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UNIVERSITY OF CAPE TOWN

**THE IMPACT OF ORGANISATIONAL POLITICS ON
INFORMATION TECHNOLOGY STRATEGY**

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Thesis Submitted for the Degree of

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in the Department of Information Systems

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Supervisor:

Professor Dewald Roode

Declaration

I Tiko Osayande Iyamu (full name)

hereby declare that:

This thesis is my own unaided work, both in concept and execution, and that apart from the normal guidance from my supervisor, I have received no other assistance. Neither the substance nor any part of the thesis has been submitted in the past, or is being, or is to be submitted for a degree at this University or at any other university.

SIGNED:

Signed by candidate

DATE: 29 October 2007

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I am truly indebted to my sisters and brothers, for their encouragement and support and for keeping my spirit up throughout the period of this work. You have been my source of inspiration and encouragement for my advancement.

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Dedication

This thesis is dedicated to my cherished father and mother, Mr and Mrs I. U. Iyamu. They both made everything within their reach possible for me to be where I am today. Both my parents taught me that the best wealth to have is knowledge.

University of Cape Town

THE IMPACT OF ORGANISATIONAL POLITICS ON INFORMATION TECHNOLOGY STRATEGY

Abstract

IT strategy is an important issue in many organisations, including those in the financial services sector. It is developed and implemented for the main purpose of improving, supporting and enabling their business goals and objectives. These requirements for support and enablement of the IT strategy are increasingly present in many organisations. As such, there is more focus on employee participation and enrolment in the development and implementation of IT strategy in the organisation.

The study consulted literature from both academic and professional domains. None of the literature referred to has done any study on the impact of organisation politics on IT strategy. The research conducted empirical case studies in two South African organisations. The two organisations are different in terms of cultural and transformative settings. The study included the involvement of people, processes and technology in the development and implementation of IT strategy.

An interpretive research approach was followed and data was collected through semi-structured interviews in the two organisations. The data collected were relevant to the implementation of IT strategy, since the development process was not accessible to the researcher. The study draws on two underpinning theories, namely, Structuration Theory and Actor-Network Theory to gain an understanding of the socio-technical factors influencing the implementation of IT strategy in the organisations. The study uses the concepts of *duality of structure* and *moments of translation* from Structuration Theory and Actor-Network Theory, respectively, to analyse the data collected in the case studies.

The analyses reveal complex interactions and actions of the employees, which are factors of organisational politics impacting the implementation of IT strategy. The impact of organisational politics on the implementation of IT strategy could in certain cases lead to the derailment of the process of implementation.

For each of the case studies the results of the research were captured in a framework that captures and illustrates the impact of organisation politics on the implementation of IT strategy. The two case study frameworks were combined in a final, generalised framework.

The main contributions of the study are in three categories namely theoretical, methodological and practical.

Theoretically, the research contributes through the framework developed in this study. The framework proposes three main components or categories of factors of organisational politics that impact on IT strategy implementation, and show their interdependencies.

The main methodological contribution of the research lies in the combined use of Structuration Theory and Actor-Network Theory through the concepts of the *duality of structure* and *moments of translation*, respectively, in the analysis of the two case studies.

The practical contribution of the research lies in the detailed work that underpins the theoretical frameworks presented – in other words, showing how the researcher arrived at the frameworks.

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2.3	Organisational Politics and Power	45
2.3.1	Organisational Politics.....	45
2.3.2	The Concept of Power.....	49
2.3.2.1	Potential Sources of Power.....	54
2.4	Underpinning Theories	57
2.4.1	Structuration Theory.....	57
2.4.1.1	Key Elements of Structuration Theory.....	58
2.4.1.2	Summary of Structuration Theory.....	63
2.4.1.3	Structuration Theory and Information Systems.....	65
2.4.1.4	Using Structuration Theory with other Theories.....	73
2.4.2	Actor-Network Theory.....	73
2.4.2.1	The Concepts of Actor-Network Theory.....	73
2.4.2.2	Sociology of Translation.....	80
2.4.2.3	The Role of Actor-Network Theory in Information Systems Research.....	84
2.4.2.4	Actor-Network Theory as an Information Systems research method.....	85
2.4.2.5	Limitations of Actor-Network Theory.....	86
2.4.2.6	Summary of Actor-Network Theory.....	89
2.4.2.7	Structuration Theory, Actor-Network Theory and IS.....	89
3	RESEARCH METHODOLOGY	93
3.1	Introduction.....	93
3.2	Interpretive Research Approach.....	94
3.3	The Case Study Strategy.....	100
3.3.1	Case Study as a Research Approach in Information Systems.....	102
3.4	Research Questions.....	105
3.5	Research Design.....	107
3.5.1	Selection of Case Study Sites.....	107
3.5.2	Units of Analysis.....	109
3.5.3	Data Sources.....	109
3.5.4	Data Collection.....	109
3.5.5	Data Analysis.....	113
3.6	Ethical Issues.....	114
3.7	Summary.....	115

4	OVERVIEW OF THE TWO CASE STUDIES	118
4.1	Introduction	118
4.2	Fieldwork	119
4.3	Organisational Case Studies	125
4.3.1	Dzuwa Case Study	125
4.3.1.1	Organisational Background	125
4.3.1.2	IT Department	126
4.3.2	Eko Case Study	135
4.3.2.1	Organisational Background	135
4.3.2.2	IT Department	136
4.4	Conclusion	141
5	ANALYSIS OF THE CASE STUDIES	143
5.1	Introduction	143
5.2	Case Studies Analysis	143
5.2.1	Structuration Theory Perspective	144
5.2.2	Actor-Network Theory Perspective	147
5.3	Case Study: Dzuwa	148
5.3.1	The Dzuwa Case as viewed through Structuration Theory	148
5.3.1.1	Agents	149
5.3.1.2	Structure	150
5.3.1.3	Dimensions of the Duality of Structure	154
5.3.2	Dzuwa case study as viewed through ANT	173
5.3.2.1	ANT Translation: Problematisation	177
5.3.2.2	ANT Translation: Interessement	180
5.3.2.3	ANT Translation: Enrolment	181
5.3.2.4	ANT Translation: Mobilisation	185
5.3.3	Findings from the Analysis	187
5.4	Case Study: EKO	191
5.4.1	The EKO case as viewed through Structuration Theory	191
5.4.1.1	Agents	191
5.4.1.2	Structure	193
5.4.1.3	Dimensions of the Duality of Structure	196
5.4.2	The EKO case viewed through ANT	208

5.4.2.1	ANT Translation: Problematisation	211
5.4.2.2	ANT Translation: Interesement	213
5.4.2.3	ANT Translation: Enrolment.....	216
5.4.2.4	ANT Translation: Mobilisation	218
5.4.3	Findings from the Analysis.....	220
5.5	Conclusion	222
6	INTERPRETATION OF THE RESULTS	226
6.1	Introduction	226
6.2	Case One: Dzuwa Computing Environment	226
6.2.1	Interpretation of the Findings	226
6.2.2	Impact of Organisational Politics on IT Strategy at Dzuwa.....	241
6.3	Case Two: Eko Computing Environment	244
6.3.1	Interpretation of the Findings	244
6.3.2	Impact of Organisational Politics on IT strategy at Eko	259
6.4	The Impact of Organisational Politics on IT Strategy	261
6.5	Conclusion	263
7	EVALUATION AND CONCLUSION	266
7.1	Introduction	266
7.2	Overview of the Research	266
7.2.1	Revisiting the Research Questions.....	270
7.3	Research Contributions	274
7.3.1	Theoretical Contributions.....	274
7.3.2	Methodological Contribution	275
7.3.3	Practical Contributions.....	275
7.4	Assessment of the Research	276
7.5	Limitations of the Research	281
7.6	Opportunities for Further Research	281
8	Appendix	284
9	References	286

1 INTRODUCTION

1.1 Introduction

This chapter of the thesis provides some background about the research study. The main aim of the thesis is to examine and detect the interplay between technical and non-technical aspects in the development and implementation of IT strategy within the computing environment of organisations.

This introductory chapter contains seven sections. The first section provides some insight into what factors informed the researcher on the choice of the topic. The second section presents the justification and motivation behind the main aims of the thesis. In the third section, the research problem is discussed from two points of view, namely, IT strategy development and implementation, and organisational politics and power. This discussion leads to the formulation of the purpose and research question, which is covered in section four. The fifth section discusses the significance of the research and its key contributions to the body of knowledge and IT professionals. The empirical setting is covered in section six and the final section provides a road map of the thesis.

The following section presents some background as to why the researcher chose the topic for study.

1.2 Background to the Study

It is perhaps no overstatement to say that no work of art or science has so comprehensively impacted the course of human development as that of Information Technology (IT). With rapid change in business processes, it would be difficult or impossible for any organisation to do business without IT (Ward and Peppard, 2002). Over the years, IT has become the livewire of the success or failure of many businesses. With the development of information technology and telecommunications, the wider world becomes a reachable horizon both in terms of

time and space, upon which organisations can act and by which they are acted upon (Lee & Whitley, 2002).

IT visually affects every aspect of any organisation that deploys it (Cats-Baril and Thompson, 1997). Undoubtedly, IT has been the greatest agent of change in the last century and promises to play this role even more dramatically in the coming decades (Kling, 2000). IT has changed and will continue to change every aspect of humanity, especially areas such as communications, trade, manufacturing, services, entertainment, education, research and security. IT is breaking old barriers and building new interconnections in what is referred to by many specialists as the emerging Global Village. IT is bringing people, in South Africa and the world at large, closer, and making the global village smaller.

The high relevance of IT requires a strategy for its proper deployment within an organisation. Without a strategy, *all* roads within the plethora of possible ways of deploying IT may lead to the future for an organisation but there will not be cohesiveness within its activities. With a strategy, a roadmap to the future is designed. IT strategy is often broken into components as the business strategy and the computing environment permit.

IT strategy cannot be static, because the needs and demands of the organisation constantly change (Wolff and Sydor, 1999). According to Papp & Fox (2002), *“Traditional methods of developing business strategies have failed to take full advantage of IT”*. *Prima facie* evidence would therefore seem to indicate a need for a new approach. In examining IT strategy, we need to understand better the relationships between the social factors, technology and the organisation that deploys it. Actor-Network Theory (ANT) enables the construction of detailed accounts on how human and non-human actors gradually form stable actor networks. As such, an ANT approach was applied in this study. This approach is further discussed in Chapter Two of the thesis.

In addition to the background above, there is a theoretical underpinning that informed the research. This is covered in the following section.

1.3 Theoretical Underpinning

Does IT actually matter in the organisation's performance and competitiveness (Carr, 2004)? The uses, techniques, power and presence of IT have increased tremendously over the years (Andreu & Ciborra, 1998). IT strategy will for many years remain a key aspect of development within organisations. So why does IT strategy sometimes fail?

Where the human being is involved, politics exists. How politics is seen, understood, practiced, interpreted and used varies (Robbins, Odendaal & Roodt, 2001). Knowingly or unknowingly, the practice and/or existence of organisational politics has positive and negative influences and impacts on the individuals, teams or groups, and the entire organisation.

Organisational politics, according to Morgan (1986), "arise when people think differently and want to act differently. This diversity creates a tension that must be resolved through political means." It is therefore not surprising that organisational politics has a substantial degree of influence on the formulation and implementation of IT strategy. The impact of this influence could be negative or positive depending on how the politics is understood, practiced or exercised in the organisation. This impact forms the focal point of the research.

To explore this impact of organisational politics on IT strategy, the researcher has selected two theoretical perspectives, Structuration Theory (ST) and Actor-Network Theory (ANT). Both theories have been used extensively in the field of Information Systems research.

From the perspective of ST, organisational transformation (such as from the development to implementation of IT strategy) is the joint effect of the actions of individuals interacting within institutional structures. These structures both enable and constrain the daily actions and thought processes of people, but do not wholly determine the results. Individual choices are not independent of the structures within which people operate but they can move towards impacting (maintaining, reinforcing, changing or even destroying) the results.

Structuration Theory holds that human actions are enabled and constrained by structures, but emphasises that these structures are the result of previous actions (Orlikowski, 1992). Structure is only manifested in the structural properties of social systems and consists of the rules and resources that human agents use in their everyday interaction. These rules and resources do not exist independently of human action, nor are they material entities. Giddens (1984) describes them as 'traces in the mind' and argues that they exist only through the action of human beings (Jones, 1999). They mediate human action, while at the same time they are reaffirmed through being used by human agents (Orlikowski, 1992).

The other theoretical perspective applied in the study is Actor-Network Theory. ANT provides a fresh perspective on the importance of relationships between actors that are both human and non-human. By their very presence, actors work to establish, maintain and revise the construction of organisational networks of aligned interests.

An actor-network consists of actors linked together through various interests. ANT emphasises the heterogeneous nature of actor-networks which consist of and link together both technical and non-technical elements (Callon, 1991). A core assumption in ANT is that no actor is different in kind from another. Instead, how size, power or organisation is generated should be studied unprejudiced (Law, 1992).

The two theories, Structuration Theory and Actor-Network Theory are discussed in more detail in the next chapter. Having presented some background and the theoretical underpinning to the research, it is necessary to present the justification for the study. This is covered in the next section.

1.4 Justification and Motivation for this Study

The key theme of the thesis is the analysis of the interaction between IT strategy and organisational politics within the computing environment of an organisation.

IT strategy is intended to set out key directions and objectives for the use and management of information technologies in the organisation that deploys them. This strategy will allow all parts of the organisation to gain a shared understanding of priorities, goals and objectives for both current and future states as defined in the strategy.

IT strategy is developed and implemented for particular purposes by particular users or groups. We should therefore expect that there will be conflicts with the goals of other users and groups, and that such conflicts will be the key to understanding many otherwise unexpected situations. The political context is therefore another important factor to consider when attempting to understand the adoption of any technology in an organisation.

The politics of users and groups of users within an organisation has an impact on the technology that they use. The stumbling, the compromises, the way non-technical interests get dressed up and disguised in IT strategy require analytical means to understand these issues. The research employs Structuration Theory and Actor-Network Theory for this analysis.

The impact of organisational politics on IT strategy has become a concern for many organisations. Markus (1983) pointed out that: *“Most people who have worked with information systems encounter at least mild resistance by those who*

are designated to input data or use the output to improve the way they do their jobs." This point is still valid today (see below) and is one of the motivations for this research.

Political conflicts are inevitable in any organisation as a result of people competing for status, salary, and all manner of resources. Employees often form sub-networks which compete with other sub-networks and individuals. Conflicts about factors such as development and implementation of IT strategy are becoming increasingly common and important. According to Markus (1983), no one knows how many computer-based applications, designed at great cost of time and money, are abandoned or expensively overhauled because their intended users received them unenthusiastically. Of course the Information Systems (IS) profession has developed over the years since the Markus study. In celebration of the Markus study, a team of experts in the year 2000 carried out a review as though the manuscript was submitted then. The final decision of the 'reviewers' (Lee, 2000) was to accept the manuscript as is, without any changes. This indicates that the study remains as valid today as it was in 1983.

The research has two key motivations. Firstly, many organisations formulate and develop their business goals, objectives and visions, and then attempt to achieve them based on, amongst other things, the IT strategy. This research, by identifying key components, seeks to contribute to the attainment of the development and implementation of IT strategy. Secondly, while many organisations are developing and implementing their IT strategy, little is known about the non-technical (such as people) influencing factors and their impacts. The study seeks to make a contribution in this regard. To do this, Structuration Theory and Actor-Network Theory were employed to examine the impact of organisational politics on IT strategy. The next section presents some key defining aspects of the research problem.

1.5 Research Problem Description

Even though work has been done in the area of IT strategy both in the academic and professional domains it is considered that many problems still exist in the development and implementation phases – see, for example, Walsham and Waema (1994), Allen (1995), Wyatt (2001), Mack (2002), Papp & Fox (2002) and Barton (2002).

The approach by Ward & Peppard (2002) and others has over the years been considered and applied by many organisations in the planning and formulation of IT strategy. IT strategy could be seen as a perspective, position, plan, or pattern which provides guidance for actions to be taken and, at the same time, is shaped by the actions already taken. Has it actually worked? IT strategy has been used to attempt to bridge the gap between the business vision and strategy on the one hand, and technological know-how on the other hand. There is, however, clearly still a problem with IT strategy formulation and implementation, otherwise, work would not continue in this area.

The research problem is perceived as being shaped by three key issues. The first concerns how IT strategy is developed and implemented, which includes the people and structures in the IT department. The second concerns the influencing factors (such as organisational politics and power) in the development and implementation of IT strategy. The third concerns the impact of these influencing factors, whether on the development or on the implementation of IT strategy within the computing environment of the organisation. The perspectives are described below.

1.5.1 From the Perspective of IT Strategy Development and Implementation

IT strategy is a term that refers to a complex mixture of thoughts, ideas, insights, experiences, goals, expertise, memories, perceptions, and expectations that provides general guidance for specific actions in pursuit of particular ends within the computing environment.

IT organisations have many and diverse stakeholders and this makes politics inevitable. It is argued that the danger of politics is that it can be carried to extremes, and can then seriously harm the effectiveness of an organisation (Armstrong, 1994). In a study by Robbins et al. (2001), many employees and employers confirmed the recognition of legitimate and illegitimate politics in the organisations.

There has been more focus on how IT strategy is articulated and formulated, and less attention on the implementation of the strategy. Also, in most organisations, technical issues are minor compared to the relationship issues.

While a business must continually adapt to its competitive environment, there are certain core ideals that remain relatively steady and provide guidance in the process of strategic decision-making. These unchanging ideals form the business vision. Thompson & Strickland (1992) argue that the industry environment has a high influence on the company's IT strategy. The business strategy is driven by its vision and objectives and subsequently IT strategy is driven by the business strategy. Both internal and external factors influence the business strategy. As a result, the IT strategy of different organisations will not be the same.

As depicted in Figure 1 below, IT strategy is formulated based on both business and IT internal and external environments, requirements and factors. Even the most ambitious business vision still needs an IT strategy to enable it. This is a practical fact, the financial industry is one example. What is more important is that the connection between the IT strategy and Business strategy must be understood in the development and implementation stages of the IT strategy.

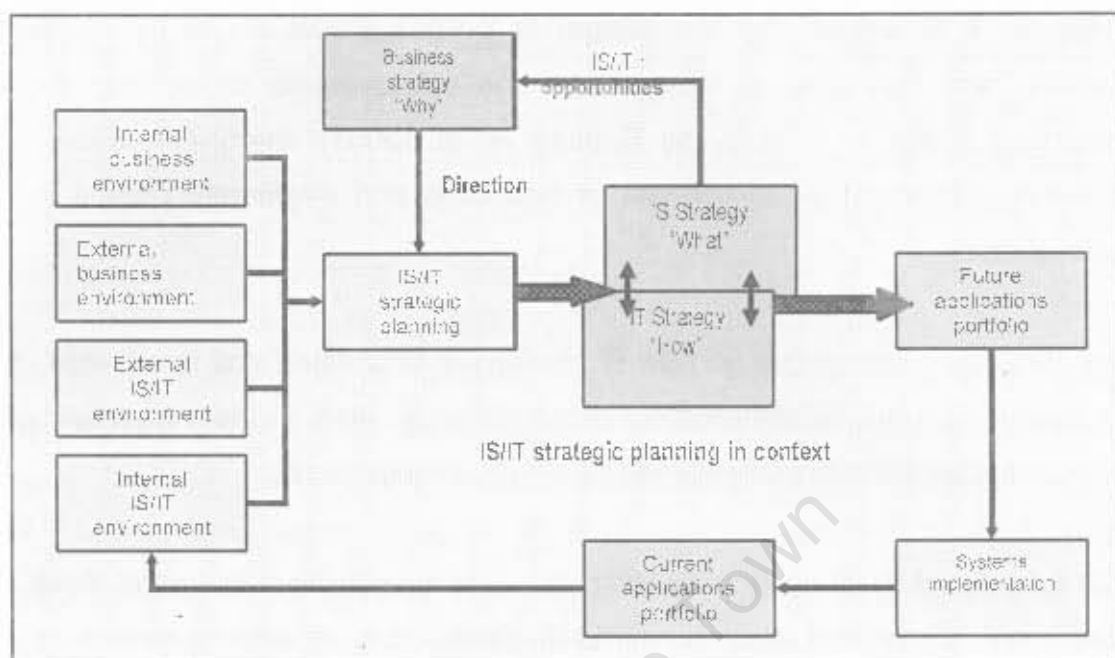


Figure 1: (Ward and Peppard, 2002) IT/IS Strategy Planning

IT strategy helps to set direction (Straub & Wetherbe, 1989), comprehension and focus on the future in the wake of change in the organisation that it supports. Adjustments are made accordingly and where necessary. IT strategy planning should clearly define objectives and assess both the internal and external situations. The planning should (Ward & Peppard, 2002) include the process of introducing the required disciplines, controls and new techniques, establish good relationships, identify tasks and responsibilities and thus define the planning of resource requirements.

Typically, IT strategy is structured into components of strategies that leverage IT to create an intended competitive advantage for the business, and effective governance. Figure 2 below depicts the common components of IT Strategy.

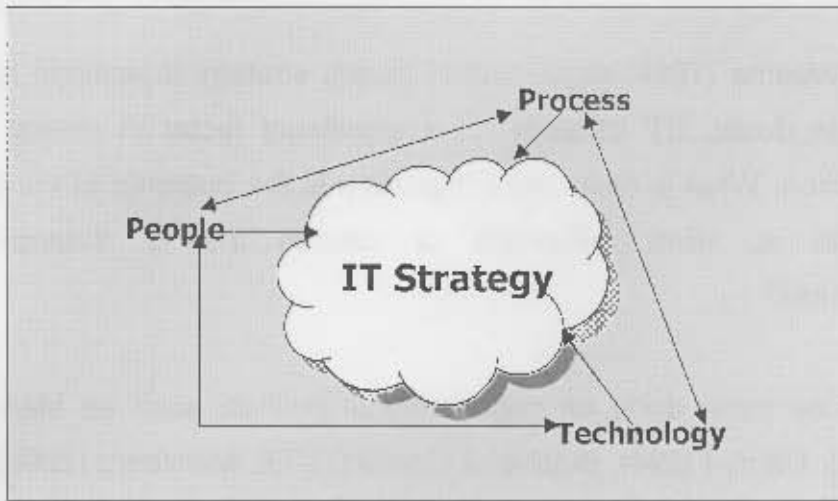


Figure 2: Components of IT Strategy

IT strategy often focuses almost exclusively on the technology, the non-human aspect of the strategy (Boar, 1998), and either by oversight or ignorance pays less attention to the people aspect, which more often than not, turns out to be the deciding variable of strategy success. People plan and use the various technologies as defined by IT strategy. It is inevitable that people are influenced and driven by different forces, such as "politics", in the organisations. Orlikowski (1993) argued that organisational politics has an important influence on the degree to which IT, through its strategy, can be used.

IT strategy cannot be formulated in isolation and it depends on the acceptance and interest of the employees, including the managers, of the organisation. One of the motivations for this study is as stated above – that IT strategy often focuses almost exclusively on the non-human elements (Boar, 1998). What they do not debate, but is often the deciding variable in strategy success, is the human elements of IT strategy, and, in particular, the issue of building and sustaining organisational commitment to the formulated technology strategy. Most Chief Information Officers (CIOs) would argue that IT strategy provides the vision for the organisation to march into the future along with retaining its own identity, and to create and establish sustainability. Very little emphasis is placed on the people aspects.

Walsham & Waema (1994) argue that IT needs strategy to achieve its aims and objectives. No doubt, "IT Strategy" is a significant factor in driving towards a specific direction. What is even more important is the outcome of the IT strategy. The question is, what influences or causes the IT strategy outcome (implementation)?

Much work has been done on organisational politics, such as Markus (1983), Pfeffer (1992), Hardy (1994), Butcher & Clarke (1999), Mintzberg (2000) and Lewis (2002) and on IT strategy, such as Ciborra (1996), Lederer & Sethi (1988), Boar (1998), Lederer & Gardiner (1992), Gottschalk (1999), Wolff & Sydor (1999) and Mack (2002). These works are often separately articulated. What is missing is the interaction between IT strategy and organisational politics. It is in this area that further research is vital to both the academic and corporate domains, particularly in South Africa.

1.5.2 Organisational Politics and Power Relative to IT Strategy

It is a serious oversight to pretend that politics does not exist. Since the beginning of time, politics has been a part of every human equation (Butcher & Clarke, 1999). Politics is the means; power is the end. Organisations are the most fertile breeding ground for politics. This is due to the fact that the actors seek different personal interests such as success, professional growth and financial security (Kling & Iacono, 1984).

Butcher & Clarke (1999) questioned whether politics gets in the way of effective management or whether it is seen as essential to it. As in any other field or discipline, organisational politics is understood and practiced differently in the IT computing environment. The term organisational politics conjures up different meanings to different people. Some would argue that organisational politics involves those activities undertaken within organisations to acquire, develop, and use power and other resources to obtain one's preferred outcomes in a situation in

which there is a lack of consensus about choices. Others visualise quite a different picture.

It is necessary for employers and employees within the computing environment to be educated on the legitimacy and illegitimacy of "organisational politics". In so doing, the understanding of the good, the bad and the ugly implications can be clarified (Markus, 1983). What is also important and cannot be ignored is the source of politics. Experts such as Salancik & Pfeffer (1977), Farrell & Petersen (1982), Pfeffer (1992), Hardy & Clegg (1996) and Holbeche (2004) argue that the key sources of politics exist within structure and diversity.

According to Pichault (1995), the system of power distribution is characterised by relative stability: it is part of the organisational structure and may not be modified by a simple managerial intervention since it is related to other variables, such as the task environment of the operators and the coordination mechanisms. As such, power is one of the primary focus areas in examining organisational politics.

Power in organisations is usually the result of structural characteristics. The formal hierarchy of positions in organisations makes the different tasks differ in their levels of importance. Foucault (1977) calls this the "legitimate" or "juridicial" power, based on an assumption that power used by mediating institutions is legitimate, because their aim is to further a "wider view" of societal order and harmony.

According to Mintzberg (1983), power has the capability to effect (or affect) organisational outcomes. Power is a productive force that organises, formats and solidifies actors into various sorts of agents that perform actions.

Interaction theory, as pointed out by Markus (1983), predicts that neither changing people (by removing them, by educating them, or by attempting to coerce them), nor changing technical features of the system will reduce resistance as long as the conditions, which gave rise to it, persist. Another view criticises the negative and

externalist conception of power because it assumes that actors are determined by power and that power is exerted unilaterally in the form of will (Foucault, 1982). An alternative view is based on the idea that before *power* can emerge, there is a process of prior structuring and ordering whereby the dominated are recruited into a relationship in which their role is to act as subjects of power.

The view that power is clearly linked to position and rank is highlighted by Armstrong (1994). This power, to a certain degree, has to be earned and justified. Power is bestowed upon you as a manager but you have to justify your use of it. Koop & Grant (1993) argue that conflicts always arise in the structure that controls the information resources.

Robbins et al. (2001) argue that a behaviour that one person labels as organisational politics is very likely to be characterised as an instance of effective management by another. An individual's background influences the understanding of the role of organisational politics.

It is argued, however, that IT strategy needs other elements with strong influences such as organisational politics to achieve the set goals and objectives (Scarborough, 1998). He did not address the impact organisational politics has on IT strategy, and this is what this research intends to address.

1.5.3 The Impact of the Influencing Factors Relative to IT Strategy

Implementers are very influential in determining the success or failure of IT strategy (Sangbae, 2003). Their influence is often political, and an accepted IT strategy is not guaranteed to be the most successful, or better than another strategy. The more important a project is, the more political it becomes. According to Hanbury (2001), *"If a project is not facing a lot of organisational politics, it is a sure sign that it is not doing anything significant"*. The cultural backgrounds, individual interests, mindsets and relationships among the individuals and the group of employers and employees are often the baseline of organisational politics.

Organisational politics has as much influence as the technical capabilities on the implementation of IT strategy. The impact of (organisational) politics on IT is often a significant factor in the success or failure of the implementation of the organisation's IT strategy. According to Salzman (1998), organisational politics is crucial in the early phases of technology development and provides opportunities for those in positions of power in the user organisation to exercise the most explicit influence. Also, Salzman (1998) argued that: *"The politics of the design process involve the politics of the user organisation and directly affect the content of technology design"*.

There is limited academic literature on the interaction between IT strategy and organisational politics. In the corporate world, it is regarded as highly sensitive. This study seizes the opportunity to examine this area. The following section covers the set of research questions of the study. They guided the research and were used in collecting data for the research.

1.6 Purpose and Research Questions

The study is a qualitative, dual case study involving two South African companies. The study has three lines of investigation. Firstly, the research uses an interpretive perspective to investigate the relationship between technical and non-technical factors in the development and implementation of IT strategy. Secondly, it investigates the organisational politics within the computing environment in the development and implementation of IT strategy. This area of investigation was more carefully phrased because of the sensitive nature of the subject (politics). Finally, the study focuses on the impact of organisational politics on IT strategy.

Roode's (1993) description of a process-based research framework for information systems research was used to generate the most appropriate questions for this research. There are three main questions, each with subsidiary questions:

1. What is Information Technology (IT) strategy in the organisation?
 - i. How is IT strategy viewed in the organisation?
 - ii. How is IT strategy defined in the organisation?
 - iii. Why is IT strategy important in the organisation?
 - iv. Who is involved in defining the IT strategy in the organisation?

2. How is the IT strategy developed and implemented in the computing environment of the organisation?
 - i. How is the development of the IT strategy described in the organisation?
 - ii. How is the implementation of the IT strategy described in the organisation?
 - iii. What are some of the problems encountered during implementation of the IT strategy in the organisation are described?
 - iv. What are the 'positions' that are responsible for the development and implementation of the IT strategy?
 - v. Why are these 'positions' responsible for the development and implementation of the IT strategy?

3. What are the fundamental factors influencing the development and implementation of IT strategy in the organisation?
 - i. What are the deciding factors in the development and implementation of the IT strategy in the organisation?

- ii. Which of those (deciding) factors, are regarded as more important?
- iii. Why are other factors seen as less important?
- iv. What is the impact of these factors on the development and implementation of the IT strategy?
- v. What is the perception of employees (including managers) of the development and implementation of IT strategy in the organisation?
- vi. Why do these employees have these perceptions?

In the previous section, three different perspectives of the research problem were discussed which emphasised the complexity of the interaction between IT strategy and organisational politics in the context of an organisation's computing environment. The purpose of this thesis is to create a better understanding of the impact of organisational politics on IT strategy. This is expected to have implications such as how to leverage the effectiveness and efficiency of both technical (IT strategy) and non-technical (the interplay of organisational politics and power) factors.

The above questions deny the separability of the social and the technical elements in a network of actors. The findings will constitute a learning curve, and are expected to benefit the computing industry, and through it, contribute to the body of knowledge in this sub-field.

1.7 Significance of this Research

The first contribution of this thesis comes from the description and analysis of the two case studies. The theoretical concepts applied in the analysis contribute to an increased understanding of a variety of organisational trajectories that are

associated with the development and implementation of IT strategy within the computing environment.

The second contribution arises from implications for the decision makers responsible for formulating the principles, standards and policies for the development and implementation of the IT strategy. These decision makers need to understand the functions, dynamics and causes of what, why and how IT strategy or any of its components succeeds or fails at the micro-level, and how these reasons can be addressed. For example, many of the employees in one of the case studies are either reluctant or non participators in the implementation of the IT strategy in the organisation, yet the organisation still has to address the causes of this phenomenon.

In summary, this study aims to be of significance to decision makers, professionals, including managers and employees of the organisation within the computing environment, and IS researchers. It is expected that the key contribution will arise from the application of the theoretical framework, presented in Chapter Six, to empirical analyses of the interplay between IT strategy and organisational politics. Through this, a better understanding of the contribution of socio-technical elements to IT strategy will be gained.

1.8 Research Design

The study adopts an interpretive, dual case study methodology to investigate the impact of organisational politics on IT strategy within the computing environment in the two organisations. The two case studies were adopted to gain an insightful, qualitative interpretation of what is happening in the development and implementation of IT strategy.

The research employs a qualitative methodology to study the impact of organisational politics on IT strategy. Qualitative research is more suitable for this type of study as it allows clarification of questions when asking respondents to

explain (“Who”, “What”, “How”, “When”, “Where” and “Why”). Qualitative research is argued and described as a very useful method for complex situations and theories (Boucaut, 2001).

The research applies the case study method, because it allows in-depth exploration of the complex issues involved in this study. Two case studies were conducted. Data sources included interviews and documentation. The number of interviewees varied depending on the size of the organisations. A set of balanced respondent demographics was a key factor in achieving a true reflection of the situations. Targeted respondents were from different races and genders and were at various levels of the structure within the Business and IT departments. They included IT Technicians, Analysts, IT Managers, IT Project Managers, IT Executives and IT Directors.

The (structured and semi-structured) interviews were designed to elicit information on IT strategy and organisational politics and the relationships among actors in the network.

The interview design was based on existing work and literature (such as Orlikowski & Gash, 1994, Walsham & Waema, 1994, Sohal & Lionel, 1998 and Ward & Peppard, 2002).

Data collected came from structured and semi-structured interviews (which were recorded and transcribed), as well as from relevant documentation. Each of the case studies took cognisance of the fact that actors can be part of many networks at the same time, manifesting themselves differently within a particular network and further that actors play decisive roles in the construction of the networks that they are part of. Data collection was performed in the following order:

- i. Authentic documentation about IT strategy, governance and policy were collected.

- ii. Based on the authentic information and literature reviewed, and the research questions, a set of questions was formulated. This set of questions was used to conduct the interviews in both case studies.
- iii. Structured interviews were conducted with identified key members of each of the organisations. A formulated checklist was used as a guiding principle during the interview process so that uniformity and consistency could be assured in the data collection process.
- iv. The interviews were recorded with the permission of the interviewees. Fortunately, none of the interviewees objected to the recording of the interviews. The recorded interviews were transcribed and interviewees were requested to confirm the transcribed interviews.

The findings obtained in each case are used as information contributing to the whole study, but each case remains an individual case. Each case study involves two levels of data analysis.

The research employs Structuration Theory (ST) and Actor-Network Theory (ANT) for the analysis and interpretation of the two case studies at two different levels: through the 'duality of structure' concept of ST, and the concept of 'translation' of ANT. This is discussed in detail in Chapter Two.

The next section presents an overview of the thesis, illustrated in Figure 3 below.

1.9 Thesis Structure

This thesis is structured into seven chapters. Figure 3 below depicts the seven chapters, which are described as follows:

Chapter One presents the overall introduction of the thesis. The introduction includes the context, nature and purpose of the study. The background to the

research study is also described. This is followed by a discussion of the research questions and methodology, which includes research design strategy; the justification and motivation of the study.

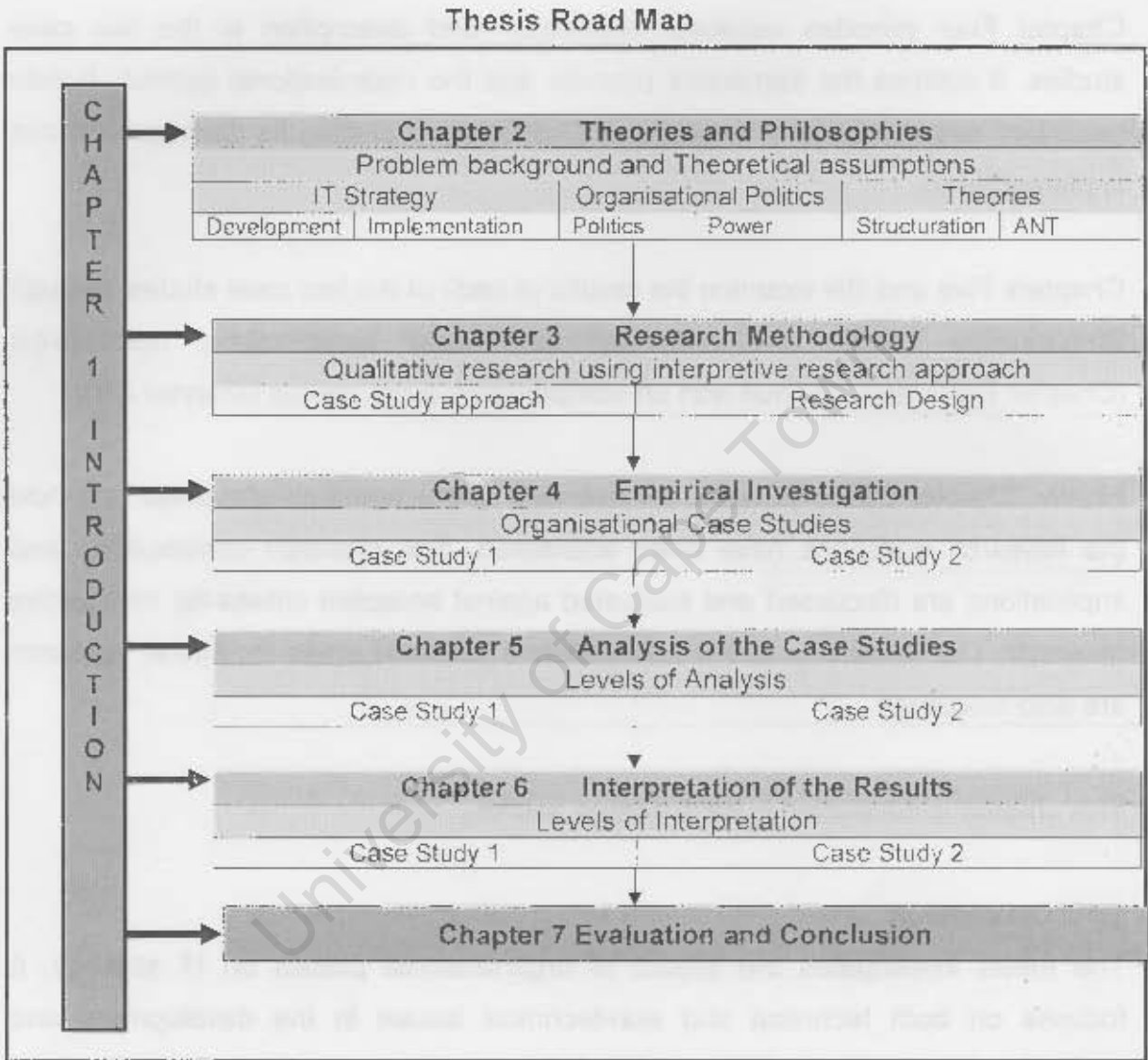


Figure 3: Thesis Structure

Chapter Two is divided into two parts. The first part presents an overview of relevant literature and the second part discusses the underpinning theories of Structuration Theory and Actor-Network Theory.

Chapter Three covers research methodology, outlining research approaches in the information systems field, including the interpretative approach. It describes the research design and the case study strategy.

Chapter Four provides separate information and description of the two case studies. It outlines the framework process and the organisational context. It then describes each case study in terms of IT strategy, including its development and implementation.

Chapters Five and Six examine the results of each of the two case studies through Structuration Theory and Actor-Network Theory perspectives, respectively (Chapter Five), and continue with an interpretation of the results (Chapter Six).

Finally, Chapter Seven provides an overview of the research presented and how the research questions have been addressed. The research contributions and implications are discussed and evaluated against accepted criteria for interpretive research. The limitations of the research and potential areas for further research are also discussed.

This chapter is concluded in the following section.

1.10 Conclusion

The thesis investigates the impact of organisational politics on IT strategy. It focuses on both technical and non-technical issues in the development and implementation of IT strategy in the case studies, and probes the interaction between these issues and organisational politics.

Structuration Theory and Actor-Network Theory were identified as suitable theories to underpin the research. As such they provided an ontological and epistemological basis for the research: both an understanding of the essence of what is investigated in the study, and how to obtain knowledge about the phenomena

studied. This means that the data collection, subsequent analysis of the data and interpretation of the results of the analysis were guided by Structuration Theory and Actor-Network Theory.

The following chapter provides an overview of the literature on IT strategy and organisational politics. The underpinning theories (Structuration Theory and Actor-Network Theory) and their use in this study are also discussed.

University of Cape Town

Contents

2	OVERVIEW OF THE LITERATURE	29
2.1	Introduction	29
2.2	Information Technology (IT) Strategy	29
2.2.1	Distinction between IT and IS.....	29
2.2.2	Information Technology (IT) Strategy.....	33
2.2.3	IT Strategy Development.....	38
2.2.4	IT Strategy Implementation	40
2.2.5	Components of IT Strategy	42
2.2.5.1	Technology Component.....	42
2.2.5.2	Process Component	42
2.2.5.3	People Component.....	43
2.3	Organisational Politics and Power.....	45
2.3.1	Organisational Politics.....	45
2.3.2	The Concept of Power.....	49
2.3.2.1	Potential Sources of Power	54
2.4	Underpinning Theories	57
2.4.1	Structuration Theory.....	57
2.4.1.1	Key Elements of Structuration Theory	58
2.4.1.2	Summary of Structuration Theory	63
2.4.1.3	Structuration Theory and Information Systems.....	65
2.4.1.4	Using Structuration Theory with other Theories.....	73
2.4.2	Actor-Network Theory	73
2.4.2.1	The Concepts of Actor-Network Theory.....	73
2.4.2.2	Sociology of Translation	80
2.4.2.3	The Role of Actor-Network Theory in Information Systems Research....	84
2.4.2.4	Actor-Network Theory as an Information Systems research method.....	85

2.4.2.5	Limitations of Actor-Network Theory.....	86
2.4.2.6	Summary of Actor-Network Theory.....	89
2.4.2.7	Structuration Theory, Actor-Network Theory and IS	89

University of Cape Town

2 OVERVIEW OF THE LITERATURE

2.1 Introduction

This chapter gives an overview of the literature relevant to IT strategy and organisational politics. In addition, the chapter contains a discussion of the theories underpinning the research, namely, Structuration Theory and Actor-Network Theory. The literature is drawn from both the academic and corporate domains.

The literatures review is presented in three sections. These include IT strategy, organisational politics and underpinning theories. The first section describes IT strategy, including its development and implementation. The second section covers organisational politics. The third section presents an overview of Structuration Theory and Actor-Network Theory.

2.2 Information Technology (IT) Strategy

This section is divided into five subsections. These subsections include the distinction between Information Technology (IT) and Information Systems (IS); IT Strategy; IT Strategy Development; IT Strategy Implementation and Components of IT Strategy.

2.2.1 Distinction between IT and IS

This subsection clarifies the distinction between Information Technology (IT) and Information Systems (IS). IT and IS are separate concepts within the computing environment. Unfortunately, IT and IS have often been loosely and interchangeably used, even by professionals.

To distinguish between these two concepts, definitions and explanations are drawn from numerous literature sources from both the academic and corporate domains.

According to Daniels (1994) Information Systems is a method of delivering information in accordance to organisational needs. In Daniels' view, IT is the

technological apparatus that conveys the information. Daniels argues that technology is not a requirement for an information system, but a translator of symbols into a usable form.

Kendall (1992) advances the view that an information system exists only to serve the business systems of which it is a component. According to Hicks (1993), an information system keeps records and maintains the various facts and figures needed to run the business.

Hicks (1993) defines an information system as a formalised computer information system that can collect, store, process and report data from various sources to provide the information necessary for managerial decision making.

Through information systems, an organisation executes its business plans and attempts to realise its business goals. Lederer & Gardiner (1992) refer to this as 'a portfolio of computer-based applications'.

On the other hand, IT refers specifically to technology, essentially hardware, software and telecommunication networks. It is thus tangible (e.g., with servers, PCs, routers and network cables) and intangible (e.g., with software of all kinds). IT facilitates the acquisition, processing, storing, delivering and sharing of information and other digital content (Ward & Peppard, 2002).

Ward & Peppard (2002) define information systems as the means by which people and organisations, utilising technology, gather, process, store, use and disseminate information. It is thus concerned with the purposeful utilisation of information technology.

It may be concluded that:

- i. IT and IS are two separate concepts, but they are together in the computing environment.
- ii. Information technology is concerned with the exploration of hardware and software, including networks.
- iii. Information systems are concerned with the application of information technology in support of an organisation's business goals and objectives.

The focus of this research is on IT strategy. As such, it begins by providing an overview of IT in the next paragraph.

IT is broadly and widely used in most organisations. IT has long been a significant element in the operation of many organisations that deploy it. During the last two decades, IT has become increasingly important in many more organisations worldwide and in South Africa in particular. With this increasing role, investment in information technology assets (this includes hardware and software) and support has become a significant element in the organisations that it supports. Yet, some works such as Carr (2003) controversially challenge the value and importance of IT to the organisation or business that it supports.

Carr (2003) questions whether IT is or ever was strategic, suggesting instead that what makes a resource truly strategic is its scarcity. There were many responses to Carr. Among them is Schrage (2003). According to Schrage, it is not free and easy access to a commodity that determines its strategic economic value to the company; it is the way that the commodity is managed that determines its valuable impact. Carr further argues that the ubiquity of IT today is not a strength, rather, it means that everybody has equal access to virtually any and all technology. Beyond

his 'vanishing advantage of IT', Carr highlights what he calls the 'growing commoditisation of IT'.

According to Carr (2004), as technology availability increased and its cost decreased, it became ubiquitous. From a strategic standpoint, it became invisible; it no longer mattered. That is exactly what is happening to information technology today, and the implications for corporate IT management are profound.

It is the management of the powerful resources (technology, capital, people, for example) and the environment they create that allow a difference to be made. The issue is not just about information technology. Rather, it is the strategic application of technology, including management, which is about people and the process.

