategic or top-management levels, where organisational leaders are more involved in decision making and have more freedom to act, as indicated in Figure 7.8 (see (a)). A BPMS may therefore enforce compliance to corporate governance better at operational level rather than at higher organisational management levels where control is much more unstructured and where directors have more freedom to act. However, at higher organisational levels a BPMS may assist decision makers, to make more informed decisions in support of corporate governance, but there are still concerns. Will corrupt directors or top-management, who has the ability to act freely, invest in a BPMS to enforce corporate governance to their own personal disadvantage? (*cf.* Chapter 1)

If a BPMS is used in the organisation, outside directors and auditors can use data collected in the BPMS (e.g. audit reports, process case data and reports) to take the necessary corrective action against corrupt inside directors, management, or any other corrupt individual inside the organisation, who have vested interests. The BPMS may assist outside directors and auditors to look over inside directors. Another concern is the cost-effectiveness of employing a BPMS in small organisations. Will smaller companies invest in BPMS technology, if they are already battling to survive? Luckily, new technology models such as cloud computing services may offer smaller organisation a cost-effective alternative to purchasing BPMS software. However it may be, if a BPMS is inscribed with principles of corporate governance, the use of such a technology may serve to improve corporate governance and corporate governance supportive behaviour, enforcing these principles better. It may make a contribution in the fight against corporate fraud, corruption and misconduct. Yet this solution may not be a remedy to all corporate governance problems.

Figure 7.9 illustrates the performance gains when corporate governance is improved with the use of a BPMS, based on the findings in this thesis.

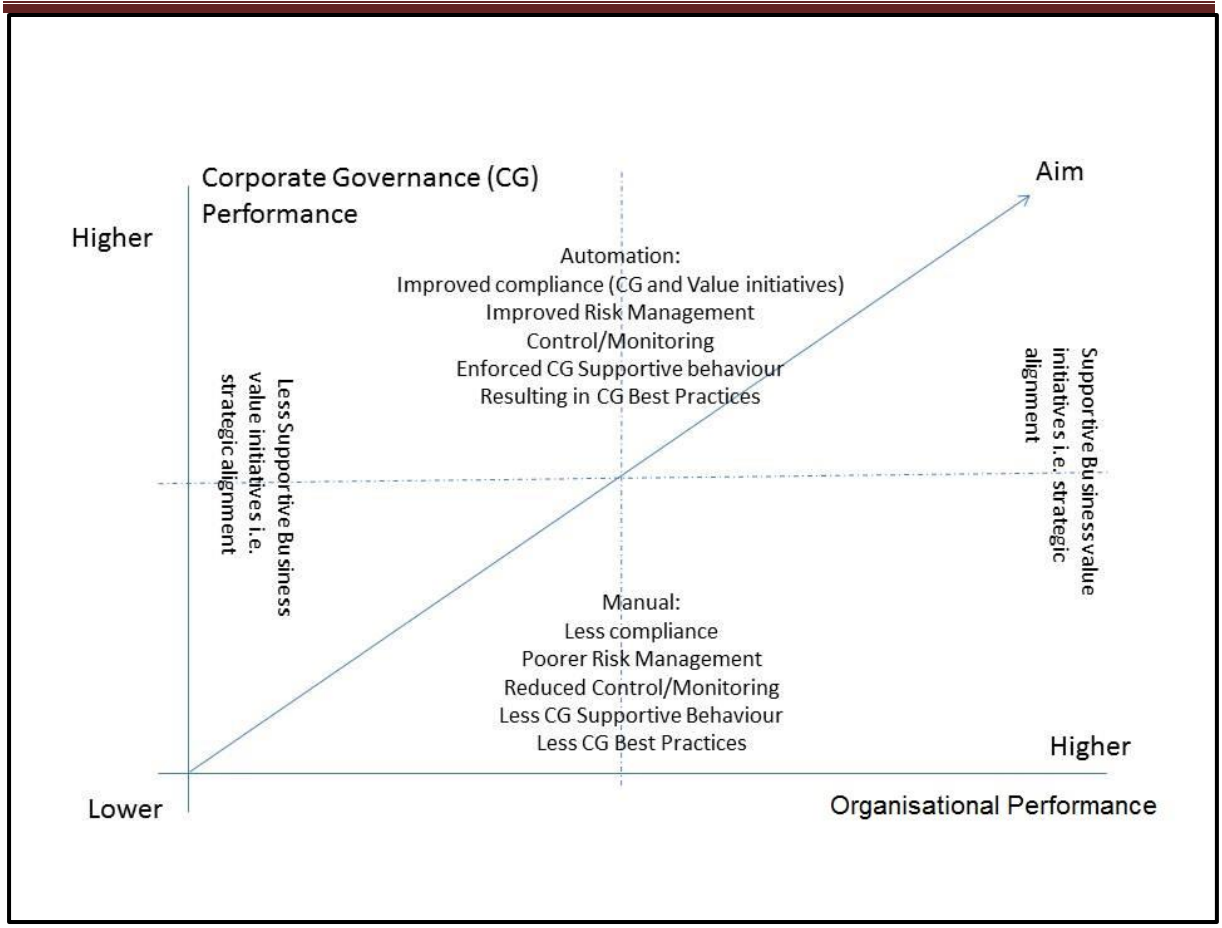


Figure 7.9 Performance guidelines when using a Business Process Management System in support of corporate governance

When a BPMS is used in support of corporate governance, it means that business processes are automated. This research indicates automated business processes result in improved and enforced compliance to corporate governance, corporate strategy and other business value initiatives. Because there are improved compliance (all process cases are executed in the same way), there may be better risk management and fewer process exceptions. This is the result of improved and enforced control and monitoring. Our research also indicated that the use of a BPMS in support of corporate governance resulted in corporate governance supportive behaviour and an improvement in intellectual honesty. Finally, our research and theoretical model indicates that continuous improvement in corporate governance may result in contextual corporate governance best practices. (*cf.* Section 7.2.3).

On the other hand, when business processes are performed manually, there may be less business process compliance, reduced control and monitoring, poorer risk management, and less corporate governance supportive behaviour, which may result in less corporate governance best practices.

However, corporate governance should still be linked to business value initiatives and corporate strategy in order for an organisation to perform better. If an organisation performs in corporate governance initiatives, but this is not linked or connected to business value initiatives (e.g. aligning corporate governance to the strategic objectives of an organisation) the organisation may still perform poor or fail. The goal is therefore to make sure that corporate governance is aligned to the business value drivers, such as the strategic objectives of an organisation, as indicated in Figure 7.9.

A holistic, integrated view of the theoretical framework is presented in Figure 7.10

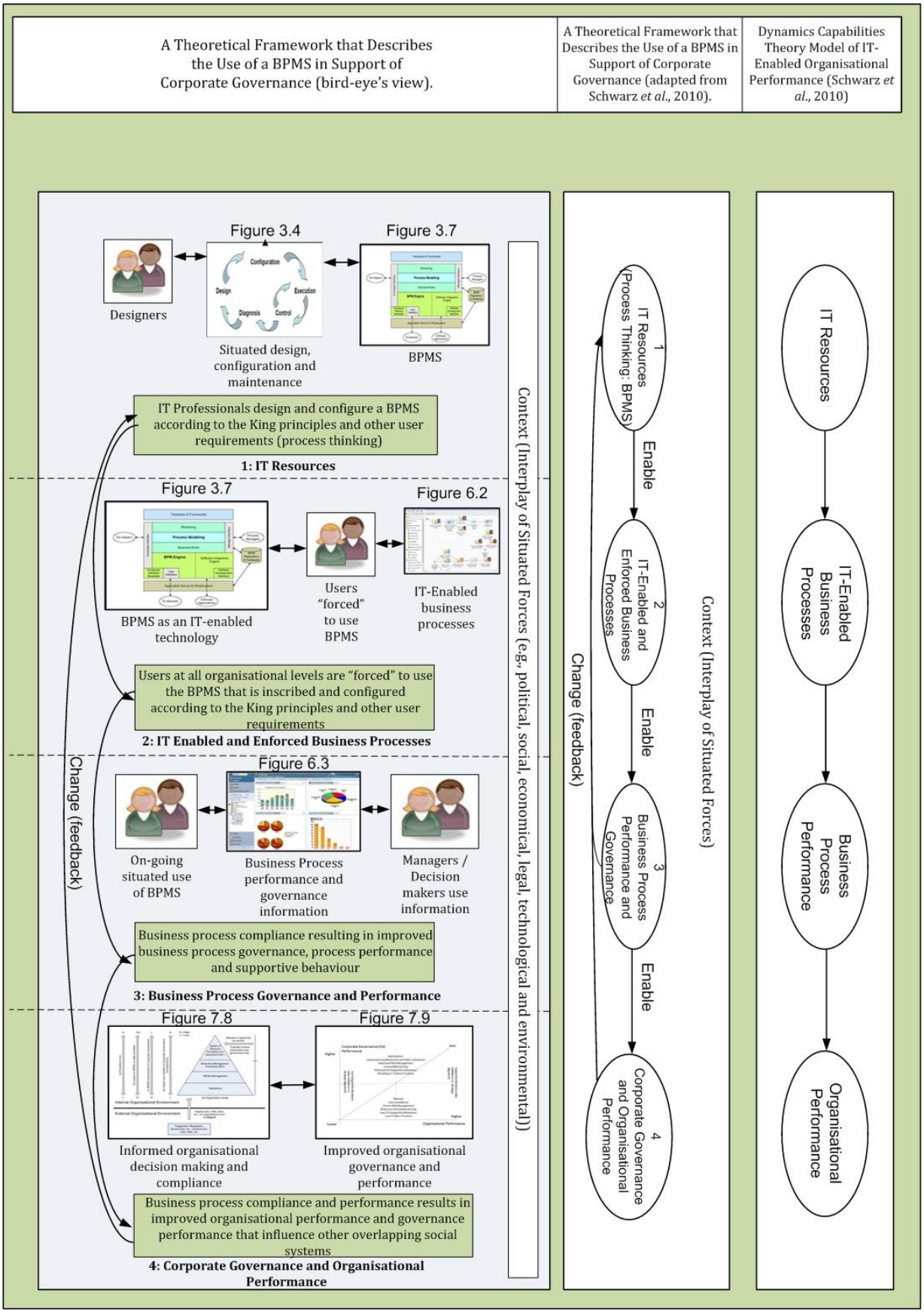


Figure 7.10 A theoretical framework the describes the use of a Business Process Management System in support of Corporate Governance

7.3.3 Using Expert Critique to Improve the Theoretical Framework

This sub-section is dedicated to improve key aspects of the newly developed theoretical framework (*cf.* Section 7.3.2) that explains the situated use of a BPMS in support of corporate governance. Improvement was achieved by means of informal interviews with experts in the domains of BPM and Corporate Governance, as described in Chapter 2 (*cf.* Chapter2, Section 2.7).

This section lists a summary of the combined critique and improvement suggestions identified, through data coding, from the expert participants. The critique and suggestions received are discussed. Then, the section concludes by introducing necessary modifications to the theoretical framework, after which the final framework is portrayed again.

In summary, the following improvement initiatives to the theoretical framework were identified:

- The introduction of a situated support component for the theoretical framework that contains contextual critical success elements to apply the theoretical framework successfully in a specific context. The situated support component may assist in addressing corporate governance holistically by giving attention to situated aspects such as Change Management, top-management support, leadership, resources to support the process system, a process and process thinking culture and policies, which is reflected in some of the comments of the participants:

  It is not only the system that will... enhance compliance to governance... If you expect results, you need a bunch of enablers. Those enablers being let say processes in the middle, leadership on the side and then in between you find your people component, your strategy and policy component,... and resources, of which this BPMS is one resource... Now all of those... should

support CG... It should be a holistic thing. (Consultant interview: 2 min 38sec;3 min 38 sec;7 min 24 sec; Part2: 13 min 9 sec , 2013).

From an automation perspective, the only thing that I think I missed... is Change Management... for the very simple reason automation change people's work-life and with that come uncertainty. (Consultant interview: 13 min 7sec, 2013).

... the next aspect is if you don't align the skills required to utilise the tool with the tool, and once again in terms of governance, then you get dysfunction, then you get a fancy tool that people can't use or use incorrectly or inappropriately to the point where it does not necessarily make the contribution that you want to the organisation as informed by the governance. (CIO interview: 22min 32 sec, 2013).

The tool itself as we know, will ultimately only automate whatever you choose to automate in the organisation, so... if the organisation does not truly believe in let say process thinking and how these things should fit together, then I don't think any tool will ultimately take them there. (Consultant interview: 2 min 38sec;3 min 38 sec;7 min 24 sec; Part2: 13 min 9 sec , 2013).

- Adding an initial business vision and intent phase that informs the rest of the phases in the framework follows. This phase also informs the support component in the theoretical framework that will be introduced. The point is reflected in some of the comments of the participants:

... and what I mean by that is number one, if you don't ensure that his tool is aligned with the strategic intent in governance, so that it can actually contribute towards the ability of the organisation in its major and primary imperatives, then you are sitting with a problem, because you might get a

tool that moves away from where the organisation wants to go (CIO interview: 4 min 48 sec, 2013).

- Extend the discussion of the implications of a BPMS in support of corporate governance, which includes the cost implications of using a BPMS in support of corporate governance and compliance, but also the role that a BPMS plays, to make the level of compliance and performance from external imperatives transparent. (*cf.* CIO interview: 20 min 48 sec, 2013).

- When a BPMS is used in support of corporate governance this may lead to improvements in organisational maturity, in process thinking, in establishing a process culture and process governance.. As stated by one of the interviewees:

  …the other side is maturity in the organisation, which is building and once maturity starts to build things are refined more and more... (Consultant interview: 7min 44 sec, 2013).