Over the years, the need for IT has become increasingly important in the organisations it supports. It has also become a significant resource in enabling business goals and objectives. The roles and expectations of IT and the changing business needs have made it necessary to have a strategy for IT development, execution and use. For example, the growth of web technology has expanded and changed the scope of the applications of IT. Two decades ago the focus of applications was more on internal use. It was largely automation of processes to improve organisational operations. But, during the last decade, not only are people within an organisation increasingly 'connected' but so too are people outside the organisation connected with the organisation through the application of IT. Sohal & Lionel (1998) argue that organisations in general must somehow integrate strategic thrusts with IT capabilities.

The connectivity that has come with the expansion of Internet technology has brought the most profound change in information accessibility and communications. This technological change is at the root of a 'revolution' in communications that holds the promise of bringing people and things closer and connecting them, creating a global village. IT has significant impact on an

organisation's success and failure. According to Sohal & Lionel (1998), IT strategy has great impact on the business strategy and some organisations rely completely on their IT strategy to succeed.

The recent emergence of technologies as a key resource makes it necessary to have strategy for its proper deployment within the organisation. Without a strategy, *all* roads within the plethora of possible ways of deployment will lead to the future, but not all these roads will necessarily have cohesiveness in their activities. With a strategy, a cohesive roadmap to the future is designed. A good IT strategy should be able to answer and find solutions to the *what, who, when, how, where* and *why* of its components' usage. Walsham & Waema (1994) argue that IT needs strategy to achieve its aims and objectives. No doubt, 'IT Strategy' is a significant factor in driving towards a specific direction. What is even more important is the outcome of the IT strategy.

It is critical for this research to adopt a definition for IT strategy. The definition sets the scope and boundary within which data is collected and analysed. To adopt an acceptable IT strategy definition for the research, literature on strategic management, IS and IT concepts were reviewed. The definition of IT strategy is discussed in the next section.

2.2.2 Information Technology (IT) Strategy

This section starts with a discussion of strategy in general. It later focuses specifically on IT strategy. Some of the definitions and explanations of strategy in general are as follows:

Mintzberg (2000) points out that people apply strategy in several different ways, the most common being these four:

- i. Strategy is a plan, a 'how,' a means of getting from here to there.

- ii. Strategy is a pattern in actions over time; for example, a company that regularly markets very expensive products is using a 'high end' strategy.
- iii. Strategy is position; that is, it reflects decisions to offer particular products or services in particular markets.
- iv. Strategy is perspective, that is, vision and direction.

According to Mintzberg, strategy emerges over time as intentions collide with and accommodate a changing reality. Thus, one might start with a perspective and conclude that it calls for a certain position, which is to be achieved by way of a carefully crafted and sketched plan, with the eventual outcome and strategy reflected in a pattern evident in decisions and actions over time.

Porter (1985) argues that strategy is about competitive position, about differentiation and about adding value through a mix of activities different from those used by competitors. Porter defines competitive strategy as "a combination of the ends (goals) for which the firm is striving and the means (policies) by which it is seeking to get there". Thus, Porter seems to embrace strategy as both plan and position. The research notes that Porter writes about competitive strategy, not about (IT) strategy in particular.

Boar (1993) defines strategy as the process by which corporate objectives for the future are identified in response to perceived opportunities and threats, and, by understanding company strengths and weaknesses, activities are selected and resources allocated to meet those objectives. Strategy hence provides direction, concentration of effort, consistency of purpose, and flexibility. Boar (1998) also argues that IT strategy often focuses almost exclusively on the *nonhuman* elements. What organisations do not debate, but which is often the deciding variable in strategy success, are the human elements of IT strategy, and, in

particular, the issue of building and sustaining organisational commitment to the formulated technology strategy.

This research articulates the above definitions as follows: IT strategy is intended to set out key directions and objectives on how IT is applied and managed within the organisation that deploys it. As such, IT strategy serves as the 'road map' to guide the organisation on technology issues over a period of time. To this end, IT strategy allows all parts of the organisation to gain a shared understanding of priorities and goals for the time period as defined in the strategy.

The following observations were identified from the literature reviewed:

- i. That there is a general acceptance that strategy is key to IT.
- ii. There is less emphasis on the definition of IT strategy in the field of information systems.
- iii. There is no definite definition of IT strategy, and most literature and discussion have focussed on Strategic Information Systems Planning (SISP) (Orlikowski & Robey, 1991).

From the above observations, it would seem that no agreement exists about a definition of IT strategy. As a result, this research defines IT strategy as follows:

'IT strategy is the technical design which serves as the road map over a period of time for the implementation of information technology and information systems by people using a formal process.'

The research adopts this definition to examine the development and implementation of IT strategy for the following reasons:

- i. It recognises that IT strategy can neither be formulated nor implemented in isolation from IS.
- ii. It recognises the inseparable relationship between the social construction of the IT environment and technology.
- iii. It acknowledges the role of human involvement (Rosser, Kirwin & Mack, 2002).

Figure 4 below illustrates IT strategic planning. According to Ward & Peppard (2002), strategic planning clearly defines objectives, and assesses both the internal and external situations, which includes the process of alignment. This introduces the required concepts, controls and new techniques, establishes good relationships, and identifies tasks and responsibilities, thus defining planning of resource requirements.

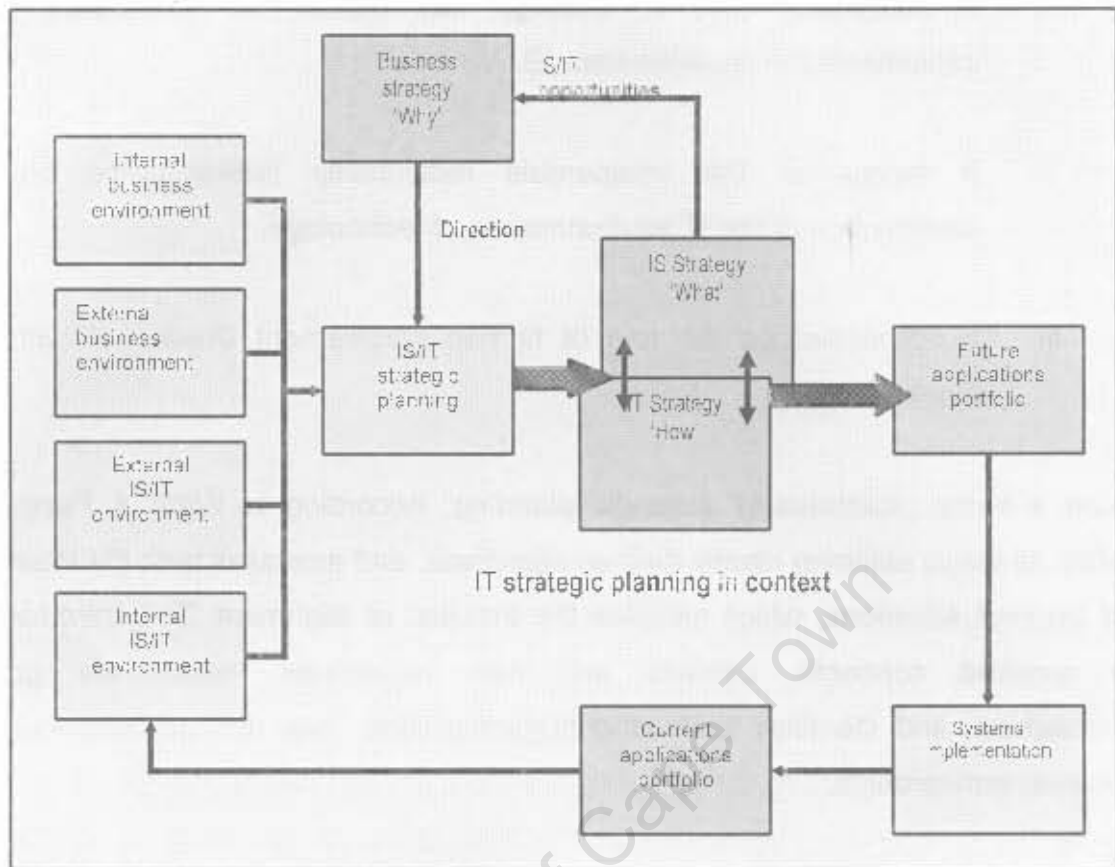


Figure 4: IT Strategic Planning (Ward and Peppard, 2002)

IT strategy is driven by the organisational vision and strategy. It does not operate in a vacuum. As such, it is important to align the IT strategy to the business strategy (Weiss & Anderson 2002). Strategic alignment is a method of applying IT in an appropriate and timely way, in harmony with business strategies (King, 1995).

Thompson & Strickland (1992) argue that the industry environment has a significant influence on the company's IT strategy. The business strategy is driven by the organisation's vision and objectives and IT strategy is driven by the business strategy. Both internal and external factors influence the IT strategy, as illustrated in Figures 1 and 4 above. As a result, the IT strategy of different organisations varies in terms of 'what' technology is within the scope of the organisation's IT strategy, 'how' the strategy is developed and implemented, and 'who' gets involved in both the development and implementation.

The research focuses particularly on the development and implementation of IT strategy. This includes the determining factors and how they influence the development and implementation of the IT strategy. Both the development and implementation stages of the IT strategy encompass all the components as described above.

Walsham & Waema (1994) argue that both the development and implementation stages are critical in an effective IT strategy. They base their argument on the end product of development and implementation of IT strategy, which to them, determines to a certain extent what level of service the organisation offers to its clients through the application of technology services.

A definition of IT strategy by itself cannot influence the development of IT strategy. It is what people make of the definition – how they internalise it – that matters, and that will shape the development process. This is discussed next.

2.2.3 IT Strategy Development

Through its development, IT strategy determines and establishes the technological direction within the computing environment of the organisation that deploys it.

As depicted in Figure 4 above, IT strategy is developed based on both business and IT internal and external environments. Even the most ambitious business vision still needs an IT strategy to enable it (Benamati & Lederer, 1999). This is a practical fact. What is more important is that the connection between IT strategy and business strategy must be understood.

Daniels (1994) argues that the business vision is a starting point for the development of IT strategy. According to Daniels (1994), the vision acts as the framework upon which the IT strategic intent is developed. He suggests that all key decision-making staff are essential and should be involved, at least at the beginning of the IT strategy development.

Development of IT strategy is done by collecting data from both current (as-is) and predicted internal and external environments. IT strategy planning should clearly define objectives and assess both the internal and external situation. IT strategy development planning (Ward & Peppard, 2002) includes the process of introducing the required disciplines, controls and new techniques, establishing good relationships and identifying tasks and responsibilities.

According to Boar (1993), strategy development is process oriented. In Boar's view, the steps include Scope, Objectives, Strategic moves, Change management and a Commitment plan. Boar further describes the steps as follows:

- i. Scope – explains and defines the notion and strategic position of both current and future state and advancement.
- ii. Objectives – specific measurable results to be accomplished during the planning cycle.
- iii. Strategic moves – purposeful actions taken to achieve an objective.
- iv. Change management – the development of specific actions to address the problem of change, due to inevitable resistance occurring within the organisation.
- v. Commitment plan – the development of commitment to an action plan taken to establish credibility of the overall plan.

IT strategy is only a means to an end. To achieve its goals and objectives, it needs to be implemented (Ward & Peppard, 2002). The next section discusses IT strategy implementation.

2.2.4 IT Strategy Implementation

Implementation of IT strategy is the execution of technological change within the organisation that deploys it. Different actors within the organisation are likely to have different views on the IT strategy.

The technology, process and people components of the development stage also apply to the implementation stage of IT strategy. Understanding people, their interpretation of, and interest in the IT strategy is critical to implementation (Orlikowski & Gash, 1994). According to Daniels (1994), implementing IT strategy requires understanding people's roles.

The way in which the IT strategy is implemented can have a significant impact on whether it will be successful, as well as having a direct impact on the organisational culture. According to Gottschalk (1999), implementation is key to the success or failure of IT strategy. Those who develop the IT strategy will probably be different people from those who carry out the implementation. If the IT strategy is understood or interpreted differently, the implementation is likely to encounter problems (Walsham & Waema, 1994).

Gottschalk (1999) argues that the term 'implementation' could have a variety of meanings to different people. He suggests that management must first define the term implementation and the implementers must understand the definition.

According to Gottschalk implementation is important for four reasons:

- i. Opportunities can be lost, efforts could be duplicated, resulting in technology incompatibilities and a waste of resources.
- ii. The extent to which the IT strategy achieves its goals and objectives is determined by the implementation.

- iii. Lack of implementation leaves the organisation dissatisfied with and reluctant to continue strategy development.
- iv. Lack of implementation creates problems of establishment and maintenance priorities in the future of IT strategy development.

As mentioned before, Boar (1998) argues that IT strategy often focuses almost exclusively on the *nonhuman* factors. What organisations do not debate, but is often the deciding variable in strategy success, is the human element of IT strategy, and, in particular, the issue of building and sustaining organisational commitment to the formulated technology strategy. Most Chief Information Officers (CIOs) will argue that IT strategy provides the vision for the organisation to march into the future while retaining its own identity, and creating and establishing sustainability (Weiss & Anderson 2002). Very little emphasis is placed on the people aspect. Gottschalk (2002), whose work was based on that of Mintzberg (his classic managerial role model), argued that the CIO attempts to apply political 'muscle' with the end-user based on the rationale of their objectives. This view has been supported by some other works and studies, such as the work of Boar (1998).

There are basic components which are common to both the development and implementation of IT strategy. These components include technology, process and people (Mack, 2002). They are key to the development and implementation, and as such, could contribute to success or failure. The next section describes these components.

2.2.5 Components of IT Strategy

The components of IT strategy, as adopted in this research, are key to and apply to both the development and implementation stages. Figure 5 below depicts the relationship between these components within the IT strategy.

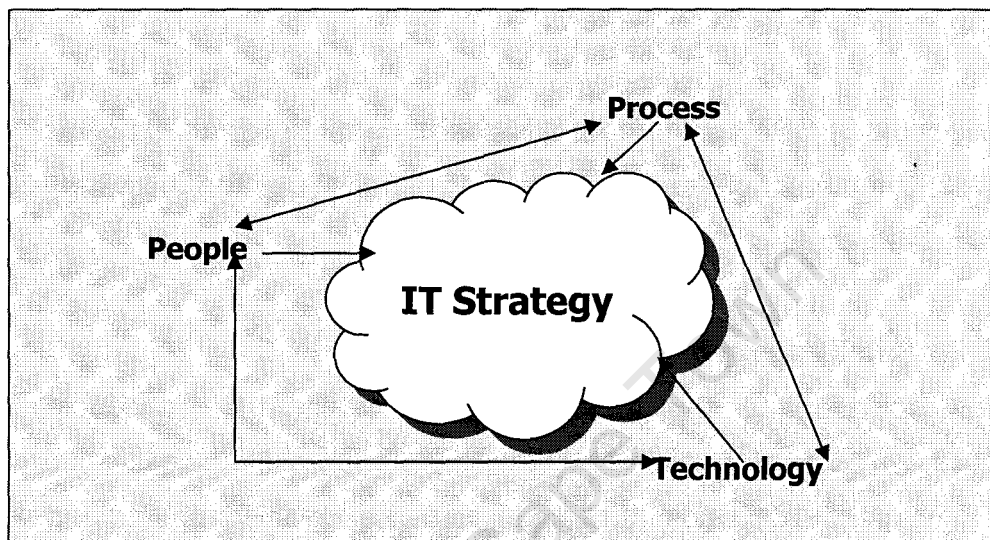


Figure 5: Components of IT Strategy

2.2.5.1 Technology Component

This component of the IT strategy consists of the technology artefacts. It determines the technological solutions based on the organisation's goals and objectives, through its information systems strategy. Also, the technology component provides technology options needed to support and enable the organisation's objectives. The technology component includes both software and hardware.

2.2.5.2 Process Component

Process is the component of IT strategy that opens up the possibilities for the development and implementation of IT strategy. Process creates a roadmap for IT strategy development and implementation. According to Mooney, Gurbaxani & Kraemer (1996), process is a specific ordering of work activities across time and place, with a beginning, an end, and clearly identified inputs and expected outputs.

Mooney, Gurbaxani & Kraemer (1996) argue that many studies that have been done which concern process recognise the role of IT in process improvement, but none explicitly considers the business value of IT in process. Hackney, Burn & Dhillon (2000) argue that a strong process perspective should be adopted before any IT implementation is undertaken.

Without people involvement 'process' is neither formulated nor executed. As such, the people component of the IT strategy is indispensable. The following subsection discusses the people component of IT strategy.

2.2.5.3 People Component

The development and implementation of IT strategy are conducted through processes, which are formulated by people. As such, the success or failure of the IT strategy greatly depends on people who are involved and undertake these responsibilities. Orlikowski & Gash (1994) argue that an understanding of people's interpretations of a technology is critical to understanding their interaction with it. To interact with technology, people have to make sense of it; and in this sense-making process, they develop particular assumptions, expectations, and knowledge of the technology, which then serve to shape subsequent actions towards it. People act on the basis of their interpretations and this drive and determine the capabilities of the technology, the process of using the technology and the outcomes of the technology. People's willingness to accept or reject the IT strategy will therefore be highly influential in the outcome of the IT strategy and as such, should be taken into consideration. Analysing the peoples' perspectives opens the door for political intent within the organisation. Where there are different people and technologies, there are conflicts and difficulties (Orlikowski & Gash, 1994).

The people aspect is therefore an important component in an effective IT strategy. According to Mack (2002), a business strategy must be the starting point for developing an IT strategy, regardless of whether one already exists or must be

created. Technology and process provide the necessary and required information to develop and implement IT strategy. Ultimately, the decisions to develop and implement the IT strategy are responsibilities that fall on the people who are involved. Mack emphasises that no strategy discussion is complete without a consideration of the people involved. Successful organisations inevitably have the right people in the right jobs at the right time.

Developing and implementing IT strategy depends on key people within the organisation (Daniels, 1994). According to Daniels, creating the right team is of paramount importance. In essence, unless all major stakeholders are involved, success may not happen.

Simply involving the people, is, of course, not enough. These people must be empowered to assume the responsibilities required of them. This may require specific training and the removal of obstacles and hindrances that might prevent them from contributing to their full potential.

IT strategy, therefore, is not only about information and technology, strategic direction and choices. It requires the involvement of people. People have different beliefs and understanding, which is likely to have an impact on the development and implementation of IT strategy. People are not only connected within the organisation, but they are also connected to other people outside the organisation, which results in further different influences and interests coming into play. It is inevitable that people are influenced and driven by different forces, such as 'politics', in the organisations. Orlikowski (1993) argued that organisational politics has an important influence on the degree to which IT, through its strategy, can be used.

Where people are involved, politics exists. Scarborough (1998) argues that IT strategy needs other elements with a strong influence such as politics to achieve the set goals and objectives. The next section helps us better to understand

organisational politics within the context of an IT organisation, emphasising the role of power.

2.3 Organisational Politics and Power

This section is divided into two: organisational politics and power. The first subsection defines and describes organisational politics, the differentiation between types of politics and the effects of politics in the organisation. The second covers the concept of power. It is important to note that both subsections are discussed from the perspective of their relevance to IT organisations.

The concept of organisational politics can be linked to Harold Lasswell's (1936) definition of politics as who gets what, when and how. If power involves the employment of stored influence by which events, actions and behaviours are affected, then politics involves the exercise of power to get something done, as well as to enhance and protect the vested interests of individuals or groups. Thus, the use of organisational politics suggests that political activity is used to overcome resistance and implies a conscious effort to organise activity to challenge opposition in a priority decision situation.

2.3.1 Organisational Politics

There are numerous views on organisational politics. Due to its importance for the research study, this section reviews some of these.

Regardless of the degree to which an employee may commit him or herself to the objectives of the organisation, personal interests are likely to be different from those of the employer (organisation). Employees seek to satisfy not only the organisational interests, but also their own wants and needs which are driven by self-interest. According to Morgan (1986), "organisational politics arise when people think differently and want to act differently."

It has been demonstrated, analytically as well as empirically, that technical issues get caught up in a host of organisational issues such as politics. Orlikowski & Barley (2001) state "... to include insight from institutional theory, IT researchers might develop a more structural and systematic understanding for how technologies are embedded in complex interdependent social, economic and political networks, and consequently how they are shaped by such broader institutional influences".

Organisational politics involves those activities undertaken within organisations to acquire, develop, and use power and other resources to obtain one's preferred outcomes in a situation in which there is uncertainty, lack of clarity or a lack of consensus about choices. Organisational structure is a key component of organisational politics, and power is the focal point of organisational structure. Pichault (1995) opined that the system of power distribution is characterised by a relative stability: it is part of the organisational structure and may not be modified by a simple managerial intervention since it is related to other variables such as the task environment of the operators and the coordination mechanisms. Power will therefore be one of the primary focus areas in examining organisational politics.

According to Holbeche (2004), politics is a fact and part of life in organisations. He distinguishes between constructive and destructive politics, and describes constructive politics as:

"...establishing effective relationships, understanding individual agendas, creating win-win situations, acting in a principled way, building strong support for constructive ideas, building a personal reputation, treating everyone fairly and influencing others rather than directly using power."

(Holbeche, 2004)

In Holbeche's view, whether or not politics is used constructively in an organisation is largely dependent on the example set by senior managers. The managers set the political tone since they have the ability to reward or sanction behaviour in others lower down the hierarchy. Robbins et al. (2001) argue that a behaviour that one person labels as *organisational politics* is very likely to be characterised as an instance of *effective management* by another.

In politics, perception matters more than substance (Platform Computing, 2005). Organisational politics can be categorised into legitimate and illegitimate acts. Legitimate politics are the normal, common tactics used by employees like complaining to superiors, short-circuiting the boss, forming coalitions, working to rule, stalling and stonewalling. Illegitimate politics are extreme activities that people resort to, like whistle-blowing, sabotage, mass bunking and go-slow. Illegitimate politics is risky and invites sanctions and dismissals (Kling, 1980).

Politics in organisations is a reality. It is something or an act, which employees must master, or at least learn to cope with. Politics in organisations exists because of reasons such as competition for limited resources, which results in perceived threats to the individual *status quo*.

There is a perception among many people that organisational politics has as much influence as the technology on the development and implementation of IT strategy (Platform Computing, 2005). If this perception is correct, the impact of organisational politics on IT would become a significant factor in the outcome of the development and implementation of the organisation's IT strategy.

Salzman (1998) argues that "The politics of the design process involves the politics of the user and directly affects the content of technology design". Organisational politics is crucial in the early phases of IT strategy development and provides opportunities for those in positions of power in the user organisation to exercise the most explicit influence. According to Salzman, decisions do not necessarily

represent an optimal choice among alternatives or even one that is most effective for the organisation or those it serves. Salzman also emphasises that the outcome of IT strategy is as a result of the continual process, from development to implementation, of actors' influence on the IT strategy. Butcher & Clarke (1999) raise the question as to whether politics gets in the way of effective management, or whether it is seen as essential to it.

Kling (1980) addresses how, on the one hand, computing has affected social structures while, on the other hand, the underlying social structures influence computing processes. He provided a very helpful scheme to examine theories accounting for people's resistance to the introduction and implementation of technologies. He identified six distinct theoretical perspectives, namely, rational, structural, human relations, interactionist, organisational politics and class politics. He further showed how these perspectives differed on a variety of dimensions, such as the different views of technology, the social setting into which it is introduced and their implications. According to Kling, "... in the process of being adapted and appropriated to fit the social and institutional context ... they [computer systems] are able to perform and are performed upon. They perform when used for political and symbolic aims ... for example computer systems change and modify power-relationships by changing who handles what data ... and are performed upon when the decision making and power holding elements utilize the social analysis of computing to decide the future of computer use and development."

Markus (1983) argues that employers and employees need to be educated on the legitimacy and illegitimacy of organisational politics; by so doing, the understanding, including the good, the bad and the ugly implications can be clarified. What is also important and cannot be ignored is the source of politics. Pfeffer (1992) argues that in addition to structure and diversity, power is a key source of politics.

Organisational politics is very difficult to discuss in isolation from the concept of power because power in itself is not a thing or an act, but rather a resource, a capacity, a potential; and it does not have to be used (Pfeffer, 1981). According to Farrell & Peterson (1982), the successful practice of organisational politics is perceived to lead to a higher level of power, and once a higher level of power is attained, there is more opportunity to engage in political behaviour. Organisational politics, on the other hand, is what people engage in to get power when it might not come naturally (Pfeffer, 1981). If power is the resource, politics is the act used to develop that resource. The two terms are therefore intricately bound together.

2.3.2 The Concept of Power

Power is the opportunity to build, to create, to nudge history in a different direction. According to Dahl (1957), "The concept of power is as ancient and ubiquitous as any that social theory can boast". Dahl defines power "as a relation among social actors in which one actor A, can get another social actor B, to do something that B would not otherwise have done". Hence, power is recognised as the ability of those who possess power to bring about the outcomes they desire (Salancik & Pfeffer, 1977).

Of the many definitions of 'power', the one that seems to sum up the concept most succinctly is 'the capability of one social actor to overcome resistance in achieving a desired objective or result' (Pfeffer, 1981). Mintzberg (1983) looks at the concept in organisational terms, saying power is 'the capability to effect (or affect) organisational outcomes.'

Foucault (1982), one of the most influential writers about power and its role in organisations and society, said:

"Power must be understood in the first instance as the multiplicity of force relations immanent in the sphere in which they operate and which constitute their own organization: as

the process which, through ceaseless struggle and confrontations, transforms, strengthens, or even reverses them; as the support which these force relations find in one another, thus forming a chain or a system, or on the contrary, the disjunctions and contradictions which isolate them from one another; and lastly, as the strategies in which they take effect, whose general design or institutional crystallization is embodied in the state apparatus, in the formulation of the law, in the various social hegemonies.

Understanding of power could be broad, depending on what perspective it is analysed from, read and presented... the understanding of power is sought in a unique source of sovereignty from which secondary and descendent forms emanate; it is the moving substrate of force relations which, by virtue of their inequality of actors and levels of structure, constantly engenders states of power."

(Foucault, 1982)

According to Foucault (1981), "power is everywhere, not because it embraces everything, but because it comes from everywhere. And 'Power' insofar as it is permanent, repetitious, inert, and self-reproducing and, is simply the overall effect that emerges from all these mobilities, the concatenation that rests on each of them and seeks in turn to arrest their movement... power is not an institution, but within, and not a structure, but on the structure; neither is it a certain strength we are endowed with; it is the name that one attributes to a complex and strategic situation in a particular society."

Markus (1983) describes how a centralised accounting system elicited enormous user resistance precisely because of its impact on the power structures of a firm. According to Markus, by centralising the accounting system, management hoped

to create new efficiencies, reduce labour costs, and create a common financial picture throughout the firm. End users, however, read between the lines of this justification and believed that the centralised system was in fact an attempt by management to consolidate more power at headquarters. Notice that the technology itself was a combination of hardware and software for monitoring financial information, and may arguably have been of value. However, its application was not viewed as of value by end users because it seemed to take power from them while increasing the power of centralised management.

Implementation within a social setting is necessarily laden with ethical implications because these systems restructure the flow and control of information, and thus of power within the organisation. Activities within an organisation are designed to acquire, develop or exercise power in a conscious way to obtain preferred outcomes or to manipulate a situation for personal interest, goals and objectives.

According to Foucault (1982), before 'power' can emerge, there is a process of prior structuring and ordering whereby the dominated are recruited into a relationship in which their role is to act as subjects of power. Thus, for Foucault, exercise of power is less a confrontation between two adversaries and more a question of ongoing and active structuring of the possible field of action of others – a process that is always open to resistance, transformation and renegotiation.

In Foucault's conception, power as fixed and imposed is always secondary to the prior ordering and reality negotiation between two or more actors. On the other hand, Armstrong (1994) is of the view that power is clearly linked to position and rank. But to a certain degree it has to be earned and justified. Power is bestowed upon you as a manager but you have to justify your use of it. Koop & Grant (1993) argue that conflicts always arise in the structure to control the information resources.

Power is a defining feature of organisational life. Power exists in activities and processes of an organisation's governance. Pfeffer (1981) defines politics as the processes, the actions, and the behaviours through which potential power is utilised and realised.

According to Hardy & Clegg (1996), power is granted through a political process to the coalition that best controls the strategic resources such as information. In their view, power is largely conceived of as a game that is played outside formal arrangements. Unlike 'authority', which is the legitimised use of influence, 'power' is thought of as actions that deviate from the official business goals and that, potentially, threaten the efficiency of an organisation. Hardy & Clegg argue that critical and radical theorists tend to disagree with the resource dependency perspective and see power as a manifestation of the deep structures and hierarchies. In their view, power is not merely an aspect of informal politicking, decoupled from the acceptable use of authority, but an observable manifestation of the deeper structures of production and societal inequality.

Clegg (1989) acknowledges Foucault's (1982) work on power, knowledge, and resistance, which argues that power has human agency in power relationships that arise when one's actions affect the actions of others, and all social relations, including work relations, are according to Foucault, inevitably power relationships.

To gain more understanding into Clegg's (1989) model requires that we look at how Foucault differentiates power, power over, and domination. *Power* means that human A's action affects the field of possible actions of B's field of action, and vice versa (e.g., advice, moral support, skill or knowledge training). *Power over* occurs when A modifies the field of B (and it may or may not be in B's best interests). Domination does not allow A or B to alter their power strategy. Rather, A and B are complicit in a mechanism of domination.

According to Clegg (1989), power constitutes a “discursive field of force” socially constructed by human agency by virtue of organising. Clegg (1989) seeks to open up the everyday machinery of power for inspection. Such inspection reveals that the process of organising involves techniques of discipline and production, which act as sources of both empowerment and disempowerment at the macro level of the model. The model contains three levels, two of them macro and one micro. The following paragraphs discuss each of these levels, beginning with the micro level:

The Episodic - The episodic circuit is on the micro level of day-to-day interaction, work, and outcomes. These outcomes could be positive or negative. Constituents of this circuit are interpersonal episodes, including how people handle conflict, communication, and feelings. This level is characterised by the day-to-day rhythm of routine work, which can foster a disengaged and rote way of responding. At this level “intermittent exercise of power” is a high possibility (Clegg, 1989).

The Dispositional - The dispositional circuit is on the middle level of the model. It is where rules socially construct meanings and membership relations. Rules are fixed and re-fixed, and meanings are stabilised through social integration (Clegg, 1989). At this level, authority is legitimated. Rules of practice are at the centre of any stabilisation or change of the circuitry. Through these rules, all traffic must pass (Clegg, 1989).

The Facilitative - Also at the macro level, the facilitative circuit is comprised of systems of reward and punishment (disciplinary mechanisms). Through the materiality of technology, job design, environmental contingencies, and networks, the facilitative circuit is a major conduit of variation in the circuits of power (Clegg, 1989). Innovations in technology, and changes in disciplinary mechanisms such as IT strategy in the facilitative circuit, will empower or disempower the capacity for agency in the episodic circuit. An example of this is the de-skilling of work, which disempowers certain workers while potentially empowering others.

Obligatory Passage Points - Obligatory passage points are at the junctures where the three levels of power interact. The circuits are interdependent, and the obligatory passage points are the channels for empowerment and disempowerment. The complexity of obligatory passage points, and the ways they can result in both empowerment and disempowerment, are reflected in Clegg's (1989) example of medical doctors and shop assistants. "Control of extant obligatory passage points, as by doctors in hospitals, will serve to reproduce institutionally system-transforming change in empowering rather than disempowering ways. For shop assistants, however, who are merely traffic through conduits controlled elsewhere, the impact of 'new technology' is by no means so empowering" (Clegg, 1989).

Having discussed the concept of power above, this research adopts the following viewpoint of power: Power is 'the ability to do or effect something or anything, or to act upon a person or thing'. In this view power of any kind rests in the ability to command people or things to do something they otherwise would not do.

The preceding discussion indicates that organisational politics and power are related and cannot be separated. Thus, the research views organisational politics as the use of power, with power viewed as a source of potential energy to manage relationships. The following subsection discusses the potential sources of power.

2.3.2.1 Potential Sources of Power

Sources of power include organisational structures. According to Koop & Grant (1993), there are six different bases of personal power:

“. . . reward, coercive, legitimate, referent, expert, and information. Reward power is based on one person's ability to reward another. Its strength increases with the magnitude of a potential reward. Coercive power is based on the ability of one person to punish another, increasing with the magnitude of potential

punishment. Legitimate power (authority) stems from internalized values in which one person is believed to have a right to influence someone else. Referent power is often characterized as charismatic power. It accrues from an individual's desire to identify with or belong to a particular referent person or group. Expert power accrues from special knowledge that is highly valued; its strength increases with the extent of knowledge and another's perception of that extent. Finally, information power is based on a person's access to data or facts. Greater access to information means greater power".

(Koop & Grant, 1993)

Pfeffer (1981) describes structural power as "a structural phenomenon created by the division of labour and departmentation that characterises an organisation or set of organisations". Furthermore, Pfeffer describes the following characteristics as important in acquiring and maintaining strategic power bases:

- i. *High energy and physical endurance* – the ability and motivation to work long and often gruelling hours.
- ii. *Directing energy* - the ability to focus on a clear objective and to subordinate other interests to that objective. Attention to small details embedded in the objective is critical for getting things done.
- iii. *Successfully reading the behaviour of others* - the ability to understand who the key players are, their positions and what strategy to follow in communicating with and influencing them.
- iv. *Adaptability and flexibility* - the ability to modify one's behaviour. This requires the capacity to re-direct energy, abandon a course of action

that is not working, and manage emotional or ego concerns in the situation.

- v. *Motivation to engage and confront conflict* - the ability to deal with conflict in order to get done what you want accomplished. The willingness to take on the tough issues and challenges and execute a successful strategic decision is a source of power in any organisation.
- vi. *Subordinating one's ego* - the ability to submerge one's ego for the collective good of the team or organisation. Possessing this attribute is related to the characteristics of adaptability and flexibility. Depending on the situation and players, by exercising discipline and restraint an opportunity may be present to generate greater power and resources in a future scenario.

The literature as reviewed above gave the researcher an insight to critically examine the underlying processes involved in the application of organisational politics and power in the process of developing and implementing IT strategy in an organisation. Based on the review, the researcher identified the following broad themes or concepts related to organisational politics: domination, exclusion, inequality of power, conservatism, disinformation, coercion, self-interest, rivalries, tension, preferences, lack of trust, generation gap and conflict. From these the following three main factors were singled out.: domination and control of managerial capacity which includes authority; the significance of stocks of knowledge and unwelcome consequences for the development and implementation of IT strategy. The latter in particular, derives from self-interest, lack of trust, rivalries, etc. This guided the researcher in exploring:

- i. the managerial power as vested in the IT managers by the rules and regulations of the organisation in the process of development and implementation of IT strategy.
- ii. organisational politics involved in the process of resource control during the development and implementation of the IT strategy of the organisation.
- iii. through collective bounded rationality, shared roles and responsibilities of homogeneity as defined by the rules and regulations, how non-conformity is treated as illegitimate and which of the actors dominated in the course of development and implementation of IT strategy in the organisation.

The following section is devoted to a review of the two theories that underpin the research, namely, Structuration Theory and Actor-Network Theory.

2.4 Underpinning Theories

As indicated in Chapter One, this research is underpinned by the theories of Structuration and Actor-Networks. This means more than that the research was just 'guided' by these theories. The data that was collected in the empirical phase of the study, the analysis of the data, and the subsequent interpretation of the results were undertaken using the ontological and epistemological bases implied by the underpinning theories. This aspect is elaborated on in Chapter Three, but now the two theories are first reviewed, starting with Structuration Theory.

2.4.1 Structuration Theory

This section provides a brief overview of Structuration Theory (ST). Also covered in section 2.4.4 is how Structuration Theory is applied in the field of Information Systems research. This section is divided into four subsections. The first subsection outlines the key elements of Structuration Theory. The second subsection provides a summary of Structuration Theory, and the third subsection focuses on Structuration Theory in Information Systems. The last subsection briefly

touches on the use of Structuration Theory in conjunction with other theories. The section draws mainly upon the work of Giddens (1984).

This research applies Structuration Theory to examine the types of structures that exist during the development and implementation of IT strategy, and the structures that actually emerge as a result of human action in the computing environment of the organisation.

2.4.1.1 Key Elements of Structuration Theory

Structuration Theory, according to Rose (1998), "seeks to show how the knowledgeable actions of human agents discursively and recursively form the sets of rules, practices and routines which, over time and space constitutes ... structure". Structuration Theory proposes a duality of structure, which means that the structural properties of social systems, which include both rules and resources, are both the medium and the outcome of the practices they recursively organise. The structural properties of social systems do not exist outside of action but are chronically implicated in its production and reproduction (Giddens, 1984). Thus, structure and action are recursively dependent on each other (Orlikowski & Robey, 1991).

Social activity (agency) and structure (rules and resources) exist in a dual relationship with each other such that they tend to produce and reproduce each other in an ongoing cycle. Structuration Theory views groups or organisations as systems with observable patterns of relationships and communicative interaction among people creating structures. Only through the activities of human actors can structure exist (Orlikowski, 1992). Giddens (1984) argues that structure and agency are a duality that cannot be conceived of apart from one another. Through human activities, individuals create both their consciousness and the structural conditions that make their activities possible.

The key elements of Structuration Theory are Agency, Structure and Duality of Structure. These elements are discussed below.

Agency

Agency refers to humans' ability to act. According to Giddens (1984), human agency has the 'capacity to make a difference'. Also, the loss of the capacity to make a difference is powerlessness. Hence, agency is intimately connected to power.

Structure

Structure is both the means and outcome of the practices that constitute social systems. Structure can be seen as both the medium and the outcome of human agency in conjunction and collaboration with the facilities and or resources used.

In Giddens' (1984) notion, structure refers, in social analysis, "to the structuring properties allowing the binding of time and space in social systems, the properties which make it possible for discernibly similar social practices to exist across varying spans of time and space and which lend them a 'systemic' form".

According to Giddens (1984), structure has two components: rules and resources. Rules are seen as being either normative or interpretative:

- i. **Normative** - Normative rules represent structures of legitimation. The social agents translate normative rules as specific rights and obligations (e.g., norms). The rights and obligations are accompanied by sanctions or rewards. The legal institutions of a society are examples of a legitimating social structure. The normative rules, such as privileging private property rights, are translated into laws directed against theft which impose sanctions upon those members of society who act contrary to the rules and or laws.

- ii. **Interpretative** - Interpretative rules create signification or meaningful symbolic systems that provide ways for actors to see and interpret events. Agents reflexively apply interpretative schemes and stocks of knowledge. The result is communication among the social agents. The signifying structure represents the general rules of language. The mediating dimensions are the application of syntax or grammars and semantics that give the language its specific form and meaning as well as the knowledge and experience of the agents.

The second component of structure is resources. Giddens (1984) identifies two categories of resources, which are allocative and authoritative. Allocative resources relate to material, or economic, resources such as materials, natural resources, etc. and result from human domination over nature. Authoritative resources are nonmaterial resources, such as human beings, and result from the domination of some actors by others. These resources provide the means or facilities for realising specific goals or social objectives. The realisation of such goals results in the manifestation of power by those agents controlling the resource.

Duality of Structure

According to Giddens (1984), structural properties are both the medium for and the outcome of the conduct it recursively organises. One of Structuration Theory's contributions relates to the "reciprocal, mutually reinforcing, nature of agents and structure interaction. Conceptualising structure as flexible and recognising that rules and resource control mechanisms are continually reinforced and or redefined through agent action, enables a dynamic view of ethics within the organisation. The duality of structure focuses on the processes through which legitimating structures evolve and are reconstituted by action".

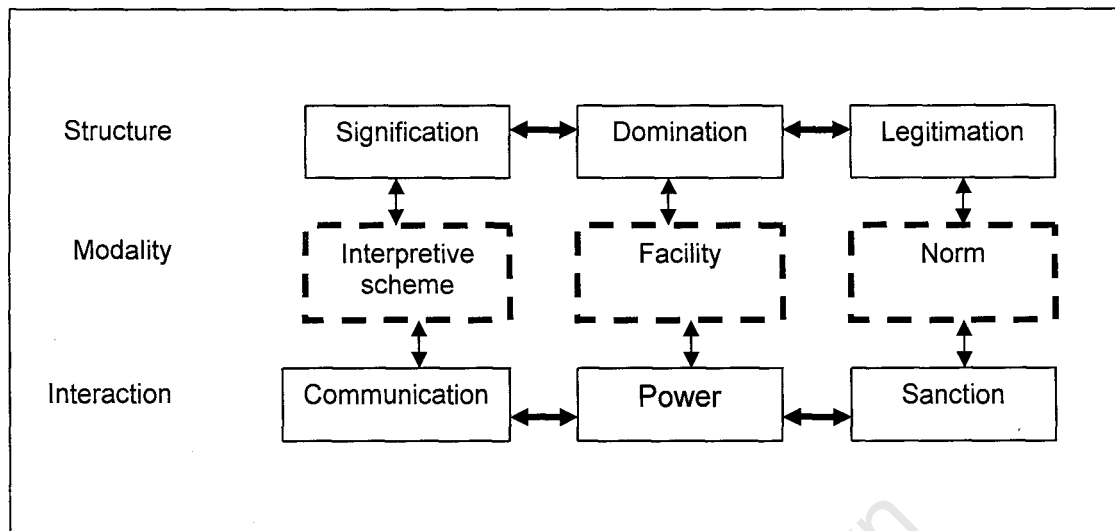


Figure 6: Dimensions of the Duality of Structure (Giddens, 1984)

No organisation has the total power to determine what the choice(s) of an actor will be in a particular circumstance. Giddens (1984) advocates an action and structure duality; the actor by virtue of interaction with the organisation being both constrained by and, in a sense, creating the structure(s) of the organisation. This results from modalities that link particular types of interaction with particular structural elements Giddens (1984). The three key types of modality are *interpretative schemes*, *facilities* and *norms*. This is diagrammatically shown in Figure 6 above.

The duality of structure helps in understanding the contextual dynamics within which ethical dilemmas are resolved. Structures embody the ethical norms, which influence actions. Actions by agents may lead to changes in how rules and resources influence interactions and to the reinforcement of the norms upon which these interactions are based. Once in place, the new processes foster further changes through interacting modalities.

In the process or event of change (as a result of implementation of, for example, IT strategy), in a structure by the structure, Giddens (1984) provides a model, 'dimension of change' to help understand the level of the change that is likely to take place. The dimension of change is discussed in the next section.

Dimensions of Change

In the process of implementing IT strategy, change occurs. Giddens (1984) provides a model for the dimensions of social change. The dimensions of change are presented in Figure 7 below and consist of:

- i. Origin – this is referred to as the original source of the episode.
- ii. Type – this is an indication of how extensive or intensive a change could be. In other words, how profoundly a series of changes disrupts or reshapes an existing alignment of institutions.
- iii. Momentum – this refers to the rapidity at which change occurs.
- iv. Trajectory - defines the overall direction of change.

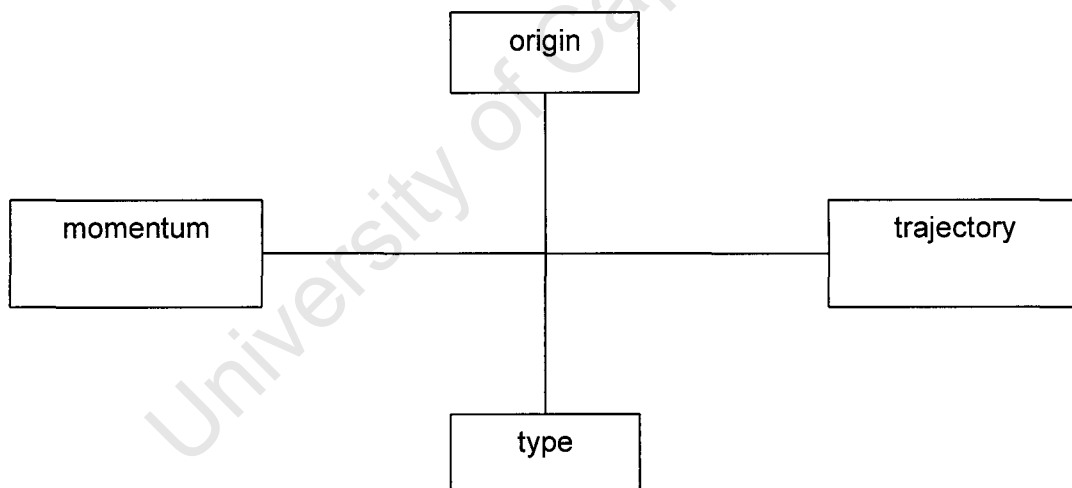


Figure 7: The dimensions of social change (Giddens, 1984 p 245)

Giddens' (1984) 'dimensions of social change' focus on two aspects of social practice: regularity and change. It takes into account the need to represent situations in terms, from familiar to practitioners and to explicitly consider IS as an integral part of social practice. Rose & Hackney (2002) argue that Structuration Theory has a very important role and is very substantial to the development and use of technology in the organisations that deploy it.

The key elements of Structuration Theory have been discussed above. A summary of the theory (ST) as it applies to this research, is covered in the next section.

2.4.1.2 Summary of Structuration Theory

One of the main propositions of Structuration Theory is the duality of structure which implies that the rules and resources drawn upon in the production and reproduction of social action are at the same time the means of system reproduction (Giddens, 1984).

Giddens (1984) expands the traditional view of social structure as constraining interaction by recognising that interaction creates the structures of constraint to which it is subjected. Giddens also sees structures as not only constraining but also enabling interaction. In the theory of structuration, structure is made by interacting individuals whose activities are constrained by structure even as they form the patterns that are then recognised as structure (Hatch, 1997).

Human action is composed of structures of meaning, power and moral frameworks. Giddens (1984) offers three modalities that link human action to social structure. These include interpretative schemes (the structure of signification), resources (the structure of domination), and norms (the structure of legitimation):

- i. Interpretative schemes: standardised and shared stocks of knowledge that people use to interpret behaviour and events, and thereby achieve meaningful interaction.
- ii. Resources: either authoritative or allocative, they are the means for exercising power, accomplishing goals, realising intentions.