- Further identified research (listed as further research in Chapter 8): In auditing it is still the business auditors that are leading the audits even though the environment is driven by IT systems and IT processes. The business auditors that do not have an IT background and do not understand IT properly are still the front-runners and they are still the ones looking at the business processes, which is reflected in one participant's comments:

  In audit, it's still the business auditors that are leading the audit and I find it really strange in an environment that is driven by its IT systems and its IT processes, that the business auditors that do not have an IT background and do not understand IT properly are still leading the auditing, they are still the front-runners, they are still looking at the business processes. (IT Auditor interview: 6 min 50sec, 2013).

A discussion of the various points listed follows, after which the final theoretical framework is depicted (Figure 7.11).

The Introducing a Situated Business Vision and Intent Phase

The Business Vision and Intent phase, describes the activities required to meet the business vision and intent. This phase may include one or more feasibility studies. This phase may also inform from an organisational perspective what contextual support activities and critical success support factors need to be established when using a BPMS in support of corporate governance.

Introducing Situated Organisational Support

There should be a situated (contextual) organisational support component when a BPMS is used in support of corporate governance. This support component is informed from the Strategic Business Vision and Intent phase to provide a more holistic, but contextual approach and in applying the theoretical framework successfully. The situated support component may consist of various contextual critical success support factors (e.g. Change Management, top-management support, resources (human and non-human), artificial intelligence and policies) dependent on the context that is required to apply the use of a BPMS in support of corporate governance successfully.

Using a BPMS in Support of Corporate Governance also Improve Organisational Maturity, Process Thinking, Process Governance to Inspire a Process Culture

When a BPMS is successfully used in support of corporate governance, the BPMS may impact process maturity and organisation maturity positively (*cf*. Chapter 3). When starting to defining organisational processes and using these processes as a base for improvement (*cf*. Chapter 3), the organisation may start to climb up the capability maturity levels. The Capability Maturity Model (CMM) consists of five levels, namely the Initial level, the Repeatable Level, the Defined level, the Managed Level and the Optimized level (Humphrey, 1988; Humphrey, 1989). Level three of the CMM model states that there are sets of documented and defined standard business processes established and subject to some degree of improvement over time (Humphrey, 1988;

Humphrey, 1989). These standard processes are in place as "as-is" processes and used to establish consistency of process performance across the organisation (Humphrey, 1988; Humphrey, 1989), which can easily be achieved when using a BPMS to define organisational processes. Organisational maturity may improve, further leading to process thinking, improved process governance finally resulting in a process thinking culture (*cf*. Chapter 3).

Further Implications of Using a BPMS in Support of Corporate Governance

A further two implications for using a BPMS in support of corporate governance have been identified.

First, as identified in Chapter 1 (*cf*. Chapter 1), it is mostly top-level managers that are guilty of fraud and corporate misconduct. Only external governance and imperatives, outside the organisation, such as KING III, industry peer reviews, pressure from the board of directors and shareholders' pressure may put external pressure on organisations and their managers to achieve good corporate governance. When a BPMS is used in support of corporate governance, the BPMS helps to make the level of compliance and performance from external imperatives transparent. This may prevent top managers from purposefully engaging in corporate misconduct, e.g. fraud and stealing, because the BPMS makes these transgressions visible to outsiders. A BPMS may pro-actively prevent top-level managers to engage in corporate misconduct and fraudulent behaviour through well-defined processes and business process rules, or a BPMS may re-actively provide transparency to external governance imperatives, to bring transgressors to justice.

Secondly, the cost of investments into technologies such as a BPMS, to enforce compliance to corporate governance, is hard to define in monetary value which is further dependant on context. However, one can argue that the cost of not having a technology such as a BPMS in place to enforce corporate governance may be much higher than the cost of investing in such technologies to enforce corporate governance. Furthermore, new technology models such as cloud computing may significantly reduce

the cost of investing in process technologies and services for better corporate governance.

This concludes the discussion of the suggested improvements from the expert participants. A final representation of the theoretical framework is given in Figure 7.11 and Figure 7.12.

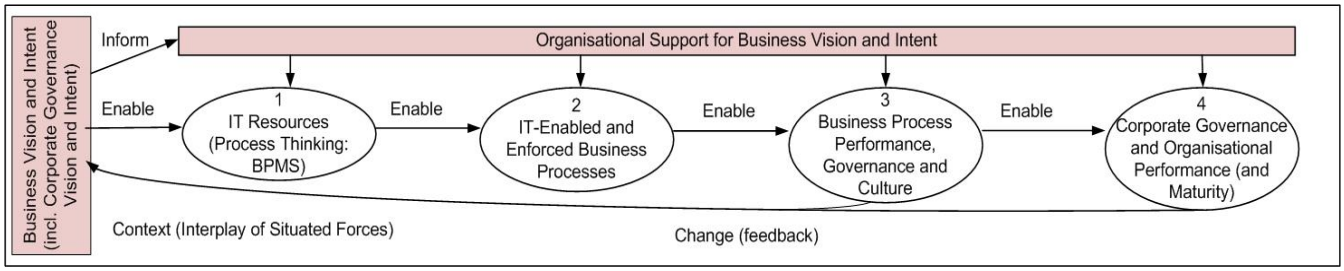


Figure 7.11 A final improved high-level theoretical framework that explains the situated[41] use of a Business Process Management System in support of corporate governance.

The theoretical framework can also be applied to the BPM life cycle stages as proposed and illustrated in Appendix C, which is listed as future research (see Chapter 8: Section 8.4), as more investigation and testing is required. After presenting the final theoretical framework (Figure 7.12) of this research effort, the chapter is concluded with the concluding summary of the chapter.

[41] Term used by Orlikowski (2000) meaning: in the current context or environment. Suchman (1987) defines the organisation of situated action as: "as an emergent property of moment-by-moment interactions between actors, and between actors and the environment of their action."

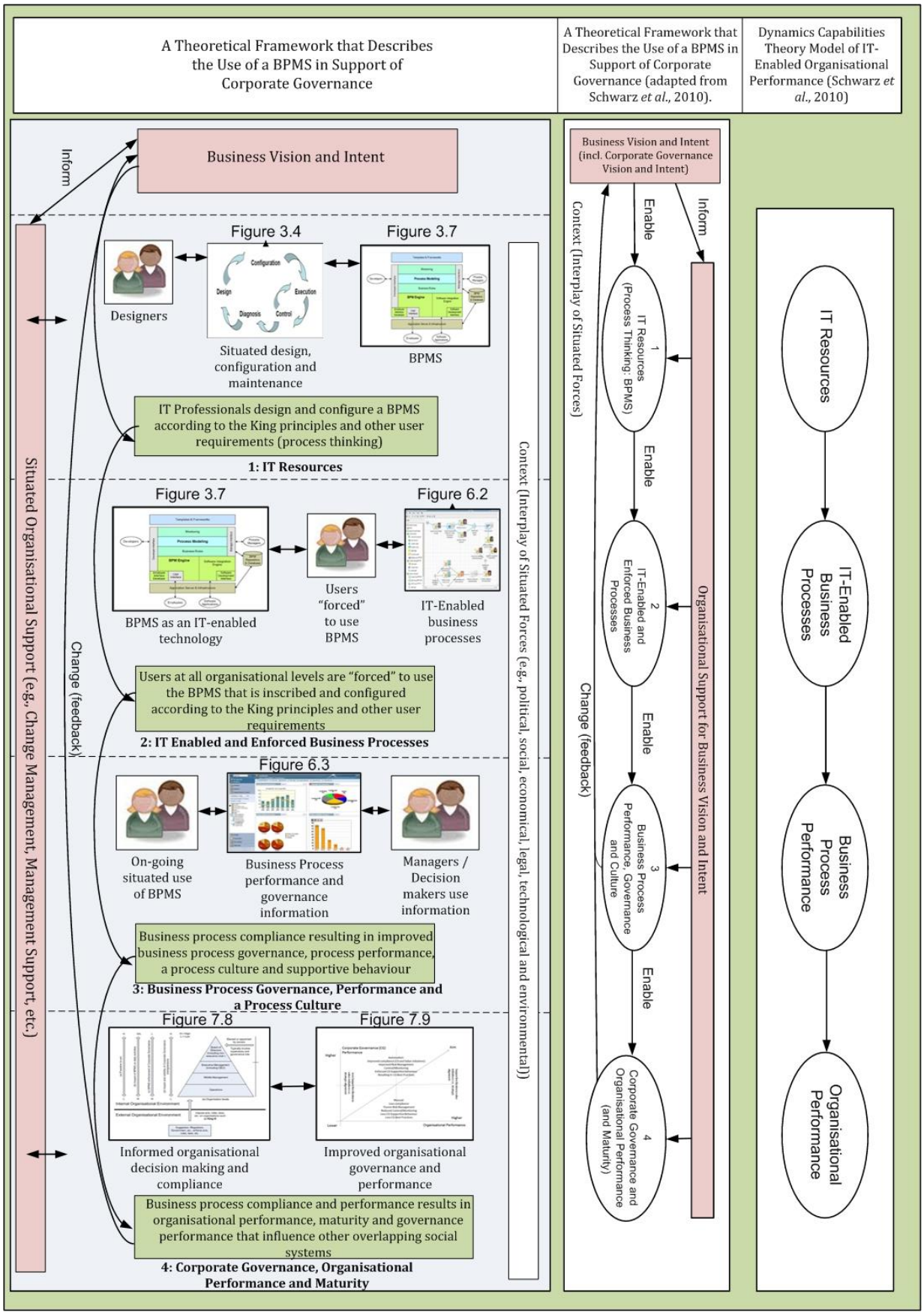


Figure 7.12 A final improved theoretical framework that explains the situated use of a Business Process Management System in support of corporate governance.

7.4 Concluding Summary

The aim of this chapter was to synthesize the research findings obtained during this research project and systematically use these findings to develop a theoretical framework that explains the use of a BPMS in support of corporate governance. The framework illustrates how corporate governance supportive behaviour emerges and intellectual honesty improves in an organisation when the King principles of corporate governance are inscribed into a BPMS. The theoretical framework that emerged was further refined in a process that involved the opinions and critique of expert participants in the domains of BPM and corporate governance.

The framework, as described in Section 7.3 consists of the following components (see Section 1.5, secondary research question 5):

- *An inscribing component:* The study explained how the King principles of corporate governance can be inscribed into a BPMS at design-time (*cf.* Section 7.3; Pretorius *et al.*, 2012).

- *An organisation behavioural component:* The study explained how the utilisation at run-time, of a BPMS in support of corporate governance, changes organisational behaviour in support of corporate governance at run-time. The principles of governance are enforced in the organisation through the utilisation of a BPMS, so that it becomes more evident in the organisation. Intellectual honesty in the organisation is also improving. (*cf.* Section 7.3; Pretorius *et al.*, 2012).

- *A feedback component:* There are continuous changes in the BPMS as designers reconfigure the BPMS, or as users alter their habits of use, or as social, economic and political practices play out. Continuous improvisation and change form, in essence, part of BPM. It follows that the role and nature of BPMSs towards

corporate governance involves continuous improvement. (*cf.* Section 7.3; Pretorius *et al.*, 2012).

- *An organisational support component:* There should be a situated organisational support component, that supports the business and governance intent of the organisation, throughout the whole BPMS life cycle. This component consists of various aspects such as top-management support, Change Management and process intelligence, and depends on the context and intent. These initiatives should be identified during the business vision and intent phase. (*cf.* Section 7.3).

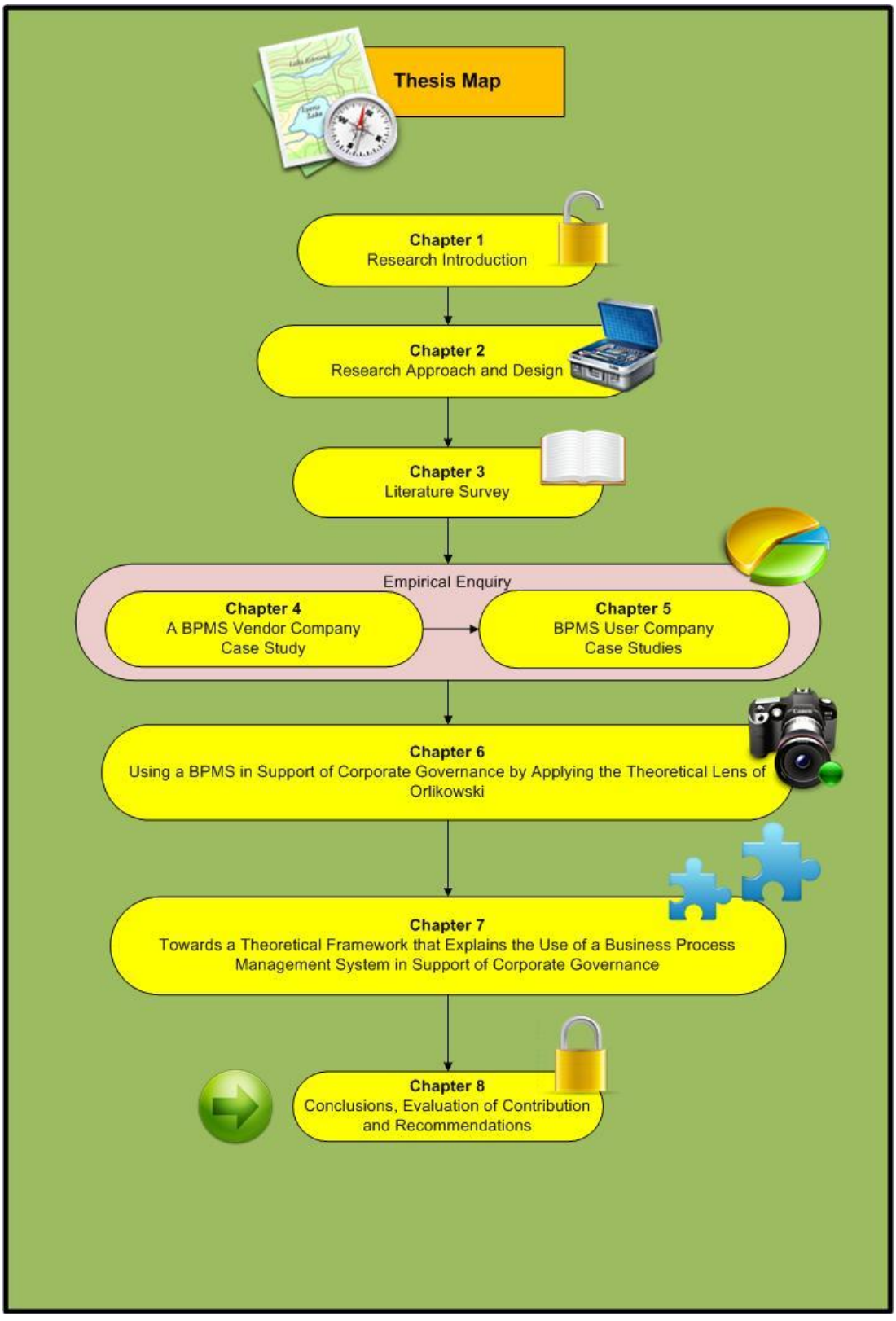
- *An influence component:* The study explained how the utilisation of a BPMS in support of corporate governance may influence other overlapping social systems for the good or the bad. Some social systems may follow the utilisation of a BPMS for the good of corporate governance. However, others may resist the utilisation of a BPMS for the good of corporate governance. (*cf.* Chapter 7.3; Pretorius *et al.*, 2012).