- iii. Norms: rules for sanctioned or appropriate conduct, defining the legitimacy of interaction within a setting's moral order (Orlikowski & Robey, 1991).

Rose (1998) refers to Clark's (1990) summary of Structuration Theory as a series of interrelated propositions:

- i. "The main substantive focus of social theory is not individual action and the experience of the individual actor (methodological individualism), nor the existence and requirements of some kind of societal totality (structural functionalism and, to a certain extent, Marxism, but *social practices*. It is social practices which lie at the root of the constitution of both individuals and society.
- ii. Social practices are accomplished by knowledgeable human agents with 'causal powers' i.e. powers to make a difference. Human agents are neither cultural dopes nor simply the product of class forces. They have a capacity for selfreflection in day-to-day interaction, a practical, often 'tacit' consciousness of what they are doing and an ability under certain circumstances to do it.
- iii. However, these social practices are not random and purely voluntaristic, but ordered and stable across space and time, in short they are *routinized and recursive*. In producing social practices, which make up the visible patterns which constitute society, actors draw upon 'structural properties' (rules and resources) which are themselves institutionalized features of societies.
- iv. Structure is therefore activity-dependent. It is both the medium and outcome of a process of 'structuration' - the production and reproduction of practices across time and space. This process is what Giddens has called the 'double hermeneutic', the double involvement of individuals and institutions. Put

perhaps more truistically: we create society at the same time as we are created by it (Giddens, 1984 p 14)".

The next section discusses the application of Structuration Theory in the information systems field.

2.4.1.3 Structuration Theory and Information Systems

Structuration Theory has been applied in many discourses within information systems study. This includes Walsham & Han (1991), Orlikowski & Robey (1991), Orlikowski (1992) and, Walsham & Sahay (1999). Pozzebon & Pinsonneault (2005), suggest that "...more than simply acknowledging that IT structural properties might 'enable or constrain human action', the value of Structuration Theory to the IT field is to provide IT researchers with a theoretical approach that helps them understand how users' interactions with IT evolve, what the implications of these interactions are and how can we try to deal with their intended and unintended consequences".

Walsham & Han (1991) reviewed and analysed the literature concerning information systems study and Structuration Theory under the headings of operational studies, its use as a meta-theory and the use of specific concepts from the theory. On the other hand, Jones (1999) classified the uses of Structuration Theory in IS research into four main types:

- i. The modification of the theory to accommodate the construct of technology, e.g., the structurational model of technology (Orlikowski, 1992).
- ii. The application of the theory to analyse IS cases and to explore the theory's strengths and limitations in empirical research.

- iii. Its use as a meta-theory, a general approach to look at actions, perceptions and structure and their interconnections.
- iv. A selection of Giddens' concepts in combination with newer theories such as Actor-Network Theory to guide IS research (Walsham & Sahay, 1999).

Over the years, many researchers have adapted Structuration Theory in the information systems field. This includes Orlikowski (1992). According to Orlikowski & Robey (1991), Structuration Theory is applied to help understand the relationship between IT and organisations.

Orlikowski (1992) developed a model (see Figure 8 below) relating human actors, IT and institutional properties. This model aligns with the explanation of Giddens' (1984) *modalities*. It is enacted through the medium of IT, and is a framework for investigating the interaction of human actors and social structure during information systems development, which is grounded in the concepts of duality of structure. She says:

"I propose that it should be considered as one kind of structural property of organisations developing and/or using technology. That is technology embodies and hence is an instantiate of some of the rules and resources constituting the structure of organisations".

(Orlikowski, 1992)

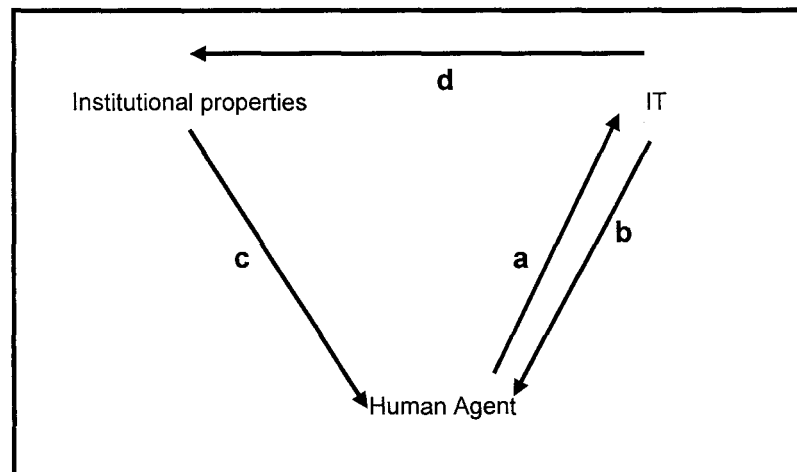


Figure 8: Structural Model of Technology (Orlikowski, 1992)

a – IT as a product of human agency: IT is a product of human action within specific contexts. However, IT does not limit itself to the simple fact that designers often play a crucial part in the creation of IT.

b – IT as a medium of human action: IT facilitates and constrains human action, and thus contributes to the creation, recreation and transformation of the particular contexts as the strategy dictates. Thus, IT can function as a resource for, as well as a restriction upon human action. This is, in essence, the duality of technology.

c - Institutional conditions of interaction with technology: Within the scope of the organisational vision, IT strategy is formulated, implemented and used. The rules, norms and procedures that, taken together, create a specific culture in an organisation are institutionalised over time. This affects the human actors and is also reflected in the application of technology.

d - Institutional consequences of interaction with technology: Actions as a result of interactions with the technology often have intended and unintended consequences. As described above, the organisational

resources and norms that constitute an organisation's systems of signification, domination and legitimisation constructs and applies IT in a specific context.

Orlikowski (2000) developed a structurational approach which Rose and Jones (ibid.) describe as an "...account most consistent with Giddens' intentions". She acknowledges that her (Orlikowski, 1992), is 'problematic', because it 'ascribes a material existence to structures which Giddens explicitly denies'. According to Giddens:

"... a position I want to avoid, in terms of which structure appears as something 'outside' or 'external' to human action. In my usage, structure is what gives form and shape to social life, but is not itself that form and shape – nor should 'give' be understood in an active sense here, because structure only exists in and through the activities of human agents."

(Giddens, 1989, p 256)

Orlikowski (2000) extended the structurational perspective on technology to a "practice-oriented understanding of the recursive interaction between people, technologies, and social action". The notion of embodied structure was complemented with that of emergent structure, and the notion of user appropriation with that of enactment.

"This practice lens posits humans as constituting structures in their recurrent use of technology. Through their regularized engagement with a particular technology (and some or all of its inscribed properties) in particular ways in particular conditions, users repeatedly enact a set of rules and resources which structures their ongoing interactions with that technology. Users' interaction with a technology is thus recursive – in their recurrent practices, users

shape the technology structure that shapes their use. ... Technology structures are virtual, emerging from people's repeated and situated interaction with particular technologies. These enacted structures of technology use, which I term technologies-in-practice, are the sets of rules and resources that are (re)constituted in people's recurrent engagement with the technologies at hand."

(Orlikowski 2000:407)

Based on Giddens' model, Orlikowski presents a structurational model as shown in Figure 9 below.

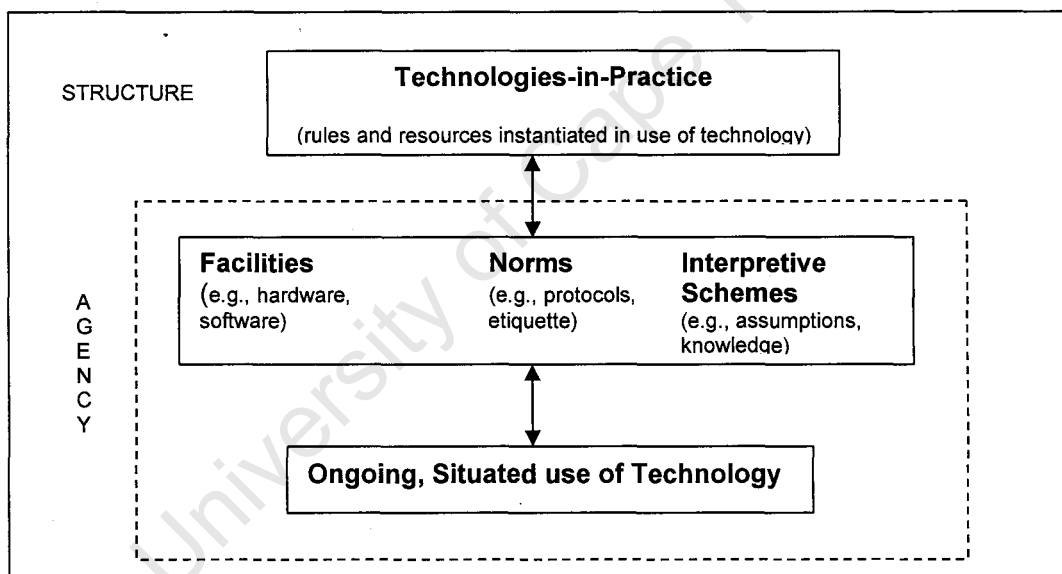


Figure 9: Enactment of Technologies-in-Practice (Orlikowski, 2000)

These technologies-in-practice, according to Orlikowski (ibid.), "can be and are changed as actors experience changes in awareness, knowledge, power, motivations, time, circumstances and the technology. ... People may change their technologies-in-practice by deliberately modifying the properties of their technology and thus how they interact with it. Even when a technology appears to have stabilized, with the discourse around its properties and functionality apparently having reached 'closure' ... the stability of the technology and its applications is

only provisional. It is provisional because different elements continue to be developed, existing functions fail and are fixed, new materials are invented, new standards are set, and users modify the artifact and/or its content for new and different uses. Technologies are thus never fully stabilized or 'complete', even though we may choose to treat them as fixed, black boxes for a period of time."

An important aspect of Orlikowski's modified structurational model of technology is that through enactment, rather than appropriation, it is made clear that the actual use of a technology cannot be delimited by its designers. Designers and developers imbue a technology with a set of properties (inscriptions), and these technological properties, representing their intentions for the use of the technology, may be the basis for a 'predicted' or typical range of activities commonly associated with the technology.

"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." ... Use of technology is not a choice among a closed set of possibilities, but a situated and recursive process of constitution, which – while it may often invoke intended activities or replicate familiar uses – may also and at any time ignore such conventional uses or invent new ones."

(Orlikowski, 2000:409)

Barley (1986) addresses information systems from a structurational perspective. He applied Structuration Theory to understand how the introduction of computed tomography (CT) scanners into radiology departments of two hospitals led to different social realities in the two similar environments. Barley investigated how the actions of the stakeholders and the institutionalised traditions within the organisation influenced each other as occasions for structuring.

Walsham & Sahay (1996) use Structuration Theory with Actor-Network Theory to investigate problems in developing Geographical Information Systems in an Indian government department.

Orlikowski (1992 and 1993), applied Structuration Theory to theorise aspects of the information systems field in different contexts. Besides applying Structuration Theory in research, Orlikowski (1992) applied Structuration Theory as a starting point to develop the structural model of technology (see Figure 8 above), in which the notion of the duality of technology was introduced. The *duality of technology* aims to eliminate the dichotomy between the objective view of technology as hardware, equipment, machines, and instruments (Barley, 1986) and the social view of technology. Technology has a physical component as a material artefact and a social component constituted of the different meanings actors attach to it and the features they emphasise and apply. In her later work (see Figure 9 above), Orlikowski (2000) extended the structural perspective on technology to a “practice-oriented understanding of the recursive interaction between people, technologies, and social action”.

Walsham (1993 and 2001) made significant contributions to the application of Structuration Theory in information systems research. Structuration concepts have been applied to inform research in a variety of case studies analysing the linkage between context and process of information systems strategy, design, and policy development (Walsham & Sahay 1999, Walsham 1993 and Walsham 2001). Walsham & Sahay (1999) combine the informative character of Structuration Theory with the methodological component of Actor-Network Theory to investigate problems in developing Geographical Information Systems in an Indian government department.

Structuration Theory is useful in information systems field research to provide an informed account of social practices in a field dominated by technical

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Structuration Theory is useful in information systems field research to provide an informed account of social practices in a field dominated by technical

considerations. Its sociological theorising and analysis offers a rich understanding of social action that informs information systems practice.

From the perspective of Structuration Theory, organisational change is the joint effect of the actions of individuals interacting with structures (rules and resources) within institution. These structures both enable and constrain the daily actions and thought processes of people, but do not wholly determine them. Individual choices are not independent of the structures within which they take place but they can move toward maintaining, reinforcing, changing or even destroying them.

Such an interplay between individuals and structures was conceived as the duality of structure and is one of the sources of reasoning leading to the acceptance that the organisational changes that emerge in similar situations are not completely predictable. In summary, Giddens' theoretical formulations provide a useful framework for exploring the ongoing interactions that inform the organising process.

The identification and analysis of information systems studies, which used a structural perspective, lead Pozzebon & Pinsonneault (2000) to recognise similarities and differences in how Information Systems researchers have interpreted and applied Giddens' ideas. Their analysis is based on the four dimensions proposed by Burrell & Morgan (1979): human nature, ontological, epistemological and methodological assumptions. Accordingly, Giddens' Structuration Theory has been applied in three different ways in the IS field: adaptive structuration, mutual shaping, and actor's organising perspectives.

Structuration Theory offers a subtle and detailed view of the constitution of social life. Its analytical dimensions through the duality of structure and its associated modalities could be very detailed and helps in an empirical analysis in some instances.

2.4.1.4 Using Structuration Theory with other Theories

The most popular current theory is that of Callon and Latour, Actor-Network Theory (Jones 1997, Monteiro & Hanseth 1996, Walsham & Sahay 1999). This theory may help to address the abstract nature of Structuration Theory (being more empirically focused) and the absence of specific reference to IT (since it theorises the social construction of technology). In addition the study of how networks which include technology form and become stable may help address the problem of understanding how some social practices become institutionalised (successful) where others do not. The next section thus discusses Actor-Network Theory (ANT).

2.4.2 Actor-Network Theory

This section is divided into three subsections. The first subsection covers the concepts of Actor-Network Theory, particularly the Sociology of Translations. The second subsection discusses the application of Actor-Network Theory in information systems research. The third subsection outlines the limitations of the theory.

More than two decades ago, three sociologists Michel Callon (1987), Bruno Latour (1982) and John Law (1986a) in collaboration developed Actor-Network Theory (ANT). These sociologists, over the years, (Callon, 1986, 1991, Latour, 1986, 1987, 1996 and Law, 1986a, 1986b and 1988) consistently improved and defended Actor-Network Theory. ANT aims to understand the processes that lead to the construction and transformation of socio-technical networks (Callon & Law, 1989). The next section discusses the concepts of actor-network theory.

2.4.2.1 The Concepts of Actor-Network Theory

An actor-network consists of actors linked together through various interests. Actor-network theory is a highly influential theory within the sociology of science that seeks to explain and interpret social and technological developments. ANT gives privilege to neither technical nor non-technical factors. Instead, it incorporates a “principle of generalised symmetry”, where both human and non-

human elements are considered actors or actants and both elements are capable of affecting each other. ANT emphasises the heterogeneous nature of actor networks which consist of and link together both technical and non-technical elements (Callon, 1991).

ANT focuses on how people and objects are brought together in stable, heterogeneous networks of aligned interests through processes of translations and negotiations (Callon, 1986; Law, 1991; and Callon & Law, 1989). Latour (1996) emphasises that heterogeneous networks overcome issues related to identity, and avoid arbitrary dichotomies and structures. According to Latour, the heterogeneity is reflected in different organisational principles that are in simultaneous action. The combination makes it possible to engage in a balance between identified and or known different interests and values.

According to Latour, each element in the network is simply defined by the heterogeneous list of its associates. Entities are hence defined through their existence and their specific associations with other entities and they are not substitutable. The elements, whether human or non-human, within a network acquire power through the number, extensiveness and stability of the connections routed through them. Although there has been debate about the philosophical validity of giving equal status to human beings and non-human artefacts, the notion is perhaps less revolutionary in the field of information systems (Walsham, 1997).

Some of the strengths of Actor-Network Theory are:

- i. ANT attempts to answer how a diverse group of actors reach agreement at all; that is, how a social order establishes a certain degree of stability or exhibits structural properties. According to Actor-Network Theory, stability is the result of the social process aligning an initially diverse collection of interests into an acceptable stability (Callon, 1991).

- ii. ANT provides a fresh perspective on the importance of relationships between actors, which are both human and non-human. This perspective is very important in the development and implementation of technology in the organisation. Both the development and implementation of technology require the process of negotiation, interest and norm (Akrich, 1992).
- iii. The relational and process-oriented sociology of ANT provides a solid theoretical underpinning for unravelling and understanding the impact human and non-human elements have on each other (Tatnall & Gilding, 1999).
- iv. ANT offers a precise and non-functionalist account of how actors become established as powerful through the stability of the networks that pass through them. The actor (human or non-human) that is an obligatory passing-point in a network has 'power', and the more networks where that is true, the more 'power' that actor has. As a result, over time, the ability of an actor to act effectively on a larger scale becomes established (Callon, 1991).
- v. ANT systematically avoids methodological dualism. This is the drawing of a *a priori* distinction between technical and non-technical elements (Bloomfield & Vurdubakis, 1997). This simplifies the complexity of assumption and pretence of dealing with two separate, but related, ontological domains. They should rather be regarded as phases of the same essential action (Latour, 1991).

The ANT perspective attempts to explain and interpret social and technological evolution using neither technical-material nor social reductionism. Rather, it incorporates principles that integrate both humans and non-humans into the same conceptual framework. The treatment of both human and non-human actors by

Actor-Network Theory is based upon three principles: agnosticism, generalised symmetry and free association (Callon, 1986):

- i. Agnosticism – (meaning analytical impartiality) is demanded towards all the actors involved in the study, whether they are human or non-human.
- ii. Generalised symmetry - offers to explain the conflicting viewpoints of different actors in the same terms by use of an abstract and neutral vocabulary that works the same way for human and non-human actors. According to Tatnall & Gilding (1999), neither the social nor the technical elements in these 'heterogeneous networks' should then be given any special explanatory status.
- iii. Free association - requires the elimination and abandonment of all *a priori* distinctions between the technological or natural, and the social aspect (Callon, 1986).

ANT has frequently been revised and extended, and there is, therefore, no unified body of knowledge. There are, however, some relatively stable key elements of the theory (Walsham, 1997). Walsham (1997, 2001) identified the following key concepts of Actor-Network Theory (see Table 1 below):

Concept	Description
Actor (or Actant)	Any material, i.e., human beings or non-human actors
Actor-network	Related actors in a heterogeneous network of aligned interests
Translation	How actors generate ordering effects by negotiating or manoeuvring others' interest to one's own with the aim to mobilise support
Inscription	Embodied translations into a medium or material
Enrolment	Mobilise support by creating a body of allies through translations
Irreversibility	The degree to which it is subsequently impossible to go back to a point where alternative possibilities exist
Black box	A temporary simplification of a network that acts as a single unit so that the network effaces into one actor
Immutable mobile	A materialised translation that can be interpreted in essentially the same way in a variety of contexts

Table 1: Summary of ANT Concepts (Walsham, 1997)

The concepts are discussed below.

Actor or Actant - *Actors* are defined as all entities that are able to connect texts, humans, money, etc., to build more or less effectively a world that is filled with other entities having their own history, identity and relations (Callon, 1991).

Actor-Network - When actors and their interactions are taken together they form a network. An actor-network that is known and predictable in a certain situation and context can be assimilated into a black box. Such a punctualisation is a temporary simplification of a network that acts as a single unit so that the network behind can be effaced into one actor (Callon, 1987; 1991; and Law, 1992). Latour (1997) cautions us about the differences between an ANT network and technical or social

networks. In the concept of ANT, social networks exclude non-human actors in the same way that technical networks exclude the human. Thus, ANT networks incorporate both, with the linkages consisting of stabilised translations and interactions between actors.

Translation - Translation implies transformation, which refers to how actors engage with other actors to generate ordering effects (Callon, 1986; and Law, 1992). Callon (1991) emphasises that translation goes beyond the traditional definition of action as it deals with mutual definition and inscription. Actors negotiate or manoeuvre others' interest to their own with the aim of enrolling actors into the network. When such translations get embodied into a medium or material, they are referred to as inscriptions (Akrich, 1992). Such inscriptions prescribe a program of action for other actors, although they can vary in strength and flexibility (Hanseth and Monteiro, 1996).

Inscription - Inscription is the act of proposing a pattern of use as the solution followed by the attempt to enforce it onto others. Whether inscription is followed or avoided, depends on the irreversibility of the organisational rules and regulations. Inscriptions may lead to irreversibility, which refers to both the degree to which in a certain situation it is impossible to go back to a point where alternative possibilities exist, and the extent to which it shapes and determines future translations (Callon, 1991; Hanseth & Monteiro, 1996). A materialised translation, hence mobile, that can be interpreted in essentially the same way in a variety of contexts (i.e., relatively stable in space and time) is referred to as an immutable mobile. Such immutable mobile entities often possess strong properties of irreversibility, e.g., information technology architecture standards in the computing environment.

Enrolment - ANT proposes that enrolling allies creates aligned interests and the translation of their interests must be such that participation will lead to the network's maintenance. A form of translation is required to align individuals' perception with their ambitions and interests.

Latour (1987) suggests it is necessary:

“... to pass through the contenders’ position and to help them further their interests. In the linguistic sense of the word translation, it means that one version translates every other, acquiring a sort of hegemony: whatever you want, you want this as well”.

(Latour, 1987)

Irreversibility - Irreversibility is a measure of how difficult it is to undo decisions and the extent to which these determine subsequent ones. The degree of irreversibility of a network may be regarded as a process of institutionalisation. This operates both ways: an increased degree of irreversibility is signalled by a firmer institutionalisation and, the other way around, the construction of institutions functions as a way to align the network and make it increasingly irreversible. According to Callon (1991), the degree of irreversibility depends on (i) the extent to which it is subsequently impossible to go back to a point where that translation was only one amongst others and (ii) the extent to which it shapes and determines subsequent translations.

Black Box - Within ANT, when enough cohesion is obtained in order that an organised whole is formed from an assembly of disorderly and unreliable allies, when “many elements are made to act as one” (Latour, 1987) then a ‘black box’ can be said to have been created. A black box has properties of irreversibility, for it cannot be easily disassociated, dismantled, renegotiated or re-appropriated. Networks that are anchored in places to black boxes will therefore tend to be more stable and resilient than those that are not.

Social is not simply human, other materials are involved (Law, 1992). That is, when people interact with other people, the interaction is mediated through objects of various kinds, and such interactions are in turn mediated through additional

networks of objects and people. These various networks both participate in and shape the social, and therefore, if the material in these networks were to disappear, then the social order(s) would too (Law, 1992). Hence, the view in ANT is that a particular order is an effect generated by heterogeneous means. An actor is seen as produced from or as an effect of these heterogeneous relations between people and objects, and an actor is also, always, a network (Law, 1992).

2.4.2.2 Sociology of Translation

Translation is a key concept in Actor-Network Theory. Hence, Actor-Network Theory is also called the 'sociology of translation'.

Latour (1991) argued that there is no social dimension to existence, but rather that 'the social' is always already technical, just as 'the technical' is always already social. Latour's (1991) aim is:

“. . . to avoid the twin pitfalls of sociologism and technologism. We are never faced with objects or social relations, we are faced with chains which are associations of humans . . . and non-humans . . . No one has ever seen a social relation by itself . . . nor a technical relation”.

(Latour, 1991)

Interactions between actors are the primary building blocks of actor-networks and their many manifestations are called 'translations' (Callon 1986; Latour 1987; Latour 1997). Between human actors, the translation of interests is roughly analogous to persuasion and the negotiation of common interests. Between humans and objects, translation occurs during design when the object is imbued with its purpose, program or script as to how it would interact with or affect other actors (Akrich, 1992). Further translation takes place between the object and the actors it encounters as the initial program or script is altered through interaction.

According to Callon (1986), the translation process follows four stages. Figure 10 below depicts the four stages of the process of translation and indicates the possibility of repeat cycles upon unsuccessful moments of translation:

i. **Problematismation or how to become indispensable**

This is the first stage of the translation process. In this stage, an actor problematises an issue. An actor analyses, defines and proposes a solution for the problematised issue. The idea of problematisation is to foster relationships, and to allocate and reallocate power between involved actors. Problematismation describes a system of alliances, or associations, between entities, thereby defining the identity and what they want.

Callon (1986) refers to an Obligatory Passage Point (OPP) as a situation that has to occur in order for all the actors to satisfy the interests that have been attributed to them by the focal actor. The focal actor defines the OPP through which the other actors must pass and by which the focal actor becomes indispensable.

The OPP broadly refers to a situation that has to occur in order for all the actors to satisfy the interests that have been attributed to them by the focal actor.

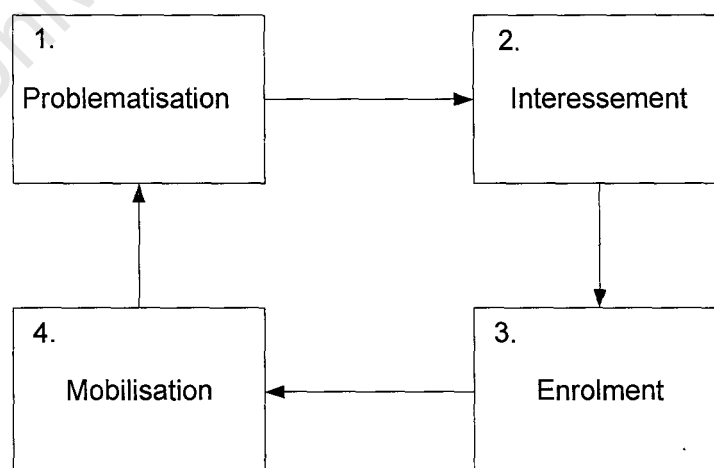


Figure 10: Four Moments of Translation (Callon, 1986)

Each entity enlisted during problematisation can submit to being integrated into the initial plan, or inversely, refuse the transaction by defining its identity, its goals, projects, orientations, motivations, or interests in a different way. In fact, the situation is not always simple. As the stage of problematisation has shown, it would be absurd for the observer to describe entities as formulating their identity and goals in a totally independent way. They are formed and are adjusted only through interaction. Problematisation is followed by the *Interessement* moment of translation.

ii. **'Interessement' or how the allies are locked into place**

Interessement is the set of actions by which an entity attempts to impose and stabilise the identity of other actors in the same network for the cause of problematisation.

As described by Callon (1986), this is the second stage in the process of translation. It involves a process of convincing other actors to accept the solution proposed by the focal actor. The initiators seek to lock the other actors into the roles that are proposed for them. In other words, actors are engaged in the process of confirming the OPP. This succeeds when other actors become interested in the solution proposed. They change their affiliation to a certain group in favour of the new actor. The next moment of translation is enrolment.

iii. **Enrolment: How to define and coordinate the roles**

Enrolment is the third stage of translation. It involves the consolidation of the alliances through bargaining and mutual concessions. As defined by the focal actor, the solution is accepted as a new concept through the process of negotiation. A new network of interests is created or generated. Actors accept the roles defined for them when enrolling in the network (Callon, 1986). ANT proposes that enrolling allies creates aligned interests and the translation of their interests must be such that participation will lead to the network's maintenance. Enrolment

can be seen as a successful outcome of the '*problematization*' and the '*interessement*' processes.

iv. The Mobilisation of allies: The spokespersons as representatives

In this (the last) stage, a set of methods is used to represent the group effectively. "Who speaks in the name of whom?" (Callon, 1986). Some actors are used as (new) initiators. They become delegates or spokespersons for the focal actor. The new network starts to operate in a target oriented approach to implement the solution proposed. According to Callon (1986), through mobilisation of allies, actors become legitimate spokespersons of the groups they claim to represent. This leads to strengthening and stabilisation of the network.

In a stabilised network, irreversibility is key for consistency and success. Network building is a search for stability which is achieved when changes set in train during network construction become irreversible (Callon, 1991; Law & Callon, 1997), either because it would be too costly to reverse them or because to do so becomes unthinkable. Callon's (1991) concept of irreversibility describes how translations between actor-networks are made durable and how they can resist assaults from competing translations.

Convergence is the degree of understanding and accord achieved by a series of translations (Callon, 1991). According to Callon (1991), convergence measures the extent to which the process of translation and its circulation of intermediaries lead to agreement. It involves alignment, or the extent to which translation *generates* a shared space, equivalence and commensurability. Controversy is a betrayal in convergence in the process of translation. According to Callon (1991), convergence and irreversibility of techno-economic networks are both involved in the acts of translation and the networks that they sometimes succeed in forming.

As in the case of irreversibility, convergence can increase or decrease. The sizes of networks make the creation of *black boxes* inevitable. The larger the network becomes, the more it attempts to resist instability.

The next two subsections discuss the relevance and application of ANT within the information systems research field.

2.4.2.3 The Role of Actor-Network Theory in Information Systems Research

The application of ANT in information systems research is increasing. ANT has been used in many interpretative case studies such as Walsham & Waema (1994), Bowker & Star (1996), and Hanseth & Monteiro (1996).

Bowker & Star (1996) suggest that treating classifications and standards with ANT allows political and ethical issues to be addressed, in part by making infrastructure non-transparent.

Hanseth & Monteiro (1996) make use of the concepts of translation and inscription in their study of information infrastructure and analyse case studies of standards development for information infrastructure building.

In different studies, some of the ANT concepts described above could be used for understanding attempts to build socio-technical information systems, which are adopted within an organisation. Some of the examples are as follow:

Bloomfield & Vurdubakis (1997) successfully apply the notions of intermediation and translation in their research of the use of IT in the British National Health Service.

There has been interest in using the concepts in a variety of ways. Walsham (1997) reviewed a number of papers in the information systems research literature that make use of Actor-Network Theory, and *inter alia*, discussed Boland &

Schultze's (1996) description of the process of translation in activity-based costing and accounting technology; the process of inscription and translation in the role of standards in EDI systems in the Norwegian health sector (Monteiro & Hanseth, 1996); the attempted translation of interests in a car park system (Vidgen & McMaster, 1996) and how and why the attempts at translation and alignment of interests around the development and use of administrative geographic information systems in India were a relative failure (also see Walsham & Sahay, 1999).

According to Walsham, some information systems researchers either explain the technology at the expense of explaining the social interactions, or conversely portray social interaction without giving a detailed description of the technological inscriptions. Walsham also outlines some of the existing criticisms and limitations of Actor-Network Theory and classifies them into four broad strands: (i) limited analysis of social structure; (ii) amoral stance; (iii) the problem of generalised symmetry; and (iv) the problem of description. These limitations are discussed later in this section.

2.4.2.4 Actor-Network Theory as an Information Systems research method

According to Monteiro & Hanseth (1996), ANT is an effective way of describing how minute, technical design solutions are interwoven with organisational issues.

Walsham (1997) describes Actor-Network Theory as both a theory and a methodology, in that it allows the empirical researcher to trace and document:

- i. network elements
- ii. processes of translation and inscription
- iii. the creation of black boxes or immutable mobiles
- iv. the degree of stability and irreversibility of networks and their elements.

This is a huge task, especially for a complex network. Actor-Network Theory studies produce a mass of detail, which often leads to lengthy outputs. Examples

are Latour (1992) and Vaughan (1996), which are typical of in-depth sociological case studies.

Commenting on the role of theory in IS research, Walsham (1997) concludes as follows about the use of ANT: "... its use for a wide range of IS studies in the future offers considerable potential for increased understanding of the socio-technical systems which are the focus for IS research".

2.4.2.5 Limitations of Actor-Network Theory

According to Walsham (1997), Actor-Network Theory has limitations and critics, as any other work, study or theory has. In his review, Walsham (1997) recognises four broad strands of criticism: (i) its limited analysis of social structures, (ii) its stance on moral and political issues, (iii) its symmetric treatment of humans and nonhumans and (iv) its tendency to describe as opposed to explain, together with the problem of managing masses of detail. These limitations are discussed below.

i. Social Structures

Actor-Network Theory concentrates on how things get done, to the detriment of how broader social structures shape socio-material practices. It gives interesting accounts of local contingencies and material arrangements without taking into account macro-social structures, which influence the local ones. This has been criticised in many works such as Law (1994) and Walsham (1997). Latour (1991) responds to the criticisms by saying that actor-network methodology can be used to move between levels of analysis, that the macro-structure is of the same make-up as the micro-structure, and that the macro-structure can be investigated with the same methodological tools as the micro-structure.

ii. Moral and political issues

Another criticism is that ANT destroys the credibility of science, by leaving no place for the objective truth that science (allegedly) uncovers. Of course, sociologists deliberately avoid making commitments of this kind (Lee and Brown, 1994).

ANT is said to have disregard for moral and political issues. This disregard affects the macro-structure and has led to criticisms of Actor-Network Theory, and of strong social constructivism and relativism in general, for being amoral and apolitical in that it leads to ignoring the political biases that can underlie the spectrum of choice for relevant actors (Winner, 1993). ANT does not give specific guidelines for examining the ethical and moral implications of IT (Walsham, 1997 and Bijker, 1995). Star (1991) refers to the 'networks of the powerful' and talks about how irreversible networks are only stable for some and discriminate against those who do not belong to the community of practice, those who use and maintain the network. Latour (1991) responds to criticisms of apoliticism and moral relativism as follows:

"Refusing to explain the closure of a controversy by its consequences does not mean that we are indifferent to the possibility of judgments that transcend the situation. For network analysis does not prevent judgment any more than it prevents differentiation. Efficiency, truth, profitability, and interest are simply properties of networks, not of statements. Domination is an effect not a cause. In order to make a diagnosis or a decision about the absurdity, the danger, the amorality, or the unrealism of an innovation, one must first describe the network".

(Latour, 1991)

iii. Symmetric treatment of humans and non-humans

One of the criticisms of ANT is that it uses the same language to describe both human and non-human factors. The use of this same language occurs because ANT introduces symmetry between humans and non-humans by anthropomorphising things. This criticism claims dehumanisation of humans by treating them equally with non-humans.

The symmetry between human and non-human actors, which is related to the symmetry between the social and the technical, society and nature, politics and science, values and facts, has been criticised for having gone too far in eliminating all distinctions and reducing humans to the status of things. But how and in what circumstances actants like computers assume characteristics different from humans is part of the problem to be addressed (Woolgar & Grint, 1991).

iv. Its tendency to describe as opposed to explain

Another criticism of ANT is that it fails to provide explanations for the dynamic restructuring of networks. It is also said that ANT fails to take account of the effects that technology can have on those who are not part of the network and that it also fails to support value judgements on the desirability or undesirability of such effects. ANT tends to recognize only the actors that have a role in a network, and not those that are impacted by the networks (Winner, 1993). According to Latour (1991), describing the network is not only a prerequisite, but also the only way to get explanations:

“The explanation emerges once the description is saturated; if we display socio-network-defining trajectories by actants’ association and substitution defining actants by all the trajectories in which they enter, by following translations and finally, by varying the observer’s point of view – we have no need to look for additional causes. Explanation is the stabilization of a network. If one is capable of explaining effects of causes, it is because a stabilized network is already in place”.

(Latour, 1991)

According to Callon (1991), explanations are only offered by networks which increase their convergence and irreversibility, and this is when the description delivered by intermediaries turn into explanations (and even predictions).

2.4.2.6 Summary of Actor-Network Theory

Actor-network theory provides a platform which allows for the analysis of both humans and non-humans in a network. Thus, it can critically assess problematic sets of explicit and implicit assumptions made from the human perspective on non-humans. The analysis is done through a single register. The use of a single register helps to avoid the need to consider one as context for the other.

ANT provides a fresh perspective on the importance of relationships between humans and non-humans. It focuses attention on the socio-technical networks that humans create to accomplish individual or group goals and interests. ANT emphasises that no one acts alone as there are important roles played by other actors, which include technology, data and finance.

In this research Actor-Network Theory has been complemented by Structuration Theory. This is discussed in the next section.

2.4.2.7 Structuration Theory, Actor-Network Theory and IS

Having indicated the intention to apply both Structuration Theory and Actor-Network Theory in this research in the information systems field, it is important to also indicate that there is no conflict or contradiction in using these two theories in this research. The aim is not to compare and contrast Structuration Theory and Actor-Network Theory, but to highlight their importance and complementary usefulness in the research.

ANT does not distinguish between human and non-human agents and it rejects distinctions between the technical and the non-technical. Its focus can be on the micro, meso or macro level of the establishment of heterogeneous networks of aligned interests, and its use in this study will be to provide a vehicle for understanding the impact of organisational politics on IT strategy development and implementation, with the latter seen as the institutionalised result of the establishment of a network of aligned interests.

Structuration Theory re-conceptualises the classic dualism between subjects and social objects. "The basic domain of study of the social sciences", Giddens (1984) notes, "... is neither the experience of the individual actor, nor the existence of any form of societal totality, but social practices ordered across space and time. Human social activities, like some self-reproducing items in nature, are recursive. That is to say, they are not brought into being by social actors but are continually recreated by them via the very means whereby they express themselves as actors." Structuration Theory thus recasts the classical categories of structure and agency as a duality in a dialectical framework. The contribution of ST is that it provides a means for understanding how social institutions are produced and reproduced over time. Giddens (1984) defines social systems as visibly patterned interdependent networks of actions, where change in one part results in change in another. The Theory of Structuration suggests that human actions simultaneously condition and are conditioned by organisational properties in social contexts.

The different theoretical concepts of Structuration Theory and Actor-Network Theory emphasise different social contexts and facilitate different types of explanations. A limitation of Structuration Theory is that it is a theory of social organisation that explains change in a social system over time (Jones, 1999). As a result of this limitation, Structuration Theory does not allow for the examination of relationships between people and technology, and, for example, how power and values are embedded in the use of technology. Monteiro and Hanseth (1996) argued that Structuration Theory simply does not provide a fine grained analysis of the interaction between individuals and technology.

An interrogation of the relationship between individuals and technology, which Structuration Theory lacks, can be complemented by Actor-Network Theory. ANT is concerned with the interactions between technology and individuals (Law, 1992), and contains a wealth of concepts for understanding the relationship between technology and individuals. The combination and complementary use of Structuration Theory and Actor-Network Theory will allow a more complete

analysis of how IT strategy development and implementation are affected by organisational politics.

The next chapter focuses on the research approach and methodology followed in this research study.

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Contents

3	RESEARCH METHODOLOGY	93
3.1	Introduction	93
3.2	Interpretive Research Approach	94
3.3	The Case Study Strategy	100
3.3.1	Case Study as a Research Approach in Information Systems	102
3.4	Research Questions	105
3.5	Research Design	107
3.5.1	Selection of Case Study Sites	107
3.5.2	Units of Analysis	109
3.5.3	Data Sources	109
3.5.4	Data Collection	109
3.5.5	Data Analysis	113
3.6	Ethical Issues	114
3.7	Summary	115

3 RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the philosophical assumptions underpinning the research, and introduces the strategy and the empirical techniques applied in it. It also defines the scope and limitations of the research design, and situates the work within the context of existing research traditions and approaches in the field of information systems.

The research design, as applied to accomplish the aims of this research, is described. It includes how the data was collected, analysed, and interpreted. The philosophical assumptions underlying the research are informed by the interpretive tradition and approach. This implies a subjective epistemology and the ontological belief that reality is socially constructed. The research strategy adopted was to conduct two case studies in two different organisations. The fieldwork was conducted at the organisations' sites and a steady correspondence was maintained with respect to information sharing and corporate policies. The main data collection techniques used were semi-structured interviews, participant observation, group discussions and document analysis.

The chapter is organised into five main sections. The first section is concerned with the interpretive approach as applied within information systems research. The second section discusses the case study approach as the strategy which has been applied in this research. The third section presents the research questions. The fourth section covers the research design, including the selection of organisations for the case studies, sub-units for analysis, data collection and analysis, and the theoretical framework adopted. In the fifth section, ethical issues are discussed. At the end, the chapter is summarised and a conclusion reached.

The next section, then, covers the interpretive research approach as it applies to the information systems field and, in particular, to this study.

3.2 Interpretive Research Approach

This research investigates the impact of organisational politics on IT strategy within the computing environment of the organisation that deploys it. In such a context, an interpretive research approach (Walsham, 1995, 2006) is appropriate in order to understand influences on the development and implementation of IT strategy within the social context of the organisation. Qualitative research is more suitable for this type of study as it allows for clarification from respondents to questions from the researcher, while the researcher, through close interaction with interviewees, can develop a deeper understanding of the situation. Qualitative research, it has been argued, is a very useful method for complex situations (Boucaut, 2001). The remainder of this section discusses the relevance of the interpretive approach to this research.

In relation to research in Information Systems, Orlikowski & Baroudi (1991) identify three philosophical perspectives. These are the positivist, interpretive and critical research perspectives. A research method can accordingly be either positivist, interpretive or critical (Walsham, 1995). The next three paragraphs discuss these research approaches.

Positivist research in information systems is based upon the assumption that reality is objectively given and that it can be described by reference to measurable properties that are independent of the researcher (Myers, 1997). The positivist approach has been criticised within the information systems field, specifically in respect of its treatment of organisational reality. Also, the positivist approach has been criticised for being too deeply rooted in functionalism and too concerned with causal analysis at the expense of getting close to the phenomenon being studied (Galliers, 1991).

The interpretive approach looks at 'reality' from a different perspective to that of the positivist approach. An interpretive approach could help the researcher gain knowledge of reality through social constructions such as language, shared

meanings, tools, documents, etc. (Walsham, 1993). In an interpretive research project, there are no predefined dependent and independent variables, but a focus on the complexity of human sense-making as the situation emerges (Kaplan and Maxwell 1994). The interpretive researcher assumes that reality can only be accessed through social constructions such as language, consciousness and shared meanings.

The critical research approach in information systems research sees its main task as one of social critique, whereby the restrictive and alienating conditions of the *status quo* are shown and challenged (Klein and Myers, 1999). In critical research, the investigation is classified as emancipative if it aims to help eliminate the cause of unwarranted alienation and domination, and thereby enhance the opportunities for the realisation of human potential (Hirschheim & Klein, 1989). Critical theorists assume that people can consciously act to change their social and economic conditions. They also assume that social reality is historically constituted and that it is produced and reproduced by people. Critical research makes the assumption that people are constrained in their actions by various forms of cultural and political domination (Myers, 1997).

The interpretive approach was selected for this study. The approach proved useful to this study in the following ways:

- i. To observe, capture and explain participants' behaviour, which cannot be easily identified with other research approaches.
- ii. To allow for an in-depth analysis of the case studies to be presented, a factor necessary due to the nature of the topic.
- iii. To study individuals in their natural setting, which involves physical interaction and gathering of material. If participants are removed from their setting, it leads to contrived findings that are out of context.

- iv. To emphasise the researcher's role as an *active learner* who can tell the story from the participants' view rather than as an 'expert' who passes judgment on participants.

According to Denzin & Lincoln (1994), qualitative research is multi-method in focus, involving an interpretive, naturalistic approach to its subject matter. This means that qualitative researchers study things in their natural settings, attempting to make sense of or interpret phenomena in terms of the meanings people bring to them. Interpretive research involves the studied collection and use of a variety of empirical materials: personal experiences, introspective reflections, life story interviews, observation of inter-actional events, visual material and historical texts, that describe routine and problematic moments and meanings in individuals' lives.

Social reality is constructed as a result of intentional and unintentional actions, which the interpretive approach assists to obtain (Burrell & Morgan, 1979). Interpretive approaches within information systems research are particularly aimed at producing an understanding of this social reality, the context, and the process whereby information systems influence and are influenced by the context (Walsham 1993). Orlikowski (1991), Walsham (1993; 1995) and Myers (1994; 1998) are some works where interpretive research was applied.

Walsham (1995) outlines the interpretive strand in information systems research as follows:

Interpretive methods of research adopt the position that our knowledge of reality is a social construction by human actors. In this view, value-free data cannot be obtained, since the enquirer uses his or her preconceptions in order to guide the process of enquiry, and furthermore the researcher interacts with the human subjects of the enquiry, changing the preconceptions of both parties.

Myers (1998), in a discussion of interpretive field research in information systems, states:

In more traditional positivist techniques, context is treated as either a set of interfering variables that need controlling, known as noise in the data, or other controlled variables which are experimentally set up in order to seek for cause and effect relationships. The context of a situation is seen as something that can be factored out of the analysis or operationalised as a variable. In interpretive approaches, however, context is treated as the socially constructed reality of a named group, or groups, of social agents and the key task of observation and analysis is to unpack the webs of meaning transformed in the social process whereby reality is constructed.

Within interpretive research, hermeneutics is continuously applied – consciously and unconsciously. Hermeneutics provides a means of understanding and interpreting texts (Hirschheim & Klein, 1989). According to Klein & Myers (1999), the purpose of hermeneutics is to make interpretive research explicit and to demonstrate the reasons for the understanding of a text. Hermeneutics does not aim to explain and predict but to understand and to make sense of others' actions (Myers & Avison, 2002; Lee, 1994). In order to understand someone else's action, one needs to be able to understand their motives, which means that there must be some common ground upon which researcher and research object can agree on meaning.

Klein & Myers (1999) proposed a set of principles for conducting and evaluating interpretive research studies. While seven principles were identified and described by Klein & Myers, they are all related and interdependent, with the hermeneutic orientation as a golden thread connecting them all. The seven principles are briefly described below:

1. The Fundamental Principle of the Hermeneutic Circle:-

suggests that all human understanding is achieved by iterating between considering the interdependent meaning of parts and the whole that they form. This principle of human understanding is fundamental to all the other principles.

2. The Principle of Contextualisation:-

requires critical reflection of the social and historical background of the research setting, so that the intended audience can see how the current situation under investigation emerged.

3. The Principle of Interaction Between the Researchers and the Subjects:-

requires critical reflection on how the research materials (or 'data') were socially constructed through the interaction between the researchers and participants.

4. The Principle of Abstraction and Generalisation:-

requires relating the idiographic details revealed by the data interpretation through the application of principles one and two to theoretical, general concepts that describe the nature of human understanding and social action.

5. The Principle of Dialogical Reasoning:-

requires sensitivity to possible contradictions between the theoretical preconceptions guiding the research design and actual findings ("the story which the data tells") with subsequent cycles of revision.

6. The Principle of Multiple Interpretations:-

requires sensitivity to possible differences in interpretations among the participants as are typically expressed in multiple narratives or stories of the

same sequence of events under study. Similar to multiple witness accounts even if all tell it as they saw it.

7. The Principle of Suspicion:-

requires sensitivity to possible 'biases' and systematic 'distortions' in the narratives collected from the participants.

These principles have been applied in many works such as Monteiro & Hanseth (1996) whose findings were discussed in relation to Latour's Actor-Network Theory; Lee (1994) where ANT was used to interpret email messages and the exchange of email messages; and Trauth (1997) who explained how her understanding improved as she became self-conscious and started to question her own assumptions.

If the set of seven principles is used, the research work is likely to become more plausible and convincing to its target audience. Hence the main aim of the set of principles is to improve the plausibility and cogency of interpretive research. According to Klein & Myers (1999), information systems researchers should explore 'how' and 'which' principles may apply in any particular or different situation. The importance and relevance of each principle is partly derived from the manner in which the others are applied to the collection and interpretation of the field material (data). As a result, the set of principles may not be used mechanically.

Myers (1997) outlines four qualitative traditions as being particularly significant in Information Systems research, namely case study research, ethnography, grounded theory and action research. According to Orlikowski & Baroudi (1991), case study research is the most commonly used qualitative approach in Information Systems. From these traditions of qualitative research approaches, the case study approach was selected for this research.

The case study approach enables in-depth exploration of complex issues such as the topic (IT strategy and Organisational politics) of this research. In addition, the case study approach allows for 'thick descriptions' of the phenomena under study (Yin, 1994). Such thick descriptions give the researcher access to the subtleties of changing and multiple interpretations (Walsham, 1995), which would have been lost in other research approaches, including quantitative or experimental strategies (Yin, 1994).

In studying events in their natural setting, the case study makes use of multiple methods of data collection such as interviews, documentary reviews, archival records, direct and participant observations (Yin, 1994). Walsham (1993) believes that the most appropriate method for conducting empirical research in the interpretive tradition is the in-depth case study. The next section covers the case study strategy as it applies to this study.

3.3 The Case Study Strategy

Yin (1994) defines a case study as an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly defined. According to Yin (1994), the case study allows an investigation to retain the holistic and meaningful characteristics of real-life events such as individual life cycles, organisation and managerial processes, change, and the maturation of industries. Therefore, the case study approach is especially useful in situations where contextual conditions and events being studied are critical and where the researcher has no control over the events as they unfold. The case study, as a research strategy, should encompass specific techniques for the collection and analysis of data, directed by clearly stated theoretical assumptions. Furthermore, data should be collected from different sources and its integrity should be ensured.

Stake (1994) identifies and distinguishes three types of case studies, namely intrinsic, instrumental and collective:

- i. The intrinsic case study is done when the case is unique and is therefore not representative of others. This type of case study is conducted because of its intrinsic interest, and not primarily to build a theory.
- ii. The instrumental case study is selected to provide insights or to develop an existing theory. The case is often looked at in depth, its contexts scrutinized, and its ordinary activities detailed because it helps pursue the external interest (Stake, 1994).
- iii. The collective case study extends to more than one instance. It is a multi-site effort to inquire into a phenomenon in a variety of locations, with the expectation that their study will lead to a better understanding of similar sites (Stake, 1998).

Yin (1993) also distinguishes three types of case studies, which are exploratory, causal and descriptive case studies:

- i. Exploratory – in this type of case study, the collection of data occurs before theories or specific research questions are formulated. This is followed by analysis of data and leads to more systemic case studies. The first stage in this type of case study is to define the issues to be researched.
- ii. Causal – this type of case study looks for cause and effect relationships, and searches for explanatory theories of the phenomena. Clearly, causal case studies are undertaken in the positivist research paradigm.
- iii. Descriptive – this type of case study requires a theory to guide the collection of data and this theory should be openly stated in advance and be the

subject of review and debate and later serve as the 'design' for the descriptive case study. The more thoughtful the theory, the better the descriptive case study will be (Yin, 1993).

Case studies can be single or multiple, and can be embedded as well as holistic. An embedded case study is one in which there is more than one sub-unit, whilst in a holistic case study a global programme of organisation is investigated (Yin, 1994). This research study investigated multiple embedded cases.

Next, a brief overview is given of the use of case studies as a research approach in information systems.

3.3.1 Case Study as a Research Approach in Information Systems

The use of case studies is a widely accepted research strategy in the information systems field. The case study approach is the most common or popular research strategy in the information systems field according to Farhoomand (1992), and this view is supported by Walsham (1993), who states that case studies provide the main vehicle for research conducted in the interpretive tradition. The case study strategy has been argued to be particularly useful for practice-based problems where the experience of the actors is important and the context of action is critical (Lee, 1989 and Galliers, 1991).

However, the case study research approach has been subject to criticism on the grounds of a lack of sufficient representation and a lack of statistical generalisability. Moreover, the richness and complexity of the data collected means that the data is often open to different interpretations, and potential biases (Conford & Smithson, 1996). According to Pettigrew (1985), multiple case studies are useful in developing and refining generalisable concepts and multiple case studies can lead to generalisations in terms of propositions. Importantly, Walsham (1993) makes the point, however, that generalisations can also be made from single case studies: "... the validity of an extrapolation from an individual case or cases

depends not on the representativeness on such cases in the statistical sense, but on the plausibility and cogency of the logical reasoning used in describing the results from the case, and in drawing conclusions from them." Similarly, Yin (1994) argues that case studies are used for analytical generalisations, where the researcher's aim is to generalise a particular set of results, which are found to be broader than theoretical propositions.

Yin (1994) offers an approach for case studies, which emphasises field procedures and case study questions, and this is adopted as a guide for this study. He further argued that the set of case study questions forms the heart of the method. The main function of questions is to keep the researcher focused and on track.

Given the interpretive stance adopted in information systems research and the nature of this research's questions, which seeks to understand the impact of organisational politics on IT strategy, it is believed that the case study approach is the appropriate research strategy. Similar research questions could have been formulated and surveys used to examine changing patterns in organisations. However, this would not have revealed in detail the unique experiences of individuals in the organisations and the factors influencing their IT strategy. The case study method was chosen because of its advantages in creating novel and profound insights and its focus on examining the rich contextual influences.

In this research, two separate case studies were conducted within South African organisations. Two case studies were conducted because of limitations of accessibility to the organisations that were approached. This is further discussed in section 3.5.1.

In the case studies, data sources included interviews and documentation. Semi-structured interviews, tape recordings, and documentation were used for the research data collection. The number of interviewees varied according to the size of the organisation. A set of balanced respondent demographics was formulated

and adhered to, as it was a key factor in achieving a true reflection of the situations. The demographics included the different races and genders and the various levels in the IT organisational structure, which included IT Executives as well as IT Managers or Directors.

In a semi-structured interview, the interviewer has the freedom to probe the interviewee to elaborate on the original response or to follow a line of inquiry introduced by the interviewee. The semi-structured approach allows fairly informal interviews. More advantageously, it makes interviewees feel as though they are participating in a conversation or discussion rather than in a formal question and answer situation. The case studies took cognisance of the fact that an actor can be part of many networks at the same time, manifesting him/herself differently within each particular network. Also, that actors play decisive roles in the construction of the networks that they are part of. Data collection was performed in the following order:

- i. Authentic documents about technology strategy, governance and policies were used as sources for data collection.
- ii. Based on the authentic information and literature reviewed, a set of questions was formulated. This set of questions was used to conduct the interviews. They were derived from the research questions.
- iii. Semi-structured interviews were conducted. The interviews were conducted with identified key members of each of the organisations. Based on the research questions, a formulated checklist was used as a guiding principle during the interview process so that uniformity and consistency could be assured in the data.

In the next section the focus is on this particular research study. The research questions, formulated in Chapter One, are first revisited. Following this, the

research design of the study is discussed in detail. This includes issues related to the selection of the case study sites, the sub-units of analysis at each site, the data sources and how the data was collected. Also included is a brief overview of how the data was analysed (to be discussed in detail in Chapter Five) and how the results were interpreted (to be discussed in detail in Chapter Six).

3.4 Research Questions

The main focus of the study was to understand the impact of organisational politics on IT strategy in the organisation that deploys it. The research questions enabled the study to gather data within this scope. The research questions focused on the following major areas: IT strategy definition, development and implementation, politics and power. They were presented in Chapter One, but for ease of reference are repeated here.

Roode's (1993) description of a process-based research framework for information systems research was used to generate the most appropriate questions for this research. There are three main questions, each with subsidiary questions:

1. What Information Technology (IT) strategy is in the organisation
 - i. How IT strategy is viewed in the organisation
 - ii. How IT strategy is defined in the organisation
 - iii. Why IT strategy is important in the organisation
 - iv. Who is involved in defining the IT strategy in the organisation

2. How IT strategy is developed and implemented in the computing environment of the organisation
 - i. How the development of the IT strategy is described in the organisation

- ii. How the implementation of the IT strategy is described in the organisation
 - iii. How some of the problems encountered during implementation of the IT strategy in the organisation are described
 - iv. The 'positions' that are responsible for the development and implementation of the IT strategy
 - v. Why these 'positions' mentioned are responsible for the development and implementation of the IT strategy
3. What fundamental factors influence the development and implementation of IT strategy in the organisation
- i. What factors decide the development and implementation of the IT strategy in the organisation
 - ii. Which of those (deciding) factors are regarded as more important
 - iii. Why other factors are seen as less important
 - iv. How the impact of factors influencing the development and implementation of the IT strategy was described
 - v. How employees (including managers) perceive the development and implementation of IT strategy in the organisation
 - vi. Why individual respondents think that employees have these perceptions

The study is essentially a qualitative, dual case study involving two South African companies, and, as indicated above, has three lines of investigations. Firstly, the research uses a social constructivist perspective to investigate the relationship between the technical and the non-technical elements in the development and implementation of IT strategy. Secondly, it investigates organisational politics. Finally, the study focuses on the impact of organisational politics on IT strategy.

The research problem emphasises the complexity of the interface between IT strategy and organisational politics in the context of the organisation. The purpose of this thesis is to create a better understanding of organisational politics in the development and implementation of IT strategy and through that, identify its impact.

The research questions are analysed at two (macro and micro) interconnected levels. The macro-level addresses issues on how IT strategy is developed and implemented in the organisation that deploys it. At the micro-level, the implementation of IT strategy is analysed from the perspective of its institutionalisation.

3.5 Research Design

The research design is the logical strategy to gather evidence about desired data. It provides the glue that holds the research together. It structures the research, and shows how all of the major parts fit together in order to address the research questions. The research design includes: The selection of case study sites; sub-units of analysis; data sources; data collection; data analysis; and theoretical framework used for analysis and interpretation.

3.5.1 Selection of Case Study Sites

As already stated, the aim of this thesis is to better understand the interplay between the human and non-human elements in the development and implementation of IT strategy in the organisation that deploys it. This aim entails a

detailed study of what IT strategy is and means, as well as the influencing factors within the environment of its deployment. This clear focus led to the adoption of an interpretive stance, which seeks to uncover truth by understanding the phenomena in their real-life context (Walsham,1995). A case study approach has, therefore, been selected to describe the development and implementation of IT strategy in two different public organisations. These two case studies were conducted sequentially.

The selection of the two organisations for the case study was based on the following factors: the first is that the two organisations have a wide range of cultural diversity within their information technology (IT) environments; secondly, the two organisations together provide a very good representation of the particular financial sector in which they operate; thirdly, the selection of these two organisations for the case studies was a matter of accessibility. Many organisations were approached, but research access was not easy to obtain. In particular, the nature of this study did not help matters either, as it has to do with organisational politics, which is considered a sensitive issue in many organisations.

Eleven organisations were approached for this study. Five of these responded negatively, while three did not respond at all, even though they were repeatedly requested to respond. In this regard, Buchanan *et al.* (1988) remarked as follows:

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 and the economic climate has become harsher, in the private and public sectors, managers increasingly feel that they including their staff have little time to devote to a non-productive academic research.

After numerous efforts, systematically and diplomatically, two organisations, Dzuwa and Eko (both are pseudonyms) eventually agreed to participate in this study. A letter of appreciation was sent to the Heads of the IT departments of these organisations. The two organisations are treated as separate entities. Within each organisation, sub-units were identified for analysis. This is discussed in detail in Chapter Four, but briefly addressed in the next sub-section.

3.5.2 Units of Analysis

The units of analysis in the research study were applied on a case-by-case basis. They contained elements such as factors influencing the development and implementation of IT strategy in each of the case studies. The units of analysis were identified and used as the starting point for the data analysis.

3.5.3 Data Sources

Data was collected from primary and secondary sources. The primary data source was interviews which were conducted in the two organisations. The secondary data sources mainly covered publications including the organisations' websites, technical documentation, and annual reports. Secondary data provided an essential preparation for the interviews and confirmation of some of the data gathered during and after the interviews. Secondary data helped to cross-check formal information, learn about major events, technical details, historical decisions and main organisational structure, positions, responsibilities and roles. For this study it was possible to conduct the data collection and analysis in an iteratively managed manner.

3.5.4 Data Collection

Primary data was collected through semi-structured interviews with employees of the organisations. The questions for the collection of data were grouped into three categories. The first group of questions focused on interviewees' understanding of IT strategy: the purpose was to measure the meaning and definition of IT strategy. The second group of questions followed an inductive logic with the objective of

allowing any relevant information on the topic of how IT strategy is developed and implemented within the organisation to surface. The last group of questions aimed to explore in more depth the nature of influence of actors within the development and implementation of IT strategy. An interview guide as described below, was used to avoid losing focus, and to ensure that all relevant questions were asked. Each interview lasted from one and a half to two hours. Questions were both closed and open-ended. Indeed, while some questions required a brief and precise answer, it was also desirable to let information emerge. Respondents were thus given the opportunity to express their thoughts on the topic of interest as freely as possible.

The aims and objectives of the research were explained to all potential respondents. Participatory interest of the respondents was sought and established through mutual understanding. Respondents were informed of the importance of their responses to the study, and as much openness, fairness and precision as possible were requested and appreciated by the respondents. Respondents were informed that they could obtain a copy of the research results, should they so wish.

The interviewees were selected on the basis of their closeness to the topics of the study project and their levels of experience in management and organisational issues. Employees also assisted in identifying relevant interviewees. The total number of respondents to interview was reached heuristically, i.e., the decision to stop adding respondents was taken when nothing new was being learnt from the interviews and a state of theoretical saturation was achieved.

The interviews were conducted in English. This included the asking of questions and recording of the responses. Responses were recorded through taking notes and most respondents allowed the recording of the interviews. Notes were reviewed the same day, and if not, the day after the interview. The within-case analysis was performed as soon as possible, while the information concerning the case was still fresh. Even when the interviews were recorded, the researcher tried

to do the individual case analysis shortly after the interview. The interviews were conducted in non-disruptive environments, and confidentiality was maintained. All recorded interviews were transcribed.

In the two case studies, a total of 20 interviews (Dzuwa = 12 and Eko = 8) were conducted.

Interviewing Pilot

The interviewing was piloted. This pilot involved four participants with different backgrounds, including a non-IT professional. The interviewing pilot was conducted in the form of forty-five minute to one hour standardised scheduled interviews. Those who participated in the pilot interviews did not take part in the main interviews. The pilot was very helpful in several ways, for example, in the adjustment of the interview guidelines.

Respondents' demographics

Demographic information, such as race, gender, grade or level in the organisational structure, as well as the years of service at the organisation were criteria for nominating and identifying participating respondents. The number of years of service was used as a criterion to ensure that the respondent understood the organisational systems, and could therefore provide rich data.

Respondents were thus identified and selected based on the following criteria:

- i. Have been with the organisation for at least three years. The period in service, in this case three years, was thought to be enough for an employee to understand the organisation in terms of business activities, structures, strategies and policies, to be able to give an assessment, opinion and perception.

- ii. Have job roles such as:
- IT Executive
 - IT/IS Manager including director
 - Network, Systems or Application Manager
 - Application/System Developer or Analyst

IT executives, IT/IS Managers or Directors and Network or Systems or Application managers were classified as senior personnel in the organisational structure. Others, including programmers, were in the category of junior staff.

Table 2 contains a breakdown of interviewees in both case studies. The overall number of interviewees was based on the point of saturation.

	Job title	Dzuwa	Eko
Male	Senior	3	2
	Junior	3	2
Female	Senior	3	2
	Junior	3	2
Total		12	8

Table 2: Case studies demographics

The interview guidelines below are presented mainly to illustrate the discipline and consistency that was adhered to by the researcher throughout the entire process of the interviews.

Interview guidelines - During the interview

- i. Occasionally verified that the tape recorder was working.
- ii. Asked one question at a time.

- iii. Didn't show strong emotional reactions to responses.
- iv. Encouraged responses with occasional nods of the head, "uh huh"s, etc.
- v. Was careful about the manner of note-taking. That is, no sudden move to take a note, as it could have perhaps appeared as if there was surprise or satisfaction at an answer, which could influence answers to future questions.
- vi. Provided transition between major topics, e.g., "we've been talking about (some topic) and now I'd like to move on to (another topic)."
- vii. Didn't lose control of the interviews. This could have occurred when some respondents strayed to another topic, took too long to answer a question and time began to run out, or even asked own questions.

During and immediately after each interview, the following precautions were taken to enhance the quality of data:

- i. Verified that the tape recorder was working throughout the interviews.
- ii. Made notes on written notes, e.g., clarified scratches, ensured pages were numbered, filled out notes that didn't make sense, etc.
- iii. Wrote down any observations made during the interview.

3.5.5 Data Analysis

Data analysis was carried out, using two theories, namely, actor–network theory and structuration theory. The aim was not to compare and contrast the two theories, but to use them in a complementary fashion. Their importance and usefulness to the research were highlighted in Chapter Two.

Giddens' (1984) '*dimensions of the duality of structure*' was used in the analysis. The action and interaction of actors and the interplay between agency and structure were established and recognised in the different situations in terms of time and place. Giddens (1984) described what is involved in exploring and exposing the duality of structure that may exist based upon an analysis of the situated actions of a designated group of actors. This analysis, concentrating on the emergent regularities of the situation, is an interpretative scheme and dealt with how the understanding of agents was exhibited.

The second analysis, using ANT, focused on the relationships between institutional properties, human agents and technology, and highlights the different interests such as politics and power in the computing environment of the organisations.

In the analysis, ethical principles were applied to protect the rights of the case study participants and the two organisations.

3.6 Ethical Issues

The Ethics Committee of the Faculty of Commerce (to which the Department of Information Systems belongs) at the University of Cape Town reviews the proposed interview questions and guidelines of all research undertaken in the faculty. The Committee approved this study, including the research questions, in 2005.

The study was conducted with appropriate endorsement. Dzuwa's Chief Information Officer (CIO) granted permission to conduct the case study in the organisation. The decision was communicated to the executive members, including the Chief Technology Officer (CTO). At Eko, permission to conduct the study was acquired from the Information Technology Executive Committee, led by the Head of Department (HOD).

Before each interview, informed consent was obtained from the interviewee, and each of them was briefed about the study. Informed consent was obtained to make interviewees feel at ease with the questions and answers. According to Neuman (1994), informed consent is not doing harm or inflicting physical or psychological injury on respondents. With informed consent, it is not likely that the research results would be negatively influenced, as the study would be well understood by participants. Neuman suggests that the interviewer has an obligation to be ethical, whether or not the interviewees understand, are aware of, or concerned about ethics.

Confidentiality and anonymity were guaranteed in an effort to uphold research principles and to maintain respondents' rights and values. In other words, information disclosed was treated confidentially and a commitment was made not to reveal respondents' identities. Respondents were allowed to withdraw from the study if they so wished. However, none of them withdrew.

3.7 Summary

In this chapter, the qualitative interpretive research approach followed in the research study was presented, and reasons for applying it were discussed. The research design and methods for addressing data collection and analysis were presented. Strategies employed to ensure that the research was conducted ethically, as defined by the University of Cape Town, were also discussed.

The theoretical and philosophical assumptions underlying research methodology in the information systems field were briefly reviewed. A summary of this chapter is presented in Table 3, showing the decisions taken in conducting this research study.

Decision	Approach
Epistemological and ontological assumptions	Qualitative, Interpretive
Research strategy	Two case studies
Data collection interviewees	Individual interviews and group discussion
Data collection techniques	Semi-structured interviews and collected documentation
Organisations	Dzuwa and Eko
Sub-units of analysis	Dzuwa: IT strategy, influencing factors EKO: IT strategy, influencing factors
Timeline	Dzuwa: August 2005 – January 2006 EKO: August 2005 – February 2006
Subject	IT strategy and organisational politics
Theoretical framework for data analysis	For the social context (human environment), the micro-level analysis, it was ST. ANT (translation: problematisation, interessement, enrolment and mobilisation) for meso-level analysis

Table 3: Research Methodology

Chapter Three described the specific processes that were used to conduct the research in this study. The case studies are presented and discussed next in Chapter Four and the data collected is analysed and interpreted in Chapters Five and Six, respectively.

Contents

4	OVERVIEW OF THE TWO CASE STUDIES	118
4.1	Introduction	118
4.2	Fieldwork.....	119
4.3	Organisational Case Studies	125
4.3.1	Dzuwa Case Study.....	125
4.3.1.1	Organisational Background	125
4.3.1.2	IT Department.....	126
4.3.2	Eko Case Study.....	135
4.3.2.1	Organisational Background	135
4.3.2.2	IT Department.....	136
4.4	Conclusion.....	141

4 OVERVIEW OF THE TWO CASE STUDIES

4.1 Introduction

This chapter presents the two case studies concerned with the research. The two case studies were conducted in the same way and manner but treated as separate cases. Both case studies are concerned with IT strategy and organisational politics within the computing environment of the organisations. The two organisations used in the case studies are Dzuwa and Eko (both are pseudonyms). Both are South African public financial institutions. This was coincidental as they were the only organisations that were willing to take part in the research project. Both organisations have large IT departments.

The two case studies investigated the development and implementation, including the influencing factors, of IT strategy. In particular, it focuses on the impact of organisational politics on IT strategy.

The case studies examine the views of different actors on IT strategy and how they understand it. Further, the study investigates which actors are involved in the development and implementation of the IT strategy; what influences the initiative of the IT strategy; some of the problems encountered during implementation of the IT strategy and the perceptions employees within the computing environment have of IT strategy.

This chapter is structured into four main sections. The first section covers the fieldwork as it applies to both case studies. The second section describes the two case study organisations, their structures and their IT departments. In the third section, each of the case studies is described. The final section summarises the chapter.

4.2 Fieldwork

The case study approach is based on the research methodology described earlier in chapter three. This section presents the individual research sites and the processes through which data was gathered in the computing environment of the two organisations.

The fieldwork for the two case studies took place within the organisations' sites from August 2005 to February 2006. In the first case study, at Dzuwa, the fieldwork was conducted in the four strategic and operational areas in the computing environment, at the head office, where the IT department of Dzuwa is situated. The data gathering commenced in August 2005 and lasted four months.

In the second case study, the data gathering was also conducted at the head office of the organisation (Eko). Similarly, the IT department is situated at the organisation's head office. The data gathering commenced in November 2005 and lasted four months.

The data gathering involved individual semi-structured interviews, group discussions and secondary sources, such as documentation. In the Eko case study, one of the interviews was conducted with a group of two employees. In both case studies, the interviews were prearranged and conducted at interviewees' preferred location. The researcher consistently adhered to specific interview guidelines for each of the case studies.

At Dzuwa, the Chief Information Officer (CIO) introduced the researcher and requested staff to cooperate with him. At Eko, one of the senior IT managers introduced the researcher and went further by scheduling all the appointments with the identified employees. Initial interviews were conducted with departmental and divisional managers, which were followed by subsequent interviews with employees directly responsible for the different functions in each department. The interviewees consisted of managers and other employees. The interview sessions

typically began with the introduction of the study objectives and scope. This was followed by the researcher's explanation of non-disclosure of interviewee personal details. This was made clear at the beginning of each interview in order for the interviewee to be comfortable and freely express him/herself. Interviewees gave details of both organisational and personal perceptions, opinions and views of problems and solutions. The interviews provided explanations about the functions of each department including individuals, challenges being experienced and how these can be addressed in the development and implementation of IT strategy within the computing environment of the organisations.

The interviews were recorded and transcribed. The transcribed interviews were then sent to the interviewees. This was done for the purpose of interviewees' confirmation, rectification and suggestions regarding authentication and correctness of the information. All transcribed interviews were confirmed as true reflections of the interviews by the interviewees and returned to the researcher. One of the interviewees at Dzuwa requested permission to add more information to the interview.

The researcher reached understanding with the interviewees to preserve the anonymity of their identity. As such, interviewees are referred to only by their individual titles, not names. In the beginning of each interview session, permission to use a tape recorder was requested. In general, the interviewees were comfortable with the use of a tape recorder, which was then used.

All interviews were transcribed in Microsoft Office Word and these transcriptions constitute the field documentation which are bound separately from the thesis, and available upon request. When quoting from individual interviews, the following standard referencing method is employed: An abbreviation of the organisation pseudonym is used in the beginning of the interview identification, followed by the title of the interviewee (professional and management position), followed by page and line numbers in the transcription from where the quotation is extracted. For

example, a quote from an interview labelled eK_SM002 p 6:23 refers to the text on line 23 on page 6 of an interview conducted at Eko with the second senior manager.

In addition, secondary sources were also used as research materials. Documents about organisational structure, Business/IT strategic alignment and IT strategy were therefore included in the case studies. The secondary materials were used to develop background information on the human and non-human context of the sites, which helped to construct the history of each computing environment.

The fieldwork at Dzuwa started in August 2005 and lasted for four months. Interviews with key people identified in the IT department, and analysis of secondary documents, enabled the researcher to trace the organisation's approach to IT strategy development and implementation, and to identify various influencing factors.

Interviewees appeared to welcome the opportunity to share their views and opinions on how IT strategy is developed and implemented. For example, most of the interviews that were initially scheduled for one hour each eventually lasted for about three hours each. Secondly, no interview meeting was cancelled or rescheduled. Individuals were keen and excited to participate.

Employees from different units of Dzuwa's IT department were interviewed. The interviewees were of different race groups and levels of seniority. In total, twelve (12) individuals were interviewed and three meetings held. The employees interviewed hold titles which include:

- i. IT Senior Managers
- ii. IT Architects
- iii. Project Managers
- iv. Technical Support Specialists

v. Programmers

Secondary source materials used included:

- i. Internal memos and documents (e.g., minutes of meetings).
- ii. Technical reports and documentation (e.g., IT report on infrastructure).
- iii. Strategic documentation (e.g., IT strategy 2005).

As soon as the interviews at Dzuwa were completed, the second case study at Eko's computing environment started.

As earlier stated, the fieldwork at Eko started in November 2005 and lasted for four months. The development of IT strategy for the following year 2006 had just begun when the study commenced. The aim of the research study, as stated before, was to understand the technical and non-technical issues in the development and implementation (including the influencing factors) of IT strategy in the organisation.

The company has an IT strategy, which has both short-term (annual) and long-term (three to five year) goals and objectives. At the end of each year, the IT strategy is formulated (for the next year) and then reviewed (for the longer-term).

The interviews of the identified employees took place at Eko's head office, where the IT department is situated. In total, nine interviews were conducted with twelve people. Similar to the Dzuwa case study, the interviewees were also of different race groups, levels of seniority as well as age groups. Each interview lasted an average of two hours. The employees interviewed hold titles which include:

- i. IT Senior Managers
- ii. Technical Support Specialists
- iii. Project Managers
- iv. Business Analysts
- v. Programmers

Secondary source materials used included:

- i. Internal memos and documents (e.g., memos from IT management to employees)
- ii. Reports and documentation (e.g., Company financial report)
- iii. Strategic documentation (e.g., IT strategy map).

At least one person from each unit of the IT department was involved in the interviews. The notes as taken down during the interview process later served as an initial confirmation of the data gathered during the interviews.

The interviews helped the researcher to gain a thorough understanding of the role of the IT department in the organisation. In addition, it also helped in gaining an understanding of the roles of individuals in the development and implementation of the IT strategy within the organisation.

As with Dzuwa, interviewees appeared to welcome the opportunity to share their views and opinions on how IT strategy is developed and implemented. This was evident when an employee who was not on the original list of the people to be interviewed was keen to participate. The employee was included in one of the interviews to form a group of two. As in the case of Dzuwa, no interview meeting was cancelled or rescheduled.

Table 4 below summarises the above details.

	Dzuwa	Eko
Location of the study	Company head office, South Africa.	Company head office, South Africa.
Period of the study	August 2005 – November 2005	November 2005 – February 2006
Data source	<p>Primary sources:</p> <ul style="list-style-type: none"> i. Individual interviews – twelve (12) ii. Meetings – three (3) <p>Secondary sources:</p> <ul style="list-style-type: none"> i. Strategic document ii. Annual reports iii. Organisational structure iv. Technical documents v. Web page 	<p>Primary sources:</p> <ul style="list-style-type: none"> i. Individual interviews – nine (9) ii. Meetings – two (2) <p>Secondary sources:</p> <ul style="list-style-type: none"> i. Strategic map ii. Annual reports iii. Web page
Language of communication	<ul style="list-style-type: none"> i. All interviews were conducted in the English ii. All documentation was in English. 	<ul style="list-style-type: none"> i. All interviews were conducted in English ii. All documentation was in English.

Table 4: Summary of data gathering process in the case studies

The next sections describe each of the case studies, starting with Dzuwa and followed by Eko. Employees of both organisations, especially Eko, shared limited documentation with the researcher. Some documentation was considered to be too confidential for the study.

4.3 Organisational Case Studies

This section provides background information about the two case studies, with specific emphasis on the respective computing environments.

4.3.1 Dzuwa Case Study

4.3.1.1 Organisational Background

The main focus of the study was to determine and establish the impact of organisational politics on IT strategy in the organisation that deploys it. The research questions enabled the study to gather data within this scope, and focused on the following major areas: IT strategy definition, development and implementation, politics and power.

Dzuwa is a South African owned company, established in the early nineteenth century, with both local and international operations. The local operations include main branches in the cities of Cape Town, Johannesburg and Durban. It also has branches in Botswana, Zimbabwe and the United Kingdom as part of its international operations.

Dzuwa has subsidiary companies in South Africa. Two of these subsidiary companies provide banking and general insurance, respectively. One of the subsidiaries provides services such as corporate and retail banking, property finance, investment & private banking, foreign exchange and securities trading. These are also the principal services offered by the company. Other services include private equity, credit card issuing and processing services, custodial services and asset management services. The company also provides short-term insurance service to the personal, commercial and corporate markets in South Africa, as well as internationally in countries such as Namibia, and Botswana.

Dzuwa's core businesses include financial services, life assurance, asset management, banking and general insurance. It is one of South Africa's largest

financial service businesses, through its life assurance, asset management, banking and general insurance operations. The company serves more than four million clients and more than thirteen thousand people are employed in its local operations. This includes non-permanent staff. These employees are spread across the company's branch offices within and outside South Africa.

Dzuwa is listed on both the United Kingdom and the Johannesburg stock exchanges. It has one central IT department, which supports and enables the processes and activities of all the business units within the organisation.

4.3.1.2 IT Department

In the early sixties, the organisation introduced a mainframe computer for its processes and activities. This took away many of their manual processes. A few years after the introduction of mainframe technology, many more of the organisation processes were computerised. The environment grew with more responsibilities, operations increased, and it became more complex. As a result, more staff were recruited.

By 1970, Dzuwa had three different technology platforms operating together and because of the considerable interchange of data, it became complex to manage. An IT department was formally established in the organisation, with the main purpose of supporting and enabling the business processes and activities through technology. This brought about a process of re-skilling for some employees.

Thirty-five years after the establishment of the IT department, Dzuwa has more than eight thousand computers including servers and workstations. The servers are hosted in two data centres.

The Information Technology (IT) department is centralised at the company's head office. The IT department has over four hundred employees, consisting of both permanent and contract staff. IT services are provided to all business functions

within the business units, including Employee Benefits, Life Assurance, Finance, Human Resources and Client Services.

Dzuwa's IT computing environment is structured into six different units as depicted in Figure 11 below.

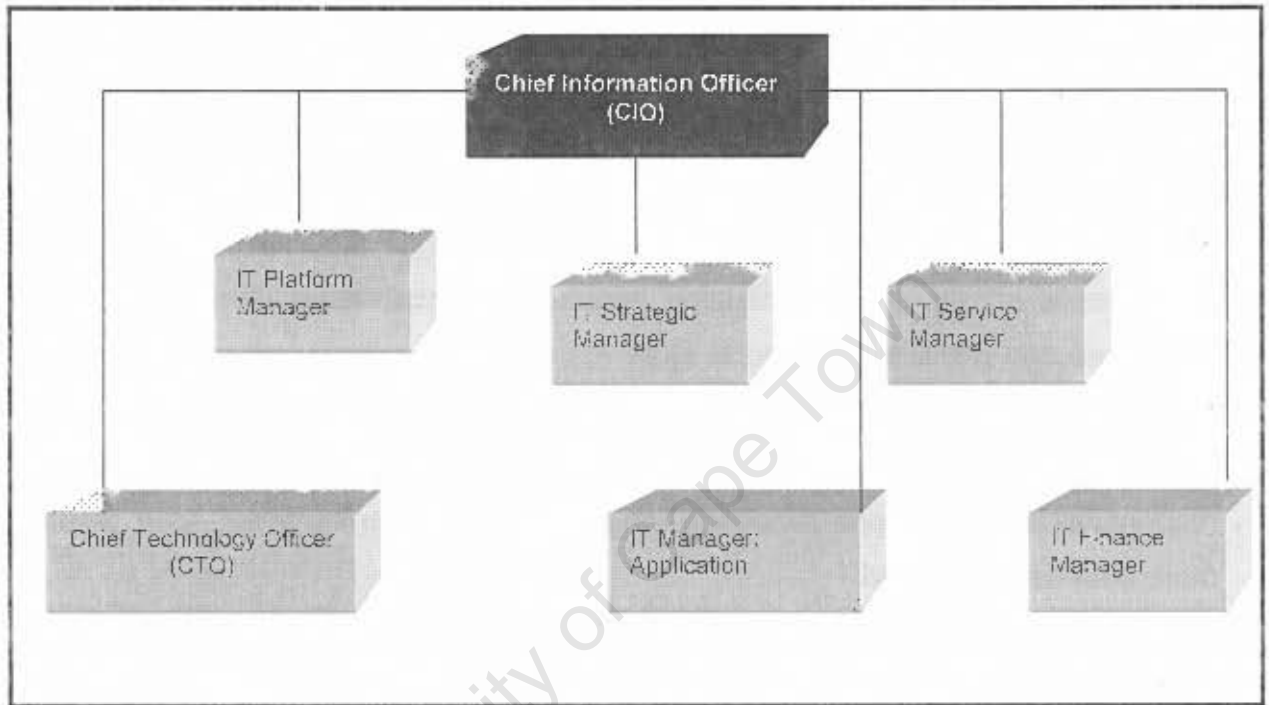


Figure 11: Dzuwa IT Organisational Structure

The roles of the various IT managers are briefly as follows:

- i. The Chief Information Officer (CIO) is the head of the IT department. The CIO is responsible and accountable for all IT-related issues in the organisation.
- ii. The Chief Technology Office (CTO) is responsible for the IT architectural issues and technology management. The architectural issues include design, standards, principles and governance of the technology.

- iii. The IT Platform Manager covers all products (applications) supported by the Dzuwa computing environment.
- iv. The IT Strategic Manager is responsible for IT strategic issues such as policies relating to business processes. The unit manages the Strategic Forum, which is described below.
- v. The IT Service Manager is responsible and accountable for contracts and services provided to the business units by the IT department.
- vi. The IT Manager (Application) is the head of the business application development unit. The unit responsibilities include design, building support for, and maintenance of the applications within the organisation.
- vii. The Finance Manager is responsible for technology expenditure within the department. This includes hardware, software and services.

The representatives of the different units within Dzuwa's computing environment constitute the governing body of its IT department, which is headed by the CIO. The governing body is referred to as the IT Exco (IT Executive Committee). As illustrated in Figure 12 below (page 130), the IT Exco, through its chairperson, reports directly to the organisation's Executive Committee. The roles and responsibilities of the governing constituting bodies are given below.

The IT Exco is constituted in terms of a Dzuwa organisational mandate to the Chief Information Officer. The primary purpose of the IT Exco includes driving the identification, development and maintenance of IT strategy, policies, architectures, standards, projects, priorities and risk management.

The Committee meets at least nine times per year. In the event of urgency or emergency, additional Committee meetings are allowed in order to consider

matters, which may arise from time to time. In order to execute its mandate, the IT Exco oversees the work of other bodies referred to as forums. These forums are described below.

The members of the IT Exco and its sub-committees execute their responsibilities in a collaborative way, in the best interest of Dzuwa. In satisfying the requirements of its purpose, the IT Exco formulated the following governance principles:

- i. Manage IT within the framework of Dzuwa Information Systems Policy
- ii. Manage IT as a key enabler of business processes
- iii. IT Strategy enables the Dzuwa Business Strategy
- iv. The interests and needs of Dzuwa come first in exploiting technology
- v. Information is an asset of Dzuwa and is managed as such
- vi. Actively manage the risks associated with exploiting IT
- vii. Deploy IT-based business solutions within the framework of Dzuwa architectural and computing standards
- viii. All commercial interfaces are contractually managed on a formal basis
- ix. In business unit contracts with third parties, the interests of Dzuwa come first.

The different forums within the computing environment of Dzuwa are illustrated in Figure 12 below and described in the following sections.

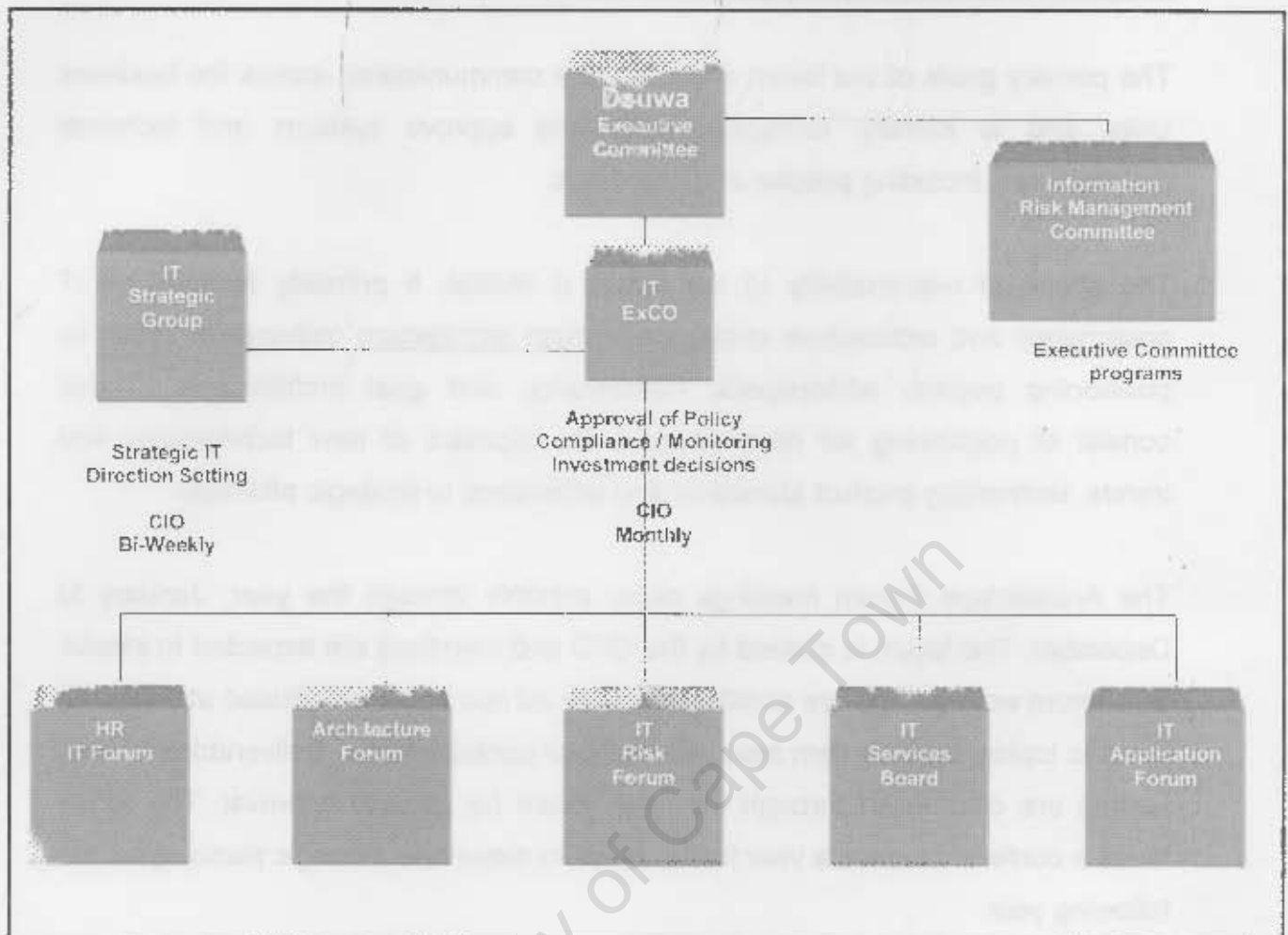


Figure 12: IT Forums and Structures at Dzuwa

Human Resources IT Forum (HRITF)

As at the time of this study, the HRF has not yet been constituted. According to one of the managers, it is supposed to be constituted, chaired and managed by the head of the Human Resources unit.

Architecture Forum

The Chief Technology Officer instituted the Architecture Forum in accordance with his mandate within Dzuwa's computing environment. The forum is composed of all IT Architects, IT Managers and business unit representatives within Dzuwa.

The primary goals of the forum are to ensure communication across the business units, and to identify, formulate, ratify and approve systems and technical architectures, including policies and standards.

The scope of responsibility of the forum is limited. It primarily focuses on IT governance and architecture strategies through architecture deliverables, such as positioning papers, whitepapers, frameworks, and goal architectures. These consist of positioning for research and development of new technologies and trends, technology product standards and adherence to strategic alliances.

The Architecture Forum meetings occur monthly through the year, January to December. The forum is chaired by the CTO and members are expected to attend. Sub-forum work groups are constituted on an *ad hoc* basis for focused attention on specific topics, agenda item resolution, and/or portfolio focus. Deliverables of sub-forums are channelled through the main forum for general approval. The forum holds a conference once a year for two days to determine strategic planning for the following year.

Information Risk Officers Forum

The Information Risk Officers Forum (IROF) acts as an operational working group of the Information Security Management (ISM) and Business Continuity Management (BCM) programs in the organisation. This brief is executed by:

- i. Responding to ISM/BCM directives issued by the Information Risk Management Committee (IRMC)
- ii. Ensuring Business Unit (BU) initiatives are appropriately prioritised and supported
- iii. Ensuring initiatives are appropriately funded, adequately resourced and aligned with Dzuwa's business requirements

- iv. Monitoring and reporting progress and achievements against BU & Group plans.

The forum's responsibility is within all business units in Dzuwa. BCM is said to ensure the continuity of business processes and recovery of the IT capability and business data. ISM ensures that the integrity and confidentiality of information is maintained, commensurate with its sensitivity, value and criticality to business.

In addition, the forum is responsible as follows:

- i. Prioritise and drive acceptance of new/revised policies, standards and procedures by IRMC and other management bodies
- ii. Influence Dzuwa's governance through participating in the development and/or revision process of the company policies, standards and procedures
- iii. Ensure alignment of business units policy and strategy in Dzuwa governance and drive the implementation of approved policies, standards and procedures within the business
- iv. Motivate and drive requirements and priorities for Dzuwa-wide initiatives
- v. Request and justify funding as and when needed for major Dzuwa-wide initiatives
- vi. Submit requests for exceptions or disagreements regarding Dzuwa governance
- vii. Maintain up-to-date view of the BCM/ISM resource and organisational capabilities

- viii. Identify and report material vulnerabilities and action plans to the IRMC
- ix. Assess and report on BCM/ISM incidents that impact more than one BU
- x. Ensure adequate internal communications in the event of major BCM/ISM incidents.

ITSB (IT Services Board)

Dzuwa's Information Technology Services Board (ITSB) is constituted in terms of the Governance structures within the mandate of the CIO.

The core responsibility of the ITSB is IT efficiency from a shared infrastructure and related services perspective. These include critical areas such as capacity planning, usage management, risk management, business continuity management, service level management, financial chargeback mechanisms, bulk buying, contract management, technology acquisition process reviews, project infrastructure impact reviews and audit reports.

The main objectives of the ITSB are as follows:

- i. The proactive management of the use of the shared IT infrastructure and related services.
- ii. Cost savings through optimisation of shared services and centralised sourcing.
- iii. Understanding of the impact of new applications or growth/closure of current applications on the shared infrastructure with resultant positioning to relevant stakeholders should investment be required.
- iv. Sharing of information across the IT department.