This research study further indicates that there are contextual forces that play in and outside organisational boundaries. Orlikowski and Iacono (2001) further assert that an IT artefact is shaped by these on-going social, political and economic practices; the values and assumptions of the designers and users; and the historical context (the cultural and organisational discourse). As consequence, there are similarities and differences in the way how a BPMS is defined and inscribed by designers and experienced by users in organisations, to address the various corporate governance problems that exist within these organisations. There are continuous changes in the technology as designers reconfigure the technology (the BPMS), or as users alter their habits of use, or as social, economic and political practices play out. Therefore, continuous improvisation (diagnosis), corrective action and change are in essence part of BPM. From a corporate governance perspective, the role and nature of BPMSs towards corporate governance is continuous improvement, which involves automation and enforcement of corporate governance principles and norms. This results in better

governed organisations, best corporate governance practices and improved intellectual honesty, which improves all aspects of business.

In the final chapter (presented next), the research study is concluded. During this chapter an analysis of the salient contributions of the research is conducted. Finally, suggestions for further research work are provided.

Chapter 8: Conclusions, Evaluation of Contribution and Recommendations



8.1 Introduction

The aim of this research project has been to develop a theoretical framework that contributes to the understanding of how a BPMS is utilised in support of corporate governance in South Africa. To achieve this result, an interpretive research approach was adopted, which involved a BPMSVC case study and seven BPMSUCs case studies. A theory of Orlikowski (2000), "Technologies-in-Practice", was used as theoretical underpinning in constructing the theoretical framework for the study.

The theoretical framework from the previous chapter demonstrates how principles of governance, such as the King principles of governance in South Africa, can be inscribed into a BPMS. Furthermore, the use of such a system has a behavioural impact on the organisation, in support of corporate governance. However, behaviour is sometimes different from what is anticipated. There is also an impact, either negative or positive, on other social overlapping systems. Finally, ccontinuous improvisation and change is in essence part of business, as technology changes or as business and market requirements changes. Therefore, the role and nature of BPMSs towards corporate governance is continuous improvement, that involves automation and enforcement of corporate governance principles, resulting in better governed, process thinking and mature organisations that improve all aspects of business.

At the start of the research project, a set of questions were posed (*cf.* Chapter 1, Section 1.5). In the first part of this chapter, these questions are addressed. Then, the research contributions of this study are evaluated, after which the final section offers suggestions for further research.

8.2 Research Summary

8.2.1 Introduction

Various research questions were posed in Chapter 1, in order to understand how a BPMS could be utilised and adapted to support the King principles of governance in support of better corporate governance in South Africa. This was the main and overall objective of this thesis.

In this subsection, the research questions from Chapter 1 are revisited in light of the results attained from this research study. The secondary research questions are addressed first, followed by the main research question.

8.2.2 Addressing the Secondary Research Questions

The secondary research questions of this study to be addressed are:

Research question 1: What corporate governance problems are experienced by companies in the South African context and what forces impact it?

As indicated in Chapter 1 and confirmed through the empirical investigation, the corporate governance problems identified in this study relate back to a lack of adherence to corporate governance principles, such as King's set of principles of governance, in South Africa. From the perspective of King, bad governance is a result of neglecting the principles of good governance. Most importantly, the foundation of these concepts is intellectual honesty and acting in good faith and in the best interests of the company. Neglecting these problems typically result in criminal behaviour (e.g. fraud and stealing), corruption, human biasness, inconsistency, loss of work performance, loss of work quality and human error. (*cf.* Chapter 1, Section 1.2; Table 4.10 in Chapter 4; Table 5.1 in Chapter 5; Table 7.1 in Chapter 7; Pretorius *et al.*, 2012).

There are various forces that influence corporate governance, which make the concept or definition of corporate governance different from one organisational context to another. There exist many classifications of forces that influence an organisation. One

such a classification is PESTEL which is an acronym for political, economic, social, technology, environmental and legal. (*cf.* Table 4.10 in Chapter 4; Table 6.1 in Chapter 6; Table 7.1 in Chapter 7). An important consequence is that the definition of corporate governance is situated or contextual, depending on the forces that play out in that specific context.

Research question 2: How can the King principles of good governance be inscribed or supported by using a BPMS?

A BPMS is a generic software system in which one can design, execute and manage operational business processes. According to Orlikowski and Iacono (2001), the analysis and usage of an IT artefact must acknowledge that the IT artefact is composed of a multiplicity of fragile and fragmentary components. Therefore, to investigate how the King principles of governance can be inscribed into a BPMS, the BPMS was broken down into its architectural components. The components of the BPMS are; the BPM Engine, the Process Modeller, the Business Rule Engine, the Software Integration Engine, Activity Monitoring and Reporting and the BPM Repository. (*cf.* Chapter 3, Section 3.4.6; Pretorius *et al.*, 2012).

On the other hand, there are different classifications in different contexts of what is regarded as the best set of good corporate governance principles, rules or acts. Examples include: “Der Deutsche Corporate Governance Kodex” (the German Corporate Governance Code), “J-SOX”, the Japanese equivalent of the SOX act, Corporate Law Economic Reform Program (Audit Reform and Corporate Disclosure) Act in 2004 in Australia known as CLERP9, "Loi sur la Sécurité Financière” (Financial Security Law of France), The Combined Code on Corporate Governance (originally derived from the Cadbury Report) in the United Kingdom and the SOX Act of 2002 in the U.S. However, the focus of this study was the South African corporate context and in this context, King’s principles of governance are regarded as the most prevailing. (*cf.* Chapter 1, Section 1.2; King, 2006; King II Report, 2002; King III Report, 2009; Maharaj et al., 2006; Chapter 3, Section 3.6).

The set of governance principles for better corporate governance in South Africa, established by the King Committee on Corporate Governance in South Africa, are; fairness, accountability, responsibility, transparency, discipline, independence, social responsibility, leadership and sustainability. (*cf.* King, 2006; King II Report, 2002; King III Report, 2009).

According to Orlikowski (2000), the technology inscribing process is typically conducted by human agents namely technology designers at design-time. Therefore, a technology only comes into existence through creative human action and is sustained by human action through the on-going maintenance and adaption of technology at design-time (Orlikowski, 2000).

This study provides perspectives of how the King principles of governance can be inscribed into the architectural components of a BPMS at design-time and enforced and applied during run-time in a BPMS, in support of corporate governance. (*cf.* Chapter 4, Section 4.3.4; Chapter 5; Pretorius *et al.*, 2012).

During the inscribing process (design-time), the technology designers make use of their own assumptions and knowledge about the world at that specific time (Orlikowski, 2000). The designers proactively play a role in bringing forth their own realities of "how things are", through their interpretive schemes, through organisational facilities and through norms (Orlikowski, 2000), such as the principles of corporate governance in the organisational context, despite the reality of "the way things are" (*cf.* Chapter 7). Therefore, designers are both constrained and enabled in their own sense making and by existing structures in the organisational setting. As a consequence, the result of the inscribing process may be different from that which was anticipated or even wrong. Designers may be required to re-design or correct the technology for users to use the system in its intended way. (*cf.* Table 6.1 in Chapter 6; Chapter 7).

The research study also indicated that there are limitations and shortcomings when using a BPMS to address corporate governance problems. A BPMS is not well suited to address corporate governance problems for which the solutions are unstructured,

vague and ad-hoc. It is difficult to inscribe or code these solutions into a BPMS. Various other organisational aspects, such as top-management support, can also be critical success factors when a BPMS is utilised in support of corporate governance. (*cf.* Table 4.10 in Chapter 4; Table 5.1 in Chapter 5; Table 7.1 in Chapter 7; Pretorius *et al.*, 2012).

On the other hand, the study revealed that a BPMS is capable of addressing corporate governance problems for which the solutions are structured, logical and codifiable so that it can be inscribed into a BPMS. (*cf.* Table 4.10 in Chapter 4; Table 5.1 in Chapter 5; Table 6.1 in Chapter 6; Table 7.1 in Chapter 7; Pretorius *et al.*, 2012).

Research question 3.1: What is the role and nature of a BPMS in the organisation and how is this relevant to corporate governance?

The historical characteristics of process disciplines that define the purpose, nature and role of a BPM in the organisation involves continuous improvisation of the organisation (*cf.* Chapter 3, Section 3.3). There are also continuous changes in technologies as designers reconfigure the technology, or as users alter their habits of use, or as social, economic and political practices play out in an organisation. To support the dynamic and changing business environment that organisations face, IT-resources need to be strategic and tactical flexible to cope with these changes. IT-enabled and IT-enforced business processes must be flexible enough (on strategic and tactical level) to cope with the changing and dynamic business environments that organisations face for gains in business performance and control. Therefore, continuous improvisation and change are in essence part of BPM, also when a BPMS is applied to improve corporate governance.

It follows that the role and nature of BPMSs towards corporate governance involves continuous improvement. Continued improvement involves automation of corporate governance activities and the enforcement of rules, acts and legislation resulting in better governed organisations and intellectual honesty that improves organisational maturity and all aspects of the business. Continuous improvement occurs through continuous feedback from users, testers and other parties involved in the development and use of a BPMS. A process approach to corporate governance further enhances

process thinking in the organisation and establishes a process culture, as indicated in the theoretical framework that evolved from the research in this study. (*cf.* Chapter 3, Section 3.3; Table 4.10 in Chapter 4; Table 5.1 in Chapter 5; Table 6.1 in Chapter 6; Chapter 7; Pretorius *et al.*, 2012).

Research question 3.2: What are the shortcomings when using a BPMS in support of corporate governance?

The following identified shortcomings exist when using a BPMS in support of better corporate governance (*cf.* Chapter 5; Chapter 6; Chapter 7):

- It may be time consuming to implement a BPMS in support of corporate governance.
- There may be loopholes in processes, which the users use to bypass corporate governance controls and measures.
- There may be employees that are illiterate or computer illiterate that may not able to use a BPMS.
- Other employees may find it difficult to use the BPM software, because it is not user friendly.
- A BPMS requires IT custodianship. Proper skills are required to support the technical aspects of a process management system.
- A BPMS requires the IT infrastructure to work, especially in Africa where IT infrastructure is not always sufficient to run BPMS software.
- Business processes may not always be effective and efficient, resulting in additional overhead ("red-tape") in processes.

- Sometimes an organisation requires flexibility and diversity in its organisational processes to maintain or gain a competitive advantage in the market. BPMSs strive to achieve the opposite namely standardisation.

- BPMSs removes human intervention or the "human feeling" within organisations that may cause negativity.

- A BPMS with rigid processes may limit employee creativity and solution crafting.

- The use of BPMSs may cause employee resistance that require Change Management.

- Cultural norms may also work against the adoption and use of a BPMS (e.g. in Africa the cultural norm of "ubuntu" exists that encourages togetherness, while a BPMS encourages individual performance).

- A BPMS is normally used in bigger companies and not in smaller companies, which exclude smaller companies to use a BPMS in support of corporate governance. However, new technological models such as cloud computing may make it more attractive and cost-effective for smaller companies.

Furthermore, the research study indicated that a BPMS is not well suited to address corporate governance problems for which the solutions are unstructured, vague and ad-hoc. It is difficult to inscribe or code these solutions into a BPMS at design-time. Various other organisational aspects, such as top-management support, can also be critical success factors when a BPMS is utilised in support of corporate governance, as indicated in the theoretical framework in Chapter 7. (*cf.* Table 4.10 in Chapter 4; Table 5.1 in Chapter 5; Chapter 7, Pretorius *et al.*, 2012).

Research question 4: How does the use of a BPMS improve behaviour of people (e.g. intellectual honesty) to support better corporate governance?

When people use technology, they draw on the properties of the artefact, which were inscribed by the designers and added by the users at design-time (Orlikowski, 2000). When the King principles of governance are inscribed into a BPMS to achieve better corporate governance and its architectural components, the users of a BPMS draw on the inscribed principles of corporate governance when they use the BPMS during run-time. Users also draw on their own abilities, power, assumptions, previous experiences, training, skills, knowledge and expectations associated with the technology (Orlikowski, 2000). Lastly, users draw on facilities within specific institutional contexts in which they live and work and the social and cultural conventions associated with these contexts. In this way, the people's use of technology, in this case a BPMS inscribed with the principles of corporate governance, becomes structured by these experiences, knowledge, norms, habits, meanings and technological artefacts.