ITSB also creates awareness of IT & Business strategies, including but not limited to:

- i. Dzuwa Information Risk Management
- ii. Key IT activities including facilities; data centres; regional nodes
- iii. Technology layers
- iv. Key IT decisions
- v. Decision making – supporting recommendations to IT Exco where appropriate.

The IT Services Manager chairs the committee. The membership of the forum comprises of the operations managers from business units responsible for managing the production work of their respective units, all IT managers and representatives from other forums.

Committee meetings lasting two hours are held at least eight times per year. Full day sessions to carry out detailed reviews of business units' activities are held at least twice a year. Additional Committee meetings may be held to consider matters, which may arise from time to time.

Application Development Forum (ADF)

This forum is one of the forums constituted under the CIO portfolio within the computing environment of the organisation.

The main aims of the forum are to be informed of the application server governance activities and consultation on application strategy, e.g., development, integration, deployment, etc.

The forum ensures identification of resources and use of quality information for analysis. It is also responsible for making strategic decisions whether to build or buy applications in the computing environment. The forum will also ensure

collaboration with the other forums in IT department, alignment with the business on application matters and information flow with users.

The IT manager (Application) chairs the Application Development Forum. The forum is attended by application developers, analysts and architects.

Each of the forums was represented in the group of people interviewed. For example, the head of IT Risk Forum, who is also a member of the IT Exco, was among the interviewees.

The other case study, Eko, is described in the following section.

4.3.2 Eko Case Study

4.3.2.1 Organisational Background

Eko was founded in the early years of the nineteenth century and is a leading financial services company in South Africa.

The company focuses on corporate, commercial and personal markets. It has client contact centres in Johannesburg, Cape Town and Durban, and two call centres in Cape Town and Johannesburg, respectively. The company's short-term insurance products and services are aimed at specific markets, using and optimising a network of brokers as the main delivery channel.

The company relies on employees and brokers to manage its insurance affairs. The majority of the company business transactions come from brokers. There are about sixty offices in South Africa and Namibia, through which it supports a business network of about six thousand intermediaries.

The company has assets worth about twelve billion rand and more than six hundred thousand policyholders. It renders services to clients in South Africa, and

employees are in the application development space and they include developers, business and systems analysts.

There are various technologies within the computing environment ranging from the Microsoft Windows operating system to a Linux platform. The computing environment hosts many business applications, which include short and long term insurance, and financial applications. The technologies are hosted in one data centre.

The IT department is structured into six different units, namely, Systems Development, IT Finance, Architecture, Systems Management, IT Resources, and Infrastructure and Network. Figure 13 illustrates the structure including components of each unit of the IT department.

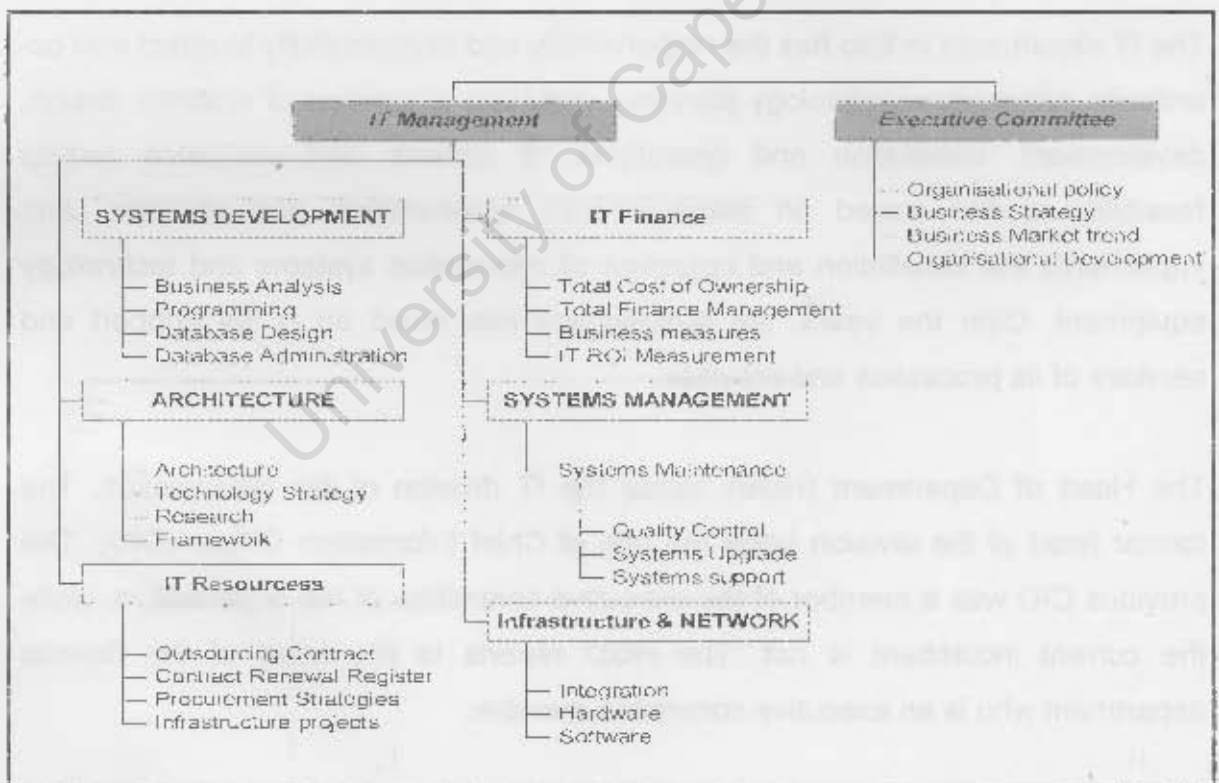


Figure 13: Structure of Eko IT Department

Details about these were given in brief and in the form of bullet points to the researcher as follows:

Executive Committee

The Executive Committee is the highest decision-making body of the organisation. Its main objective is to address key issues raised at a business level. Executives within the organisation are members of the committee. Other responsibilities include the following:

- i. Formulate and manage strategy for the organisation
- ii. Drive the aims and objectives of the organisation
- iii. Responsible and accountable for the organisation's activities

IT Management

The IT Management Committee meets fortnightly to discuss, resolve and decide on infrastructure-related issues that impact business processes in the organisation. Both business units and the IT department are represented in the Committee.

Its responsibilities include strategic IT planning and ensuring that long-term IT plans are aligned to the achievement of business unit objectives.

- i. Ensure alignment with the business strategy
- ii. Build solid and open relationships with clients at all levels
- iii. Create a culture of excellence
- iv. Encourage technical entrepreneurial influencing competency
- v. Create a research & knowledge sharing culture to exploit technology
- vi. To be recognised as IT supplier of choice where Eko has controlling shares.

Systems Development

The unit is responsible and accountable for design, development and maintenance of systems in the organisation as well as the following:

- i. Ensuring systems/solutions are delivered according to business strategy
- ii. Supply solutions that are aligned to Eko strategic business requirements

- iii. Quick response to market trends and clients needs
- iv. First time quality systems (systems development life cycle, standards).

IT Finance

The finance unit is responsible for tracing, tracking and monitoring technology expenditure and other related issues in the IT department as well as in the rest of the organisation. These responsibilities are summarised as follows:

- i. Act as the treasury for the IT department
- ii. Optimise technology expenditure to ensure ROI for Eko
- iii. Ensure competitively priced solutions
- iv. Create a framework to establish and maintain service level agreements.

Architecture

The architecture unit is concerned with all technology issues such as selection, design, deployment, standards, principles and policies in the organisation. Others include:

- i. Optimise activities in the IT department to support company strategy
- ii. Supply solutions that are aligned to Eko's strategic business requirements
- iii. Introduce innovative technology that creates business value
- iv. Create framework for alignment and contract for new functionality
- v. IT and information architecture aligned to company strategy
- vi. Research and development
- vii. Propose new technologies for the organisation.

Systems Management

Systems maintenance provides technical support including maintenance of the systems that are deployed in the computing environment of the organisation:

- i. Technical optimisation

- ii. Continuous improvement of systems in production.

IT Resources

The unit is involved in the relationship management of IT processes and activities in the organisation. This includes problem solving, raising awareness, decision-making and others such as:

- i. Optimise sourcing capacity
- ii. Information Capital
- iii. Ignite Human capital
- iv. Develop leadership skills.

Infrastructure and Network

The unit is concerned with IT infrastructure management and is responsible for the creation of cost effective and resilient shared infrastructure through introduction and deployment of technology solutions in order to:

- i. Ensure the availability of systems platforms
- ii. Ensure the efficiency of systems in production
- iii. Optimise support of systems in production.

According to a senior manager in the department, each of the above units is autonomous in what they do. The manager added that thin lines existed between the units.

4.4 Conclusion

The chapter described the two case studies, focusing on the respective computing environments. Many similarities were noted, as well as subtle but important differences.

In the following chapter the data collected during the fieldwork conducted at the two organisations is analysed. The analysis is informed by Structuration Theory and Actor-Network Theory, discussed in Chapter Two.

University of Cape Town

Contents

5	ANALYSIS OF THE CASE STUDIES	143
5.1	Introduction	143
5.2	Case Studies Analysis	143
5.2.1	Structuration Theory Perspective	144
5.2.2	Actor-Network Theory Perspective.....	147
5.3	Case Study: Dzuwa	148
5.3.1	The Dzuwa Case as viewed through Structuration Theory	148
5.3.1.1	Agents	149
5.3.1.2	Structure.....	150
5.3.1.3	Dimensions of the Duality of Structure.....	154
5.3.2	Dzuwa case study as viewed through ANT	173
5.3.2.1	ANT Translation: Problematisation	177
5.3.2.2	ANT Translation: Interessement	180
5.3.2.3	ANT Translation: Enrolment	181
5.3.2.4	ANT Translation: Mobilisation.....	185
5.3.3	Findings from the Analysis	187
5.4	Case Study: EKO	191
5.4.1	The EKO case as viewed through Structuration Theory.....	191
5.4.1.1	Agents	191
5.4.1.2	Structure.....	193
5.4.1.3	Dimensions of the Duality of Structure.....	196
5.4.2	The EKO case viewed through ANT.....	208
5.4.2.1	ANT Translation: Problematisation	211
5.4.2.2	ANT Translation: Interessement	213
5.4.2.3	ANT Translation: Enrolment	216
5.4.2.4	ANT Translation: Mobilisation.....	218
5.4.3	Findings from the Analysis	220
5.5	Conclusion.....	222

5 ANALYSIS OF THE CASE STUDIES

5.1 Introduction

This chapter presents the analysis of the two case studies described in chapter four. The analysis is done on two levels, based on Giddens' Structuration Theory and ANT perspectives, respectively, and described through examining the interplay between the dynamics of the development and implementation of IT strategy in the contexts of Dzuwa and Eko. As described in chapter one and elaborated on in chapter two of this thesis, the development and implementation of IT strategy is studied through the 'duality of structure' and 'moments of translation' concepts from Structuration Theory and ANT, respectively.

The chapter is structured into four sections. The first section covers the scope of the two concepts applied in the analysis. The second analyses the case studies from the perspectives of Giddens' Structuration Theory and Actor-Network Theory, respectively. The last section draws conclusions from the analysis of the case studies.

5.2 Case Studies Analysis

This section highlights the elements of Structuration Theory and Actor-Network Theory as they were applied in the analysis of the case studies.

Note that the research focuses more on the implementation of IT strategy. In both case studies, the development of IT strategy was, so to speak, done behind closed doors. As a result, the majority of employees do not fully understand the development of IT strategy in their organisation and consequently, found it difficult to contribute information about the development process during the interviews.

5.2.1 Structuration Theory Perspective

Structuration Theory (ST) has previously been discussed in section 2.4, where an overview of the theory was given. In this section, some aspects of ST are revisited – now focused more specifically on the particular purpose of applying ST in the case studies.

The purpose of the first level of analysis is to gain an understanding of the social context in which IT strategy is developed and implemented. This analysis uses Structuration Theory, and concentrates on the emergent regularities of the situation by applying Giddens' 'dimensions of the duality of structure' (Figure 14 – which, for convenience's sake, is a repeat of Figure 6).

The first level of analysis of the case studies takes into account the environment in which the IT strategy is developed and implemented. Internal and external factors as well as the demands of the wider organisational and human (social) contexts influenced the settings of the case studies in the Dzuwa and Eko computing environments. The analysis is based on Giddens' 'duality of structure' concept, which was introduced and described in Chapter Two. According to Giddens' (1984):

Structuration theory proposes a duality of structure, which means that structure, which includes both rules and resources, is both the medium and the outcome of the conduct it recursively organizes and that the structural properties of social systems do not exist outside of action but are chronically implicated in its production and reproduction.

(Giddens, 1984)

Giddens views structures as having only a virtual existence – as having “no reality except as they are instantiated in activity” (Whittington, 1992). Giddens makes this very clear when he states:

. . . a position I want to avoid, in terms of which structure appears as something 'outside' or 'external' to human action. In my usage, structure is what gives form and shape to social life, but is not itself that form and shape – nor should 'give' be understood in an active sense here, because structure only exists in and through the activities of human agents.

(Giddens, 1989)

Structures are described by Giddens as rules and resources, instantiated in recurrent social practice. They only have virtual existence, as 'traces in the mind'. Orlikowski (2000) explains this very lucidly, and so as not to take anything away from her elaboration of this point, it is given in full:

We are unaccustomed to conceiving of rules and resources as only existing 'in and through the activities of human agents', largely because of our conventional views of them as either external entities (e.g., corporate policy, traffic regulations, land, factories, money) or internal schemas (e.g., rules of thumb, expertise, judgement). From a structurational perspective, however, external entities and internal schemas are only constituted as rules and resources when they are implicated in recurrent social action. Our conventional view of rules and resources as external entities suffers from what Taylor (1993) refers to as an "objectivist reification", while the view of rules and resources as internal schemas suffers from a "subjectivist reduction".

(Orlikowski, 2000)

For analytical purposes, Giddens distinguishes different structurational dimensions, namely, signification, domination and legitimation. Associated with each structural dimension are mediating components, which are interpretative schemes, facilities,

and norms, whereby concepts embedded in the structure are given specificity by social agents through their actions (see Fig. 14 below), which are at the same time, enabled and constrained by the structural properties.

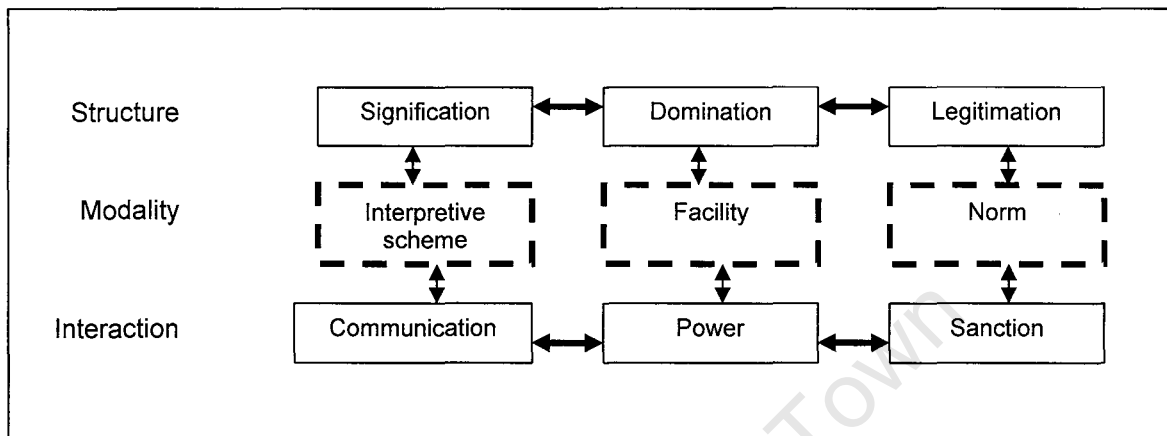


Figure 14: Dimensions of the duality of structure (Giddens, 1984)

Thus, as human actors communicate, they draw on interpretative schemes to help make sense of interactions; at the same time those interactions produce and reproduce structures of signification. Similarly the facility to allocate resources is enacted in the wielding of power, and produces and reproduces social structures of domination. Finally, moral codes (norms) help determine what can be sanctioned in human interaction, which iteratively produces and reproduces structures of legitimation.

Understanding the development and implementation of IT strategy within the organisation implies making sense of IT strategy initiatives in their human and non-human (technological) contexts. The case studies at Dzuwa and Eko focused on factors such as organisational politics, which influence the technology and organisation, groups of individuals and their organisational activities and tasks, their philosophical viewpoints on work as well as the organisation and IT strategy.

Therefore, using Structuration Theory, the analysis of the two case studies focused on two main areas:

1. The IT strategy: analysis of the interaction or social practice involving the development and implementation.
2. Influencing factors: analysis of how this social practice is influenced by certain factors.

The analysis using Structuration Theory was followed by an Actor-Network Theory analysis.

5.2.2 Actor-Network Theory Perspective

Actor-Network Theory (ANT) has previously been discussed in section 2.4, where an overview of the theory was given. In this section, some aspects of ANT are revisited – now focused more specifically on the particular purpose of applying ANT in the case studies.

A second level of analysis was done using an ANT perspective. This was to gain an understanding at the actor level of the factors influencing the development and implementation of IT strategy in the organisation.

ANT was applied in the analysis in order to gain an understanding of the spheres of influence of actors and the influence of organisational politics and power in the development and implementation of IT strategy. In terms of ANT this happens through 'processes of translation'. Callon (1991) defines actors as all entities that are able to connect texts, humans, money, etc., to build more or less effectively a world that is filled with other entities having their own history, identity and relations. In this context, actors are entities that have the ability to constrain, facilitate or influence action.

The analysis of the case studies from the ANT perspective draws upon the sociology of translation. The focus is on how the 'actor-network' grows, changes and stabilises during development and implementation of IT strategy, specifically

examined in the context of the organisation's computing environment. Each case study is analysed on the basis of the four moments of translation: problematisation, interessement, enrolment and mobilisation.

In brief, the moments of translation, discussed in Chapter Two (see section 2.4.2.2), can be summarised as follows:

- i. **Problematisation:** a focal actor analyses a situation, defines the problem and proposes a solution as an obligatory point of passage (OPP) – implying that the problem resolution can only be negotiated through the OPP.
- ii. **Interessement:** other actors become interested in the solution proposed. They change their affiliation to a certain group in favour of the new actor.
- iii. **Enrolment:** the solution is accepted and a new network of aligned interests starts when actors accept the roles defined for them.
- iv. **Mobilisation:** The new network starts to operate in a target oriented manner to implement the solution proposed, and grows as actors become mobilised to act as 'secondary focal actors'.

5.3 Case Study: Dzuwa

In sections 5.3.1 and 5.3.2 below, the Dzuwa case study is analysed. The first analysis, using Structuration Theory, is presented in section 5.3.1, and the analysis from an Actor-Network Theory perspective is given in section 5.3.2.

5.3.1 The Dzuwa Case as viewed through Structuration Theory

Dzuwa's computing environment is structured as a hierarchical system, within which activities take place and are managed by individuals and groups (units) of employees. Responsibilities are accorded on the basis of the organisation's rules and regulations. Within Dzuwa's IT department, there are rules, regulations,

processes and procedures, which are enforced through organisational structures. The IT executive committee formulates these policies, which are binding and all employees including the managers are expected to adhere to them.

5.3.1.1 Agents

Agents are intimately connected with rules and available resources. Within these rules, the available resources are applied. In Dzuwa's computing environment, the employees involved in the development of the IT strategy included the CIO, IT managers and IT Architects.

The people or offices involved in defining the IT strategy include the CIO, CTO, IT managers and the Architects or Architecture department.

(dZ_AR003 p 23:6-7)

The employees that are involved or responsible for the development of the IT strategy are not necessarily the ones who are involved in the implementation of the IT strategy in the organisation. The implementers of the IT strategy include employees such as IT managers, IT Architects, IT technical staff and users (employees).

According to the mandate accorded to these IT managers, they make the final decisions within their various units in the computing environment of the organisation. For example, the CTO made the final decision on issues related to the '**Merlot**' project. The 'Merlot' project is one of the recent technology projects as dictated by the IT strategy. It is costing the company about three billion rand. As a result of its importance, many agents are involved in the development and implementation. In explaining who is involved in the process, an employee stated:

We get all of the IT managers together and we start the process and then we've got another two days set for November and again

it's the whole of the IT community that is involved so basically understanding what is happening at the business level, understanding what's happening within the IT space, major focus areas are debated etc. and as I said for me it's a facilitation of that; the people like CTO, IT Service manager, IT manager (Application) provide the actual intellectual content as well as the CIO.

(dZ_RM003 p 95:16-23)

The CIO of the organisation has a mandate to decide on any unclear instances in the development and implementation of the IT strategy. The CIO delegates responsibilities for the various components of the IT strategy to the IT managers who report directly to him. The responsibilities include exploitation of resources and execution of policies.

These agents do not act in a vacuum but within a structure (rules and resources). Structure and agency, according to Giddens (1984), are a duality that cannot be conceived of apart from one another.

5.3.1.2 Structure

The word 'structure' must not be confused with its obvious connotation of organisational hierarchy in the English language. Structure in Structuration Theory are rules and resources, instantiated in recurrent social practice (Giddens, 1984).

In conjunction with available resources, the organisation has rules and regulations within which IT strategy is developed as well as implemented. The development or review of IT strategy is done bi-annually - at the end of alternate calendar years IT strategy is developed or reviewed against the organisational requirements for the following year. To achieve this objective, time frames are set and information required by individuals is provided. At the end of each calendar year, the CIO and some of the IT managers (his direct reporting line) meet, usually for two days. Heads of business units are invited. One of the IT managers explained as follows:

Let's start with the development of the IT strategy. People who develop the IT strategy are people who take input from the CIO. The CIO takes input from the business in the form of business strategy. Essentially, the CIO has a group of people that help him to decide to define that strategy. The CIO gets his mandate from the organisation. He then uses his prerogative to decide whom he wants to participate in the development of the IT strategy.

(dZ_AR003 pp 26-27:26-29;15-17)

The office of the CIO is responsible for the development as well as the implementation of the IT strategy in the organisation. The CIO identifies and invites relevant actors, and initiates the creation of the IT strategy.

The CIO owns IT strategy. He and his immediate reporting lines create the IT strategy.

(dZ_AR001 p 7:6)

The resources for achieving the development and implementation of the IT strategy in the organisation include technical and non-technical factors, such as technology and people, respectively. The organisation has rules and regulations through which the development and implementation including resources are managed.

The process is structured but is not rigid. . . it starts with the review of the business objectives against the current state of IT in the organisation, and then defines the future state. The various units provide inputs, but the IT strategy is largely dictated by the Architecture unit and CIO as allowed by the structure of the organisation.

(dZ_AR002 pp 12-13:30; 8-10)

There is a period of consultation with IT managers, but the decision is essentially a top-down one, taken on the basis that the organisation must have an IT strategy to support and enable the organisational processes and activities.

Everybody gets together the same time to discuss the issues, although they provide input, it is still largely dictated by architecture and CIO.

(dZ_AR002 p 13:7-9)

The CIO, in accordance with the organisation's mandate to him, defines the rules within which the IT strategy is developed and allocates tasks to the different IT managers. The management practices of the development of the IT strategy are recognised by the IT managers, and there are effective practices for making changes to the IT strategy.

The development of the IT strategy is according to and depends on the CIO. He assesses the changing needs within the Dzuwa business units and decides on what IT strategy to achieve those needs.

(dZ_RM001 p 69:6-8)

CIO is the one that's mandated by the organisation. He has been given the right to do it. He has got different parts to it; he has got the people who do the operational stuff; he has got some risk profiler; he has got the money; and he has got thought leadership.

(dZ_AR003 p 27:22-25)

The CIO's approval of the developed IT strategy leads to its implementation. There is a gap between those who develop and those who implement IT strategy in the organisation, because many of those implementing IT strategy are not involved in the development. Also, the computing environment does not have complete and

necessary structures for implementing the IT strategy. There are no defined rules and processes within which the IT strategy can be implemented. The implementers tend to work around the information that is laboriously provided by individual managers, rather than follow their information needs and requirements. As a result, there are no effective practices.

Implementation is difficult to understand by certain people, especially those who were not involved in the development.

(dZ_RM001 p 71:14-15)

Relevant technical personnel are available, but some of the units do not have enough of them. The IT managers are not experienced in managing implementation of IT strategy and lack awareness of either technical or non-technical possibilities in the implementation of the IT strategy.

I don't have a team of people supporting me, and so in the past this facilitation and describing of the strategy and all of that basically I had to do. What I've done this year is to create a virtual team to help me to actually do that; I've got an Application Architect, I've got three other IT Architects, you know about four people in the virtual team who actually help me to articulate and facilitate this process.

(dZ_RM003 p 79:12-17)

While development of the IT strategy in the organisation is undertaken by the CIO and his direct reporting line of IT managers, each of the IT managers is allocated part of the IT strategy to be implemented. The CIO instructs the IT managers to enforce performance contracts for the implementation of the IT strategy.

Based on the organisation's rules, the CIO is mandated to allocate the available resources for the development and implementation of the IT strategy. On another

level, the organisation's rules permits the IT managers to make decisions concerning different resources.

The mutual dependency of agency and structure, and their link via modalities within the computing environment of the organisation, are discussed in the next section.

5.3.1.3 Dimensions of the Duality of Structure

For the primary purpose of analysis, social structures and human interactions in the development as well as in the implementation of IT strategy are divided into three dimensions and the recursive character of these dimensions is illustrated by the linking modalities.

The structures and interactions that take place during the development of IT strategy are not necessarily the same during the implementation of IT strategy. In Tables 5 and 6 below, the Structuration Theory analyses of Dzuwa's computing environment are summarised for development and implementation, respectively. The discussion that follows after the tables should be read together with the tables to get a full appreciation of the duality of structure during IT strategy development and implementation, respectively.

IT Strategy Development

Signification	Domination	Legitimation
Since IT strategy is as important as the business strategy in the organisation, development remains with the senior employees. This includes the CIO, Exco and Architects.	The CIO and his direct line of reporting IT managers are quite autonomous despite the nominal hierarchical structure within the IT department. Employees cannot make decisions on issues around the development of IT strategy.	The CIO is responsible and accountable for the IT strategy of the organisation.
Interpretive scheme	Facility	Norms
IT strategy is the platform upon which to set goals and use the scarce resources to satisfy the business needs. As such, both (IT and business) strategies must be aligned with each other. The responsibility for this has been mandated to the CIO.	The CIO has the authority to allocate resources to the development of the IT strategy.	Mandatory rules and regulations of the organisation.
Communication	Power	Sanctions
There is little communication between the CIO and his direct line of reporting IT managers, who together are responsible for the development of IT strategy, and the rest of the IT managers and employees.	The CIO uses his mandate to assemble an elite group to develop the IT strategy.	IT strategy is developed and approved by the CIO and IT Exco, and then filtered through to the rest of the employees.

Table 5: Dzuwa - Duality of structure during IT strategy development

IT Strategy Implementation

Signification	Domination	Legitimation
Technical aspects receive priority due to the technical interests of lower level decision makers, not because they match with a particular aspect of the IT strategy.	Implementation is dictated more by what can be done, than by what should be done.	IT strategy implementation is carried out by employees at lower levels who have not been involved in the development of the strategy.
Interpretive scheme	Facility	Norms
Employees rely on technical abilities and understanding when interpreting their implementation tasks.	Use of available skills and capacities are often preferred above recruitment of required skills.	Implementation of IT strategy is done according to individual performance contracts.
Communication	Power	Sanctions
There is a one-way, high-level communication from the CIO and the IT managers to the rest of the employees to move from development to implementation. During work on implementation, there is a one-way, technical level communication from the employees to the IT managers and from IT managers to the CIO	The IT managers including employees use individual authority and information within their reach and technical ability to protect their individual interests.	Employees accept their individual tasks to implement IT strategy without full understanding of the developed strategy. Politics of rivalries affect the workload and create an environment of non-cooperation for work to be done.

Table 6: Dzuwa - Duality of structure during IT strategy implementation

Tables 5 and 6 are discussed in detail below.

Duality of Structure: Signification and Communication

After the development of IT strategy, it is communicated to all employees through their various managers, including the organisation's intranet site, and there is a presentation by the CIO to the wider audience of the computing environment in the organisation. IT strategy is communicated for the sole purpose of implementation. The means through which the implementation is carried out is also presented and communicated to all employees in the computing environment including business managers who receive the services of the IT department.

It is communicated once a year to 14 separate audiences. It goes to the stakeholder group, which are the IT leaders. There's business leaders and everyone within the IT leadership space that includes technology staff. Its open session depends on the people's availability and interest whether they want to attend or not. The CIO does a final presentation. Once it's gone through the internal stakeholder group, technology staff and the business as a whole. Then after, it goes to the vendors, it goes external. We communicate that way so the communication does happen, it then depends on people, if they don't understand, to go back and clarify their understanding. It's a part of management process.

(dZ_RM002 p 87: 23-31)

We do publish it on the web as well; and one should possibly be able to do more work around that; but even having said that you know what I'm referring to is the consolidated Dzuwa IT strategy.

(dZ_RM003 p 98:11-14)

For awareness and implementation purposes, the managers of the various units within the IT department present only that part of the IT strategy that concerns their unit to their employees: The CTO presents the architectural strategy aspect of the

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IT strategy to the Architects; The IT manager for Application presents the business applications strategy aspect of IT strategy to employees within the application unit.

First it is agreed upon within the stakeholders, business, general managers that the CIO reports to. Middle managers will then communicate it down to their staff or all other levels. Then performance contracts that are drawn for operational staff are drawn such that operational staff delivers in line with that strategy. So deliverables are broken down according to levels. So no work can be done unless it supports the IT strategy.

(dZ_AR001 p5:8-13)

It is communicated appropriately to all the different management entities that exist in IT so that IT managers can put all the different areas together for the available information. Whether it permeates to everybody below is what I sometimes questioned. This is because, remember the people who have to action those things are really the people taking charge from a management perspective.

(dZ_AR003 p 32:5-9)

In implementing IT strategy, each unit is allocated a task and each unit further allocates part of its task to individual employees. Deadlines are set for the individual tasks. During task allocation and deadline fixture, negotiation takes place between the managers and the employees involved. The performance contract is signed at consensus by the employee and the manager, listing the various tasks and timeframe within which duties will be carried out and completed. At the point of agreement between both parties, the performance contract is enforced.

And from management action statement, which indicates what themes, what focus areas, you then allocate accountability to that and that becomes part of your individual performance contract for

the next ensuing year and so it is driven down into individual accountability.

(dZ_RM003 p 97:2-6)

Essentially the IT strategy goes to the IT managers because it's something that the operational side cannot necessarily enforce directly, sometimes if it's something they can enforce they'll try to do it but they may miss the bigger picture which is the IT strategy.

(dZ_AR003 p 23:18-21)

The implementation of IT strategy in the organisation is critical in order for objectives to be achieved. However, there are problems. Implementing IT strategy is largely dependent on the employees, who have widely differing levels of interest and technical skills. Some are rather interested and happy to carry out (implement) their allocated task. Others don't see any personal value in it and simply regard it as an extra burden in their already complicated activities in the computing environment. Deadlines come and go, and many of the tasks are not completed.

IT strategy plays an important role in the organisation by supporting and enabling its business processes and activities. The employees believe that IT strategy is the platform upon which to set goals and use the scarce resources to satisfy the business needs. The general opinion is that IT strategy is very important and thus it must be aligned with the business strategy. Some of the employees complement each others' view by saying:

IT is an enabler of business processes and the IT strategy is a way of enabling business or optimising business so the IT strategy essentially should be aligned with the business strategy.

(dZ_GT002 p 56:8-10)

The business strategy determines the requirements for the development of the IT strategy in Dzuwa. The process is driven or spearheaded by the CIO. They first get the business to sit down and deal with the business strategy. You get the IT community headed up by the CIO, in order to instrument an IT strategy or to start with saying the IT strategy comprises A, B and C you need to understand what the business wants to achieve, so you get this business strategy from the business.

(dZ_AR003 pp21-22:30-32;1-3)

The business objective is more important. Without the business objectives and the business strategy there is no IT strategy. Because IT strategy is just support at this moment in time Dzuwa's technology strategy or IT strategy supports the business objectives.

(dZ_RM002 p 85: 2-5)

During the development of IT strategy, decisions are reached through the IT Exco meetings and processes. Based on the rules and regulations of the organisation, employees do not necessarily have the right and privilege to contribute to those decisions, and not every employee is allowed to participate in the development of the IT strategy.

The Business clients, Architects, IT managers and the CIO are the ones who are involved in defining IT strategy in Dzuwa.

(dZ_TS002 p 108:26-27)

In Dzuwa, IT strategy is developed behind closed doors. A few players in the IT department do the development. This is because of the current organisation structure that we have in the organisation. We have an Architecture team representative and

representatives from other units within the IT department such as the Risk and Application teams.

(dZ_GT001 p 45:19-23)

Collective choice is involved in defining the needs and allocation of resources in the development of IT strategy to meet the business strategy needs. Debate, discussion, pressure and protest are all part of the process of collective action, which determines which needs should be met or at least each need's priority, and the distribution of resources.

In Dzuwa, the IT strategy development, it's not really a process, it's more of a collection and agreement among the architecture team, the rest of IT and the business units.

(dZ_AR002 p 11:2-4)

What we do is consult with all our clients to find out what their main projects are that they are going to require in the next time period we get an architectural view point of the work that the architect sees is going to be needed to be done in those specific areas and we also get a technology solutions view of the work that needs to be performed.

(dZ_TS002 p 107:4-8)

Another view expressed by one of the middle management employees was:

It's a long process. My understanding of the process is they (IT managers) look at the business strategies, they collect orders for the business process, architecture, technology and every other thing.

(dZ_RM002 p 79:16-18)

The employees are not merely workers of the organisation, but are a part of the organisation, and it is through their input to the implementation of IT strategy that they contribute to the organisation. Some employees are very experienced and others are technically skilful. IT managers and their various subordinates (employees) engage in interactions in terms of the performance contracts to achieve the objectives of the IT strategy.

The components of IT Strategy are implemented through the various teams and groups according to performance contract. The IT strategy implementation starts with the IT managers and they bring it down to our level and we discuss who will do what.

(dZ_TS003 p 121:22-25)

The technical component of IT strategy is given more priority than the non-technical factors in the development and implementation. No doubt, the development as well as the implementation of IT strategy has primary technical activities. In the computing environment, non-technical factors are regarded as secondary issues. Ironically, these components make the rules and regulations of development and implementation of IT strategy effective or defective.

Our IT strategy implementation often goes along technical lines and is very technically oriented and not necessarily aligned with the strategy; so you have the people who make the decisions at a much lower level, at an operational level will make technology choices which are because of the technology not because they match with a particular strategy.

(dZ_GT002 p 58:1-5)

Employees feel they are neglected in the development and as such, they lack the interest to try and gain an understanding of IT strategy. The different levels of interests and understanding make communication difficult. In this situation,

achieving the necessary cooperation of the employees can potentially be quite difficult. As a result, the rules, regulations and resources to implement IT strategy are not appropriately adhered to.

The employees don't feel like they are contributing to it. So they can have very negative views of it. You know technology people are very different breeds. They always believe they know everything, so if they have not contributed to it, they can cause damage in their interaction because all of us have interaction with the business to some degree and it could create false perceptions around the strategy's think that everyone that works with technology is a marketing person for technology.

(dZ_RM002 p 89:1-7)

In addition, some of the employees are of the opinion that there is poor communication in the IT department and that the poor communication contributes to the different levels of interest:

There is no broad base communication. If we had a communication strategy that reached to everybody the same message across the organisation, I think we would have less of people going against the IT strategy because even if your interest was low as for instance you wouldn't have an excuse because it would have been communicated so that you can understand it, I think that's what it really boils down to.

(dZ_AR003 p 32:23-28)

It became clear from discussions with interviewees that conflict exists between the employees and IT managers across the different 'units' in the computing environment. While the latter can be seen to encapsulate the positive qualities of management and superiority as they strive to provide quality service to the

business needs, the former encompasses the more negative aspects, as one IT manager pointed out:

I think part of IT strategy is there's a change management process that needs to be implemented as well and that's obviously a difficult thing; it's easy to go and change systems to what you want it to be in the future because the system doesn't push back but unfortunately people push back. People push back because the previous IT strategy that may have been implemented was more aligned to their wants and needs and obviously something that you push forward now that may not be necessarily something they agree with and especially if they are in some pivotal position.

(dZ_GT001 p 48:5-13)

Duality of Structure: Legitimation and Sanction

IT strategy is important to the organisation. As such, the responsibility and accountability for IT strategy, including the development and implementation, is mandated to the highest authority, which is the office of the CIO in the computing environment. In developing IT strategy in the organisation, the CIO applies the mandate accorded to him by the organisation to ensure that the managers reporting to him abide by the rules and regulations within which IT strategy is developed. An employee relates the boundary of the rules of responsibilities as follows:

Right on the business side it is the senior management, they take ownership of business initiatives to make sure they get driven to completion and obviously those...that might filter down into business units that might change processes. On the IT side, it's the CIO that's responsible for the IT strategy, the likes of the CTO, risk manager whatever else you've got and heads of the development arms are responsible for executing parts of it and that filters down

to analysts, project managers and developers all play their role but ultimately the CIO is accountable.

(dZ_AR004 p 36:10-16)

In the development as well as implementation of IT strategy in the organisation, the CIO presents mandatory rules and regulations to which IT managers and the rest of the employees abide. These rules and regulations are seen and accepted as an obligation within which IT strategy is developed and implemented in the organisation. The rules and regulations allow for how the tasks of developing and implementing of IT strategy are allocated to the employees. The allocated tasks are treated as non-negotiable and built into individual performance contracts of each employee.

Then performance contracts that are drawn for operational staff are drawn such that operational staff deliver in line with that strategy. So deliverables are broken down according to levels. So no work can be done unless it supports the IT strategy. The implementation is directly linked to performance management systems.

(dZ_AR001 p 5:10-13)

Though mandatory rules and regulations exist with respect to the development and the implementation of IT strategy in the computing environment of the organisation, getting buy-in from the employees is still very necessary and vital. The mandatory rules and regulations without buy-in remind the researcher of an adage that says 'you can drag a horse to the river but you cannot force it to drink the water'.

The IT strategy component that I formulate is done through the CIO's Exco team. It is basically indicating where we need to go etc, within the scope of the supply/demand governance business model. I facilitated the process with all of IT Exco, about twenty of them so around those organisational positioning it involves all of the

IT managers at Dzuwa because unless you do that you don't get their buy-in.

(dZ_RM003 p 96:4-9)

As a result of the imposed rules and regulations, some of the employees are proactive participants and others are reluctant or antagonistic in the development as well as in the implementation of IT strategy in the organisation. Some of the employees at the junior level are interested in more active roles in the development of IT strategy. Unfortunately, the rules of the organisation do not allow their participation in the development of IT strategy.

Some of the employees on the junior level are adamant to continue in their own way, cause they feel they were not listened to, or they were not made part of the IT strategy.

(dZ_AR001 p 6:4-6)

Employees do not have an option, they have to accept the rules and regulations, as provided by the computing environment, which guide the development and implementation of IT strategy in the organisation. However, some employees feel left out and think they have ideas that could contribute, particularly to the development of IT strategy. As a result, there are mixed reactions from the employees.

Some staff support and as such are interested in the IT strategy mainly because it personally benefits them. On the other hand, some people reject the IT strategy in any form due to the fact that it seems to alienate or does not benefit them.

(dZ_RM001 p 74:30-32)

It seems unlikely that there will be improvements in how IT strategy is currently developed and implemented in the organisation. This is because implementation of IT strategy in the organisation is not easy and some of the managers seem unable to identify what and where mistakes and problems are. The results revealed an imbalance between technology and people, with an overemphasis on technology. However, some employees do understand the problems. This is due to their ultimate involvement in the problems.

The people impact is huge. Only the person involved can control his/her activity in whole. The manager can only control it to a certain extent. If the person applies his/her frustration, the impact is negative. Frustration can be due to lack of incentive and unhappiness.

(dZ_TS003 p 123:27-30)

The employees were aware of the criticality of their roles, particularly in the implementation of IT strategy. They felt that the managers do not realise or are ignorant of the difference that they, the employees, could make to the implementation of IT strategy.

Duality of Structure: Domination and Power

The organisational rules and regulations bind the IT department, which is managed by the CIO. The CIO and the IT Exco manage and control the broad strategic decision-making of IT strategy. The CIO makes the final decision on all matters relating to IT strategy in the organisation.

The CIO owns the IT strategy. The CIO, IT Exco and Strategy & Risk Manager are responsible and accountable for the IT strategy in Dzuwa. Well I think it is obvious that the IT strategy is part and parcel of their (IT managers') band-aid within the organisation. It's

part and parcel of their position and role. Who else would do it if the CIO doesn't?

(dZ_RM001 p 71:19-26)

The positions responsible for the development and implementation of the IT Strategy are only the senior positions such as the head of IT and his immediate reporting lines. They are responsible because they are the ones who have got the power to make decisions.

(dZ_TS003 p 122:20-27)

The IT managers have lesser authority (as compared to the CIO), which they use to respond to conflicting demands of the employees. The CIO has maximum authority to demand from his employees the deliverables for the development and implementation of IT strategy in the organisation.

The organisation's own capacity also influences IT strategy. They own capacity, for example, if they (IT managers) have a shortage of a certain skill, they might decide not to recruit the skills, they might rather decide to change direction, move away from it, etc.

(dZ_AR004 p 37:20-23)

Within the level of management, the IT managers do not have equal power to contribute and make decisions in the development and implementation of the IT strategy in the organisation. Some IT managers are directly involved in the development of IT strategy and others are not. IT managers such as the Chief Technology Officer (CTO) and Risk Manager are specifically mentioned by many of the interviewees. They are seen and regarded as more popular and powerful than others. This is due to the extent of their involvement in IT strategy. There are about thirty IT managers on the same level in the computing environment of the organisation.

In Dzuwa, IT strategy is developed behind closed doors. A few players in the IT department do the development. This is because of the current organisation structure that we have in the organisation. We have CTO (Architecture team representative) and Risk and Application IT Managers. So you have all these players bringing their expertise from their specific areas behind some closed door and to be honest, I can tell you what I expect to come out from there but I haven't been privy to how the actual IT strategy itself has been put together at Dzuwa.

(dZ_GT001 p 45:19-26)

As a result of unequal power and popularity on the management level within the computing environment of the organisation, IT managers are struggling to attain power, influence and control. This was evident in the interviews.

There are too many 'power' struggles and personal interests within the IT department in the organisation. People are afraid to change. People will sabotage or refuse to contribute to any work because they are not in agreement or it does not favour them. These groups of people are the ones that have been in the organisation for a long period.

(dZ_AR002 p 20:8-12)

Some of the power struggles are manifestation of racial acts. This was experienced at the senior level, as a result of the replacement of a white-male CIO with a black-male CIO.

There are people who I do not believe could support the personality of the new CIO, most especially because he is black... We have the old managers below (the CIO) that are still in place and I am not sure that all of them work well with the new CIO.

(dZ_AR001 P 7:17-18; 19-21)

Similarly, the employees share unequal power in the implementation of the IT strategy. Some of the employees are seen and considered to have more privilege than others. This is perceived to relate to technical skill, stocks of knowledge or an established relationship with the IT manager and or other employees concerned in the particular implementation.

I think there is a level of privilege that has purely got to do with the structure in the organisation. I think that if I go and ask a developer sitting somewhere in the IT organisation what is the IT strategy I don't think I'm going to get the answer. That's just my perception.

(dZ_AR003 pp 31-32:30-31;1-2)

In one of the interviews, an employee prefers to categorise the inequality in the computing environment of Dzuwa as follows:

In Dzuwa, perceptions are on both on the High and Low ends:

High end – those who are very happy in their various positions and enjoying the work that they are doing. The perceptions of these people are that there is IT strategy and it is working well. They wouldn't want any change in and around it.

Low end – these are people who are unsatisfied with whatever situation they are in. These people's perception is always negative. They are not even interested in understanding what is going on within the environment.

(dZ_TS003 p 124:6-12)

The control of activities in IT strategy is evidently unequal in the two fields of development and implementation. The CIO and the senior IT managers (the

managers who report directly to the CIO) are more in control of the development of IT strategy, while implementation issues are often controlled by employees at lower levels.

The implementation is more likely to be where the personal side comes in, the building of the kingdoms, the personal gain because that is where the IT strategy is more measurable than the defining or the development of the strategy.

(dZ_GT002 p 63:26-29)

IT strategy is regarded as a critical tool for the enabling and support of the business processes and activities in the organisation. As such, interpretation and sense making of IT strategy in the computing environment are vital. Also very important is how the strategy is communicated to the employees and who are involved in the development and implementation.

The development and implementation of the IT strategy is done through allocation of tasks and all employees in the computing environment are involved, but at different levels. Employees at the senior levels carry out the development and the rest of the employees are largely involved in the implementation of IT strategy. All employees accept their individual and group tasks as defined by their performance contracts.

The rules and regulations dictate 'power' through the allocation and control of resources during the development and implementation of IT strategy. Another important factor is how employees, including managers, applied resources within their reach and control. Managers dominated according to the resources they have at their disposal.

In this analysis, some of the difficulties of IT strategy are exposed, including the autonomy of the managers and the varying degrees of interests of employees within the units headed by the managers. It is evident that employees (non-

managers) are marginalised in the development of IT strategy. It is also evident that rules and regulations are very important factors in the development as well as the implementation of IT strategy in the organisation.

Using the Duality of Structure from Structuration Theory, we were able to analyse the recursive relationship between structure and human actions in the development and implementation of IT strategy.

During development of the IT strategy, the CIO and his direct line of reporting IT managers are in full control, as mandated by the organisation. Communication is restricted to intra group communication, excluding the rest of the employees. These communicative actions reproduce the structures of signification that says that development of the IT strategy would be undertaken by the CIO and his Team. Using the power bestowed on him by the organisation, the CIO takes responsibility for the development of the IT strategy and assembles an elite group – those IT managers reporting directly to him – to develop the IT strategy. These actions produce and reproduce the structures of domination which put all decisions regarding the development of the IT strategy in the hands of the CIO and his Team. Finally, when the CIO and IT Exco approve the developed strategy, it is filtered through to the rest of the employees as an accomplished fact, reproducing the structure of legitimation which recognises the CIO as being solely responsible and accountable for the IT strategy.

During implementation of the developed IT strategy, employees are mobilised by their managers to undertake the implementation of aspects of the IT strategy by allocating these as tasks to them. Communication is one-way, from employees to the IT managers, and focuses mainly on technical issues. These communicative actions reproduce structures of significance, which are that technical aspects receive priority due to the technical interests of employees, regardless of their actual match with the developed IT strategy. Employees and managers use their technical abilities and information to protect their own interests, reproducing the

structures of domination, based on technical skills and knowledge of the organisation, respectively. Finally, employees work according to their individual performance contracts without full understanding of the developed IT strategy. Their work is affected by politics of rivalries which create an environment of non-cooperation during implementation. All of this reproduces the structure of legitimation that employees at lower levels, who have not been involved in the development of the strategy, will implement the strategy.

A more detailed analysis is now undertaken through Actor-Network Theory.

5.3.2 Dzuwa case study as viewed through ANT

This section analyses this case study from an Actor-Network Theory (ANT) perspective by drawing upon the sociology of translation as described in Chapter Two. The focus is on how 'the actor-network' grows, changes and possibly stabilises during development and implementation of IT strategy within the computing environment of the organisation. The case study is analysed on the basis of the four moments of translation, namely, *problematization*, *interessement*, *enrolment* and *mobilisation*.

The main goal and objective of IT strategy is to align it with the business strategy of the organisation. To achieve this, a set of requirements is formulated. The requirements are problematised by the CIO for the employees. IT strategy is developed and implemented as a solution for these requirements.

The most important actors involved in the actor-network, and their interests, are first described. This is followed by the analysis, using the four moments of translation.

Business Managers: The Business Managers develop the business strategy on behalf of the organisation, with which the IT strategy is aligned.

The IT strategy was put together with some input from the business, the business strategy going forward, what strategy the business has and then that was translated into technology requirements and that leads to IT strategy.

(dZ_AR004 p 33:21-23)

The Business Managers present the organisation's business goals and objectives to the computing environment through the CIO.

Chief Information Officer (CIO): Is responsible and accountable for IT strategy including its related issues in the organisation. The CIO is the main interface between the IT department and the rest of the organisation.

The development of the IT strategy is according to and depends on the CIO. He assesses the changing needs within the Dzuwa business units and decide on what IT strategy to achieve those needs.

(dZ_RM001 p 69:6-8)

The CIO is the head of the IT Executive committee (IT Exco) in the IT department of the organisation.

Chief Technology Officer (CTO): Is a member of the IT Exco and reports directly to the CIO. The CTO is responsible and accountable for the Architectural component of IT strategy, including technology management within the computing environment.

The CTO is important because he needs to have a business view as well, but also a very strong view on technology. He needs to be able to provide an input to the CIO, so when they do develop those

business objectives, the CTO could be expected to know everything about everything.

(dZ_AR002 p 18:26-30)

In addition, on behalf of the organisation, the CTO investigates and researches the technology trends in the industry and their alignment to the business goals and objectives of the organisation.

IT Managers: The IT Managers referred to here are those reporting directly to the CIO. Together with the CIO, they are responsible for the development of IT strategy in the organisation.

The position responsible for the development and implementation of the IT Strategy are only the senior positions such as the head of IT and his immediate reporting lines.

(dZ_TS003 p 122:20-22)

The IT managers are also responsible for the day-to-day tasks, such as the implementation of IT strategy operations within the computing environment of the organisation. These operations include both technical and non-technical resources.

Architects: The Architects, together with the CTO, develop the architectural component of IT strategy. They are also responsible for the governance of the technologies based on the principles and standards as set by them within the IT strategy mandate.

Architects, they define the direction of the development of the technologies and projects.

(dZ_TS002 p 113:10-116)

Each Architect has an area (domain) of responsibility such as software, hardware and process.

IT Employees: This excludes managers. They are largely responsible for implementing and applying the principles and standards as dictated by IT strategy in the organisation. According to one of the employees:

In Dzuwa, it's the junior management and the rest of lower employees, which are very hands on. Junior Managers identify the needs, middle managers collate it and senior manager finalise it.

(dZ_AR001 p 4:10-11;25-26)

IT employees are divided across the units of the IT department, which includes application design and development, network configuration and storage management.

Technology: this includes hardware and software, which are selected in the development and implementation of IT strategy.

IT strategy is important. It enables Dzuwa to look at cost and set direction for both hardware and software in the organisation.

(dZ_TS001 P102: 2-3)

The manner in which the different hardware and software were selected during development and how they were implemented was critical for the IT strategy.

Performance Contract: Tasks are allocated and managed during the development and implementation of IT strategy in the organisation through the performance contract.

The components of IT Strategy are implemented through the various teams and groups according to performance contract.

(dZ_TS003 P 121: 22-23)

All employees in the computing environment have a performance contract, through which individual activities were controlled and managed.

Skill-set: the employees have different technical skill sets. Also, some of the employees are more highly skilled than others.

At the moment, some staff are more skilled than others. We do require highly skilled people in the development and implementation of our IT strategy.

(dZ_AR004 P38: 28-29)

The skill capabilities are considered in the allocation of tasks to the employees.

5.3.2.1 ANT Translation: Problematisation

The business managers present the CIO with the organisation's strategy, with which he must align IT strategy. The CIO introduces the business strategy to his executive (IT Exco) team, which includes the Chief Technology Officer (CTO) and certain IT managers (Risk and Strategic Manager, Application Development Manager and Service Delivery Manager). The IT Exco is requested to develop the IT strategy for the organisation and ensure that it aligns with the business strategy. In one of the interviews, an employee described the introduction of IT strategy in the organisation as follows:

The CIO provides the vision of where IT is going to lead or enable the business on its paths that it's chosen. This is because he articulates the IT strategy against the business strategies. It is very important for him to be part of it. I feel it's his accountability at the

end of the day. Obviously he cannot be everything and everyone to a person. So he delegates a person. This person is the one that needs to look at in detail what to do with the components, analyse the environment and all that.

(dZ_RM002 p 83:23-28)

For the purpose of development, the IT Exco splits IT strategy into components such as Architecture, Application and Infrastructure. IT strategy components are allocated to the appropriate authority as defined by IT Exco. The heads of the units are responsible and accountable for the various components that are allocated to his or her unit.

The IT Exco decides on what aspect or component of the strategy is negotiable and on the other hand, what is non-negotiable.

(dZ_RM001 p 69: 10-11)

All IT-based solutions in the organisation are dictated by the IT strategy of the organisation. All issues and matters relating to the IT strategy are addressed through appropriate channels (units) such as Architecture, Application and Hardware as defined by the IT Exco. The head of each of these units has a mandate to approve/disapprove decisions pertaining to issues relevant to their individual unit. The CIO makes the final decision within the computing environment of the organisation.

By default what one is saying is that if X doesn't deliver he/she gets penalised. For example, if CTO doesn't deliver on that, CTO by implication and his team will be penalised. So, overriding that is performance based because you are driving things at an individual level. All of these strategic themes articulated in the IT strategy have got owners attached to them so I don't police it and it just gets delivered by a normal performance management.

(dZ_RM003:pp-97-98:29-32;1-3)

Employees are allocated tasks in the development and implementation of the IT strategy in the organisation. For example, all architectural work in the organisation must go through the Architecture department for approval.

Development and implementation of the IT strategy is done through allocating responsibilities including allocation of human resources. This is followed by regular sessions with the clients.

(zD_TS002 p 110:15-17)

We also look at it because from an architectural point of view, we also look at what technologies are going to be approved, i.e. the technologies going into the future.

(dZ_TS002 p 108:29-31)

The performance contract is engaged to ensure that each employee performs his/her individual tasks in the development and implementation of the IT strategy. The IT managers manage the performance contract of their individual employees. The CIO manages the performance contract of the IT managers.

During this stage, the CIO uses the main goal and objective of IT strategy, namely, to align with the business strategy of the organisation, to formulate a set of requirements. These requirements are problematised by the CIO, and under the leadership of the CIO, the development and implementation of IT strategy is presented as a solution to the problematised issue. The processes of development and implementation of the IT strategy are defined as the Obligatory Passage Points (OPP) through the implementation of individual performance contracts in which agreed upon tasks related to the development and implementation of the IT strategy are assigned to all employees.

5.3.2.2 ANT Translation: Interessement

At Dzuwa, the IT strategy is currently developed and reviewed annually. Sometimes, the implementation is not completed until the following year. The performance contract, which is instituted by the organisation, is used to carry out tasks in the development and implementation of IT strategy in the computing environment. The outcome of individual performance contracts is used to determine employees' annual salary increases and financial bonuses. As a result, some employees become interested in the development as well as implementation of IT strategy.

IT strategy solutions are short-term solutions instead of longer term. This is because bonuses are on an annual cycle or a bi-annual cycle and the performances are measured on a very short term. The incentives and behaviours are also based on short-term.

(dZ_GT002 p 62:27-30)

With regard to the development and implementation of the IT strategy, employees are required to have a performance contract. To a certain extent, negotiation is allowed but it is highly restricted. This process involves every team, unit and individual including the CIO and the IT managers in the computing environment of the organisation.

IT managers consult with their various employees. The employees' input is put together in a consolidated view and then presented to the CIO including the IT Exco. At the end, both the IT managers and the employees agree on what to do.

(dZ_RM002 p 83:13-16)

The components of IT Strategy are implemented through the various teams and groups according to the performance contract.

The IT strategy implementation start with the IT managers and they bring it down to our level and we discuss who will do what.

(dZ_TS003 p 121:22-25)

The various interests in IT strategy are either individual or team based. Individual interests were mostly based on 'stocks of knowledge', which makes the employee concerned more comfortable in carrying out his/her tasks. The team interest is according to roles, responsibilities and skill-set. In all cases, however, the performance contract and its outcome, with attached possible salary increases and financial bonuses, could be seen as a major driver of the interest of employees.

5.3.2.3 ANT Translation: Enrolment

The participation of employees in the development and implementation of IT strategy is key in achieving its aims and objectives. The CIO and the IT Exco use the performance contract as a system which enables them to persuade and convince employees at all levels to engage in the development and implementation of IT strategy in the organisation.

Once the IT strategy has been developed and allocated I have never taken on the role to police the delivery against the IT strategy because it's built into Key Result Areas (KRA) and therefore into performance contracts. For example, the application team intimately know what the IT strategy is, from their perspective at a applications layer. You would have to work through his business solutions managers, drive it into their performance contract; they in turn will drive it into the performance contracts.

(dZ_RM003 p 97:27-29; p 98:15-18)

Development and implementation of IT strategy in the organisation is done through allocation of tasks to employees and managed by IT managers. The task allocation is done in accordance with individual and teams roles and responsibilities within

~~to provide~~ the computing environment. This is based on performance contracts as outlined by the rules and regulations.

The way the performance contracts are managed is that they are implemented across the group. The performance contract is consistent in standard and the monitoring tool is in place to ensure that implementation takes place in the correct manner and lifts value for the business from a risk perspective and from a policy perspective.

(dZ_RM002 p 81:23-28)

Heads of the different teams in the computing environment report the activities and progress of events of the teams to their immediate managers and the IT Exco. The activities and progress reports include the allocated tasks in the development and implementation of IT strategy. This is done in order to assess elements such as risks and gaps, including participation levels of employees in the development as well as in the implementation of IT strategy in the organisation.

IT managers are positioning themselves in a particular way within the organisation; it could be competitiveness between managers, it could be vying for position, it could be the imminent threat of retrenchment or again whatever the reasons are that IT strategy might not be implemented because of personal interests in an individual's potential loss of job. As a result of this, some do and others don't report exactly what is happening in the areas. I can use our team as an example: the manager has been reporting that everything is fine because his bonus depends on it; but when internal audit came and measured the effectiveness, it came out as a red so what he is saying versus what has proven to be the case are two different things.

(dZ_GT002 p 59:4-9;p 58:27-30)

However, some of the employees still do not or only reluctantly participate in the development and the implementation of IT strategy. Some employees attribute reasons for their lack of participation in the development and implementation of IT strategy to a lack of opportunity to participate - often caused by racial prejudices. Other employees, mostly on the senior level admitted that there were factors and circumstances that sometimes prevented individuals from participating in IT strategy in the organisation:

Some people don't like working with other people. My case is an example. Some people do not like working with me. The reasons are partly a power struggle, partly ignorance, personal and staff capabilities.

(dZ_AR001 p 6:14-16)

That's very much a...I like the word kingdom because the managers like to have clear control over their areas of responsibility; they want their engineers, they want their services, they don't want anyone to ever compete with them and that could very well be a fear of competition; or a fear of being shown up by someone who could be better at the job.

(dZ_GT002 p 61:4-8)

In addition, some employees at times get mixed messages from different sources in the development and implementation of IT strategy in the organisation. These messages are attributed to personal interests. This is put as follows:

Different people in different meetings say different things about the strategy and there's almost a conflicting view of what the strategy is; not knowing what the high level strategy is and the subsequent strategy that comes as a result of that. People have their little

~~ion to be able to~~ kingdoms, there is a development of wanting to retain control and retain power over their area, and not liking the fact that the client might tell them what to do.

(dZ_GT002 p 59:14-17;p 60:15-17)

There are some instances in which decisions are not reached by the parties (stakeholders) involved in the different tasks of development and implementation of IT strategy. In such cases, the action and reaction of the employee or managers responsible becomes a matter of individual choice.

Some IT managers will decide that they have their own view of what technology to achieve and they may not map directly to the IT strategy so they will follow their own direction, it's a common process in Dzuwa - some of that was mentioned this morning in a meeting.

(dZ_AR003 p 25:13-16)

What happens as a result of that is that you sit in a meeting and you'll deal with two or three people and you'll come to an agreement that this is the way forward; you'll invite one more person to the meeting a week later and he'll say no, stop all this, we have to do this and it re-churns and re-churns; and a month later someone else comes on and says stop, stop, this is it.

(dZ_GT002 p 60:6-11)

The majority of employees at the lower levels do not have a full understanding of how IT strategy is developed, yet they enrol in the implementation. The high level of enrolment and participation are due to the performance contract, which forces every employee to enrol accordingly and complete the allocated tasks in the development and implementation of the IT strategy. The low level of commitment,

however, causes division and the pursuit of individual interests among the employees.

5.3.2.4 ANT Translation: Mobilisation

The realisation of the annual salary increase, including financial incentives, motivates many employees to be committed to the IT strategy in the organisation. Also, IT managers in the various units are tasked to encourage employees in their various units to be committed to the development and implementation of IT strategy. The tasks are linked to the performance contract. As a result of the potential impact of the performance contract, the IT managers speak positively on behalf of their superior (CIO) and the IT department on the need, aims and objectives of IT strategy in the organisation.

First it is agreed upon within the stakeholders, business, general managers that the CIO reports to. Then after that, the middle managers will communicate it down to their various staff or all employees in the different levels.

(dZ_AR001 p 5:8-10)

Employees in the organisation understand the development and implementation of IT strategy differently. Some of the employees think it is too complex and therefore will not meet its goals and objectives. Others, who are believed to be more experienced, consider the development and implementation of the IT strategy to be in order and excellent.

For some people IT strategy has been at too high a level and doesn't drill down into much detail; for others it has been what IT needed to be because they understand the context of being part of the process.

(dZ_RM002 p 82:16-19)

Even though understanding is at different levels/stages, employees are encouraged to participate in IT strategy development and implementation. The IT managers perform the allocation task on a one-on-one basis and in the group meetings with their employees. This process gives the IT managers the opportunity to persuade each of the employees twice. This leads to increased employee participation in IT strategy. For example, the employees (particularly the technical specialists) who did not understand how decisions about IT strategy were made in the organisation are now knowledgeable about it. Each IT manager represents their unit or group at the management level in the development and implementation of IT strategy.

The IT managers should articulate the IT strategy and speak on behalf of the whole IT department into their various groups like the CIO, CTO has done. The Risk and Strategy Manager has also follow suit.

(dZ_RM002 p 87:31-32;p 88:1-2)

The rules of the organisation, through the performance contract, enable the IT managers to mobilise employees in the implementation of the IT strategy. Also, some employees are able to mobilise their colleagues based on their stock of knowledge. The mobilisation is, however, more around the attainment of performance contract outcomes than about the IT strategy as such. In other words, the actor-network mobilises around loosely coupled individual and/or group targets more than around the solution proposed during problematisation.

It could also be argued that the solution and the OPP proposed during problematisation had within it the seeds of such a fragmented mobilisation: a holistic IT strategy, properly communicated to all levels, was not put forward as the solution to be attained; rather, with the development of the IT strategy done "behind closed doors", this was poorly communicated to the different levels with the emphasis then shifting to the implementation. More specifically, the processes

of implementation (the OPP) became the solution to the problematised issue of supporting the business strategy. This meant, *a priori*, that the focus of individuals and groups would be on their tasks within the relative process(es), without necessarily paying attention to the broader picture (which they did not have) and their role therein. Added to this the performance contract and individually negotiated targets meant even more that individual interests and rivalries between managers and groups led to a fragmented mobilisation of the network.

One of the senior employees in the computing environment of the organisation had this to say:

There is politics in the IT environment of Dzuwa. It is about ownership of roles and it touches on innocent people. This politics becomes a stumbling block and pushes projects out of deadlines.

(dZ_RM002 p 80:21-23)

From the point of view of the focal actor, the CIO, this was not a problem, as the network would indeed operate relatively stable and in a target oriented manner to implement the solution proposed. This does not mean, however, that a coherent and holistic IT strategy would be the result of the implementation process.

5.3.3 Findings from the Analysis

From the above analysis of the case study, using Structuration Theory and ANT, some findings can be extracted. These findings are interpreted in Chapter Six. The most critical of these findings are presented in this section.

i. The Importance of Human Interactions

The analysis revealed that human interaction was very important in the development and implementation of IT strategy in the organisation. Through interactions, understanding was gained, allocated tasks were communicated and information was shared between the actors involved in the development and

implementation of IT strategy. At the same time, poor interaction between the top level and the lower levels meant that lower ranked employees in general had a poor understanding of the developed IT strategy, which affected the implementation of the IT strategy.

ii. The Organisational Rules and Hierarchy

Based on the organisational rules, all employees were within the hierarchy of the organisation and as such, irrespective of individual interests, all levels of employees were within the structures of the hierarchy. The organisational hierarchy was a determining criterion for the allocation of roles and responsibilities. In turn, larger parts of tasks were allocated according to roles and responsibilities of the actors involved in the development and implementation of IT strategy in the organisation.

Employees' actions, which the organisational hierarchy allows for, had an impact on IT strategy. For example, certain decisions were not made in the absence of the CIO except when they had been delegated by the CIO, and only the IT managers who report directly to the CIO could be appointed or delegated to act on his behalf. This was accepted by the rest of the employees.

iii. The Effect of Autonomy

The rules of the organisation allowed autonomy in every department in the computing environment. Thus, the various heads of departments were autonomous in their actions during implementation of the IT strategy. As a result of this autonomy, the IT managers were dominant in the allocation, as well as the carrying out of tasks in their various departments. Because of the autonomy granted to the IT managers, they sometimes ignored tasks that were not of personal interest or priority to them and relegated or allocated others to their subordinates.

iv. Exercise of Power

In the computing environment, facilities are processes, procedures and capabilities, and they are vital in the development and implementation of IT strategy. Based on the rules of the organisation, IT managers had access to these facilities. Also, some employees were more knowledgeable about these facilities than their colleagues.

Those who had access to these facilities used it as a source of power and domination in the development and implementation of IT strategy. During the development and implementation of IT strategy, some facilities were acquired through factors which are a manifestation of organisational politics. During implementation of IT strategy, power was exercised to protect individual interests, which shaped the outcome of IT strategy in the organisation.

v. The Implication of Networks of People

Different social networks of people were identified in the computing environment. These networks were along the levels of hierarchy, departmental units and racial lines. Through these networks, employees formed interactive groups through their right of association.

The rules of the organisation mediated in the relationships between the employees and how they interacted during the development and implementation of IT strategy. The interaction went along these lines of networks in the organisation. For example, this made the immediate superior (IT manager) dominant.

vi. Alignment of Different Interests

The analysis revealed that there were different interests during the implementation of IT strategy. These interests were demonstrated in the allocation and execution of tasks in the implementation of IT strategy.

Employees' actions constituted the practice, as an enactment of the structures enabling and constraining the implementation of IT strategy in the organisation. Inevitably, individual employees responded and reacted differently to the practice. For example, because of the autonomy possessed by the IT managers, some of them put personal interest before the objectives of the organisation. At best, a loose alignment of interests was achieved, held together by a joint adherence to the requirements of individual performance contracts.

vii. Superiority Issues

The superiority exhibited by certain individuals and groups, especially in the implementation of IT strategy, was a dominating factor as levels of superiority were used to intimidate employees at the lower levels, which daunted their confidence in carrying out their various tasks. This superiority was, unfortunately, often a manifestation of racial behaviour.

The employees were dominated by senior management in their activities (such as allocation of resources, sharing of services and information and use of mandated authority) associated with the development and implementation of IT strategy in the organisations. As a result of the domination, some employees could not freely express themselves, which affected their contribution to the implementation of IT strategy. In the development of IT, all the actors involved were senior managers and as such, the issue of superiority did not play a role.

As earlier stated, the above findings are interpreted in Chapter Six.

Next, the second case (Eko's computing environment) is analysed. Structuration Theory and Actor-Network Theory are also applied in the analysis of this case study. The following section presents the analysis.

5.4 Case Study: EKO

As described in Chapter Four, Eko and specifically its computing environment is one of the two organisations that were analysed. The two levels of analysis adopted in the research were applied to this case study, starting with Structuration Theory and followed by Actor-Network Theory.

5.4.1 The EKO case as viewed through Structuration Theory

The HOD presents requirements and requests from her employees the development and implementation of IT strategy in the organisation. The employees accept the requirements and also sanction the importance of IT strategy in achieving the business processes and activities of the organisation.

In the analysis, Structuration Theory focuses on the actions of the employees as well as the rules and regulations, and resources associated with the development and implementation of IT strategy in the organisation.

Similarly to Dzuwa, the computing environment of Eko is hierarchically structured. In the development and implementation of IT strategy, processes and activities are carried out by individuals and teams (units) of employees including the IT managers. Within the hierarchy, roles and responsibilities are respectively accorded and mandated, on the basis of the rules and regulations of the organisation.

5.4.1.1 Agents

As in the other (Dzuwa) case, agents are intimately connected with rules and resources. The agents involved in the development are different from those who are responsible for the implementation of IT strategy in the computing environment of the organisation. The employees involved in the development and implementation of IT strategy have different backgrounds and skills, including managerial and technical skills. Also, the employees are made up of different races as well as different generations and a range of ages.

The Executive Committee (Exco) of the organisation mandates the IT department through the head of department (HOD) to be responsible and accountable in all activities, including IT strategy, in the computing environment of the organisation. The HOD uses the mandate to include the IT Management in the responsibility of developing and implementing IT strategy in the organisation.

The organisational strategy is the responsibility of the top management, which is the Exco (executive committee) and as for the IT strategy, basically we have a task team, which is the IT Management that does that.

(eK_ANA001 p 3:3-5)

There are several teams in the computing environment of the organisation. Each member of these teams is responsible for the management of the area/s allocated to him or her. In one of the interviews, an employee described the management hierarchy and allocation of roles and responsibilities of the IT managers as follows:

Within the heads of IT department, there's the claims side; there's IT unit that does work for our 'port' operation; there's a project manager but there's also an IT unit head in that area; and then you go to mainframe unit, there's an IT head in that area; so those different units IT heads form the IT management committee.

(eK_Dev001 p33:29-31; p 34:1-2)

The head of the IT department (HOD), IT Management, IT managers, IT technical staff and the rest of the employees are involved either in the development or implementation of IT strategy in the organisation. However, some employees, such as the IT managers are involved in both the development and implementation of IT strategy. An employee stated that:

It's all positions, all levels that are involved in IT strategy. It's an open forum; they (IT Management) have created groups, which are led by team leaders and project managers and then within those teams, those teams are supposed to have all different levels and its open to the whole department.

(eK_Dev002 p 45:2-5)

During implementation of IT strategy, the roles and responsibilities are spread across the teams in the computing environment. According to one of the employee's view as quoted above (eK_Dev002 p 45:2-5), every employee is involved in IT strategy in one way or another. The IT Management team delegates responsibilities and authority to their various managers in the development and implementation of the IT strategy. Authority is wielded primarily by the exploitation of rules and resources in the development, as well as in the implementation of IT strategy in the organisation.

5.4.1.2 Structure

There are rules and regulations guiding the development and implementation of IT strategy in the organisation. Based on these rules, resources and regulations the HOD is mandated to develop and implement IT strategy through which business processes and activities are enabled and supported.

The resources such as available technologies and human resources in the computing environment of the organisation are managed by the HOD through the rules of the organisation. Management is part of her role and responsibilities. In the order of hierarchy, the responsibilities are further delegated to the IT Management team and other IT managers for the implementation of IT strategy in the organisation.

We have got the head of IT; then below that we have got client support; we have got facilities; below that then we have got (there was another level but that has now fallen away) our different systems managers; . . . we have got a finance system manager, underwriting systems manager, business intelligence systems manager and we have got a development....I can't recall what the correct title is. . . . they (IT Management) report to the head of IT. The head of IT reports to the head of finance.

(eK_PR001 p 52:03-32; p 53:1-7)

Members of the IT Management team have employees through whom their various tasks are carried out. The IT department is divided into four main sections, which are further divided into teams and units of IT managers and their subordinate employees. Also, within the IT department, there are forums, which are linked to one another, and each of them has responsibilities in the development and implementation of IT strategy. An employee described the involvement of the hierarchy in the development of IT strategy in the organisation as follows:

Our IT management went away and worked recently, they defined their IT strategy with the input of the business strategies and then we had another follow-up session where the systems development manager, that's the next level of management, just below IT management, had the opportunity to give their input on the strategy.

(eK_SM002 p 79:11-15)

There are actually different forums; each forum is in charge of its strategic objective to meet the IT strategy.

(eK_Dev002 p 45:12-13)

The employees are allocated to the different units within the computing environment according to their individual skills. Similarly, the financial budget is allocated according to the needs of the units. The HOD mainly does these allocations and management of tasks. The different activities including responsibilities are conducted within rules. The rules are used as benchmarks for the measurement of events in the development and implementation of IT strategy in the organisation.

We have measurements for achieving the planning and doing the IT strategy. It also helps in keeping uniformity and standards, having a strategy basically tells us that's where we want to go, this is how we are planning on going there and when we get there, these are the things that we have to look at, whether we have basically followed them step by step by step.

(eK_ANA001 p 2:13-18)

The various responsibilities, accountabilities and management in the development and implementation of IT strategy originate from the HOD, based on the rules in the organisation. These responsibilities, accountabilities and management spread across all levels of employees in the computing environment of the organisation. The IT managers including the employees rely on these rules in order to carry out their group and individual responsibilities in the development and implementation of IT strategy.

The individuals in the computing environment use the resources within their reach to carry out their responsibilities in the development and implementation of IT strategy in the organisation. The rules are as important as the resources as they depend on each other in the development and implementation of IT strategy. As a result of the dependencies, how the rules are interpreted and used by the different employees is critical. This leads to the use of the dimensions of the duality of structure in the case study, as follows.

5.4.1.3 Dimensions of the Duality of Structure

Similar to the Dzuwa case study, structure and human interaction in Eko's computing environment is divided into three dimensions for the primary purpose of analysis. The recursive character of these dimensions is illustrated by linking modalities.

Also similar to the Dzuwa case study is that the structures including interactions that take place in the development are not necessarily the same as during the implementation of IT strategy in the organisation. The Eko computing environment as analysed through the concept of the Duality of Structure is given in Tables 7 and 8 below are summarised for the development and implementation of the IT strategy, respectively. The discussion that follows after the tables should be read together with the tables to get a full appreciation of the duality of structure during IT strategy development and implementation, respectively.

IT strategy Development

Signification	Domination	Legitimation
As a result of the importance attached to IT strategy in the organisation, development is done by the HOD and the IT Management Team	Only the HOD and IT managers have the mandate to make decisions regarding the development of IT strategy.	Only the HOD or her delegate is responsible and accountable for the IT strategy.
Interpretive scheme	Facility	Norms
IT strategy sets the direction for the computing environment of the organisation, and it must be aligned with the business strategy to achieve its aims.	The HOD has the authority to allocate resources to the development of the IT strategy.	Mandatory rules and regulations of the organisation.
Communication	Power	Sanctions
During development, there is little if any communication between the HOD and the IT Management team, who develop the IT strategy, and the rest of the employees.	The HOD uses her mandate to develop the IT strategy together with the IT Management Team.	IT strategy is developed and approved by the HOD and IT Management team, and then presented to the rest of the employees at a workshop.

Table 7: EKO – Duality of structure during IT strategy development

IT strategy Implementation

Signification	Domination	Legitimation
Technical aspects receive priority due to the technical interests of lower levels of decision makers, not because they match with a particular aspect of the IT strategy.	Implementation is dictated by knowledge about the organisation and technical skills.	IT strategy implementation is carried out by employees at lower levels who have not been involved in the development of the strategy
Interpretive scheme	Facility	Norms
Employees rely on technical abilities and understanding when interpreting their implementation tasks. Language affects the way things are understood.	IT managers can coerce an employee to implement IT strategy by making aspects thereof an individual's only task	Implementation of IT strategy is done through teams and individual allocation of tasks, which is enforced through performance appraisal methods.
Communication	Power	Sanctions
During implementation, communication in the computing environment is one-way, which is from the HOD and the IT Management team to the rest of the employees.	Employees including IT managers protect individual interests. The managers use the authority bestowed on them and employees use their technical ability to protect their individual interests.	Employees accept their individual tasks to implement IT strategy without full understanding of the strategy. Issues of mistrust permeate the ranks of employees, severely hampering implementation.

Table 8: EKO - Duality of structure during IT strategy implementation

Tables 7 and 8 are discussed in detail below.

Duality of Structure: Signification and Communication

The Executive Committee (Exco), which is the highest decision making body of the organisation, assigns responsibility for the development and implementation of IT strategy to the HOD and IT Management. The relevance of IT strategy to the organisation requires it to have a wide range of input and audience within the computing environment of the organisation. IT Management ensures that this input is managed.

Our CEO identified IT as one of the key driving areas; so you've got certain drivers that drive strategy, IT is one of the key drivers to ensure that we meet Eko's objectives.

(eK_ANA002 p 19:20-22)

We had a session last year where all the business units defined their strategy and at the end of the day we used that as input to define the IT strategy.

(eK_SM002 p 78:11-12)

The Organisation Exco team in conjunction with the IT management defined the current IT strategy and we also had input from the level below that, the systems development managers.

(eK_SM002 p 79:9-11)

The approval of the IT strategy by the Exco permits the HOD and IT Management team to communicate the initiatives which include the objectives and development to the next level of management (the IT managers). Subsequently, the various IT managers do the same by providing the necessary information to the rest of the employees.

What IT has done now is they have broken it up into smaller groups each initiative to be handled by people in the department so that we can communicate with one another even if it's on a more on your level kind of basis so people in the IT department communicating with their fellow colleagues to get their understanding across of what is trying to be done within the IT strategy.

(eK_ANA001 p1:32; p 2:1-5)

The development of IT strategy is divided into different components. Members of the IT Management team are responsible and accountable for these components. Some of the components include business applications, hardware and network aspects. The main purpose for dividing IT strategy into components is to assign roles and responsibilities as guided by the rules of the organisation. Another reason is the availability of resources for the different IT Management team members.

They would define and develop the IT strategy as well because each of these departmental IT heads are the custodians of the IT strategy within their own department. So in essence while they are sitting at the management team and the management committee they will define the strategy and also develop the strategy that should be filtered down to the different departmental areas.

(eK_Dev001 p 34:13-17)

Employees within the computing environment of the organisation are made aware of the developed IT strategy. Different media such as the company intranet and team meetings are used as communication platforms. According to some of the employees, the most popular and value-adding communication platform is the departmental workshop:

The facilitators then hold road shows with each of the members of IT, so we had workshops. The strategy gets presented to them and then it gets opened to the IT department for any suggestions or improvement; basically the attempt to get buy-in from the employees in the department and this is actually done before we present to the board.

(eK_SM001 p 69:18-22)

Some of the employees are not satisfied with the level of awareness that is created by the IT Management team. These employees think that IT Management could do more to create an awareness about IT strategy in the organisation. On the other hand, some employees feel that there is enough access to information on IT strategy in the organisation.

The main aim for creating the awareness is for the employees to understand the importance of IT strategy in the organisation so that they can contribute to the implementation in their various ways. Some employees were also concerned with the flow of information. Those who are concerned say that they would prefer a two-way information flow between the junior and senior employees in the computing environment. Most of the junior employees interviewed emphasise that such flow of information could enhance their understanding of IT strategy in the organisation.

My understanding of what I see is that at the moment there has been initiatives raised to achieve the IT strategy but those initiatives have not been clearly defined in the sense that a person in the department may fully comprehend what they are trying to say.

(eK_ANA001 p 1:29-32)

Now implementing of that strategy means that you should be informed about what strategy has been adopted up there and what part of the strategy affects you in your own department. This is

lacking in my team. Nobody comes in to tell you that this is the IT strategy; it has been formulated up above; this is how it impacts that department and this is what you and you and you are going to do with respect to this.

(eK_Dev001 p 35:2-7)

Some of the senior managers acknowledge that there is a problem with communication in the computing environment. This is attributed by some to the spoken language used in the organisation. In addition to these oral communication problems, there is also a problem of understanding some of the documentation relating to IT strategy. This is also attributed to language. Some of the Afrikaans speaking employees find it difficult to read and understand documents that were written in English, and *vice versa*.

One of the problems in my opinion is that it's an Afrikaans company and our strategy is written in English. When I go to speak to my manager to explain or help me explain the document, my manager is not able to explain it to me in my own language; he's explaining it to me in his second language, which creates problems.

(eK_SM001 p 71:15-17;28-31)

Duality of Structure: Legitimation and Sanction

The HOD is responsible and accountable for IT strategy in the organisation. As such, she ensures that IT strategy is accepted in the organisation, starting with the Executive Committee (Exco). The HOD presents IT strategy to Exco for approval.

Our head of information technology presents the IT strategy to the board to say this is what our IT strategy is, this is how it's been aligned to the business and then the board will obviously comment on that and they will agree with it or not.

(eK_SM001 p 69:1-3)

Upon approval, the IT Management team then tries to get the buy-in of the IT managers reporting directly to them, and encourages the various IT managers to get the buy-in of their employees.

Recently, IT Management checked on how we can align IT strategy with company strategy. They came to us (the employees) and illustrated how it should be and how we (employees) should align ourselves. The IT Management asked how we think we can get to be aligned with the company strategy. The whole of the IT department gave their consolidated views and initiatives of how we can get there.

(eK_Dev002 p 45:26-30)

Even though incentives are offered, some employees are reluctant and others, for various reasons, do not accept the IT strategy. For example, some employees feel that the information shared or communicated to them is either not complete or is incorrect; as a result, they do not trust the IT Management team.

Because, you have a vote of no confidence in your IT management then whatever strategy they put forward you immediately have a vote of no confidence in that strategy because you believe the IT managers are not capable of developing an IT strategy.

(eK_SM001 p 76:21-24)

There is obviously a strained relationship between the IT Management team and the rest of the employees, and both parties realised that. Even though the rules of the organisation mandate the IT Management to allocate tasks, it became difficult to do as the employees were unwilling or only reluctantly accepted their individual tasks.

Duality of Structure, Domination and Power

The authority to develop and implement IT strategy in the organisation is mandated from the Executive Committee of the organisation to the HOD and the IT Management team.

To communicate the developed IT strategy, IT Management organised a workshop. Attendance at the workshop was a success in that almost every employee in the computing environment attended.

We had workshops. Every single person was invited to a workshop and the different IT managers acted as facilitators and from each workshop; certain initiatives were identified as part of the IT strategy. Those initiatives went to our IT management team and they worked through the initiatives; then from there it was sent back to teams to actually implement the initiatives.

(eK_PR002 p 60:28-32)

All IT managers, as instructed by the HOD, apply the performance appraisal approach. This enables the IT managers to use their authority to coerce employees to implement the IT strategy by allocation of tasks and resources.

Regarding IT strategy, we got targets, which is measured based on performance appraisal that was solution delivery. We have got targets for every area of the IT strategy. For instance employees are requested to deliver on defined time frame and allocated budget – solution delivered on time and within budget have higher scale. The highest scale is ten.

(eK_SM002 p 80:21-25)

Some employees who have been in the organisation for a long time are more knowledgeable and have more information about the organisation and the

organisation's businesses and activities than some of their colleagues. Their stocks of knowledge create a feeling of superiority toward their colleagues during the implementation of IT strategy in the organisation.

What I am finding is senior people have got most of the knowledge and the juniors are not really reaping the benefits and growing; so I think to get the junior programmers and so forth through the ranks to get the knowledge out of those guys to the junior employees. As such I want to know what each of them are doing so that I could pass it on to the junior people.

(eK_ANA002 p 23:30-33;p 24:1-2)

The majority of the employees felt that the rules of the organisation gave them little or no room to negotiate their differences. Their reaction to this differed.

... the implementation of the IT strategy at the departmental level is not inclusive in nature. People in the departments are not called together to say this is what we are supposed to do and this is how we are going to do it and this is the reason why we are going to do it, so that doesn't happen.

(eK_Dev001 p 35: 14-18)

It's all positions, all levels that are involved in IT strategy. It's an open forum; they (IT Management) have created groups, which are led by team leaders and project managers and then within those teams, those teams are supposed to have all different levels and its open to the whole department and it's volunteers that actually go on and other people are asked to be on those teams; there would have two volunteers who are on the same level then they would ask for people on other levels so that they could hear what the whole floor thinks on a certain things- how can we improve culture of

excellence, for example how can we improve human capital so that everybody is happy.

(eK_Dev002 p 45: 1-10)

Understanding of the developed IT strategy is critical for successful implementation. There are concerns that if information is not properly shared or communicated in terms of a two-way flow, IT strategy may not be well understood, leading to incorrect implementation acts. Some of the employees pointed out that incorrect implementation could hamper the business processes and activities that IT strategy is supposed to enable and support.

. . . the people that are just above you, that you would assume should know the strategy, that you would assume could understand it fully sometimes are the people who don't understand it . . . in the long term it affect the company business processes and make it worse.

(eK_ANA001 p 4:15-17;30)

Some of the problems we encounter when we do a task are because we do not have good knowledge (I'll be speaking from a developer point of view) of business processes. Due to the fact that we don't have a good understanding of the IT strategy and how the task we are performing, whether application development or decoding, it has impacts on the business processes, then that becomes a problem. But how that impact on the overall IT strategy, I do not have the knowledge about that.

(eK_Dev001 p 36: 1-7)

The implementation of IT strategy in the organisation first of all requires the acceptance of the developed IT strategy by employees. The level of acceptance forms the basis for the actions of individuals, teams and groups, and, therefore,

their participation, which is essential for successful implementation. However, with a low level of acceptance, and issues of mistrust permeating the ranks of employees, implementation was bound to be severely hampered. IT Management therefore used its authority to enforce acceptance. Using the performance appraisal approach, IT managers, as instructed by the HOD, allocate tasks and resources to employees involved in the implementation of IT strategy. Employees accept instructions or commands with little or no negotiation. It was clear, however, that employees at the lower levels in general did not have a good understanding of the IT strategy they were supposed to be implementing.

Using the Duality of Structure from Structuration Theory, we were again, as in the case of Dzuwa, able to analyse the recursive relationship between structure and human actions during the development and implementation of IT strategy.

During development of the IT strategy, the HOD and her IT Management Team are in full control, as mandated by the organisation. Communication is restricted to intra group communication, excluding the rest of the employees. These communicative actions reproduce the structures of signification that says that development of the IT strategy would be undertaken by the HOD and her Team. Using the power bestowed on her by the organisation, the HOD takes responsibility for the development of the IT strategy with her team. These actions produce and reproduce the structures of domination which put all decisions regarding the development of the IT strategy in the hands of the HOD and her Team. Finally, when the Team approves the developed strategy, it is presented to the rest of the employees at a workshop as an accomplished fact, reproducing the structure of legitimation which recognises the HOD as being solely responsible and accountable for the IT strategy.

During implementation of the developed IT strategy, employees are mobilised by their managers to undertake the implementation of aspects of the IT strategy by allocating these as tasks to them. Communication is one-way, from the managers

to the employees, and issues of language often affect the way things are understood by employees. These communicative actions reproduce structures of significance, which are that employees see things through technical lenses, regardless of their actual match with the developed IT strategy. Employees use their technical abilities to protect their own interests, and managers their authority to safeguard their positions. These actions reproduce the structures of domination, based on technical skills and knowledge of the organisation, respectively. Finally, employees accept their tasks, coupled as they are to performance appraisal schemes, and continue with their work without full understanding of the developed IT strategy. Their work is affected by issues of mistrust towards their managers who often provide, in their opinion, incomplete or incorrect information about the developed IT strategy. All of this reproduces the structure of legitimation that employees at lower levels, who have not been involved in the development of the strategy, will implement the strategy.

A more detailed analysis is now undertaken using Actor-Network Theory.

5.4.2 The EKO case viewed through ANT

This section analyses this case study from an Actor-Network Theory (ANT) perspective by drawing upon the sociology of translation as described in Chapter Two. The focus is again on how 'the actor-network' grows, changes and possibly stabilises during development and implementation of IT strategy within the computing environment of the organisation. The case study is analysed on the basis of the four moments of translation, namely, *problematization*, *interessement*, *enrolment* and *mobilisation*.

The main goal and objective of IT strategy is to align it with the business strategy of the organisation. To achieve this, a set of requirements is formulated. The requirements are problematised by the HOD for the employees. IT strategy is developed and implemented as a solution for these requirements.

The most important actors involved in the actor-network, and their interests, are first described. This is followed by the analysis, using the four moments of translation.

Executive Committee (Exco): This is the highest decision making body in the organisation. It consists of executive members, of which some are heads of departments. It is headed by the Chief Executive Officer (CEO) of the organisation.

HOD: The HOD is the head of the IT department. In the organisation, the HOD is responsible and accountable for the development and implementation of IT strategy including its related issues such as people and processes.

The head of IT department is responsible for all matters including both technology and people in the IT department of the organisation.

(eK_PR001 p 52:21-22)

IT Management: This is the highest decision making body in the computing environment of the organisation. It is headed by the HOD. The body is responsible and accountable for all IT strategy-related issues in the organisation. It consists of the most senior employees in the computing environment of the organisation. Each member is a head of a unit.

We have got a team called IT management, which is a group of guys who are managers of their various departments. They sit together and they define IT strategy and they report back to the CEO.

(eK_ANA002 p 19:31-32; p 20:1-2)

IT managers: Each of the IT managers manages at least one team. They are responsible for development, and largely, implementation of the components of IT strategy in the organisation.

IT Employees (rest of the employees): this includes all employees in the IT department. Their responsibilities vary, but all are involved in the implementation of IT strategy in the organisation.

What IT has done now is they have broken it up into smaller groups each initiative to be handled by people on the floor so that we can communicate with one another even if it's on a more on your level kind of basis so people on the floor communicating with their fellow colleagues to get their understanding across of what is trying to be done within the IT strategy.

(eK_ANA001 p 1:32;p 2:1-5)

Technology: the different technologies are vital in enabling the business processes and activities through IT strategy.

Specific technology, are determined by the IT strategy. For example, we are deploying J2E platform. It was a strategic decision to do that based on where we are headed towards.

(eK_ANA002 p 21:1-3)

Skill-set: the employees have different technical skill sets. Also, some of the employees are more highly skilled than others.

All of the abovementioned employees in the computing environment contribute to as well as influence the development and implementation of IT strategy in the organisation, either directly or indirectly. They all have distinct roles and responsibilities, which is further analysed below.

5.4.2.1 ANT Translation: Problematisation

The organisation through its executive committee provides the Head of department (HOD) in the computing environment with the business strategy. The HOD is requested to develop an IT strategy to align with the business strategy. The HOD problematises the requirement to support the organisation's business strategy and presents the solution, the IT strategy, to her IT Management team.

IT strategy is dependent on the company strategy. Each time it changes at the top (executive) level, the divisions in the company follow suit to be able to align itself to the new strategy.

(eK_PR002 p 60:17-20)

The organisation's rules prohibit the organisation or any of the units to solicit or contract information technology service from external sources. All IT solutions rendered to the organisation or part of the organisation are through the IT department of the organisation. Also, only through the IT strategy are the business processes and activities enabled and supported in the organisation. All IT solutions are defined and dictated by IT strategy in the organisation.

The HOD must approve of any and all components of the IT strategy in the organisation before it is implemented. The HOD sometimes delegates members of the IT Management team to approve IT strategy-related requests on her behalf. Subsequently, the IT Management including the IT managers dictate tasks and activities to their employees.

From my personal experiences because your role is sometimes so small in the company, your power is minimal, you don't really have much say in things like that so you have to follow your leader; even if you don't see it as the correct way, you can't really do anything, you can't impact it to a point of change because higher up that's the way it works and that's the way it's going to continue to work.