According to Orlikowski (2000), the on-going enactment of a technology-in-practice reinforces that technology in the organisation. It becomes regularised and routinised through habitual and repeated use of the technology. Re-enactment of the same technology-in-practice occurs through habitual use of the technology, thus further reinforcing it in the organisation so that it becomes taken for granted in the organisation (Orlikowski, 2000). The technology-in-practice becomes or serves as a behavioural and interpretive template for people who use the technology (Orlikowski, 2000).

From a corporate governance point of view, the specific technology-use serves as behavioural template to improve behaviour that supports better corporate governance, which is termed *good corporate governance supportive technologies-in-practice*, by the author. The research study indicated specifically how King's principles of governance become more evident in the organisation if the BPMS is inscribed with these principles. In this case, the BPMS serves as behavioural template in support of corporate governance. Yet, this solution is not a remedy to all corporate governance problems. (*cf.* Table 4.10 in Chapter 4; Table 5.1 in Chapter 5; Table 6.1 in Chapter 6; Table 7.1 in Chapter 7; Pretorius *et al.*, 2012).

The research project also indicates that the impact of a BPMS to enforce corporate governance in the organisation is much higher at operational level, where work is more structured, than strategic or top-management level where leaders have more freedom to act. A BPMS may enforce corporate governance better at operational level rather than at higher organisational management levels where control is much more unstructured and where directors have more freedom to act. However, a BPMS reduces the risk of top-management isolation or freedom that creates an environment for corporate corruption and misconduct, as indicated in the theoretical framework in Chapter 7. Furthermore, a BPMS can assist top-level managers to make more informed decisions. (*cf.* Chapter 7; Pretorius *et al.*, 2012).

As consequence, when King's corporate governance principles are improving in an organisation, intellectual honesty must also be improving in the organisation. According to King (2006), intellectual honesty is the foundation of all of the principles of governance and if these principles improve it implies that intellectual honesty is improving. (*cf.* Table 4.10 in Chapter 4; Table 5.1 in Chapter 5; Table 6.1 in Chapter 6; Chapter 7; Pretorius *et al.*, 2012).

On the negative side, when a new set of norms, such as the King principles of corporate governance are inscribed into a BPMS by technology designers at design-time, the intended result of the technology inscribing process during run-time may be different from that, that was anticipated. It may even be wrong (*cf.* triangulated research finding 7 in Table 7.1, Chapter 7). The research indicates that there are many reasons, including personal characteristics, incomplete training, misunderstandings and inadequate solutions (technical and non-technical) to the corporate governance problems faced. This may require multiple iterations of the inscribing process, typically resulting in re-design or correct the problem, so that the users use the system in its intended way during run-time. (*cf.* Table 4.10 in Chapter 4; Table 5.1 in Chapter 5; Table 6.1 in Chapter 6; Chapter 7; Pretorius *et al.*, 2012).

Research question 5: What are the components of a theoretical framework that illustrate how a BPMS can be utilised in support of better corporate governance?

The components of a theoretical framework that illustrate how a BPMS is utilised in support of corporate governance are (*cf.* Chapter 7):

- *An inscribing component:* The study explained how the King principles of governance can be inscribed into a BPMS at design-time. A BPMS is capable to address corporate governance problems for which the solutions are structured, logical and codifiable during the inscribing process. However, the inscribing process also has limitations, which include solutions that are unstructured, vague, or ad-hoc so that it cannot be codified in a BPMS. (*cf.* Chapter 7; Pretorius *et al.*, 2012).

- *An organisation behavioural component:* The study explained how the utilisation of a BPMS in support of corporate governance changes organisational behaviour in support of corporate governance at run-time. The principles of governance are enforced in the organisation through the utilisation of a BPMS, so that it becomes more evident in the organisation. King (2006) further argues that the principles of governance are based on a foundation of intellectual honesty. If the principles of governance become more evident in the organisation, it means that intellectual honesty in the organisation is also becoming more evident. (*cf.* Chapter 7; Pretorius *et al.*, 2012).

- *A feedback component:* There are continuous changes in the BPMS as designers reconfigure the BPMS, or as users alter their habits of use, or as social, economic and political practices play out. Continuous improvisation and change forms, in essence, part of BPM. It follows that the role and nature of BPMSs towards corporate governance involves continuous improvement. (*cf.* Chapter 7; Pretorius *et al.*, 2012).

- *An organisational support component:* Throughout the whole framework life cycle, there should be a situated organisational support component that supports the business and governance intent of the organisation. This component may

consist of top-management support and Change Management, depending on the context and intent. These initiatives should be identified during the business vision and intent phase. (*cf.* Chapter 7).

- *An influence component:* The study explained how the utilisation of a BPMS in support of corporate governance may influence other overlapping social systems for the good or the bad. Some social systems may follow the utilisation of a BPMS for the good of corporate governance. However, others may resist the utilisation of a BPMS for the good of corporate governance. (*cf.* Chapter 7; Pretorius *et al.*, 2012).

The study also illustrated how these components fit into the BPM life cycle. (*cf.* Chapter 7).

8.2.3 Addressing the Main Research Question

The main research objective of the research project is to explain how a BPMS can be utilised and adapted to support the King principles of governance in support of better corporate governance in South Africa. This objective is transformed into the main research question for this research project:

How can a BPMS be utilised and adapted to support the King principles of good governance in support of better corporate governance in the South African context?

This research study proposed a situated theoretical framework for corporate governance in the South African context, by applying a BPMS perspective (*cf.* Chapter 7). The framework explains how a BPMS can be utilised and adapted to support the King principles of governance for better corporate governance in the South African context. The framework was developed by conducting a BPMS vendor case study and confirming the results in seven BPMS user case studies. The participants in these case studies were from diverse backgrounds and mostly consisted of managers, IT managers, business analysts and developers (*cf.* Chapter 2). "Technologies-in-Practice", a theory of Orlikowski (2000) was used as theoretical underpinning to guide the research process and to synthesize the research findings obtained from the various sources.

The components of the theoretical framework developed in this research study explain how a BPMS is utilised in support of corporate governance. The framework consists of an inscribing component, an organisational behaviour component, a feedback component, an organisational support component and an influence component. (*cf.* Chapter 7; Section 8.2.2; Pretorius *et al.*, 2012).

The research study further presents perspectives of how the King principles of governance can be inscribed into a BPMS as part of the inscribing component of the theoretical framework developed in Chapter 7 (*cf.* Chapter 7; Section 8.2.2; Pretorius *et al.*, 2012). A BPMS is particularly capable of addressing corporate governance problems for which the solutions are structured, logical and codifiable during the inscribing process. However, there are also limitations and shortcomings during the inscribing process. (*cf.* Chapter 7; Section 8.2.2; Pretorius *et al.*, 2012).

The study further explained how the utilisation of a BPMS in support of corporate governance can change organisational behaviour in support of corporate governance (explained in the organisational behaviour component of the newly developed framework). The King principles of governance are enforced in the organisation through the utilisation of a BPMS, so that it becomes more evident in the organisation. Intellectual honesty also improves in the organisation. Therefore, corporate governance supportive behaviour emerges. (*cf.* Chapter 7; Section 8.2.2; Pretorius *et al.*, 2012).

The study also revealed that continuous improvisation and change forms, in essence, part of BPM as part of the feedback component of the newly developed framework. It follows that the role and nature of BPMSs towards corporate governance involves continuous improvement. (*cf.* Chapter 7; Section 8.2.2; Pretorius *et al.*, 2012).

The study also explained how the utilisation of a BPMS in support of corporate governance may influence other overlapping social systems for the good or the bad. Others may follow the utilisation of a BPMS for the good of corporate governance, while

others may resist the utilisation of a BPMS for the good of corporate governance. (*cf.* Chapter 7; Section 8.2.2; Pretorius *et al.*, 2012)

To conclude this section, the study explained the components of a theoretical framework that explains how IT, and specifically a BPMS, can be utilised in the fight against corporate corruption, fraud and misconduct, in support of corporate governance. However, the author definitely does not advocate that the theoretical framework developed in this study may be a remedy for all corporate governance problems. Throughout this paper, the author highlighted the limitations of a BPMS approach to address all types of corporate governance problems that was identified during this study. The next section discusses some of the salient contributions that were made to the current body of knowledge.

8.3 Evaluation of Contribution to Knowledge

8.3.1 Introduction

This section focuses on the contributions of this thesis. Three areas of contribution are addressed namely theoretical contribution, practical contribution and methodological contribution. Before the contributions of the study are discussed, criteria for the evaluation of the contributions of this research are presented. The last section discusses the contributions made by this thesis.

8.3.2 What Constitutes a Contribution to Knowledge in Information Systems Research?

This thesis makes use of a theories classification by Gregor (2002), to evaluate the contribution of the research that arose from this thesis. Research students in IS are required to make a contribution to knowledge in their theses and present their work in an overall conceptual framework (Moses, 1985). Furthermore, the leading journals expect that papers for publication should make theoretical contributions and add to knowledge (Gregor, 2002). However, there is little discussion of what exactly constitutes theory in the discipline of IS and what forms contributions to knowledge can

take (Gregor, 2002). More established disciplines have considerable histories into the nature of theory, but the field of IS has a number of referent disciplines such as mathematics, logic, management, psychology, philosophy and sociology, from which theoretical bases are drawn (Gregor, 2002).

A characteristic that distinguishes IS from other disciplines is that it involves the use of artefacts in human-machine systems. It is a discipline that intersects knowledge of properties of physical objects and knowledge of human behaviour (Gregor, 2002), as the case is with this thesis. From this point of view, Gregor (2002) proposed five types of theories in IS, listed in Table 8.1, to evaluate the contribution to knowledge of the research in this thesis.

It is particularly important to classify theories in IS in terms of its purpose in knowledge building. IS is an applied discipline, therefore new knowledge is expected to be put to use and therefore, work in IS should have relevance and application to individuals, organisations and society. Lastly, from the nature of work in the field of IS, it can be seen that the aim of deriving predictive-type theory does not entail a belief in the derivation of universal or covering laws, but rather in probabilistic-type propositions. (*cf.* Gregor, 2002).

Table 8.1 Types of theories in Information Systems (Gregor, 2002)

Theory classification	**Description of theory**
Theory for analysing and describing.	The theory says "what is". Descriptive theories are the most basic type of theory and is used when nothing or little is known about the phenomenon in question. Descriptive theories aim to *describe* or *classify* specific dimensions or characteristics of an individual, group, situation or event by summarising the commonalities found in discrete observations. Descriptive theory is valuable when little is known about a research phenomenon. A contribution to knowledge by this type of theory involves the descriptions of a phenomenon (e.g. a classification system that may aid in analysis) that should as far as possible correspond to "what is". The classification system should be logical and important entities or elements should not be omitted from the classification system. It should be complete.

	If an older classification system is revised, newer entities should come to light, or a better way of grouping or naming categories is provided.
Theory for understanding	Theory for understanding explains "why" and "how" something occurred. However, it is not formulated in such a way that predictions about the future can be made. Two types of theory for understanding exist. In the first, theory is used as a sensitising device to view the world in a specific way. Examples of theory used in this way in IS include ST and ANT. In the second type, "conjectures" are drawn from a study of why and how things happened in a real world situation. These are then used for theory development, or are used to inform practice. A contribution to knowledge for this type of theory involves a newly developed theory or "conjectures" that needs to be new and interesting, or explain something that was poorly or imperfectly understood before. The aim of this theory is to explain why and how events happen as they did. Generalisation can be made from this theory, but need to be made with care. The judgement regarding the contribution to knowledge for this type of theory is made primarily on the basis of whether interesting insights are provided and also on the basis of creditability, plausibility and validity of the arguments made.
Theory for predicting	Theories aiming at prediction say "what will be". These theories predict outcomes from a set of explanatory factors, without understanding or explaining the casual connections between the various variables. Research approaches include statistical analysis and techniques. A contribution to knowledge for this kind of theory includes the discovery of regularities that allows for prediction that was unknown before. However, the limitations of theory for predicting should be known, for example, the correlation between two variables does not necessarily imply a causal relationship. One needs also to understand why variables are related. Not many examples of this type of theory are readily evident in IS.
Theory for explaining and predicting	Theory for explaining and predicting says "What is", "how", "why" and "what will be". This type of theory implies both prediction and understanding of underlying causes, as well as a description of theoretical constructs. However, there are only a few well-developed examples of this type of theory in IS. A contribution to knowledge in the field of IS for this kind of theory

	involves contributions to either theory building or theory testing (because of the probabilistic nature of theory in propositions).
Theory for design and action	Theory for design and action say "how to do" something. It is about the methodologies (e.g. the Soft System Methodology of Checkland) and tools used in the development of IS. However, there has been little discussion in the literature of IS of what constitutes theory of this nature. To define the contribution to knowledge of this type of theory is still under debate. Weber (1987) saw the "lure of design and construction" as one of the factors inhibiting the progress of IS as a discipline.

Gregor (2002) concludes by saying that descriptive theory is necessary for the development of other types of theory, because clear definition of constructs is required in theory formulation.

The classification of theories can assist theorisers in the field of IS to think what type of knowledge they are aiming to achieve, but more importantly to support theorisers in their claim to a contribution to knowledge in the field of IS (Gregor, 2002). Work in other disciplines is relevant; however, these disciplines do not share the characteristic of being both a technical and a social system. The theory classification proposed by Gregor (2002) is therefore used later as evaluation framework to evaluate if the research that arose from this thesis can claim a contribution to the existing knowledge in the field of IS.

8.3.3 Assessing the Contributions of the Study

Gregor (2002) proposed an Information System theory classification framework for evaluating theoretical contributions to knowledge in the field of IS. The framework suggests five classifications of IS theory and how a contribution to theory can be made in every one of these classifications. The classifications of theory are: (i) theory for analysing and describing, (ii) theory for understanding, (iii) theory for predicting, (iv) theory for explaining and predicting, and (v) theory for design and action.