(eK_ANA001 p 8:15-20)

After the development of IT strategy, the HOD, IT Management and the IT managers present it to the rest of the employees at a workshop.

The business managers present the business strategy to the HOD and IT Management. The HOD and the IT Management including the IT managers will then engage in a workshop to discuss the business strategy that they have been given by the business. Top on the discussion is how IT strategy can be aligned to the business strategy in achieving the business goals and objectives.

(eK_SM001 p 68:26-31)

During this stage, the HOD thus uses the main goal and objective of IT strategy, namely, to align with the business strategy of the organisation, to formulate a set of requirements. These requirements are problematised by the HOD, and under the leadership of the CIO, the development and implementation of IT strategy is presented as a solution to the problematised issue. The processes of development and implementation of the IT strategy are defined as the Obligatory Passage Point (OPP) through the assignment of individual tasks related to the development and implementation of the IT strategy to all employees, to be monitored through performance appraisal schemes.

5.4.2.2 ANT Translation: Interessement

The HOD submits the developed IT strategy to the Executive Committee of the organisation for approval.

Our head of information technology presents the IT strategy to the board to say this is what our IT strategy is, this is how it's been aligned to the business and then the board will obviously comment on that and they will agree with it or not.

(eK_SM001 p 69:1-3)

Thereafter, implementation starts, and the HOD and the IT Management team are the key stakeholders in the implementation of IT strategy in the organisation. However, without the active participation of the rest of the employees all efforts would be wasted, as pointed out by one of the interviewees:

At the end of the day, IT Management or EXCO can decide on a strategy but if what the people are doing everyday does not support the strategy then it will never be implemented; it will only be words on paper for the rest of our lives; we must align what we do with strategy; and the people must believe that the strategy is the right direction to move and they must know their impact on the strategy.

(eK_SM002 p 82:21-25)

IT Management is able to build interest among the IT managers reporting to them, the individual members of the IT Management Team.

Managers show a lot of excitement on the development and definition of IT strategy because they are inclusive; because they play a role and a part in it. They will go there with a full understanding of what the strategy is all about.

(eK_Dev001 p 42:30-32)

The building of interest is taken a step further through the presentation of IT strategy to employees at a workshop. The IT management team also uses the opportunity to explain the services that will be made available to the organisation. This is done by giving examples of improvements that can be made within the computing environment.

Managers are then appointed to manage the implementation of the IT strategy within the organisation. These managers help to ensure that their individual employees commit to the implementation of IT the strategy within the organisation. This is done through further team meetings and workshops.

We have a series of road shows in IT where a number of facilitators get appointed. The facilitators then hold road shows with each of the members of IT, so we had workshops. The strategy gets presented to them and then it gets opened to the department for any suggestions or improvement; basically the attempt to get buy-in from the employees in the department and this is actually done before we present to the board.

(eK_SM001 p 69:17-22)

The success of these efforts are not guaranteed, however, as is evidenced by the remarks of an interviewee:

But in a situation where there is a strategy but you don't understand what the strategy is or the strategy isn't clear or there is conflicting reports about what strategy we want to adopt, you as a person you are confused you don't know exactly how to position yourself.

(eK_Dev001 p 32:32;p 33:1-4)

This state of affairs is acknowledged by management, but not effectively addressed beyond acknowledgement:

I think a lot of the majority of the staff are under the impression that we don't have an IT strategy; they don't know what it is, they don't know how it's developed. I would say that more than eighty percent of the staff believe there is no IT strategy.

(eK_SM001 p 75:10-12)

Some employees, again, are not interested because they cannot work with others. This is often due to the fact that certain employees insist on speaking Afrikaans, which their colleagues do not understand.

That is a very serious problem; let's take the language issue; you are in a meeting where a lot of people are and you need to contribute and you are sidelined by the language. For example if you don't speak Afrikaans and the meeting is conducted in Afrikaans.

(eK_Dev001 p 42: 10-14)

The language issue was previously pointed out in the structural analysis, and is repeated here:

One of the problems in my opinion is that it's an Afrikaans company and our strategy is written in English. When I go to speak to my manager to explain or help me explain the document, my manager is not able to explain it to me in my own language; he's explaining it to me in his second language, which creates problems.

(eK_SM001 p 71:15-17;28-31)

The building of interest among employees is further hampered by issue of mistrust, alluded to during the structural analysis, where it was pointed out that some employees feel that the information shared or communicated to them is either not complete or is incorrect; as a result, they do not trust the IT Management team. To complete the picture regarding the current discussion about this particular moment of translation, this is also repeated here:

Because, you have a vote of no confidence in your IT management then whatever strategy they put forward you immediately have a vote of no confidence in that strategy because you believe the IT managers are not capable of developing an IT strategy.

(eK_SM001 p 76:21-24)

Thus, while management made several efforts to build interest for the proposed solution to the problematised issue, the building of interest among employees cannot be regarded as a success. As a result, enrolment of employees to the processes of implementation, presented as the OPP of the actor-network, was also only partially successful, with employees reluctantly accepting the tasks allocated to them and their roles in the implementation of the IT strategy.

5.4.2.3 ANT Translation: Enrolment

Workshops held to inform employees about the developed IT strategy were followed up with team meetings, which were used as vehicles to discuss the objectives of the IT strategy and to allocate tasks to individuals. Also, one-on-one meetings between employees and their various managers offered another opportunity in which IT strategy was discussed and roles and responsibilities were negotiated.

The workshop is our first step which is management facilitated workshops with the staff explaining the strategy map and our balanced score card; we get feedback from them and that feedback

is taken to our IT Management team, who then do any adjustments that are necessary and it's taken to the board, that's the process.

(eKSM001 p 69:24-27)

While enrolment at the highest level was not a problem, with the IT managers supporting IT Management in the development as well as in the implementation of IT strategy, the rest of the employees are divided – some support the process and enrol in the implementation and others show little support and as such enrol only reluctantly.

There are a couple of people on different levels in the IT department that are actually involved in implementing the IT strategy; but obviously we have to present certain ideas and suggestions to management as well so that we can see both sides of the story.

(eK_Dev002 p 44:28-31)

IT managers use their authority to enrol employees in the implementation process allocating tasks and resources to them, coupled with the organisation's mandatory performance appraisal system:

Regarding IT strategy, we got targets, which is measured based on performance appraisal that was solution delivery. We have got targets for every area of the IT strategy. For instance employees are requested to deliver on defined time frame and allocated budget – solution delivered on time and within budget have higher scale. The highest scale is ten.

(eK_SM002 p 80:21-25)

Some members of the IT management team and the HOD are aware of the challenges of the enrolment of employees in the implementation of IT strategy in the organisation. One of the managers stated as follows:

One of the biggest problems in my opinion is the gap between the knowledge of strategy and the staff. A lot of the guys sit there and listen to big words like sustainable, profitable growth and they don't really understand . . . then the guys walk away from the workshops and never worry about IT strategy again.

(eK_SM001 p 70:18-21)

Thus, as expected from a relatively unsuccessful stage of building interest for implementation among employees, enrolment was likewise only partially successful. What enrolment actually took place, was more the result of employees being coerced into accepting the tasks allocated to them because this was coupled to their performance appraisal, than that it was due to their interest having been successfully translated to coincide with the interests of the focal actors.

5.4.2.4 ANT Translation: Mobilisation

During mobilisation, the last stage of the ANT moments of translation, some actors would be used as new initiators by becoming delegates or spokespersons for the focal actor. This leads to strengthening and stabilisation of the network. Depending on how successful mobilisation is, the actor-network would then start to operate in a target oriented approach to implement the solution proposed.

The HOD successfully mobilises the IT management team and IT managers and expects them to enrol their various employees in the IT strategy development process. The IT managers are motivated by the task of mobilisation, which is linked to their performance appraisals. They respond by speaking on behalf of the HOD and the IT Management team on the aims and objectives of IT strategy in the

organisation. An employee explained the process through which this high level mobilisation has taken place as follows:

Initially we didn't have the workshops, we didn't have the strategy rolled down and that is part of the program so when we realised that this was a problem that people on the floor didn't understand the strategy, we then put the workshops in place and we started publishing documentation on the intranet.

(eK_SM001 p 70:25-28)

Some of the employees, who attend the workshops, understand the value of IT strategy and as a result, speak to, and encourage their colleagues on the need for IT strategy in the organisation and the proposed developmental processes. They could be seen as third level spokespersons for the focal actor, and contribute a further element of mobilisation of the network. However, the mobilisation efforts of managers often break down due to their poor understanding of the developed IT strategy. The following excerpt from an interview underlines this point:

Sometimes it's the people that are just above you, that you would assume should know the strategy, that you would assume could understand it fully sometimes are the people who don't understand it all that well; and that's from the senior people; so you as a junior on the floor you kind of....that's your coach you are learning from him so because they don't fully understand the IT strategy and they are not able to also help you to get there.

(eK_ANA001 p 4:15-20)

Obviously, such situations have a severe negative influence on mobilisation. While it is recognised that managers do not wittingly set out to create further spokespersons amongst employees, their general lack of knowledge about and understanding of the developed IT strategy and the implementation implications

~~simply means that a further cascading of mobilisation does not take place to the extent that is required for effective stabilisation of the network. Mobilisation starts off relatively successfully at a high level, but peters out through the ranks and leaves most of the employees unconvinced and unenthusiastic contributors to the implementation of the IT strategy.~~

5.4.3 Findings from the Analysis

From the above analysis of the case study, using Structuration Theory and ANT, some findings can be extracted. These findings are interpreted in Chapter Six. The most critical of these findings are presented in this section.

i. Control of Resources

Control of resources was prevalent in the computing environment. This was based on how significant the resources were in the implementation of IT strategy.

The structures within the computing environment determined and defined the tasks in the implementation of IT strategy in the organisation. Tasks for employees were allocated to the various IT managers, who in turn allocated the tasks with timeframes to their team members. Through the performance contracts, coupled to the allocated tasks, IT managers dominated their employees during implementation of IT strategy. This practice was considered rational and as such sanctioned by most of the employees, particularly at the lower levels.

ii. Human Interference

Certain actions were clear manifestations of organisational politics. These actions included differences between the employees in the discriminatory use of Afrikaans and domination by a particular age group. As a result, there was sharp division, which led to serious lack of cooperation between the different groups in the computing environment.

iii. Organisational Rules

The rules of the organisation applied to different processes and activities in the development and implementation stages of IT strategy. For example, not all the employees who were involved in the implementation partook in the development of IT strategy in the organisation. This, the employees felt, was irrational and as such, they found it difficult to sanction the development and this clearly affected the implementation of IT strategy.

IT managers were absolutely unquestioned by lower level employees. This enabled some of the IT managers to apply organisational rules at will.

iv. Diversity and Conservatism

The diversity in the computing environment contributed to how tasks for the implementation of IT strategy were allocated in the organisation. The diversity related to age generation gaps, cultural differences and the use of spoken and written languages among the employees. As a result, getting the employees to be interested in the IT strategy was very difficult, with implementation suffering as a result

There was also a cultural conservatism among the employees in the computing environment. This was particularly prevalent among the older generation of employees. The conservatism, which was about "doing things like we always did", created little or no support for transformation in the organisation. This became a dominant factor because those who indulged in the practices of the old culture were more knowledgeable about the organisation and they were not interested in change. As such, they did not or only reluctantly enrolled in the implementation of the IT strategy.

v. Historical Effects

The historical shift in the politics of South Africa forced the organisation to amend some of its traditions. Traditionally, non-white people were not employed in the

computing environment of the organisation. In the new dispensation, the organisation embarked on transformation in order to align with the government policy of 'Affirmative Action', and currently more non-whites are employed in the computing environment. The transition from the old to the new political dispensation has been a challenge and has affected the development and implementation of IT strategy in the organisation with 'new intakes' having to learn about the organisation while at the same time being allocated tasks.

vi. Irregularities caused by Personal Interests

Through employees' actions IT strategy is annually developed and implemented in the organisation. Unfortunately, employees were influenced by different personal interests, which had detrimental effects, especially for the implementation of IT strategy. IT managers' personal interests manifested themselves through irregularities such as favouritism and nepotism, while the rules of the organisation protected them in the execution of these acts.

5.5 Conclusion

Using the Duality of Structure from Structuration Theory, the focus in both case studies was on the recursive relationship between structure and human actions during the development and implementation of IT strategy.

Development of IT strategy was in both cases fully controlled, as mandated by the respective organisations, by the top management team of the computing environments. Communication was restricted to intra group communication, excluding the rest of the employees. These communicative actions reproduce the structures of signification that says that development of the IT strategy would be undertaken by the top IT management team. Using the power bestowed on them by the organisation, the top IT management team takes responsibility for the development of the IT strategy. These actions produce and reproduce the structures of domination which put all decisions regarding the development of the IT strategy in the hands of the top IT management team. Finally, when the Team

approves the developed strategy, it is presented to the rest of the employees as an accomplished fact, reproducing the structure of legitimation which recognises the Team as being solely responsible and accountable for the IT strategy.

During implementation of the developed IT strategy, employees are mobilised by their managers to undertake the implementation of aspects of the IT strategy by allocating these as tasks to them. Communication is restricted, and the focus is on technical aspects. These communicative actions reproduce structures of significance, which are that technical aspects receive priority, regardless of their match with particular aspects of the developed IT strategy. Employees use their technical abilities and managers their authority to protect their own interests. These actions produce and reproduce the structures of domination, dictating implementation based on pragmatic considerations. Finally, employees accept their tasks, coupled as they are to performance related incentives, and continue with their work without full understanding of the developed IT strategy. Their work is affected by a variety of issues which create an environment of poor cooperation. All of this reproduces the structure of legitimation that employees at lower levels, who have not been involved in the development of the strategy, will implement the strategy.

The analysis based on ANT showed in both cases that a relatively stable network of aligned interests failed to establish itself. While the problematisation phase in both cases could be regarded as successful, the same cannot be said of the subsequent phases. Sufficient interest was not built amongst the rest of the employees, beyond the top IT management teams, who were responsible for the development of the IT strategy. This could be ascribed to the poor top-down communication, coupled with issues of mistrust and private technical interests which were not focused on the broader interest of the organisations. Enrolment in both cases depended on coercion, coupled with performance related incentives, and in many cases employees only reluctantly accepted their tasks and roles in the implementation process. It was therefore not surprising that mobilisation was fragmented and unsuccessful, with little or no signs of third level initiators

~~mobilising other employees.~~ All of this added up to an unsuccessful translation and alignment of interests, and in both cases there could be no expectation of a stabilised network.

Due to the relative instability of the actor-networks in the two case studies, implementation of the IT strategy can be expected to become increasingly difficult in time. As pointed out before, the actions of agents always carry within them the seeds of change, but such change, to improve the alignment and hence the stability of the networks, would also require a change in the processes to create new norms, facilities and interpretive schemes. As mediators of the actions of agents, they could contribute to new structures of legitimation, domination and signification, which in turn could lead to a better translation of interests of the actors in the network.

The findings from the analysis represent the current regularity in practice, which is likely to continue unless an effort is made to change it. We now turn to the interpretation of the findings from the analysis of both case studies, which is presented in the next chapter.

Contents

6	INTERPRETATION OF THE RESULTS	226
6.1	Introduction	226
6.2	Case One: Dzuwa Computing Environment.....	226
6.2.1	Interpretation of the Findings.....	226
6.2.2	Impact of Organisational Politics on IT Strategy at Dzuwa.....	241
6.3	Case Two: Eko Computing Environment	244
6.3.1	Interpretation of the Findings.....	244
6.3.2	Impact of Organisational Politics on IT strategy at Eko	259
6.4	The Impact of Organisational Politics on IT Strategy.....	261
6.5	Conclusion.....	263

6 INTERPRETATION OF THE RESULTS

6.1 Introduction

This chapter presents an interpretation of the findings extracted from the analyses of the case studies that were presented in Chapter Five. The chapter is structured as follows: The next two main sections focus on the Dzuwa and Eko case studies, respectively. In each case, the first subsection presents an interpretation of the findings from the analysis of the particular case study, followed by a section in which the impact of organisational politics on IT strategy in the organisation's computing environment is discussed. The last main section draws conclusions from the interpretations of the results of the analyses.

The findings were presented in Chapter Five, Sections 5.3.3 and 5.4.3, for the Dzuwa and Eko cases, respectively, following an analysis of the empirical data using Structuration Theory and Actor-Network Theory. Analysis is about making sense of what is in the data, and this often entails the ordering of the data. The analyses of the two cases presented in Chapter Five achieved that. In order to capture this ordering, findings were presented in Sections 5.3.3 and 5.4.3. Interpretation involves making sense of what the data mean, and to get to the meaning of the empirical data, we now proceed to interpret the findings.

6.2 Case One: Dzuwa Computing Environment

6.2.1 Interpretation of the Findings

i. The Importance of Human Interactions

While employees in the computing environment have a common understanding of the aims and objectives of IT strategy in the organisation, they do not necessarily have the same understanding and interpretation of the development and implementation of IT strategy. In particular, with respect to implementation, the way in which the developed IT strategy was communicated to employees affected their interest and fuelled the pursuit and protection of self-interests.

The working relationship among the employees, including the management in the computing environment, was influenced by diverse human interests, intentions and actions. A good working relationship among the employees is vital due to the interdependency of individual tasks, activities, responsibilities and accountabilities when implementing the IT strategy.

The computing environment consisted of employees of several races – whites, blacks, coloureds and Indians. White males were in the majority and the minority of employees were black people. Even though all processes and activities of the organisation were non-racist, racial domination was prevalent, and it became an influencing factor in the implementation of IT strategy in the organisation. Racial domination played itself out in the organisation because the employees who indulged in such acts were able to associate themselves with the dominant actors in the computing environment, such as heads of autonomous departments.

Some employees resorted to racial discrimination to ingratiate themselves with superiors including colleagues of the same racial identity because they lacked confidence in their talents and skills. As a result of these actions, employees who did not belong to this racial group could not enrol in some of the activities during the development and implementation of IT strategy.

There was a lack of racial integration and trust among the employees. As a result, negative relationships existed among the employees in the computing environment. Some members of the white race at times excluded employees of other races in communicating some of the processes and activities in the development and implementation of IT strategy. Similarly, some of the people of the black, coloured and Indian races segregated themselves from the white race, which made it difficult for them to be interested in and enrolled in the allocation of tasks.

ii. The Organisational Rules and Hierarchy

Irrespective of individual interests, all levels of employees act within the constraints and enabling structure of the rules and resources in the computing environment. They all have responsibilities pertaining to the development and/or implementation of IT strategy. Their various actions, required by their individual roles, had an impact on and shaped the implementation of the IT strategy.

The CIO initiates the IT strategy, which is then developed and implemented under his auspices and accountability. The CIO, or his delegates, make(s) the last decision on the use of facilities in the development and implementation of IT strategy. The availability of these facilities, which are made scarce to some employees, makes the other employees with free access powerful.

While the development of IT strategy is handled by the CIO and certain IT executives, all employees are involved in the implementation. This is the normal practice and is generally accepted in the computing environment of the organisation.

Although the rules of the organisation apply to all departments in the computing environment, specifically with respect to the various processes and activities involved in implementing IT strategy in the organisation, they were often modified in accordance with departmental functions. For example, only the Architecture department was allowed to deploy and use any kind of facility such as a technological resource, which was not the case with other departments in the computing environment. This practice was accepted, but perceived as discriminatory by many employees.

There was inequality of power among the departments and employees including the IT managers in the computing environment. As a result of this inequality, the departments and employees in the computing environment became very

competitive. As a result of such acts of rivalry, many employees used resources such as the performance contract to achieve their individual goals.

One department head indicated that he preferred other departments to perform poorly so that his department could dominate others and be seen as being more productive and hence be awarded more incentives. In the same vein, more and more managers responded to such ideas, which created a prevalence of competitiveness and rivalry fuelled by the need to gain advantage in the computing environment of the organisation. Employees typically followed the lead of their various managers.

Also, when one department introduced a technology based on their interpretation of the IT strategy, other departments exercised their prerogative to either comply with it, or not. Most of the actions of the employees were deliberate, in the full awareness that their actions could lead to either success or failure of the technology in the organisation.

Control over facilities such as financial budgets, the use or availability of employees with specific technical skills and the use of technology, was critical as these were the determining factors for the allocation of responsibilities and accountabilities. These facilities were used as a source of influence through which power of authority was exercised. As a result, lobbying and negotiation for these facilities were paramount.

The personal interests of the different departments were therefore dominant and controlled the implementation of IT strategy in the organisation. This ultimately wielded the greatest influence over the trajectory of initiative and innovation. Departments were not able to accept each other and were not able to see the impact of integration, a collaborative approach and dependencies. As such, each department created a barrier in the implementation of IT strategy in the organisation.

iii. The Effect of Autonomy

The rules of the organisation allowed the IT managers to have autonomy, which made them dominant in their various departments and mandated the CIO to make the last decision in the computing environment of the organisation. Because of the autonomy granted to the IT managers, they sometimes performed only tasks that were of personal interest or priority and relegated or allocated others to their subordinates.

The allocation of tasks was done virtually at random. There was no formal method or process of allocating tasks and responsibilities to employees. What was also missing was the process of measurement of progress with the allocated tasks. The individual managers used their power as mandated by the structure in allocating and measuring employees' tasks and performances.

Employees in the computing environment are positioned within structures, but they are not necessarily positioned in equal ways and do not have equal opportunities. Some employees have greater access to more resources and knowledge or information than others. These individuals drew from different structures or from the same structures in ways which gave them an advantage, not only with respect to their peers, but also with respect to their superiors. This is what Giddens call the *dialectic of control* in a social system:

"Power within social systems which enjoy some continuity over time and space presumes regularised relations of autonomy and dependence between actors or collectivities in contexts of social interactions. But all forms of dependence offer some resources whereby those who are subordinate can influence the activities of their superiors".

(Giddens 1984, p 16)

The CIO allocated or approved of resources to the various departments in the computing environment of the organisation. For example, certain decisions were not made in the absence of the CIO except when they had been delegated by the CIO. It was an honour to represent or be delegated to act on behalf of the CIO. Only the IT managers who reported directly to the CIO could be appointed or delegated to act on his behalf. This was accepted by the rest of the employees.

Also, there was a pervasive and accepted rule in the organisation that dictated that subordinates at all times had to obey their managers, which allowed for all IT employees to accept IT strategy without objection. This means that a manager at any level is able to prevent aspects of the IT strategy from being implemented and all employees at a lower level will oblige to comply with the decisions made by the manager. Therefore, resistance of any type was limited when it came to complying with dictates of the IT strategy.

The autonomy of the CIO and the IT managers means that most employees could not make decisions concerning the implementation of IT strategy in the organisation. They were allocated tasks for the implementation of IT strategy and were bound by performance contracts.

The performance contract is measured on a timescale shorter than the period of IT strategy development and implementation, which is problematic. In the organisation, IT strategy is developed and implemented within a period of between one and three years. Based on the performance contract employees are appraised and incentives are awarded, which include salary increases and financial bonuses. The appraisals are done on a bi-annual basis. This means that most tasks and assignments are not completed when the appraisal was conducted. As a result, some of the employees indulged in lobbying their colleagues and managers for good ratings.

iv. Exercise of Power

In the development and implementation of IT strategy, facilities as modalities of power refer to the authority to allocate resources to agents and to dominate the actions of others. This produces and reproduces structures of domination. During implementation, these structures of domination include the domination of some employees by others, the availability and use of resources and the relationships between people and technology. Thus, for example, both IT managers and employees used their individual authority to protect their individual interests.

v. The Implication of Networks of People

Many social networks of people were identified in the computing environment, formed along various lines such as departmental affiliation, skill-sets and racial groups. These networks of people were difficult to manage and as such contributed more negatively than positively to the development and implementation of IT strategy in the organisation. For example, race diversity was misconstrued to be a political racial divide, with actions often interpreted as acts of racism.

The rules of the organisation mediate in the relationships between the employees and how they interact during the development and implementation of IT strategy. Such interactions typically follow the hierarchical lines in the organisation, making the immediate superiors (IT managers) of employees dominant.

In 2004, the CIO (a white male) was replaced by a black male. Many of the employees feared that they may lose their jobs. Others thought that there would be radical changes causing them to lose control of responsibilities of the facilities used in the development and implementation of the IT strategy in the organisation. As a result, individuals at different levels intensified their actions to protect their individual interests: actions in certain processes and activities were personalised to protect individual employment, responsibilities, accountabilities and control of facilities. Some of the employees chose to provide the CIO and other IT managers with incorrect information in order to achieve these aims.

vi. Alignment of Different Interests

The levels of interest of and participation by employees in the development and implementation of IT strategy were different. Many of the employees had personal interests which conflicted with the interest of the organisation. Others put group interests first. As the ANT analysis showed, the alignment of interests, given these circumstances, was not very successful. Alignment requires a translation of interests so that individuals and groups would see their own interests in the interests of the organisation. Latour suggests that it is necessary:

“ ... to pass through the contenders’ position and to help them further their interests. In the linguistic sense of the word translation, it means that one version translates every other, acquiring a sort of hegemony: whatever your want, you want this as well”

(Latour, 1987, p.121).

The performance contract was used coercively to align the various interests during the implementation of IT strategy. However, even though employees were appraised based on their performance contracts, enrolment and mobilisation were low. As a result, many employees only reluctantly accepted their allocated tasks associated with implementation.

vii. Superiority Issues

There were superiority issues in the computing environment which had an impact, especially on the implementation of IT strategy in the organisation. Such issues were prevalent among the IT managers. The different personalities of these managers played a role as they ranked themselves. The ensuing rivalries were counterproductive with considerations of expediency often dictating the implementation of the IT strategy.

At the employee level, these issues of superiority also had a serious impact. Employees were dominated by senior management in their activities (through

allocation of resources, sharing of services and information and use of mandate authority) associated with the implementation of IT strategy in the organisation. This had a negative effect on many of the employees, particularly, on those at the lower levels. The superiority issues led to reduced productivity, created a lack of trust, increased internal conflict and led to greater resistance in the implementation of IT strategy in the organisation.

The interpretation of the findings presented above is now used to map the findings on factors of organisational politics. The seven findings are mapped onto four factors of organisational politics as shown in Tables 9 and 10 (on pages 235 and 236, respectively). The factors of organisational politics are:

- Racial behaviour
- Exploitation of job insecurity
- Exploitation of performance contracts
- Pursuit and protection of personal and group interests

They are discussed next.

i. Racial Behaviour

Although the organisation advocated racial integration in the computing environment, racial diversity was misconstrued as a political racial divide, and actions were often interpreted as acts of racism. Some employees resorted to racial discrimination to ingratiate themselves with their superiors. This resulted in negative relationships and a lack of trust among employees in the computing environment. Some whites at times excluded employees of other races in communicating some of the processes and activities in the development and implementation of IT strategy. Similarly, some blacks, coloureds and Indians segregated themselves from the whites, which made it difficult for them to be part of the allocation of tasks. All of this added up to a divided workforce. This was not

conducive to productivity, especially with respect to the implementation of the IT strategy.

ii. Exploitation of job insecurity

The absence of any process of measuring progress with tasks allocated to employees meant that individual managers used their power to decide how to measure employees' performances. With appraisals in terms of the individual employee's performance contract also measured on a timescale shorter than the period of IT strategy development and implementation, employees resorted to seeking the approval of their managers instead of focusing on the task at hand. Power was unequally distributed among the different departments, and this, coupled with an unhealthy competitiveness and rivalries to gain personal advantage meant that employees and managers alike were constantly insecure about what they had to do and about their jobs as such. This situation was not improved by acts of disinformation. Some employees were dominated by others, which meant that those dominated were often deprived of the resources needed to do their job, adding to their insecurity.

iii. Exploitation of performance contracts

The performance contract was regarded as a *sine qua non* in the organisation. All employees, including managers, were obliged to conform and sign their contracts. However, employees were not forced to perform the tasks as stated in their individual contracts. This depended on the agenda of individual managers, who might coerce employees to perform tasks aligned with their (the managers') interests. Using their power and authority, and the "threat" of performance appraisal, managers therefore exploited the performance contracts. At the same time, employees did their bit of exploitation as well.

	trust, increased internal conflict
--	------------------------------------

Table 9: Mapping the findings on factors of organisational politics at Dzuwa

University of Cape Town

Factors of organisational politics

Findings ↓	Racial behaviour	Exploitation of job insecurity	Exploitation of performance contracts	Pursuit and protection of personal and group interests
Human interactions	X			X
Organisational rules and hierarchy		X		X
Effect of Autonomy		X	X	X
Exercise of Power		X	X	
Implications of networks of people	X	X		X
Alignment of Different Interests			X	X
Superiority issues	X			X

Table 10: Mapping the findings on factors of organisational politics at Dzuwa

Employees who had more organisational knowledge and information related to the development and implementation of IT strategy at their disposal, and those highly skilled employees whose expertise was heavily relied upon in the implementation of IT strategy in the organisation, became dominant and used their power to dictate activities and processes in the implementation of IT strategy, regardless of specific performance contract stipulations.

iv. Pursuit and protection of personal and group interests

IT managers, especially heads of departments, promoted their individual interests through the facility to allocate and authorize the use of available resources. These actions led to counterproductive rivalries, where personal and group interests, often in conflict with the interests of the organisation, were put first. The driving force behind this pursuit of individual and group interests was often the feeling of superiority of one manager or the particular group over others. This had a negative

effect on many of the employees, particularly, on those at the lower levels. It led to reduced productivity, created a lack of trust, increased internal conflict and negatively affected the implementation of IT strategy in the organisation.

The four factors of organisational politics identified are, of course, not independent. In order to discover the relationships between the factors, the factors were analysed in terms of eight concepts. These concepts were drawn from those thirteen concepts identified in Chapter 2, section 2.3 as representative of the literature on organisational politics, pertinent to the present case analysis and based on the discussion above. The concepts are: domination, inequality of power, disinformation, coercion, self-interests, rivalries, lack of trust and conflict.

Table 11 below shows the analysis where each factor, regarded as a category, shows the concepts that make up that category.

	Racial behaviour	Exploitation of job insecurity	Exploitation of performance contracts	Pursuit and protection of personal and group interests
Domination	X	X	X	
Inequality of power		X	X	
Disinformation				
Coercion			X	
Self-interests	X		X	X
Rivalries	X	X		X
Lack of trust	X	X		X
Conflict		X		X

Table 11: Relationships between factors of organisational politics at Dzuwa

In terms of the analysis, the following relationships hold between the factors of organisational politics:

- Racial behaviour \longleftrightarrow Exploitation of job insecurity
- Racial behaviour \longleftrightarrow Pursuit and protection of personal and group interests

- Racial behaviour \leftrightarrow Exploitation of performance contracts
- Exploitation of job insecurity \leftrightarrow Exploitation of performance contracts
- Exploitation of job insecurity \leftrightarrow Pursuit and protection of personal and group interests
- Exploitation of performance contracts \leftrightarrow Pursuit and protection of personal and group interests

These factors of organisational politics all have an impact on the development and implementation of IT strategy. In Figure 15 below, this is illustrated. Only the impact on the implementation of IT strategy is shown, since the focus throughout the analysis and interpretation of the data has been directed towards implementation.

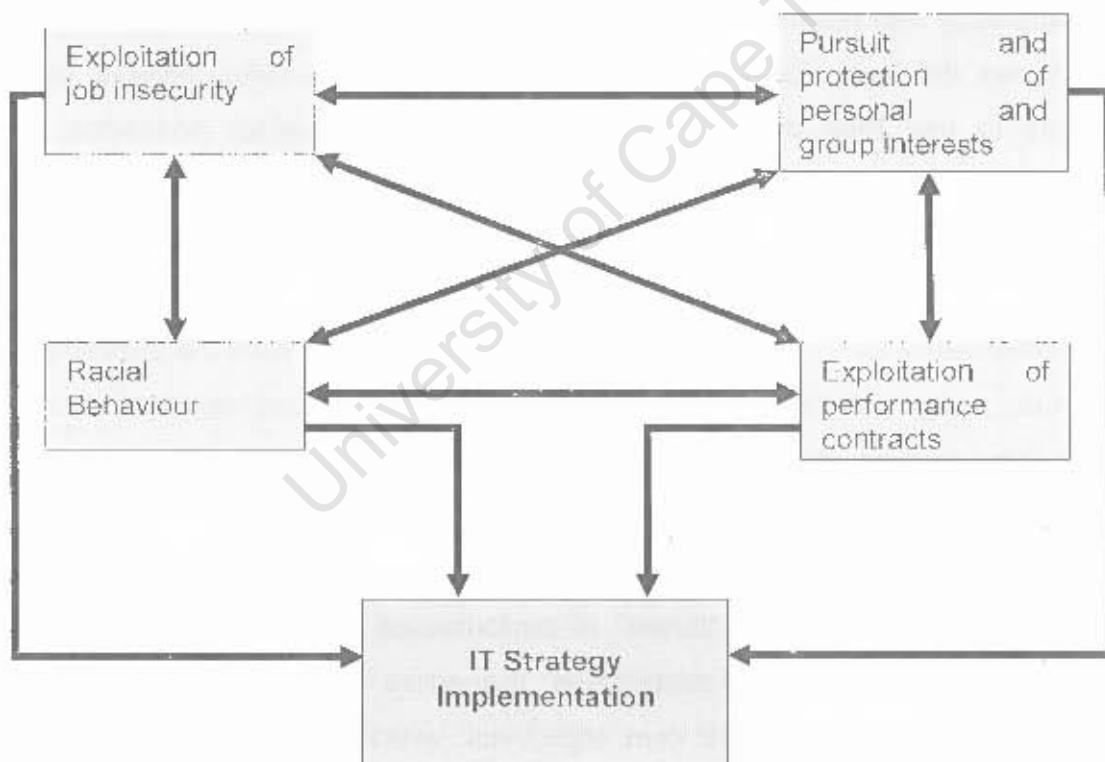


Fig. 15: Impact of Organisational Politics on IT strategy at Dzuwa

In the next subsection, the interpretation of the Dzuwa case is concluded by discussing the impact of organisational politics on IT strategy, using Figure 15 above as a guideline.

6.2.2 Impact of Organisational Politics on IT Strategy at Dzuwa

The (development and) implementation of IT strategy are the results of peoples' actions, through procedures, processes, activities and use of resources. Even though the CIO, IT managers and other employees acted within the defined processes and procedures, organisational politics influenced and impacted the development and implementation of IT strategy. As before, the focus here will also be on the implementation of IT strategy.

The participation or enrolment of employees in the implementation of IT strategy in the organisation was marked by different negotiations, but mainly, the performance contract was the basis for all negotiations. And here the rules allowed the IT managers to use their discretion (as they saw fit) in certain scenarios. The performance contract did not permit any employee to avoid participating or enrolling in the implementation of the IT strategy, forcing them to be committed individually and collectively. While this made it easier to involve all employees in the implementation of IT strategy, individual actions resulting from the performance contract did not guarantee a positive outcome. First, employees were not forced to perform the tasks as stated in their individual contracts – this, in many cases, depended on the agenda of individual managers, who might coerce employees to perform tasks aligned with their (the managers') interests. Second, using their power and authority, and the "threat" of performance appraisal, in other words, exploiting the job insecurity of employees, managers exploited the performance contracts, often to achieve their own objectives, which did not necessarily align with that of the organisation in terms of IT strategy implementation. Third, employees did their bit of exploitation as well. Some employees who were privileged shared and communicated information with colleagues of their choice, while the information was supposed to be made available to the entire department.

~~Some highly skilled employees~~ whose expertise was heavily relied upon in the implementation of IT strategy in the organisation, used their power to dictate activities and processes in the implementation of IT strategy, regardless of specific performance contract stipulations. Through their actions they inhibited and dominated other individuals.

Racially motivated actions occurred at all levels. Managers, using their discretion as mandated by the rules that allowed for a flexible approach in the allocation of tasks in the organisation, would allocate more resources and tasks to certain individuals than to their colleagues, who were at the same level in the organisational hierarchy, and these actions were often racially motivated. Some employees resorted to racial discrimination to ingratiate themselves with their superiors. Others would exclude members of another race when communicating information related to the implementation of IT strategy. These racially motivated actions divided the workforce, was not conducive to productivity and had a serious impact on the implementation of the IT strategy.

Some employees, including some IT managers, felt insecure about their jobs or financial aspects related thereto. As a result, their actions were based on furthering their personal interests rather than those of the organisation. For example, some managers felt that they could not report the truth about the activities in and the state of their department, in case it might have an adverse effect on their employment.

I can use our team as an example the manager has been reporting that everything is fine because his bonus depends on it; but when internal audit came and measured the effectiveness, it came out as a red so what he is saying versus what has proven to be the case are two different things.

(dZ_GT002 p 58:27-30)

Managers exploited performance contracts by using their power to decide how to measure employees' performances. With appraisals in terms of the individual employee's performance contract also measured on a timescale shorter than the period of IT strategy development and implementation, employees resorted to seeking the approval of their managers instead of focusing on the task at hand. The unequal distribution of power among the different departments, the unhealthy competitiveness and rivalries to gain personal advantage meant that employees and managers alike were constantly insecure about what they had to do and about their jobs as such. This situation was not improved by acts of disinformation or non-information, which, as pointed out above, were often racially motivated. Some employees were dominated by others, excluded and deprived of the resources needed to do their job, adding to their insecurity. The impact of this on the implementation of the IT strategy cannot be underestimated.

It was previously pointed out that the flow of information, when moving from IT strategy development to IT strategy implementation, was top-down. The autonomy of managers also allowed them to interpret the implementation tasks differently, depending on the interest of the head concerned. IT managers used the mandates and authority bestowed on them to share the information they received and their interpretation thereof as they pleased and in the process, imposed constraints on the performance of those who were not privileged or favoured by them. Such actions were informed by personal interests, exploited the performance contracts of employees and prevented employees from carrying out tasks that they (the managers) would prefer not to undertake.

IT managers, especially heads of departments, also promoted their individual interests through the facility to allocate and authorize the use of available resources. These actions unavoidably led to counterproductive rivalries, where personal and group interests, often in conflict with the interests of the organisation, were put first. The driving force behind this pursuit of individual and group interests was often the feeling of superiority of one manager or a particular group over

others. This had a negative effect on employees and increased the job insecurity of many of the employees, particularly, those at the lower levels in dominated departments or groups. It led to reduced productivity, created a lack of trust, increased internal conflict and negatively affected the implementation of IT strategy in the organisation.

These factors of organisational politics as captured and illustrated in Figure 15 above, derailed processes and activities during the implementation of IT strategy in the organisation. As a result of the derailment, IT strategy is developed or reviewed each year, making it a cost prohibitive exercise.

The next section presents the interpretation of the findings from the second case study, Eko's computing environment.

6.3 Case Two: Eko Computing Environment

6.3.1 Interpretation of the Findings

As with the Dzuwa case study, the empirical data were analysed using Structuration Theory and Actor-Network Theory, and the findings from this analysis were reported in Chapter Five, Section 5.4.3. Those findings are now interpreted.

i. Control of Resources

The structures within the computing environment determined and defined the tasks during the implementation of IT strategy in the organisation, and actors enacted these structures in their everyday practice. The HOD and IT Management had the mandate to develop and implement IT strategy for the organisation. This mandate allowed them (the IT managers) to make particular operational rules for the various departments, and also gave them autonomous control over resources under their auspices. In some instances, the resources were used according to individual interests. IT managers also used their mandate to determine employees' access to facilities in their interactions with colleagues, with authorities, and with technology during implementation of IT strategy. This meant that the participation of individual

employees in the implementation of IT strategy was influenced by factors outside their control. At the same time, employees used their individual knowledge such as technical know-how and information within their reach to gain advantage over others.

IT managers were granted the authority of control over financial budgets, and the authority to allocate tasks to human resources under their control. Coupled with the fact that the prevailing culture in the organisation did not allow for the questioning of any decisions by managers, this meant that managers dominated employees during the implementation of IT strategy. This practice was considered rational and as such sanctioned by many of the employees, particularly at the lower levels.

The prerogatives of IT managers as mandated by the structures of the organisation meant that they were vulnerable to favouritism and nepotism towards employees. This created conflict of interests.

ii. Human interference

The organisational hierarchy in the computing environment allowed the management team to coerce employees to adhere to instructions. Thus, older employees had to work with a younger generation of employees, which created tension because of differences in approach and understanding. This "generation gap" co-operation was therefore based on a foundation of unwillingness to work together and led to the younger employees not getting enough information from their older colleagues who were more knowledgeable about the organisation.

Based on the limited information made available to them, some employees could not easily understand how to carry out their individual tasks during the implementation of IT strategy. This was a serious problem for some of the employees within this group and it affected the larger computing environment in terms of the processes and activities of the implementation of IT strategy.

There was also a growing concern of ownership and control of the available resources between the older and younger generations. Some of the older generation felt insecure and as a result, acted individually in order to achieve and satisfy their own goals and objectives. For example, some of the older employees knew that certain senior managers had more respect for them because of their age, and that whatever they said would carry more weight than the words of a younger employee. They exploited this, and were driven by personal interests in their actions.

In the organisation, power was exercised in many ways. For example, there was the exercise of power that came with knowledge. Older employees, being more knowledgeable about the organisation as a result of their many years of working in the computing environment of the organisation, used their knowledge to maintain job security and to dominate younger employees.

Between the younger and older employees there was also a difference of understanding of what had to be done to implement the IT strategy. Younger employees had limited experience, and were often overruled by older employees on the basis of their pre-understanding of the nature of things that had to be done. This meant that different interest groups were formed which were at cross purpose in terms of what they thought the task required of them.

This divergence between the formal description and the reality of the workplace carrying out tasks for the implementation of IT strategy was problematic. Formal procedures, policies, and rules reflected the way the organisation was supposed to function, which was different from how tasks were performed before the younger employees joined the organisation. Coupled with the domination by older employees, this meant that considerable tension existed between the two generations and this played a major role in the legitimacy of events and activities that both parties were involved in during the implementation of IT strategy.

iii. Organisational Rules

The prevailing culture within the computing environment meant that the actions and decisions of IT managers could not be questioned by lower level employees. Consequently, some of the IT managers had a nonchalant attitude towards their subordinates. Preferences were accorded to employees as they wished. The IT managers and their preferred employees became dominant.

Language was one of the issues through which the rules of the organisation were constraining. This derailed processes and activities in the implementation of IT strategy in the organisation. English and Afrikaans were legitimised as official languages for communication in the computing environment, but unfortunately, some employees were not fluent in Afrikaans and found it difficult to understand and interpret IT strategy related documents. It also made it difficult for them to participate in meetings where the development and implementation of IT strategy were discussed in Afrikaans.

Some of the IT Management team members and the IT managers applied their personal discretion in the way information was shared and how Afrikaans was used as a medium of communication. This obviously affected the actions of some of the employees during the implementation of IT strategy. Some employees felt that they were being dominated and that Afrikaans was used to exclude them from being part of the implementation of IT strategy. Other employees felt that IT managers deliberately accorded preferential treatment to certain employees when they used Afrikaans in meetings.

Those who had the advantage of fluency in the language took control and became more popular, and used that as their source of power to dominate others. Thus, Afrikaans was very influential in the implementation of IT strategy in the organisation. Some of the managers preferred to allocate critical tasks to people they could easily communicate with. Also, in terms of team work, language took

preference. Afrikaans speaking employees preferred to work with those who could also communicate in Afrikaans.

iv. Cultural Diversities and Conservatism

As evident in the data about the organisation, which was presented in Chapter Four, the organisation is about hundred years old. There was a rich cultural diversity in the computing environment of the organisation, but instead of celebrating their diversity, pervasive elements of conservatism counteracted the advantages that could have been gained from the diversity.

Historically, only Afrikaans speaking people were employed in the organisation. Accordingly, processes and activities were conducted in Afrikaans. As a result, conservative (Afrikaans speaking) employees objected to documents written in English. In the new setting of the computing environment, these employees were finding it difficult to adjust and accept the changes that were taking place. Their response to these changes was to be unco-operative. As such, they were not contributing their knowledge which had been gained from experience. On the other hand, the new intakes into the environment also had difficulty in performing their individual tasks in the new cultural setting. For example, in the past, instructions were given according to seniority of position and those instructions were not queried. The new setting allowed for a process of negotiation. The older employees did not like this.

At the time of this study, the new and old cultures had not found a point of compromise. The non-acceptance of the new culture created considerable barriers for the implementation of IT strategy in the organisation.

v. Historical Effects

During the study the organisation was in a process of transformation which had been initiated to balance the number of employees in the computing environment

along racial lines. One way in which this transformation process was implemented was through the employment of 'affirmative action' candidates.

The Employment Equity Act, Act 55 of 1998, applies to all employers and workers and protects workers and job seekers from unfair discrimination, and also provides a framework for implementing affirmative action. In terms of the Act, employers must make sure that designated groups (black people, women and people with disabilities) have equal opportunities in the workplace. Designated groups must be equally represented in all job categories and levels.

The affirmative action employees felt they were being discriminated against. This led to unco-operative actions and manifestations of defensive behaviour by the affirmative action employees. Between them and the rest of the employees, an antagonism developed. The affirmative action candidates claimed that because of the discrimination information about IT strategy was not appropriately circulated or shared with them. They felt that their white colleagues had more power as a result of the resources within their reach. In response to this domination, the affirmative action candidates acted in their individual interests and half-heartedly supported the implementation of IT strategy in the organisation.

The reluctance to co-operate, or the complete lack of co-operation from both the affirmative action candidates and other employees, including managers, who had jurisdiction over the resources available to them, was used by these same managers as a source of power to exclude unco-operative employees from the implementation of IT strategy.

vi. Irregularities caused by personal interests

Personal values, beliefs and attitudes sanctioned the actions of actors and produced and reproduced structures of legitimation. Naturally, these norms were seldom articulated, but nevertheless were used by actors to sanction their actions that then reproduced the structures of legitimation. Similarly, personal interests

mediated early decisions about IT strategy in the organisation that eventually wielded their greatest influence during the implementation stage.

In developing and implementing IT strategy in the organisation, the relationships between IT management and employees revolved around rules, regulations and available resources. Between IT managers and employees, IT strategy was interpreted, tasks were negotiated and allocated, and information was shared and communicated. However, this all happened with varying degrees of success.

When it came to mobilisation of employees for the implementation of IT strategy in the organisation, this was sometimes done amongst age groups, with older people considered more senior and afforded preferential treatment. Also, employees rendered more support to colleagues of their own age group causing major problems of imbalance in terms of experience and knowledge about the organisation.

Unlike in the case of Dzuwa's computing environment, there was no performance contract for employees in the computing environment of the organisation. As a result, employees did not believe that the organisation could fairly judge their performances and qualification for salary increases and promotion. Consequently, employees resorted to manoeuvring because they believed that managers had no objective way of differentiating effective people from those who were less effective, and were in fact practising nepotism and favouritism. As we have seen above, this was indeed the case.

The interpretation of the findings presented above is now used to map the findings on factors of organisational politics. The six findings are mapped onto five factors of organisational politics as shown in Tables 12 and 13 (on pages 253 and 254, respectively). The factors of organisational politics are:

- Language used for communication

- Coping with diversity
- Practice of favouritism and nepotism
- Pursuit and protection of personal and group interests
- Implementing transformation

They are discussed next.

i. Language used for communication

It was a policy of the organisation to allow both Afrikaans and English as languages of communication. Some employees, however, were not fluent in Afrikaans and found it difficult to understand and interpret IT strategy related documents. It was difficult for them to participate in meetings where the development and implementation of IT strategy were discussed in Afrikaans. Historically, only Afrikaans speaking people were employed in the organisation, and accordingly, the language of communication in processes and activities had always been Afrikaans. In the new setting of the computing environment, these employees were finding it difficult to adjust and accept the changes that were taking place in the new dispensation. Their response to these changes was to be unco-operative. Some of the managers preferred to allocate critical tasks to people they could easily communicate with, which would often exclude those who were not fluent in Afrikaans. Also, in terms of team work, language took preference. Afrikaans speaking employees preferred to work with those who could also communicate in Afrikaans. The language policy of the organisation therefore had an adverse effect on the implementation of IT strategy: a divide of the workforce along language lines, poor communication between individuals and groups, and, in general, problems of co-operation to get the work done.

ii. Coping with diversity

There was a rich cultural diversity in the computing environment of the organisation, but instead of celebrating their diversity, pervasive elements of

conservatism counteracted the advantages that could have been gained from the ~~organisational politics~~ diversity.

The diversity manifested in terms of different generations, language groups and racial groups. The response of the older generation to the changes in the environment was to be unco-operative. This did not alleviate the plight of the new intakes, who were mostly from other language and racial groups in comparison to the older generation and who had difficulty in performing their tasks in the new cultural setting.

It was not always possible for employees from the older generation to avoid working with new employees – invariably from the younger generation, since the rules of the organisation made it possible to enforce such arrangements. This "generation gap" co-operation was then based on a foundation of unwillingness to work together and led to the younger employees not getting enough information from their older colleagues who were more knowledgeable about the organisation.

The younger generation employees were not only divided from the older generation in terms of age and language, but also in terms of race, since many of them were appointed in terms of the organisation's transformation efforts required by the Employment Equity Act. There was a reluctance to co-operate, or a complete lack of co-operation from both the affirmative action employees and other employees, including managers.

The organisation was clearly unable to cope with the rich diversity amongst its employees, and the diversity was used in many subtle and not-so-subtle ways to undermine work procedures and co-operative work.

iii. Practice of favouritism and nepotism

IT managers had autonomous control over resources under their auspices. This rendered them vulnerable to favouritism and nepotism and created conflicts of

interest. Some of the IT managers accorded preferences to employees as they wished, and some preferred to allocate critical tasks to people they could easily communicate with. There was no performance contract for employees in the computing environment of the organisation. As a result, employees did not believe that the organisation could fairly judge their performances and qualification for salary increases and promotion. Consequently, employees resorted to manoeuvring because they believed that managers had no objective way of differentiating effective people from those who were less effective, and were in fact practising nepotism and favouritism.

iv. Pursuit and protection of personal and group interests

Feelings of insecurity resulted in some employees from the older generation acting individually in order to achieve and satisfy their own goals and objectives. They exploited the fact that certain senior managers had more respect for them because of their age, and that whatever they said would carry more weight than the words of a younger employee, to achieve personal objectives. They also used their greater knowledge of the organisation and the computing environment to maintain job security and to dominate younger employees. Personal interests also mediated early decisions about IT strategy in the organisation that eventually wielded their greatest influence during the implementation stage. The absence of performance contracts led to employees resorting to manoeuvring to ensure favourable appraisals from their managers.

Such practices were not restricted to individuals. Various groups, divided along language, race or age lines, all pursued their group interests first and not that of the organisation and the implementation of the IT strategy.

v. Implementing transformation

To balance the number of employees in the computing environment along racial lines the organisation implemented the affirmative action policy of the Employment Equity Act.

Employees at the lower levels, who mainly came from non-white (coloured, Indian and black) origins, were referred to as affirmative action candidates. This was considered to be discriminatory in the organisation. The employees concerned were also considered as not having the same organisational values or ways of operating as their white colleagues. As such, they were allocated few tasks or opportunities in the implementation of IT strategy.

Quite rightly, the affirmative action employees felt they were being discriminated against. This led to unco-operative actions and manifestations of defensive behaviour by the affirmative action employees, and antagonism between them and the rest of the employees. The affirmative action candidates claimed that because of the discrimination information about IT strategy was not appropriately circulated or shared with them. They felt that their white colleagues had more power as a result of the resources within their reach. In response to this domination, the affirmative action candidates acted in their individual interests and half-heartedly supported the implementation of IT strategy in the organisation.

Affirmative action, in terms of the Employment Equity Act, therefore became an obstacle within the organisation rather than a doorway to the future, and was resented by employees, including managers, from both sides of the "divide".

Findings		Factors of organisational politics	
Control of resources	managers had autonomous control over resources under their auspices; resources used according to individual interests; control over employees' access to facilities; employees used their knowledge and technical know how to gain advantage over others; domination of employees by managers	language policy disadvantaged new employees who were not fluent in Afrikaans; exclusion of such employees; divide of the workforce along language lines; poor communication between individuals and groups; problems to co-operate	Language used for communication
Human interference	"generation gap" co-operation; younger employees deprived of information; some employees did not understand their tasks; feelings of insecurity led older employees to act to achieve their own goals; domination of younger employees by older employees using their superior knowledge of the organisation; difference between formal procedures and actual operational procedures	pervasive elements of conservatism counteracted advantages of diversity; generation gap co-operation based on foundation of unwillingness, withholding information divide between affirmative action employees and the rest; reluctance to co-operate;	Coping with diversity
Organisational rules	English and Afrikaans legitimate languages, causing serious communication problems; preferential treatment of certain employees based on language abilities	some managers accorded preferences to employees as they wished; some on basis of language preferences; manoeuvring by employees to get favourable appraisals	Practice of favouritism and nepotism
Cultural diversities and conservatism	pervasive elements of conservatism counteracted advantages that could have been gained from the rich diversity; language-based tension between older generation and younger generation	feelings of insecurity resulted in actions to achieve personal goals; exploitation of respect managers had for employees of older generation; use of superior organisational knowledge by older employees to dominate younger employees and maintain job security	Pursuit and protection of personal and group interests
Historical effects	tension between affirmative action employees and the rest; information not shared with affirmative action employees; reluctance to co-operate; exclusion of unco-operative employees		
Irregularities caused by personal interests	employees favoured employees of their own age group; in the absence of performance contracts, employees resorted to manoeuvring to obtain favourable appraisals	affirmative action policy in terms of Employment Equity Act; such appointments were regarded as inferior and excluded from tasks and	Implementing transformation

Table 12: Mapping the findings on factors of organisational politics at Eko

The mapping of Table 12 is shown below, in Table 13, in an easier to oversee format.

Factors of organisational politics at Eko

Findings ↓	Language used for communication	Coping with diversity	Practice of favouritism and nepotism	Pursuit and protection of personal and group interests	Implementing transformation
Control of resources			X	X	
Human interference			X	X	X
Organisational rules	X			X	X
Cultural diversities and conservatism	X	X		X	X
Historical effects		X	X	X	X
Irregularities caused by personal interests			X	X	

Table 13: Mapping the findings on factors of organisational politics at Eko

The six factors of organisational politics identified are, of course, not independent. In order to discover the relationships between the factors, the factors were analysed in terms of seven concepts. These concepts were drawn from those thirteen concepts identified in Chapter 2, section 2.3, as representative of the literature on organisational politics, pertinent to the present case analysis and based on the discussion above. The concepts are: exclusion, conservatism, tension, preferences, self-interests, generation gap and domination.

In Table 14 below, the analysis is shown. This was done by regarding each factor as a category of concepts, and showing, in the table, which concepts constitute the category.

	Language used for communication	Coping with diversity	Practice of favouritism and nepotism	Pursuit and protection of personal and group interests	Implementing transformation
Exclusion	X	X	X	X	X
Conservatism	X	X		X	X
Tension	X	X	X		
Preferences	X				
Self-interests			X	X	
Generation gap	X	X	X		
Domination	X	X		X	

Table 14: Relationships between factors of organisational politics at Eko

In terms of the analysis, the following relationships hold between the factors of organisational politics:

- Language used for communication \leftrightarrow Coping with diversity
- Language used for communication \leftrightarrow Practice of favouritism and nepotism
- Language used for communication \leftrightarrow Pursuit and protection of personal and group interests
- Language used for communication \leftrightarrow Implementing transformation
- Coping with diversity \leftrightarrow Practice of favouritism and nepotism
- Coping with diversity \leftrightarrow Pursuit and protection of personal and group interests
- Coping with diversity \leftrightarrow Implementing transformation
- Practice of favouritism and nepotism \leftrightarrow Pursuit and protection of personal and group interests
- Practice of favouritism and nepotism \leftrightarrow Implementing transformation
- Pursuit and protection of personal and group interests \leftrightarrow Implementing transformation

These factors of organisational politics all have an impact on the development and implementation of IT strategy. In Figure 16 below, this is illustrated. Only the impact on the implementation of IT strategy is shown, since the focus throughout the analysis and interpretation of the data has been directed towards implementation.

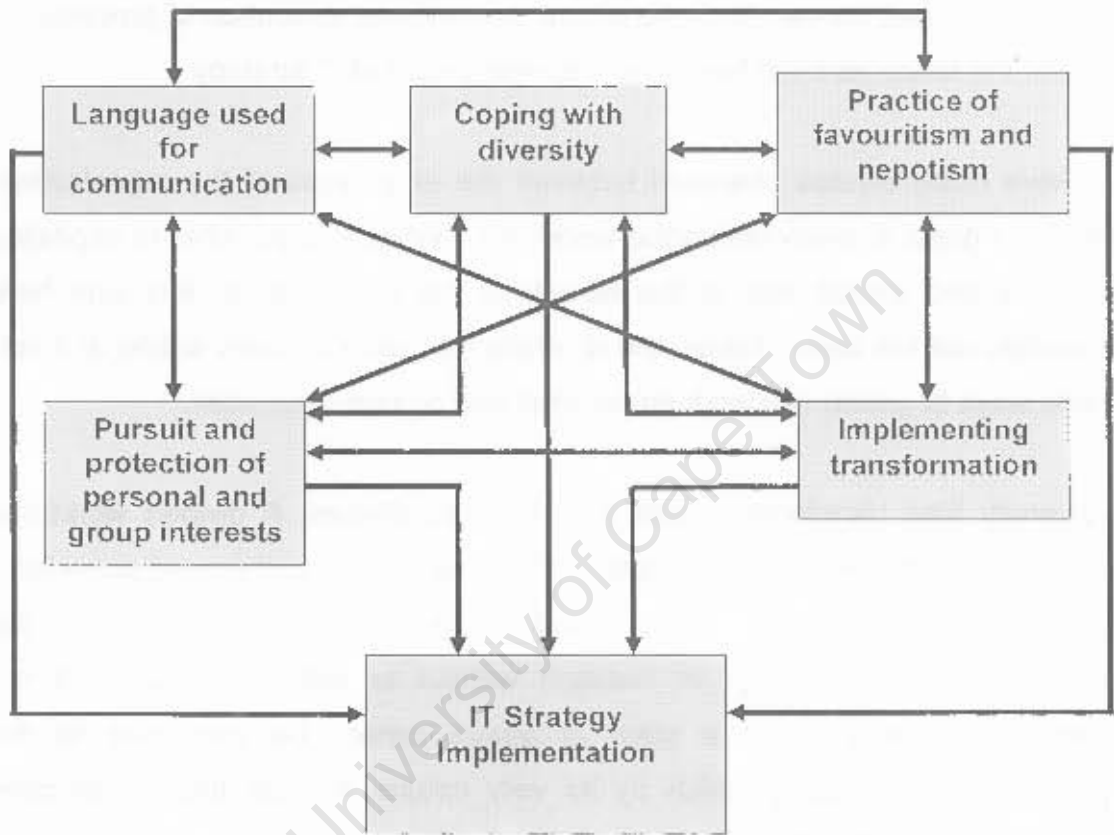


Fig. 16: Impact of Organisational Politics on IT Strategy at Eko

In the next subsection the interpretation of the Eko case is concluded by discussing the impact of organisational politics on IT strategy, using Figure 16 above as guideline.

6.3.2 Impact of Organisational Politics on IT strategy at Eko

Similar to Dzuwa, Eko had defined processes and procedures in place to develop and subsequently implement IT strategy. The actions of the HOD, IT Managers and employees, who acted within these procedures, were influenced and affected by factors of organisational politics. This would sometimes derail certain procedures, or erect barriers to the effective and efficient execution of procedures. As before, the focus here will be on the implementation of IT strategy.

There were many divides observed between the employees of the organisation, caused by a great diversity within the workforce. While it is possible to capitalise on diversity and exploit this to the benefit of the organisation, this was here unfortunately not the case. Rather, the diversity was used in many subtle and not-so-subtle ways to undermine work procedures and co-operative work.

The diversity also transformed itself into manifold divides. A divided workforce could spend a lot of energy on attempts to cross the divides and ensure some form of co-operation between the different factions. And if it does not do so, the separate factions would work in isolation without or with a modicum of co-operation. Either way, such a state of affairs cannot be conducive to the development of IT strategy which by its very nature requires the co-operative efforts of many groups of different expertise and skills.

One can point to a generation divide, a racial divide, and a language divide within the organisation's computing environment. Language, however, was perhaps the single most important factor that caused division. Historically, only Afrikaans speaking people were employed in the organisation, but to accommodate new appointments in terms of the organisation's compliance with the stipulations of the Employment Equity Act, both Afrikaans and English were accepted as official languages of communication. In reality, this policy was to accommodate the previous generation of Afrikaans speaking employees. The consequences of the

~~policy were many~~ Employees who were not fluent in Afrikaans found it difficult to understand and interpret IT strategy related documents. It was difficult for them to participate in meetings where the development and implementation of IT strategy were discussed in Afrikaans. They were seen to be un-cooperative, and were excluded since managers preferred to allocate critical tasks to people they could easily communicate with. The implementation of the organisation's affirmative action policy brought in many new employees, who invariably were not Afrikaans speaking. This aggravated the situation, and the older generation of Afrikaans speaking employees (including some managers) turned more and more inwards towards their own people.

The language policy of the organisation therefore had an adverse effect on the implementation of IT strategy: a divide of the workforce along language lines, poor communication between individuals and groups, and, in general, problems of co-operation to get the work done.

IT managers had autonomous control over resources under their auspices. This rendered them vulnerable to favouritism and nepotism and created conflicts of interest. Some of the IT managers practised favouritism as they wished, and some, as observed above, preferred to allocate critical tasks to people they could easily communicate with. In the absence of performance contracts, some employees acted in ways to ingratiate themselves when their managers, who they believed practising nepotism and favouritism.

The changes in the computing environment – brought about to a large extent by the implementation of the affirmative action policy – caused feelings of insecurity in some employees from the older generation. They exploited their greater knowledge of the organisation and the computing environment to achieve personal objectives, to maintain job security and to dominate younger employees.

Such practices were not restricted to individuals. Various groups, divided along language, race or age lines, all pursued their group interests first and not that of the organisation and the implementation of the IT strategy.

Employees at the lower levels, who mainly came from non-white (coloured, Indian and black) origins, and who were appointed in terms of the organisation's affirmative action policy, formed such a group. They were "forced" into a group by the actions of other employees, who referred to them as affirmative action candidates. While this was considered to be discriminatory, these employees were also considered as not having the same organisational values or ways of operating as their white colleagues. Few tasks or opportunities in the implementation of IT strategy were therefore allocated to them, virtually excluding them from any participation. Quite rightly, the affirmative action employees felt they were being discriminated against. The affirmative action candidates claimed that because of the discrimination information about IT strategy was not appropriately circulated or shared with them. In response to this domination, the affirmative action candidates acted in their own interest by only half-heartedly supporting the implementation of IT strategy in the organisation.

The factors of organisational politics as captured and illustrated in Figure 16 above, clearly had a considerable impact on the implementation of IT strategy in the organisation.

In the next section the results of the two case studies as presented in Figures 15 and 16 are combined, and presented as a general framework in Figure 17.

6.4 The Impact of Organisational Politics on IT Strategy

In combining the results of the two case studies presented above, we necessarily have to move to a higher, more general level. Figure 17 below shows that the various factors of organisational politics that influence and impact the implementation IT strategy have been accommodated in three main components,

namely, organisational culture issues, internal policies and personal issues. This represents a generalisation of the results of the two individual case studies of this research, and puts forward the proposition that these three main components would also accommodate the factors of organisational politics that would be found in other organisations.

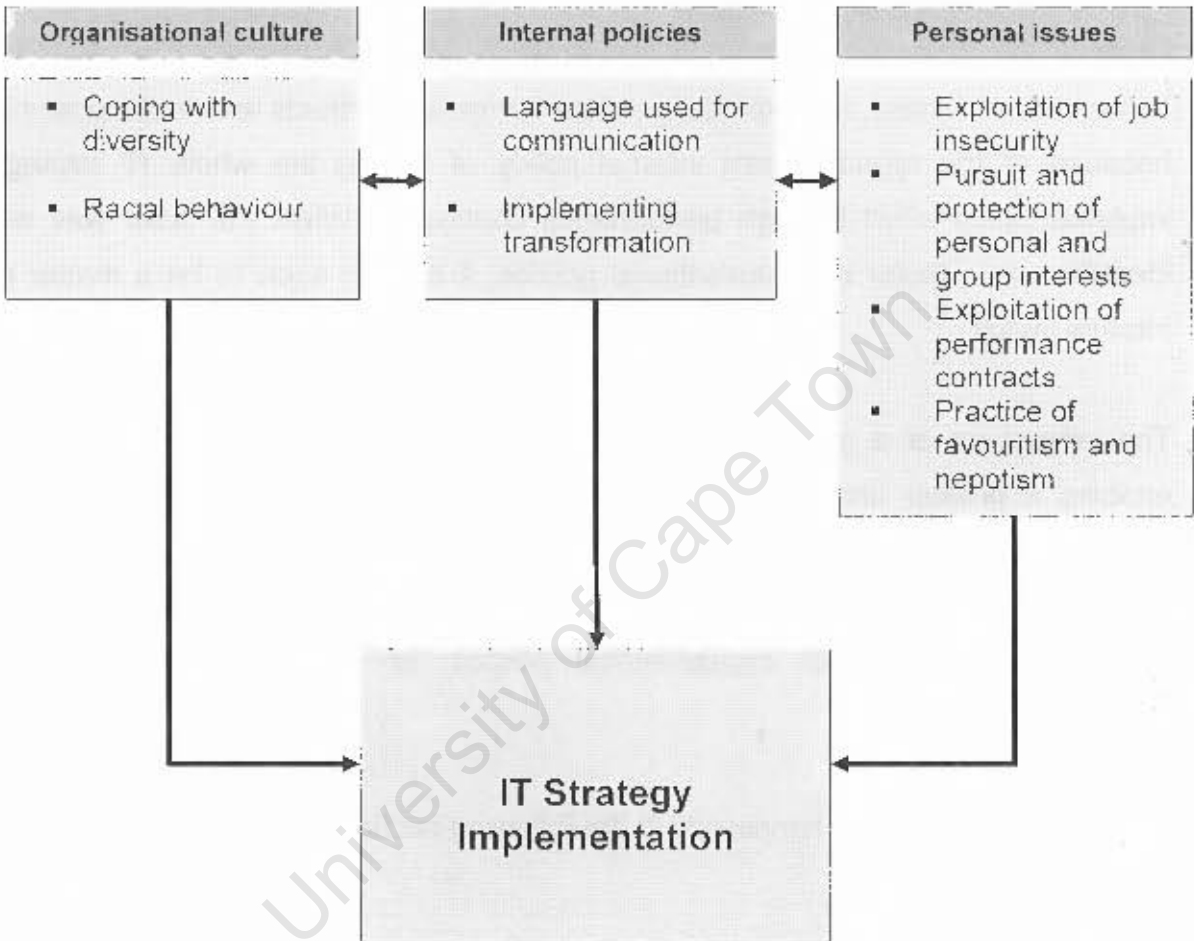


Fig. 17: Impact of organisational politics on IT strategy

The various factors of organisational politics are, as has been shown, not independent, but deeply inter-dependent. The three main components proposed in Figure 17 are similarly not independent. Certain factors of a personal nature need a particular organisational culture in which to thrive, or would feed on particular internal policies. Similarly, certain internal policies would only be possible within a particular organisational culture. In the case of Eko, the latter was illustrated

forcefully the organisation's policy of acknowledging both Afrikaans and English as official languages had serious consequences – not so much as a result of the policy itself, but as a result of the organisational culture in which this policy was promulgated. The culture coped poorly with diversity, and the additional diversity created through the policy transformed into another divide, linking with existing divides and reinforcing them and itself.

In the case of Dzuwa, the exploitation of performance contracts was made possible because of the organisation's internal policy of driving the whole IT strategy implementation effort through performance contracts. While the latter was not identified as a factor of organisational politics, it can be seen to be a matter of internal policy.

The advantage of a general framework such as shown in Figure 17, is that it enables a greater understanding of how organisational politics manifest in the implementation of IT strategy. While organisational politics could never be eradicated, using a framework such as Figure 17 could assist in removing some of the feeding grounds of organisational politics, or counteracting them with appropriate measures.

This chapter is drawn to conclusion in the following section.

6.5 Conclusion

This Chapter was devoted to an interpretation of the findings that were arrived at in Chapter Five after a detailed analysis of the empirical data pertaining to the two case studies.

The interpretation led to two frameworks, shown in Figures 15 and 16, that show how, in each of the two case studies, factors of organisational politics had an impact on the implementation of organisational politics.

In the final chapter, Chapter Seven, which follows, the research effort is concluded. The chapter provides an overview of the total research effort. The research questions are revisited and the research contribution discussed. After an evaluation of the research, limitations of the study are pointed out and opportunities for further research are discussed.

University of Cape Town

Contents

7	EVALUATION AND CONCLUSION	266
7.1	Introduction	266
7.2	Overview of the Research.....	266
7.2.1	Revisiting the Research Questions	270
7.3	Research Contributions.....	274
7.3.1	Theoretical Contributions	274
7.3.2	Methodological Contribution.....	275
7.3.3	Practical Contributions	275
7.4	Assessment of the Research	276
7.5	Limitations of the Research	281
7.6	Opportunities for Further Research.....	281

7 EVALUATION AND CONCLUSION

7.1 Introduction

This chapter concludes the research and presents an evaluation of what has been achieved in relation to the aim of the study.

The aim of the research has been to contribute towards understanding the impact of organisational politics on IT strategy in the computing environment of the organisations that deploy it. To this end, the thesis adopted an interpretive stance and a two case study strategy. This was not for comparative purposes, but to gain a deeper understanding of how prevalent, if at all, the impact of organisational politics is on the IT strategy of an organisation.

The rest of the chapter is organised into five main sections. First, an overview is given of the research effort by reviewing each chapter. Next, the research contributions are discussed, followed by an assessment of the research contribution. The last two sections point out the limitations of the study and opportunities for further research.

7.2 Overview of the Research

In Chapter One of the thesis, the nature of the research problem was examined, which provided the background to the study. Organisations have been developing and implementing IT strategy with the implicit objectives of improving their business processes and activities. One such objective is to gain competitive advantage. Many studies have been carried out on "IT Strategy" and, separately, on "Organisational Politics" in the computing environment. Some of these studies have suggested that the social context and the need for change should be taken into account in the development and implementation of IT strategy in the organisation. However, no study as yet has been found to have integrated these two subjects.

The chapter also introduced and provided background about the research topic. This covered IT strategy on the one hand, which includes development and implementation, and organisational politics, on the other hand, which includes power. The relationship between people and organisational structures in the development and implementation of the IT strategy was key to this research. Within IT strategy, the focus is on technical and non-technical issues. The literature reviewed revealed the strong dependency between technical and non-technical factors, and accordingly, a social-technical approach was followed throughout the research – according equal importance to both the social (non-technical) issues, and technical issues.

The literature review continued with the topic of development and implementation of IT strategy. The view adopted in the research is that IT strategy must be aligned with the business strategy to be able to provide competitive advantage, taking cognisance of the fact that politics and power exist within the computing environment.

Based on some of the literature reviewed, the process of development and implementation of IT strategy are similar in many organisations. The case studies used in the research confirmed this. However, the factors and actions which manifest themselves as organisational politics in the development and implementation of IT strategy are different. To give effect to the socio-technical nature of the research, the *duality of structure* from Structuration Theory and *moments of translation* from Actor-Network Theory were used intensively in the analysis of the case studies data.

Technology, Process and People were identified to be the main components in the development and implementation of IT strategy. It was argued that these components are inseparable in the development and implementation of the IT strategy, and that it would therefore be difficult to understand IT strategy without

understanding these components (people, process and technology), since they have transformative effects on each other.

The process component consists predominantly of non-technical involvements, which are mainly actions of people. Some of these actions manifested themselves as organisational politics. In this chapter, and also in Chapter Two, a review of organisational politics, which includes power, was also conducted.

The research design, which included the interpretive and data collection approach, was discussed. Also discussed was the significance of this research for IT policy makers and strategists, IS researchers and professionals, and for IT employees and managers. At the end of Chapter One, the structure of the thesis was presented.

Chapter Two provided background to IT strategy and organisational politics. Background on the IT strategy components, namely, People, Process and Technology, Power from the organisational politics perspectives were also presented.

A review of relevant literature about IT strategy, organisational politics, power and the underpinning theories was presented. Some of the literature argued that organisational politics including the use of power exists within computing environments.

The chapter continued with a review of the underpinning theories, Structuration Theory (ST) and Actor-Network Theory (ANT). The relationship between ST and IS, and between ANT and IS, were covered, as well as the limitations of both ST and ANT, and how the two theories relate (i.e., the possibilities of applying the two theories in one study). Based on the socio-technical nature of the research study, it was argued that ST and ANT were both appropriate for analysing the case studies.

The philosophical assumptions underpinning this research were outlined in Chapter Three. These are in line with the epistemological and ontological assumptions of interpretive research. As the aim of the research was to create a better understanding of the interplay between organisational politics and IT strategy so as to explore the impact of the former on the latter, a case study strategy was chosen in order to gain rich insights into the process. Two case studies were conducted in two different organisations, specifically, in their computing environment settings. The chapter presented the research design as well as data collection techniques employed in the fieldwork.

Chapter Four described the computing environment of each of the organisations where the two case studies were conducted. The organisational structures and actors involved in the development and implementation of IT strategy were identified. Chapter Four also described how the study was carried out in each of the two case studies. This included the period of time and the format of gathering information.

In Chapters Five, the data of the case studies were analysed. The concept of the *duality of structure* from Structuration Theory and the *moments of translation* from Actor-Network Theory were used in the analyses of the data collected in each of the case studies.

Structuration Theory was particularly useful in acknowledging and analysing the dialectic between organisational (including the computing environment) and technological structures, as well as human action. The focus of Actor-Network Theory was on the analysis of alliances of networks in the computing environment of each of the case studies.

In Chapter Six, the findings of the analyses from each of the case studies were first revisited, and then interpreted. In each of the two case studies, the interpretation of the findings led to the identification of factors of organisational politics. These

were then presented in two frameworks, showing for each of the two case studies, the impact on the implementation of IT strategy. Finally, the results from the two case studies were combined in a generalised framework.

7.2.1 Revisiting the Research Questions

The formulated research questions were presented in Chapter One. These questions were asked in order to break down the overall research focus on 'the impact of organisational politics on IT strategy within the computing environment of the organisation that deploys it'. In this subsection, the research questions are revisited in the light of the results of the research.

i. What is Information Technology (IT) Strategy in the context of the organisations?

This question was asked in order to understand the organisational view on IT strategy specifically in the context of the computing environment of the organisation. Also, it was asked to clarify why individuals think that IT strategy is important to the organisation. This question played a role throughout the thesis but particularly in Chapters Five and Six. There, the data from the two case studies were analysed and the results then interpreted using Structuration Theory and Actor-Network Theory.

There was no formal documentation about IT strategy in either of the case studies. As a result, there was no clear-cut definition of IT strategy in the organisations. This created more interest around the exploration of organisational views on IT strategy. IT strategy is considered as a very important tool in both organisations. Thus there was considerable attention paid to how it was developed and implemented as well as to which personnel became involved at the different levels.

What is interesting is that almost every employee – particularly, those who did not know how IT strategy is developed, knew its importance to the organisation.

Hence, gaining an understanding of how IT strategy is communicated and interpreted was important and of interest to the researcher.

The results obtained in response to this question helped to gain an understanding as to why IT strategy was developed through the approach adopted in the organisation – such as its alignment to the business strategy of the individual organisation.

The question that followed was intended to help the researcher understand why certain people were chosen to take part either in the development or implementation of the IT strategy in the organisation. This included the roles of the participants in the development and implementation of the IT strategy.

ii. How is the IT Strategy Developed and Implemented within the Computing Environment of the Organisation?

The case study results revealed how the IT strategy was developed and implemented; this included the positions that were responsible and accountable for the development and implementation; how the tasks were allocated; and why those positions were responsible and accountable.

As revealed in the analysis and interpreted in Chapters Five and Six, respectively, the development and implementation of IT strategy is done within the structures that exist in the computing environment of each of the organisations. A part of these structures is created by the allocations of tasks to individuals for the development and implementation of IT strategy.

The actions of employees, enabled and constrained by these structures, were very influential in the processes and activities involved in the development and implementation of IT strategy in the organisations. Some of these actions, as analysed and interpreted in Chapters Five and Six, respectively, were personal and manifestations of organisational politics.

The results of the case studies also revealed some factors that were analysed and shown to be problems during the development and implementation of the IT strategy in the organisations. Two of these factors were critical:

- i. First was the relationships issue between actors involved in the development and implementation of IT strategy in the organisations. The relationships issue was critical in the process of development and implementation of IT strategy. It influences how development and implementation of IT strategy is interpreted and affects the way tasks were allocated and carried out.
- ii. Secondly, the analysis revealed how employees responded to the structures within the computing environment in the process of development and implementation of IT strategy in the organisations. These actions or responses include how the development and implementation of IT strategy was then interpreted, how the various involved tasks were allocated, how these tasks were sanctioned and carried out.

The research study established that the rules, regulations and available resources of the organisation were used as guiding principles in the development and implementation of IT strategy. In some instances, the rules, regulations and available resources were used for personal interests, which were sometimes to the detriment of the organisation that promulgated them.

One of the most important moments of learning for the researcher was how IT strategy development and implementation was driven and 'determined' by the structures (rules and resources) within the organisations. These structures, as explained by the concepts of Duality of Structure of Structuration Theory, do not direct or control the actions of individuals through their existence in one or other material form. Rather, as individuals enact the rules and allocate resources as part

of their ongoing activities, their individual interpretations of the structures enable and constrain their activities.

The final question was intended to collect data about factors that were influencing the development and implementation of IT strategy in each of the organisations.

iii. What were the Fundamental Factors that Influenced the Development and Implementation of IT Strategy in the Organisation?

Similar to the other questions stated above, the data collected from this question was analysed in Chapter Five and the findings were interpreted in Chapter Six.

The research study revealed that the non-technical factors were as important as the technical factors when it came to influence on the development and implementation of IT strategy in the computing environment of the organisations. The research explored these factors from both technical and non-technical perspectives, specifically in the implementation of IT strategy. This included exploring the organisational view, personal views, perceptions among the employees, and personal experiences during implementation of IT strategy.

Personal interests of the employees were prevalent influencing factors in the two case studies. These included acts of racism and the use of stocks of knowledge about the organisations. The proposition used was that the implementation of IT strategy was influenced by the knowledge of users which manifested itself in the form of key concepts that represented the basic criteria for the implementation of the IT strategy in the organisations. The factors were construed to be manifestations of organisational politics. The causes for the pursuit of personal interests were covered in Chapter Six.

The structures in the computing environment, within which the IT strategy was developed and implemented, were manoeuvred by employees when they were enacted. Most of these manoeuvres resulted from personal interests which

influenced their interpretation of the structures. These manoeuvres manifested themselves as organisational politics.

The contributions of the research are discussed in the next section.

7.3 Research Contributions

This section focuses on the research contributions. They include theoretical, methodological and practical contributions.

7.3.1 Theoretical Contributions

Structuration Theory and Actor Network Theory were the two theories that were applied in the analysis of the case studies. Both theories and the empirical findings contributed to the researcher's understanding of the impact of organisational politics on IT strategy in the computing environment of the organisations. The study also contributed to a better understanding of the roles of actors, structures and the individuals and groups of individuals involved in the implementation of IT strategy.

Theoretically, the research contributes through the framework (see Figure 17 in Chapter Six) developed in this study. The framework proposes three main components or categories of factors of organisational politics that impact on IT strategy implementation, and show their interdependencies.

The advantage of a general framework such as shown in Figure 17, as discussed in Chapter Six, is that it enables a greater understanding of how organisational politics manifest in the implementation of IT strategy. While organisational politics could never be eradicated, using a framework could assist in removing some of the feeding grounds of organisational politics, or counteracting them with appropriate measures.

7.3.2 Methodological Contribution

The main methodological contribution of the research has been the combined use of Structuration Theory and Actor-Network Theory through the concepts of the *duality of structure* and *moments of translation*, respectively, in the analysis of the two case studies. This was done in Chapter Five.

A combination of Structuration Theory and Actor-Network has been used by Brooks and Atkinson (2003), who interpreted ST and ANT into a 'new' theory which they call StructurANTion Theory. In this study, the theories are used separately and complementary in the analysis of each of the case studies in order to focus on different if complementing issues.

A further methodological contribution is the way in which the analysis of the empirical data was followed up by an identification of the findings from the analysis, and then the formal interpretation of the findings to arrive at the frameworks presented in Figures 15 and 16. It is recognised that in many cases it is impossible to neatly separate analysis and interpretation, and that one cannot claim a methodological way to generate interpretations. After all, interpretation is to make sense of the meaning of the data, which is a cognitive process that cannot be "automated". Nevertheless, it is thought that the way in which the interpretation of the findings from the analysis was handled in Chapter Six can serve as an example for other researchers.

7.3.3 Practical Contributions

The aim of this study was to understand the impact of organisational politics on IT strategy. In both case studies it was clear that the development of IT strategy could not be investigated, since this happened, so to speak, behind closed doors. The focus throughout, therefore, was strongly directed at the implementation of IT strategy that usually follows the development stage. A review of the available corporate and academic literature revealed that this particular problem has not

previously been studied in the way that was proposed for this study – i.e., by specifically focusing on technical as well as socio-technical issues.

The practical contribution of this research is the detailed work that underpins the theoretical framework presented as Figure 17 in Chapter Six. It is recognised that one cannot expect practitioners to digest the whole of the research work to arrive at an understanding of this practical contribution, in order to apply it in their environment. Nevertheless, since this is first and foremost an academic thesis, one can certainly claim this without demonstrating that the practical contribution is there and immediately accessible to practitioners. It does imply, however, that in order to provide a guide to practitioners based on this research work would require an intensive effort of "translating" the work that has been done into a format and language that would be understandable by practitioners. It is believed that this is outside the scope of this study.

7.4 Assessment of the Research

In order to assess the research study as a whole, the criteria developed by Whetten (1989) were applied. Based on Whetten's work a set of questions was formulated. These questions were then used to do the assessment.

i. What is new that the study has significantly contributed to current thinking?

A satisfactory account of the interwoven relationship between IT management and employees within the computing environment was lacking in the process of development and implementation of IT strategy in the organisation. The research was more interested in how this interplay works, not only *that* it exists.

The research explored opportunities to gain insights as to how certain factors influenced and affected the course of IT strategy implementation; and how human action and structure affected the technological strategic direction within the computing environment. To achieve this, the research used a combination of the

underpinning theories of Structuration Theory and Actor-Network Theory to establish and gain understanding of how IT strategy was implemented in the organisations. How the theories were combined to analyse the data may assist other researchers conducting similar studies, particularly in the field of information systems.

Finally, the research provided empirically based rich insights through the analysis and interpretation of the data collected in the two case studies. This culminated in the development of frameworks for each of the two case studies (see Figures 15 and 16 in Chapter Six) that provide an understanding of how factors of organisational politics impact the implementation of IT strategy. These results were generalised and a general framework was presented in Figure 17 in Chapter Six. This shows three main categories of organisational politics and their high-level interdependencies.

ii. *What is the likelihood that the research will change the way in which IT strategy is developed and implemented in the computing environment of the organisations that deploys it?*

The analysis and interpretation presented in Chapters Five and Six, respectively, revealed that non-technical factors are very influential in the implementation of IT strategy. This includes how tasks are allocated, the effect of domination by some employees and why certain processes and activities are, or are not sanctioned. Typically, there is more focus on the technical factors than on non-technical factors in the implementation of IT strategy.

The findings and results of the research have the potential to change the way that IT strategy is currently developed and implemented. For this to happen, however, a necessary pre-condition is that the results of this research should be communicated to the world of practice. While it is the intention of the researcher to publish his results in academic journals, it is realised that such publication(s) typically do not reach practitioners. A special effort will have to be made to distil the

results of the research for practitioners and to find a suitable channel to communicate this to them.

iii. Are the underlying logic and supporting evidence compelling?

Based on the research topic, and the research questions, an interview guideline was developed in order to be able to collect relevant and rich data. A two case study approach was adopted, using the same approach and interview guideline. Data was collected through the means of one-on-one interviews and documentation. The interviews were transcribed, and this data was analysed. Based on the results of the analyses, findings were identified and these were interpreted. The analysis was done using the concept of the *duality of structure* from Structuration Theory and *moments of translation* from Actor-Network Theory. The analysis and interpretation of the two case studies were conducted separately.

The results obtained were presented in Chapters Five and Six. They are therefore drawn from a solid base of evidence, making the underlying logic and supporting evidence compelling.

iv. How well (including completeness and thoroughness) is the research work done?

The research problem and the case studies were viewed from a socio-technical perspective. The research approach was discussed in Chapter Three and the analysis and interpretation of the results was undertaken in Chapters Five and Six, respectively. Structuration Theory and Actor-Network Theory were used for the analysis of the empirical data. The interpretation of the results of the analyses was done separately, and for each of the case studies. Based on the interpretations, framework of understanding were developed for each of the case studies, followed by a generalised framework. The last chapter of the thesis is used to review the research, and in particular, the research questions and the contributions made by the research study.

v. How well is the thesis written, including the logical flow of the ideas?

The research topic and its background were well articulated, and set a clear direction for the study. The research study was introduced and a broad background about the research topic was provided. Based on the nature of the topic, two theories were selected as theoretical underpinnings for the research. A review of relevant literature about the research topic and the underpinning theories was presented. The research approach was motivated, and the format of data collection was discussed. Details about the two case studies were then presented. Semi-structured interviews were conducted in both case studies and the interviews were transcribed and stored separately from the thesis, and separately for each case. The underpinning theories were then used to analyse the data. Following this, the main findings of the analyses were interpreted.

The above steps show that a logical flow was maintained throughout the research and in the thesis.

The researcher undertook training in writing, and also engaged the services of a professional language editor to ensure the quality of writing in the thesis.

vi. Why is the topic of contemporary interest to scholars and practitioners in this area?

More and more organisations are depending on IT strategy to support and enable their business processes, activities and services. It was therefore deemed important to conduct an empirical study on how IT strategy is developed and implemented in the context of the computing environment of organisations. This was done in order to contribute to a better understanding of the development and implementation of IT strategy and how factors of organisational politics impact on these activities. The results of such an understanding would be of interest to professionals and scholars in the area of Information Systems. Academics who have done similar or related work in the field of IT strategy and organisational

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politics or who have applied the underpinning theories in information systems would thus find the work interesting.

This study placed emphasis on the consideration of the non-technical components and the relationship between the initiator, developers and implementers of IT strategy and, in this way, contributes to an understanding of how IT strategy is developed as well as implemented in the computing environment of an organisation.

What is also very interesting is how Structuration Theory and Actor-Network Theory helped the researcher to gain an understanding of the enabling and constraining influences of the technical and non-technical components in the development and implementation of IT strategy.

The rich context that has been explored in this study provided opportunities for meaningful insights on how certain factors affected the course of specifically the implementation of IT strategy. It enabled the explanation of the interaction between technology, human action and organisational structure, affecting the strategic direction of the organisations. These initial insights provide contributions to Information Systems research.

vii. Who (including academic readers) would be interested in this topic?

Besides the researcher and other academics indicated above, this topic is of interest to IT employees, especially managers who are involved in developing and implementing IT strategy in their various computing environments. It might be of particular interest to Chief Information Officers (CIOs) and executives of organisations who are the original initiators and sponsors of the requirements for the development and implementation of IT strategy in their organisations. The Human Resource department could be interested as well. They could gain a better understanding of issues such as racial divisions and transformation, affecting employees in the computing environment. The topic might also be of interest to

researchers and consultants involved in the areas of IT strategy and related initiatives for organisations.

7.5 Limitations of the Research

There are four limitations to this study that could have implications for further research work. They are as follows:

- i. During the study, it was accepted that IT strategy must support the business strategy. The alignment between business strategy and IT strategy was therefore taken as a given.
- ii. The development of IT strategy was, as a process, not accessible to the researcher and while some aspects of it were discussed, the research in general focused on the implementation process.
- iii. The role of the business users of the solution provided by the IT strategy was not investigated. The focus of the research was not on the application of IT strategy.
- iv. A final limitation is the fact that the case studies did not investigate events post the implementation of IT strategy. It would be interesting to know more about the interaction between the actors and what role organisational politics continues to play.

Given the above limitations, it would be interesting to conduct further research in the areas of these limitations. The following section suggests some further opportunities for research.

7.6 Opportunities for Further Research

Further work with different users, in different settings will contribute to our understanding of the process by which IT strategy is developed and implemented

within the computing environment. Such further studies could use the framework developed in this study as a starting point, and could investigate the validity of the framework.

The organisations involved in the two case studies have opted to outsource some of their IT services. The involvement of the outsourcing companies in the development and implementation of IT strategy could be another area for further study. It would be interesting, for example, to apply the sociology of translation, together with the due process model, to understand how outsourcing firms exercise influence on the IT strategy of the employing organisations.

As revealed in the analysis and interpretation of the two case studies, the actors in the computing environment are concerned with factors such as job security, resource control and domination during the implementation of IT strategy. A further research area could be to conduct a study on the sources of power in IT departments by looking at the types of power, how those are used and how they might influence the way people associate with one another in carrying out their individual and group roles and responsibilities in the implementation of IT strategy in the organisation.

Where practical applications are under consideration, IT strategy cannot be usefully studied in isolation from the social contexts in which it is developed and implemented. Organisational practice (which in this study was limited to the organisational practice within the computing environment) is only a particular variety of social practice, with its own structures and interactions. It would be worthwhile to study how the actions of certain employees and executives outside of the computing environment influence the development and implementation of IT strategy.

While it is agreed that some of these developments will have implications for the cases studied, some form of closure has to take place in order to complete a PhD

thesis within a certain time limit and space. There will continue to be new developments and as such, new data will continue to emerge. As a result, it is evident that this particular study is not finished, but must for administrative and academic purposes be drawn to a close.

University of Cape Town

8. Appendix

1. What is IT strategy?

- i. What is the organisation's view on IT strategy?
- ii. What is the organisation's view on the approach and process for formulating IT strategy?
- iii. In the company's view, what factors influences the approach adopted in the formulation of the IT strategy?
- iv. What impact does the role of non-technical have in the IT strategy?
- v. How would the organisation describe the organisational structure intended to support the formulation of the IT strategy?
- vi. What would the organisation outline as non-technology critical factors affecting the IT strategy?

2. How is it developed and implemented within the organisation's computing environment?

- i. Who formulates the development and implementation approach and process of the IT strategy?
- ii. What factors does the organisation considers when developing and implementing IT strategy?
- iii. What is the company's view on non-technical issues and factors in the development and implementation of IT strategy?

- iv. How is the completeness and validity of information used in the development and implementation of IT strategy described in the organisation?

3. What are the fundamental factors influencing the development and implementation of IT strategy?

- i. What is the organisation's view on the factors influencing the development and implementation of IT strategy?
- ii. In the organisation's view, why are those factors influencing the development and implementation of IT strategy important?
- iii. How would the organisation describe the non-technical factors in the process of developing and implementing IT strategy?
- iv. In the organisation's view, how do these factors (influencing the development and implementation) come to being?
- v. How are the employees within the IT organisation made to adopt the development and implementation of the IT strategy?

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