This section attempts to demonstrate that this research fulfils, at least to some agree, competent research that made some contribution (theoretical, methodological and practical) to the field of IS. The theoretical, methodological and practical contributions of the research is presented and discussed next, after which Gregory's (2002) framework is used to classify the contributions, as summarised in Table 8.2.

Theoretical contribution

Most researchers in the field of IS and have adopted a strong positivistic stance to create new knowledge about a certain research phenomenon (Walsham, 2012). However, the research field where BPM and Corporate Governance intersects is a relatively new field that should be informed by a broader set of research approaches, multiple theories and various methods, to understand problems and issues in this research domain.

Towards this end, this study followed an interpretivist approach to understand and share the insights of how a BPMS can be utilised in support of corporate governance. Little to no theory exists, which currently describe, from an interpretivist perspective, how the situated (contextual) use of a BPMS can be utilised in support of corporate governance. Additionally, the theory of Orlikowski (2000), "Technologies-in-practice", was used as theoretical lens for the study to develop a theoretical framework that gives a unique perspective on how the situated use of a BPMS can be utilised in support of corporate governance.

The first contribution of this study, is a theoretical framework developed (*cf.* Chapter 7) from the theory of Schwarz *et al*. (2010), which uniquely *describes* the situational use of a BPMS in support of corporate governance and can therefore be categorised as a new descriptive theory, used for the analysis, the understanding and the description of the research phenomenon in a new way. This study, furthermore, from an interpretive stance, presents some perspectives of how one could apply the King principles of governance (unique to the South African context) to a BPMS in support of better corporate governance for South Africa. The institutional impact and implications of applying the King principles of governance (unique to the South African context) to a BPMS were also discussed as part of the research phenomenon. (*cf.* Chapter 7). During

the refinement process a *Business Vision and Intent* entity and an *Organisation Support* entity were introduced with their relationships to the rest of the entities in the framework, to enhance the framework. (*cf.* Chapter 7).

Secondly, some weaknesses in the theory of Orlikowski (2000) were identified. The research identified that there are various situated (contextual) forces that impact *Facilities*, *Interpretive Schemes* and *Norms* in the theory of Orlikowski (2000). The author therefore proposes that an additional *Forces* component (see Figure 6.1 in Chapter 6) should be added to the theory of Orlikowski (2000) to describe the impact of situated forces on facilities, interpretive schemes and norms in a specific context.

Methodological contribution

This study provides a triangulated (multiple case study strategy) and interpretive approach, through the lens of Orlikowski(2000) to describe and understand the specific research phenomenon of interest: The utilisation of a BPMS in support of corporate governance.

The third contribution from this research project is the unique approach that was followed to study, understand, describe and gain insights into the research phenomenon of interest, which was not attempted and articulated before. Unique perspectives and insights were gained through applying the approach of how to use a BPMS in support of corporate governance, specifically in the South African context, as mentioned throughout this study. Participants in the case study environment were able to express themselves in a real context and not in an artificial context.

As mentioned during the theoretical contributions, it also became evident that newer entities and relationships could be proposed to Orlikowski's (2000) theory of "Technologies-in-Practice". The entities and relationships are, as indicated in red, in Figure 6.1 in Chapter 6:

- *Forces* that influence *Norms*, *Interpretive Schemes* and *Facilities* in the framework. These forces cause corporate governance to become situated or contextual in the case of this research project.

- A constant feedback loop (not indicated in Figure 6.1) influences design. Orlikowski (2010: 134) acknowledges: "…questions have been raised about some of the studies that assume that technological artefacts stabilise during design ('reach closure'). Critics have argued that such a presumption privileges the design stage and overlooks the on-going and open-ended process of reinterpretation and reworking through which technological artefacts are modified and updated during use over time." In other words, technology change is conditional and is informed by the various forces that play out in a specific context as part of constant feedback.

These new entities (the forces and the feedback loop) also form part of the theoretical framework that was proposed in this thesis to explain how a BPMS is utilised in support of corporate governance (*cf.* Chapter 7). These entities and their relationships are proposed to the theoretical framework of Orlikowski (2000) to improve the framework, so that it can help to provide a better and richer description of a specific research phenomenon of interest.

Finally, by using triangulation, this study presented a more holistic account of the research phenomenon, which is richer in description and more powerful in understanding. By only using one theory like structuration, one runs the risk of giving a narrow and poor account of a specific research phenomenon. To an extent, this research study responded to Orlikowski and Iancono's (2001) concerns about the under-theorisation of the IT artefact by giving a unique theoretical- interpretive perspective of how a BPMS can be utilised in support of corporate governance. Next, the practical contributions of the study are considered.

Practical contribution

The study's analysis of broader social and organisational issues to consider when using a BPMS in support of corporate governance may resonate with practitioners. Typically,

practitioners willingly or unwillingly neglected the broader and social issues that are associated with technology implementations. Practitioners may neglect resistance to change and the management thereof when a BPMS is used in support of corporate governance. The study points out that a holistic and context dependent approach should be adopted to improve corporate governance with the assistance of a BPMS. The broader social and organisational issues in a context need consideration. The study also points out that corporate governance is contextual and the improvement thereof may be different from one context to another.

However, the main practical contribution of this study is the insights, description and understanding of how a BPMS can be utilised in support of corporate governance to improve corporate governance. The study further provides insights, perspectives and understanding of how the King Principles of governance can be inscribed into a BPMS in support of corporate governance during design-time and applied and enforced during run-time. Unfortunately, his may play out different from what is anticipated. The theoretical framework (*cf.* Chapter 7) therefore proposes a continuous improvement cycle to correct interventions that played out differently from expected. This is for the improvement of corporate governance, but in general for all aspects of business. A baseline for corporate governance is created by using a business process approach that can be used to make future improvements in corporate governance and the rest of the organisation.

By using a BPMS in support for corporate governance, users and non-users may be forced to comply with organisational governance intent, which may also cause behavioural changes in the organisation and other overlapping social systems. Again, from a practitioner's perspective this might by highly useful to achieve corporate governance and business goals. If the theoretical framework is applied correctly in a specific context, the result may be a process thinking organisation in which the organisational maturity levels, the performance, and the governance performance of the organisation improves. (*cf.* Chapter 7).

The author wants to point out that the proposed theoretical framework developed in this study may not be a remedy for all corporate governance problems. Throughout this paper, the author highlighted the limitations of a BPMS approach to address all types of corporate governance problems. However, for some practitioners in specific contexts, the utilisation of a BPMS may be an attractive option to consider for improving corporate governance, to minimise the risk of corporate fraud, to minimise the risk of corporate misconduct and for the improvement of corporate compliance. Next, a summary of the contributions of this study is presented

8.3.4 Summary of the Contributions of the Study

This section presents a summary of the contributions of this research study (Table 8.2) according to Gregor's (2002) evaluation framework. As discussed earlier, Gregor's (2002) framework classifies contributions to theory in IS into five categories, as depicted in Table 8.2. The contributions of this research study are evaluated according to these categories or classifications.

Table 8.2 Summary of contributions to theory by using Gregor's (2002) evaluation framework

Theory classification	**Description of theory**
Theory for analysing and describing.	*Definition:* Theory for analysing and describing. says "what is". Descriptive theories are the most basic type of theory and is used when nothing or little is known about the phenomenon in question. Descriptive theories aim to *describe* or *classify* specific dimensions or characteristics of an individual, group, situation or event by summarising the commonalities found in discrete observations. Descriptive theory is valuable when little is known about a research phenomenon. A contribution to knowledge by this type of theory involves the descriptions of a phenomenon (e.g. a classification system that may aid in analysis) that should as far as possible correspond to "what is". The classification system should be logical and important entities or elements should not be omitted from the classification system. It should be complete. If an older classification system is revised, newer entities should come to

	light, or a better way of grouping or naming categories is provided. *Contribution:* This study provides a triangulated (multiple case study strategy) and interpretive approach, through the lens of Orlikowski (2000) to describe and understand the specific research phenomenon of interest: The utilisation of a BPMS in support of corporate governance. This unique approach to study, understand, describe and gain insights into the research phenomenon of interest was not attempted and articulated before. During the study, some weaknesses were identified in the theory of Orlikowski (2000). The research identified that there are various situated (contextual) forces that impact *Facilities, Interpretive Schemes* and *Norms* in the theory of Orlikowski (2000). The author therefore propose that an additional *Forces* component (as depicted in Figure 6.1 in Chapter 6) should be added to the theory of Orlikowski (2000) that describes the impact of situated forces on facilities, interpretive schemes and norms in a specific context.
Theory for understanding	*Definition:* Theory for understanding theory type explains "why" and "how" something occurred. However, it is not formulated in such a way that predictions about the future can be made. Two types of theory for understanding exist. In the first, theory is used as a sensitising device to view the world in a specific way. Examples of theory used in this way in IS include ST and ANT. In the second type, "conjectures" are drawn from a study of why and how things happened in a real world situation. These are then used for theory development, or are used to inform practice. A contribution to knowledge for this type of theory involves a newly developed theory or "conjectures" that need to be new and interesting, or explain something that was poorly or imperfectly understood before. The aim of this theory is to explain why and how events happen as they did. Generalisation can be made from this theory, but need to be made with care. *Contribution:* This research project presents a newly developed theoretical framework that is unique from an interpretive and structuration perspective, which

	explains how a BPMS can be utilised in support of corporate governance. The research project's unique approach to study, understand and describe the research phenomenon of interest provides interesting insights about the phenomenon of interest that were never attempted and articulated before. The theory in this research project is formulated in such a way that poor predictions about the future can be made which is typical for interpretive research. However, the theory in this research project provides creditable and plausible "conjectures", through a process of triangulation, which can be used to inform practice. Triangulation allowed for a more holistic account of the research phenomenon, which is richer in description and more powerful in understanding. Finally, generalisations can be made from the theory in this research project, but need to be made with care.
Theory for predicting	*Definition:* Theories aiming at prediction say "what will be". These theories predict outcomes from a set of explanatory factors, without understanding or explaining the casual connections between the various variables. Research approaches include statistical analysis and techniques. A contribution to knowledge for this kind of theory includes the discovery of regularities that allows for prediction that was unknown before. However, the limitations of this type of theory should be known, for example, the correlation between two variables does not necessarily imply a causal relationship. One needs also to understand why variables are related. Not many examples of this type of theory are readily evident in IS. *Contribution:* In the interpretive fashion, relationships are only identified as depicted in the theoretical frameworks that arose from this study. Generalisations can be made from the theory in this research project, but need to be made with care. In future research, the study can be extended in a positivist way to measure the significance of the various relationships in the theoretical framework.
Theory for explaining and predicting	*Definition:* This type of theory says "What is", "how", "why" and "what will be". This

	type of theory implies both prediction and understanding of underlying causes, as well as a description of theoretical constructs. However, there are only a few well-developed examples of this type of theory in IS. A contribution to knowledge in the field of IS for this kind of theory involves contributions to either theory building or theory testing (because of the probabilistic nature of theory in propositions). *Contribution:* See the previous articulated categorical contributions in theory for analysing and describing; theory for understanding and theory for prediction.
Theory for design and action	*Definition:* This type of theory say "how to do" something. It is about the methodologies (e.g. the Soft System Methodology of Checkland) and tools used in the development of IS. However, there has been little discussion in the literature of IS of what constitutes theory of this nature. To define the contribution to knowledge of this type of theory is still under debate. Weber (1987) saw the "lure of design and construction" as one of the factors inhibiting the progress of IS as a discipline. *Contribution:* Not applicable to this research project. Theory for design and action are mostly informed by Design Science research and Action research. In future, the research in this thesis can be extended to a Design Science or Action research project that further the enquiry of how the King principles of corporate governance or other governance norms can be inscribed into a BPMS for better corporate governance.

8.4 Recommendations for Further Research

During the research process, new and interesting research areas were discovered that is worth investigating in further research. Therefore, the following recommendations for future research are made:

- It is still business auditors that lead audit projects, also in complex IS and IT environments. Do these business auditors have the correct IT knowledge, skills and competencies to successfully lead and audit such projects for good governance? In the ever more technological world of today, should there not rather be a skilled and specialised IT auditor that has the necessary IT knowledge, skills and competencies to lead such technological projects? (*cf*. van den Berg, 2011; Chapter 7).

- An interesting and specialised area of research is how one can use Artificial Intelligence (AI) to adapt business rules and business processes automatically (agile processes) in support of better corporate governance, referred to as knowledge processes or processes that may know and learn from process case history. This research domain is especially important in assisting strategic level decision makers, who have more freedom to act and more freedom in their decision making processes. (*cf.* Brander *et al.*, 2011a; Brander *et al.*, 2011b; Witschel *et al.*, 2012; Witschel *et al.*, 2010).

- Sections in this thesis can be extended to Design Science or Action research projects that furthers the enquiry of how the King principles of corporate governance, or other governance norms, can be inscribed into a BPMS for better corporate governance. (*cf.* Section 8.3).

- In future research, the study can be extended in a positivist fashion, to measure the significance of each relationship in the theoretical framework that was constructed during this research project and how these may contribute to the improvement of corporate governance. (*cf.* Section 8.3).

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- This study provides a unique approach to study, understand, describe and gain insights into the research phenomenon of interest: The utilisation of a BPMS in support of corporate governance. Furthermore, by using triangulation, this study presented a more holistic account of the research phenomenon, which is richer in description and more powerful in understanding. (*cf.* Section 8.3).

Nevertheless, the research phenomenon can still be studied and described in more ways, by also using other approaches, to even give a richer and more holistic account of the research phenomenon, which is noted as further research.

- The theoretical framework that arose from the research effort has been critiqued by various industry experts in the fields of corporate governance and BPM. This resulted in improvements to the theoretical framework. However, it is advised that the theoretical framework developed in this thesis should still go through a formal testing and refinement process in further research.

- The final theoretical framework developed in this research study (Figure 7.12 in Chapter 7), can also be applied to the BPM life cycle stages, as proposed and illustrated in Appendix C. However, more investigation and testing are required in future to achieve this research objective.

The next section concludes the research effort.

8.5 Concluding Summary

This chapter addressed the research aim and research questions that were set at the start of this research project (*cf.* Chapter 1). The aim of this research project has been to develop a theoretical framework that contributes to the understanding of how a BPMS is utilised in support of corporate governance in South Africa.

The theoretical framework from the previous chapter (*cf.* Chapter 7) demonstrates how principles of good governance, such as the King principles of governance in South Africa, can be inscribed into a BPMS, but not without limitations. Furthermore, the use of such a system has a behavioural impact on the organisation, in support of corporate governance. However, behaviour is sometimes different from what is anticipated. There is also an impact, either negative or positive on other socially overlapping systems. Finally, ccontinuous improvisation and change is in essence part of business as technology changes or as business and market requirements change. Therefore, the role

and nature of BPMSs towards corporate governance is continuous improvement that involves automation and enforcement of corporate governance principles, resulting in better governed organisations, a process thinking culture and mature organisations in which all aspects of business are improved.

The latter part of this chapter was devoted to evaluating the contributions (theoretical, methodological and practical) of the research according to Gregor's (2002) framework that classifies contributions to theory in IS in five categories. The major contribution of this research project, according to Gregor's (2002) framework, is the unique approach to study, understand, describe and gain insights into the research phenomenon of interest that was not attempted and articulated before in this way. In other words, the theoretical contributions of the research according to Gregor's (2002) framework are a new theory for understanding, but also for analysing and describing.

Finally, suggestions for future research that extend the current research effort in this thesis have been identified.

I conclude the research effort with the following quote from Gadamer (1975:581):

> *It would be a poor hermeneuticist who thought he could have, or had to have, the last word.*

Deo Volente

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Appendix A1: Interview Guide for the Business Process Management System Vendor Organisation

The interview guide was constructed for interviewing respondents at the Business Process Management Vendor Company (BPMVC). The interview guide was also constructed as an online survey in cases where respondents were not accessible. The framework of Orlikowski (2000) was used as basis to construct the interview guide[42].

Question number	**Question**
1.	Specify your interest in BPM. More than one can be selected. (I work or worked in a BPM company / I use BPM or intend to use BPM in my work environment / I study and do research on BPM / I am just interested in the field of BPM / Other).
2.	Work relation to BPM? (Management / Analyst / Developer / Trainer / User / Other). More than one can be selected.
3.	Years of experience with/in Business Process Management (BPM) (0-2 years / 2-5 years / 5-10 years / 10-20 years / 20+ years).
4.	Correspondence email address (if further information is required)
5.	Background: Governance is loosely defined as the process of keeping everything under control. Question: In your experience, were you ever hired or consulted by a company in SA to resolve a Corporate Governance related problem with a BPM/BPMS solution? (Yes / No).
6.	Please motivate your answer to the previous question and where applicable describe the governance problem that you encountered and how it was resolved with a BPM/BPMS solution.
7.	Do you think the Corporate Governance problems experienced by companies in SA are in any way different from the Corporate Governance

[42] See Section 2.3.

	problems that are experienced by companies outside SA? (Yes / No).
8.	Please motivate the answer in the previous question
9.	Background: The nature, role and purpose of Business Process Management (BPM) and Business Process Management Systems (BPMS) can be summarised as to continuously improve and automate business processes in an organisation. This may assist organisations to achieve their business goals (more profits, faster production and fast adaption of processes to new market opportunities). Question: How can a BPM/BPMS contribute to improve Corporate Governance (take cognisance of the nature, role and purpose of BPM/BPMS in organisations)? Please motivate your answer.
10.	Background: A BPMS consists of: A BPM engine - Component that runs the system (the heart of the system; activity monitoring); A BPM process modeller - Used for building processes and assigning people to do activities in the processes; A rule builder - Build business rules and controls into processes; An application integrator – Used for interoperatability between the BPMS and other applications; An organisational modeller – Setup reporting structures (for notification and escalation); A report builder - Use process information in reporting to make decisions (and measurement); A repository - Store process information (for example audit trail information); Template processes - Best practice process templates and; Other features you can think of - for example notification and escalation and audit trail. Question: How can the good governance principle of **accountability** be incorporated in a BPMS to improve **accountability** in the organisation, by

	taking cognisance of the different components of a BPMS.
11.	How can the good governance principle of **fairness** be incorporated in a BPMS to improve **fairness** in the organisation, by taking cognisance of the different components of a BPMS (see previous question for the components of BPMS)?
12.	How can the good governance principle of **independence** be incorporated in a BPMS to improve **independence** in the organisation, by taking cognisance of the different components of a BPMS (see question 10 for the components of BPMS)?
13.	How can the good governance principle of **responsibility** be incorporated in a BPMS to improve **responsibility** in the organisation, by taking cognisance of the different components of a BPMS (see question 10 for the components of BPMS)?
14.	How can the good governance principle of **transparency** be incorporated in a BPMS to improve **transparency** in the organisation, by taking cognisance of the different components of a BPMS (see question 10 for the components of BPMS)?
15.	How can the good governance principle of **discipline** be incorporated in a BPMS to improve **discipline** in the organisation, by taking cognisance of the different components of a BPMS (see question 10 for the components of BPMS)?
16.	How can the good governance principle of **Social Responsibility** be incorporated in a BPMS to improve **Social Responsibility** in the organisation, by taking cognisance of the different components of a BPMS (see question 10 for the components of BPMS)?
17.	How can the good governance principle of **good leadership** be incorporated in a BPMS to improve **leadership** in the organisation, by taking cognisance of the different components of a BPMS (see question 10 for the components of BPMS)?
18.	How can the good governance principle of **sustainability** be incorporated in a BPMS to improve **sustainability** in the organisation, by taking cognisance of the different components of a BPMS (see question 10 for the

	components of BPMS)?
19.	Background: The purpose of the question is to determine if one can classify Corporate Governance problems that are resolved by a BPMS. Question: What (types of) Corporate Governance problems do you think can be resolved by a BPMS solution? Please motivate the answer.
20.	Background: The purpose of the question is to determine if one can classify Corporate Governance problems that are resolved by a BPMS. Question: What (types of) Corporate Governance problems do you think cannot be resolved by a BPMS solution? Please motivate the answer.
21.	If a BPMS is used for Corporate Governance, in your experience, may there be a change in the behaviour of the employees after a BPMS was deployed in the organisation? (Yes / No).
22.	Please explain your answer to the previous question. If your answer to the previous question was yes, describe the change that may occur.
23.	Do you think the behaviour (see previous two questions) in some circumstances may be different from what is anticipated? (Yes / No).
24.	Please explain your answer to the previous question.
25.	Who trained the users before the BPMS was deployed in the organisation? (Management / Business Analyst / Developer / Trainer / Other).
26.	Do you think a BPMS can prevent some of the Corporate Governance problems that companies in SA experience? (Yes / No).
27.	Please motivate the answer to the previous question.
28.	Do you think that a BPMS may change the behaviour of employees so that they may behave more honestly, when it is used for Corporate Governance? (Yes / No).
29.	What in your experience are the benefits of using a BPMS solution in the organisation that also addresses Corporate Governance problems?

Appendix A2: Interview Guide for the Business Process Management System User Organisations

This interview guide was used to interview respondents at the Business Process Management System (BPMS) User organisations. The interview guide was also constructed as an online survey in cases where respondents were not reachable. The framework of Orlikowski (2000)[43] was used as basis to construct the interview guide for the user organisations, with the purpose of confirming the research results obtained from the Business Process Management Vendor Company (BPMVC).

Question number	**Question**
1.	Focus group name or company name?
2.	Job title, name and surname (also provide contact number)?
3.	Do you think a BPMS is effective in improving Corporate Governance in the organisation? Please motivate: Think about a BPMS enforcing accountability, transparency, responsibility, fairness, independence, social responsibility, improved leadership, sustainability and discipline (the properties of good governance).
4.	Does a BPMS change the behaviour of people to support Corporate Governance if it is used to improve Corporate Governance? Please motivate.
5.	May people in the organisation act more honestly when a BPMS is used to improve Corporate Governance? (Yes / No).
6.	Do people always use the BPMS as it is anticipated they may do? Please motivate. If not, how do you correct this problem?
7.	What are the shortcomings of using a BPMS for improving Corporate Governance?
8.	What are the strong points of using a BPMS for improving Corporate Governance?

[43] See Section 2.3.

Appendix B: Empirical Analysis Mind-Maps

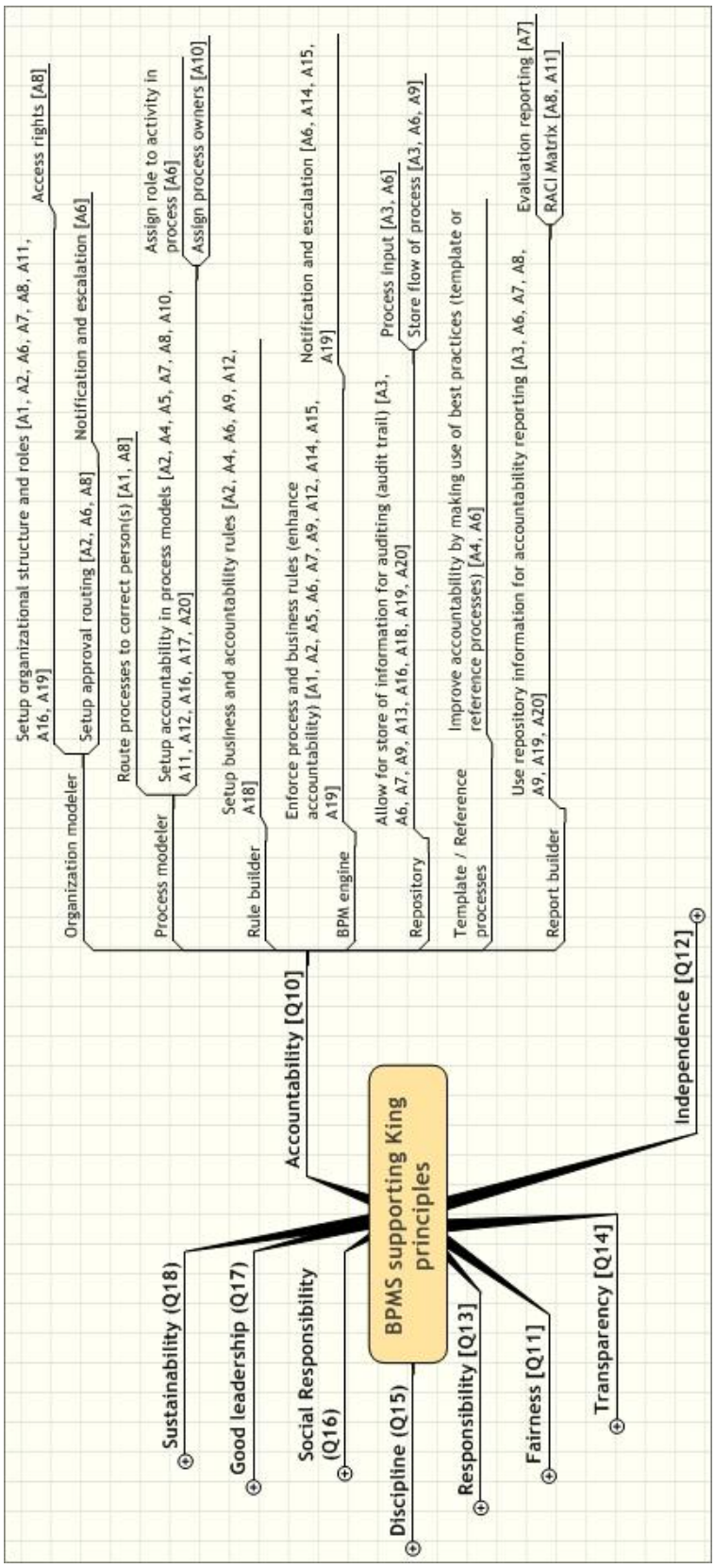

Figure B.1 BPMS supporting the King principle of accountability

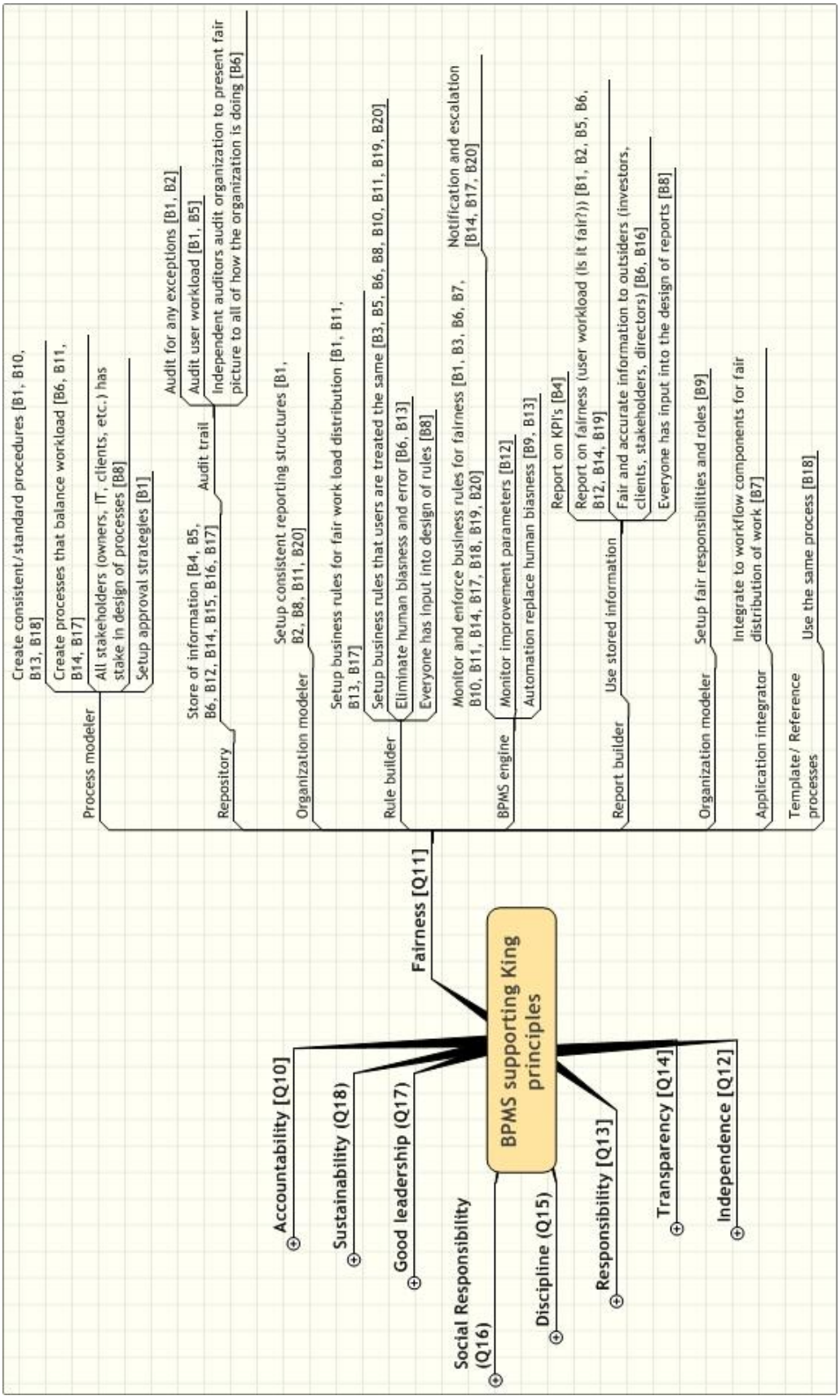

Figure B.2 BPMS supporting the King principle of fairness

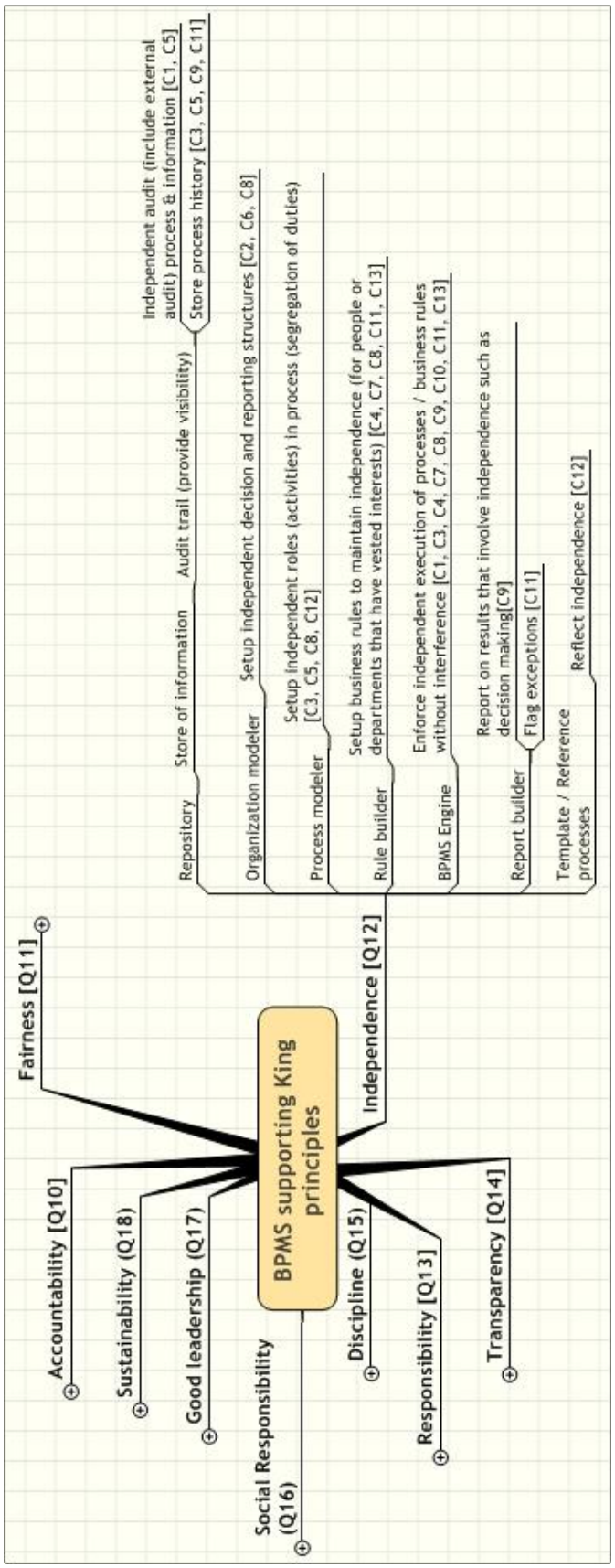

Figure B.3 BPMS supporting the King principle of independence

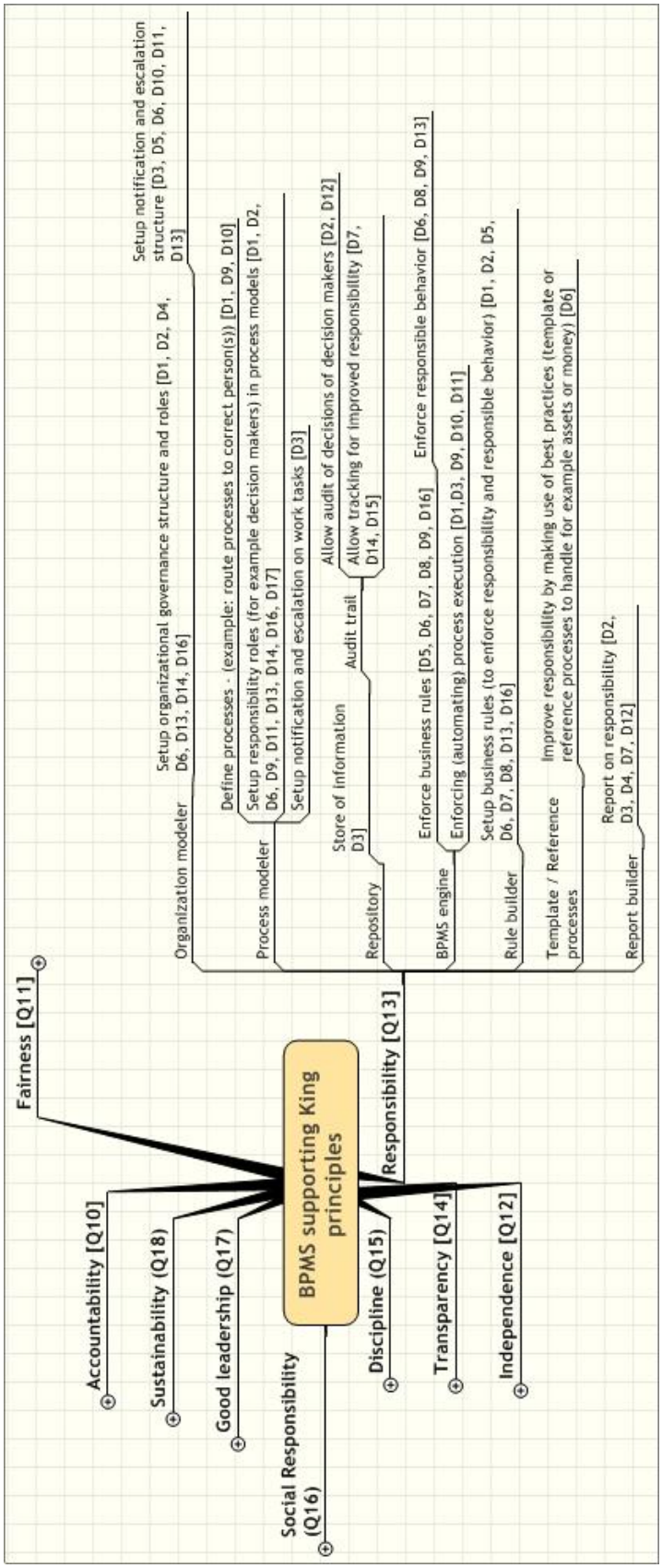

Figure B.4 BPMS supporting the King principle of responsibility

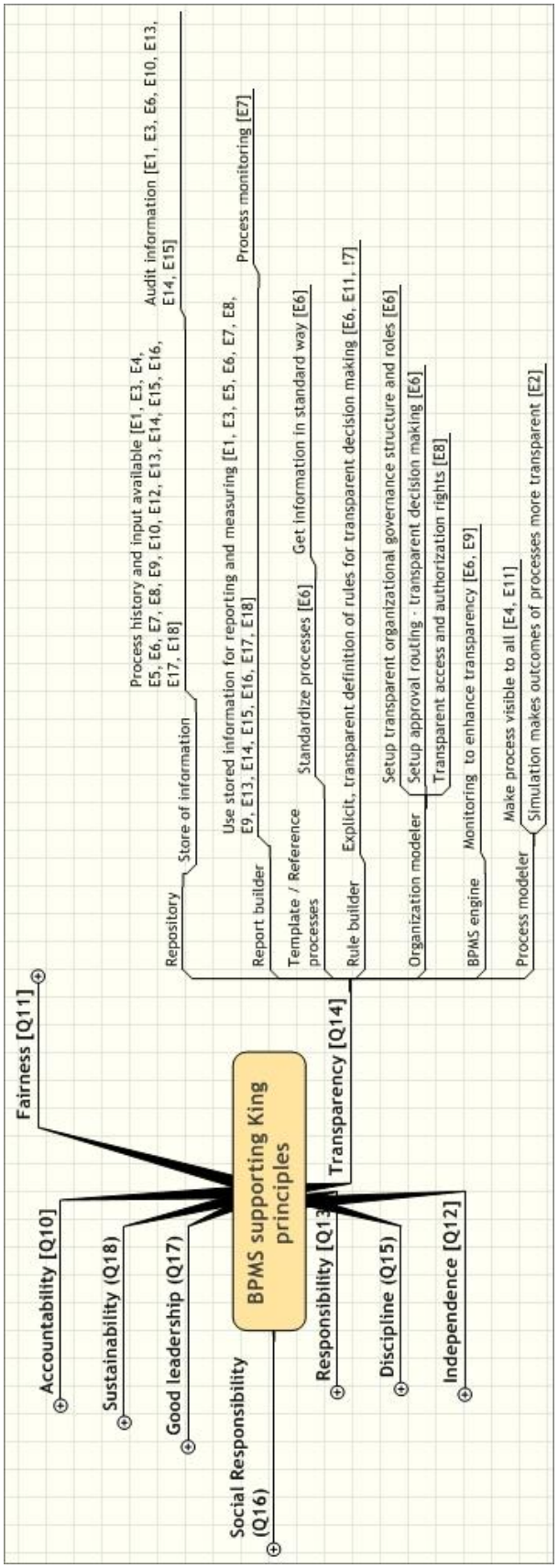

Figure B.5 BPMS supporting the King principle of transparency

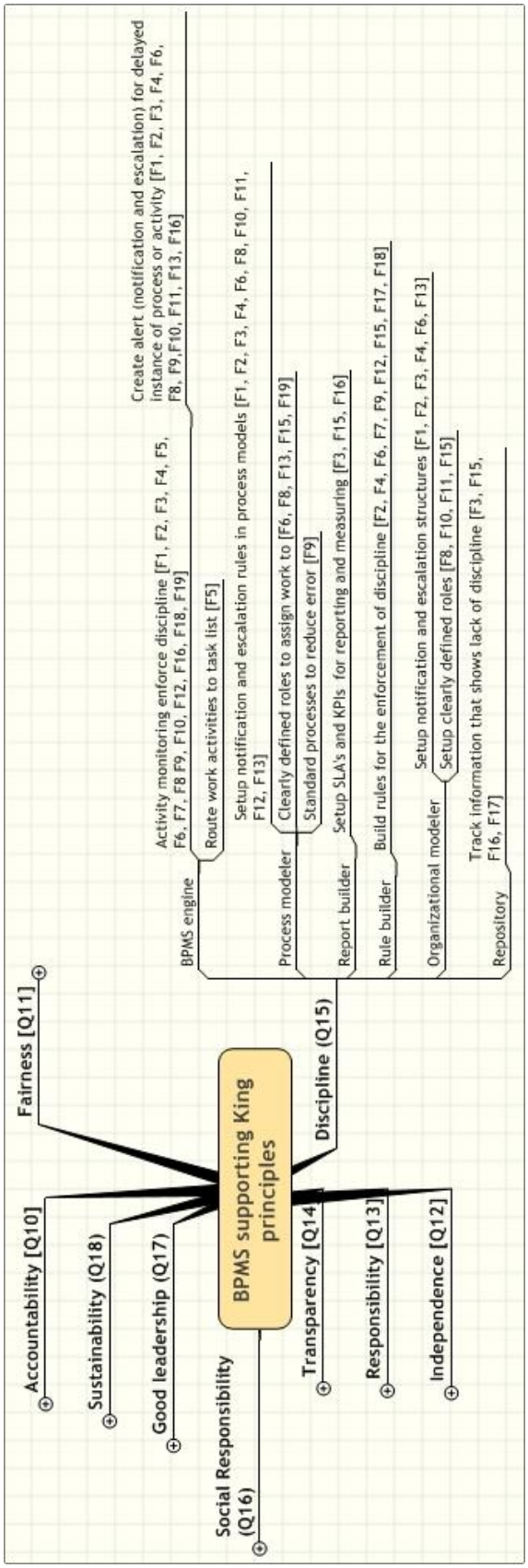

Figure B.6 BPMS supporting the King principle of discipline

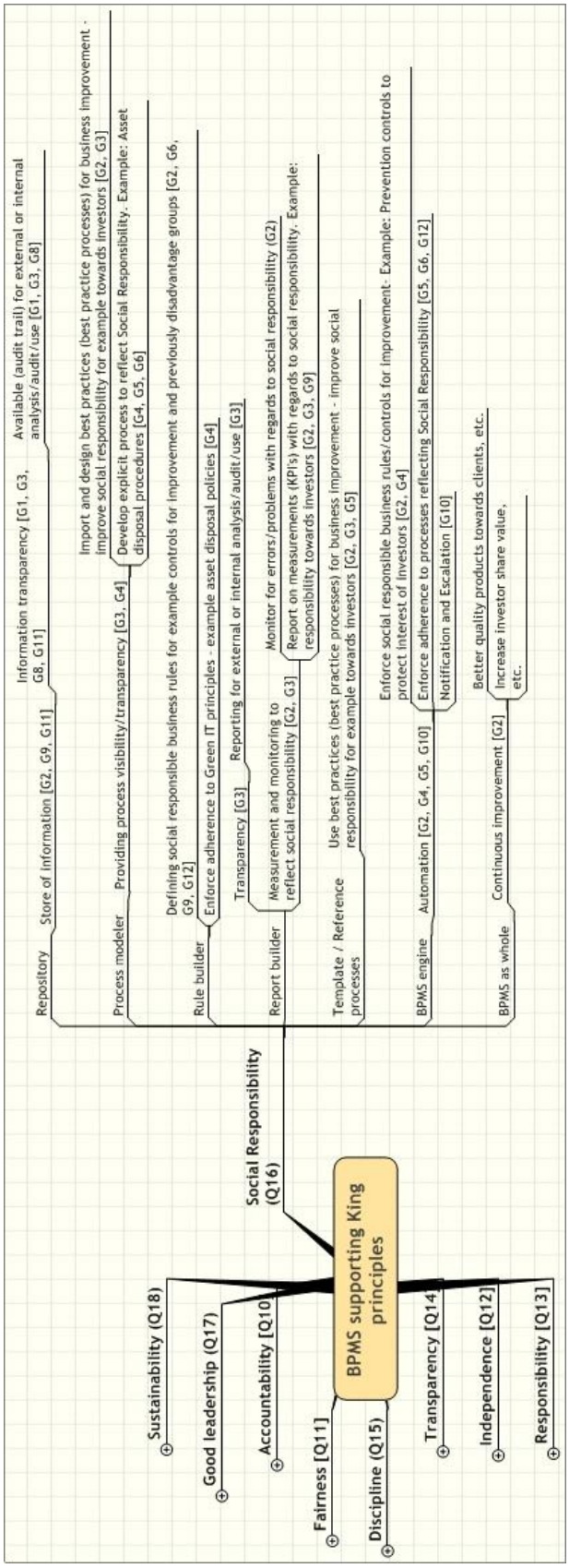

Figure B.7 BPMS supporting the King principle of social responsibility

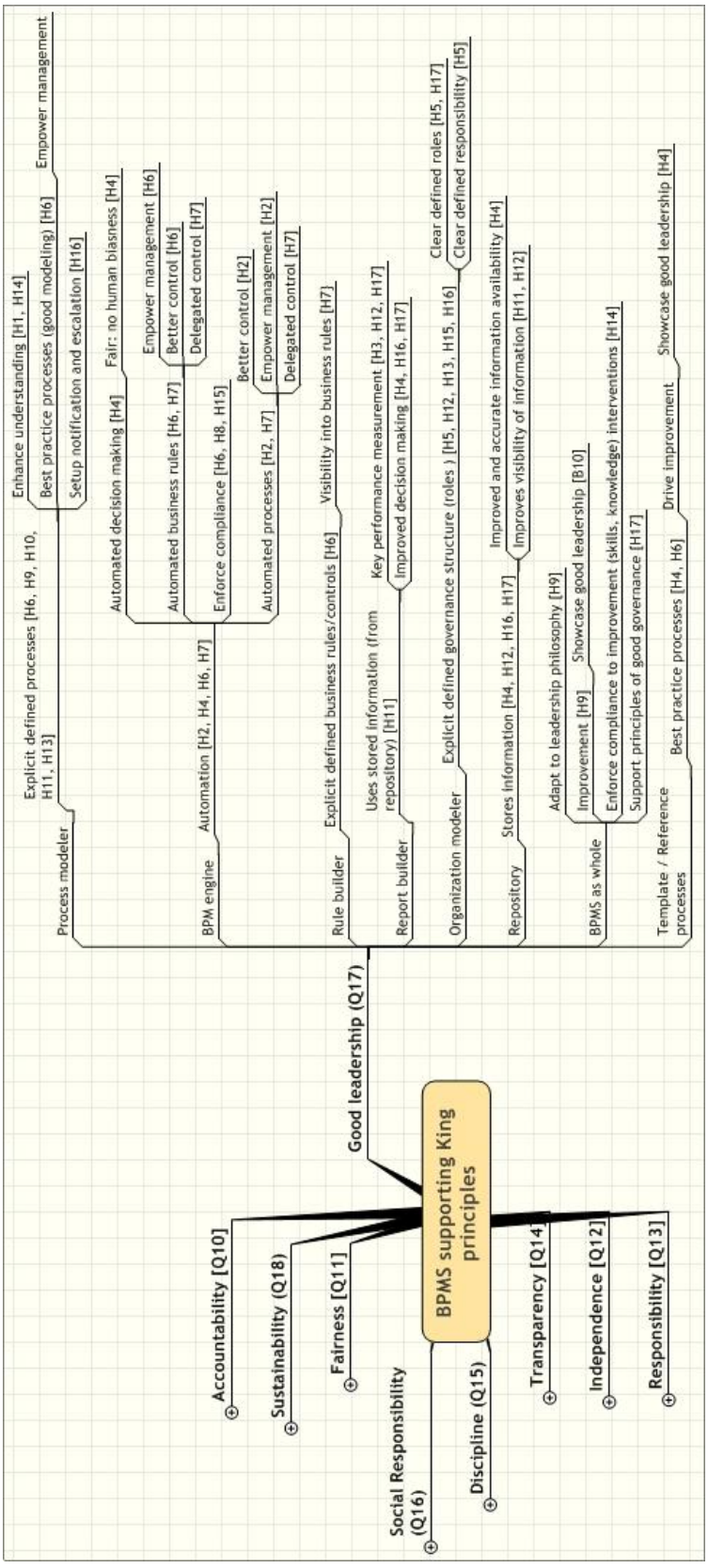

Figure B.8 BPMS supporting the King principle of good leadership

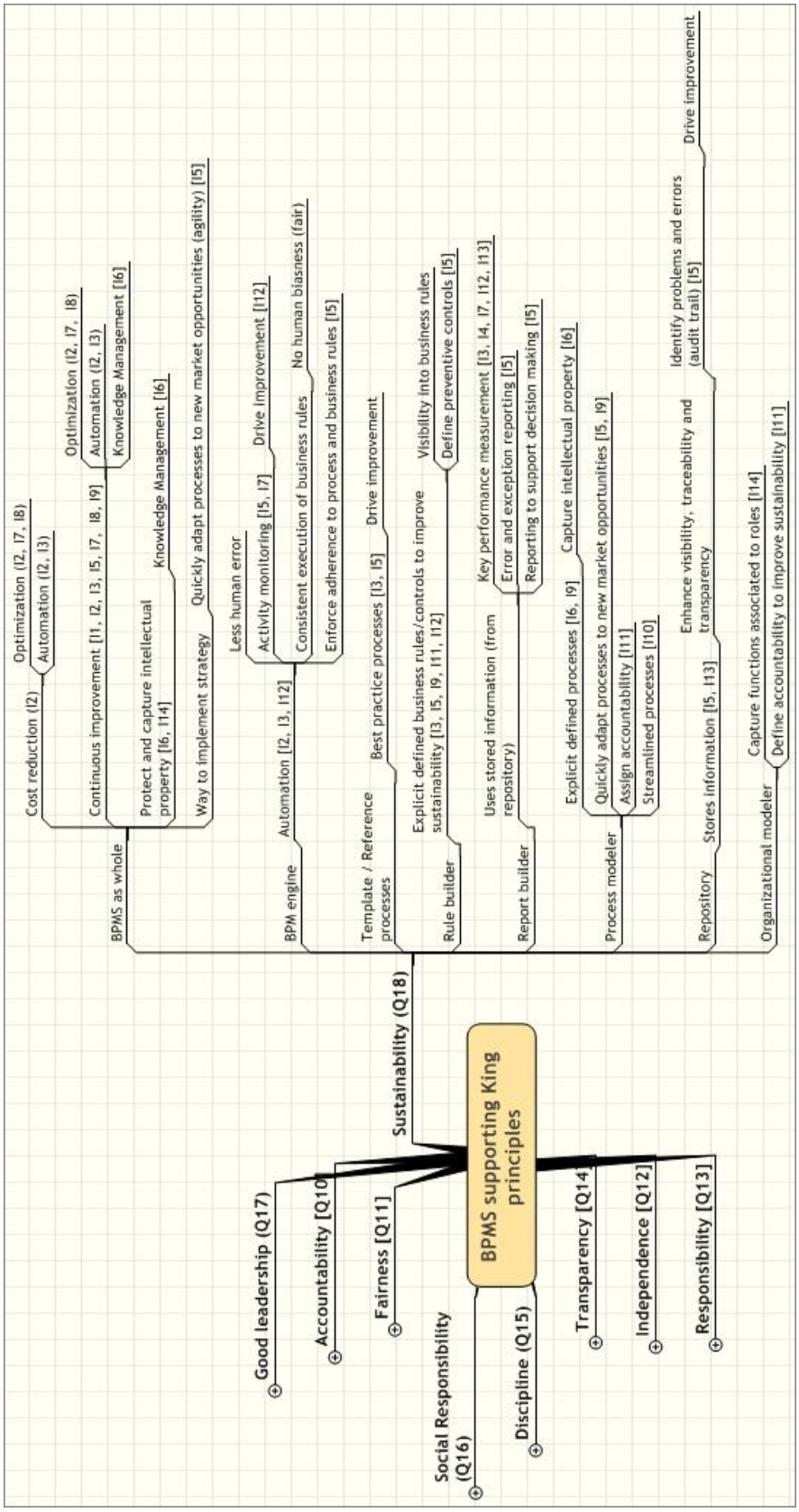

Figure B.9 BPMS supporting the King principle of sustainability

Appendix C: A BPM Life Cycle Perspective of Using a BPMS in Support of Corporate Governance

The BPM life cycle stages (*cf.* Chapter 3), which is a continuous improvement cycle, can be used as method for the on-going design, configuration and use of a BPMS in support of corporate governance. A preliminary investigation was conducted, to show how the various phases of the BPM life cycle can be applied, when a BPMS is used in support of corporate governance, as illustrated in Figure C.1. The BPM life cycle approach is listed as further research in Chapter 8, Section 8.4.

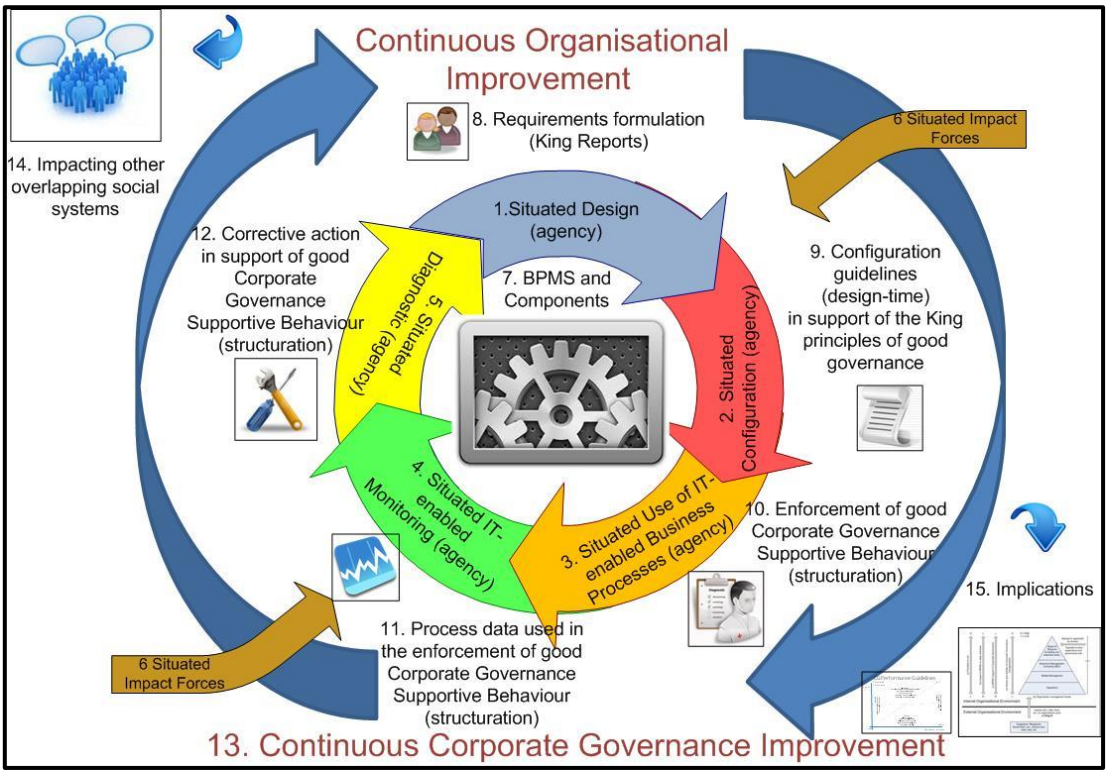

Figure C.1 A proposed BPM life cycle perspective of using a BPMS in support of corporate governance