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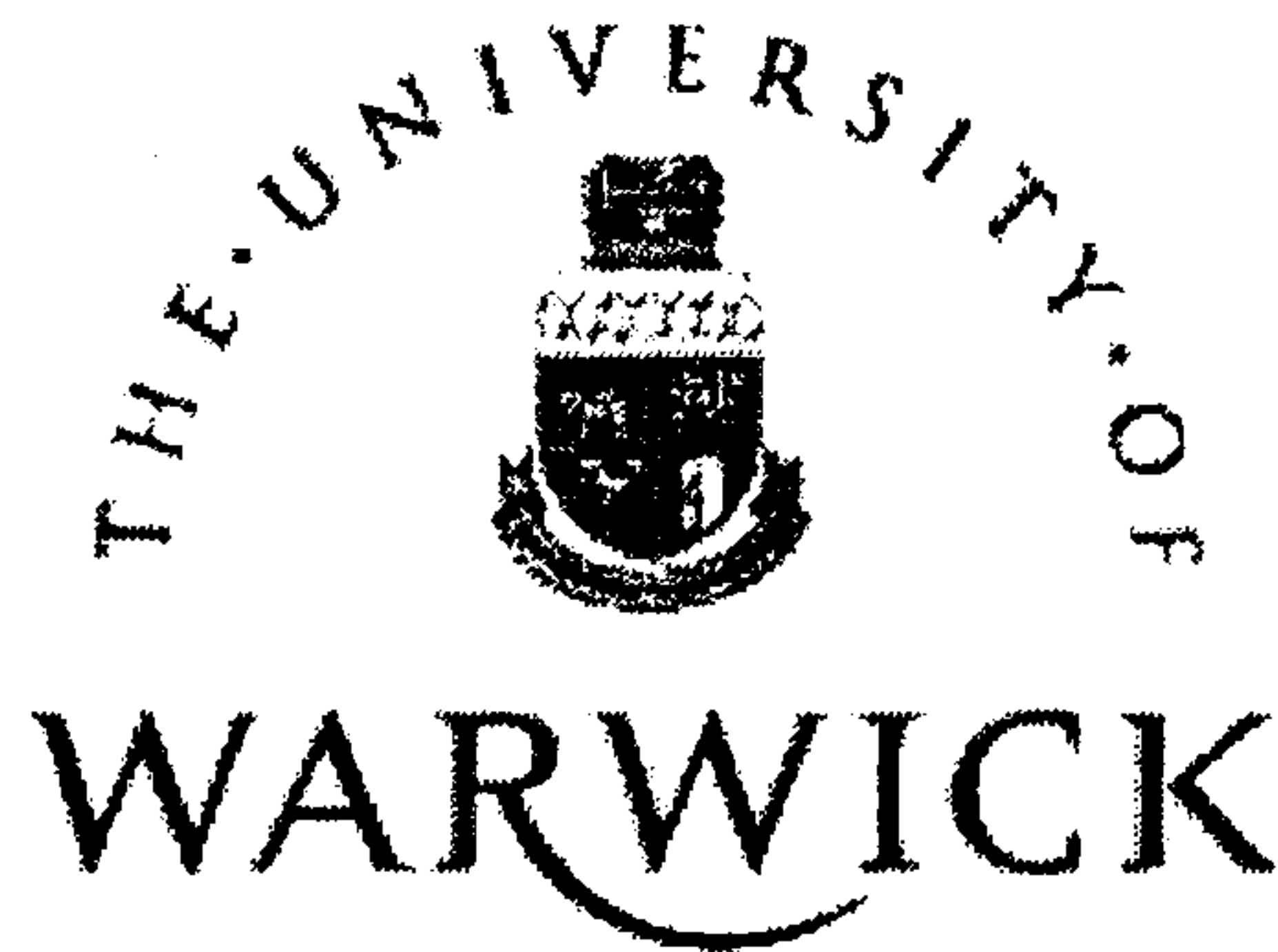
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E-Government Transformation and Organisational Learning:

The Case of Supreme Court Registry Office in Korea

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A dissertation submitted in fulfilment of the requirements for the degree of
Doctor of Philosophy at Warwick Business School, University of Warwick



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ABBREVIATIONS

BBS	Bulletin Board System
BPR	Business Process Reengineering
BTOF	Behavioural Theory of the Firm
E-Business	Electronic Business
EDS	Name of the company: Electronic Data Systems Co.
E-Government	Electronic Government
EU	European Union
G2C	Government-to-Customer
G4C	Government for Citizen
HRM	Human Resource Management
IT	Information Technology
LG CNS	LG-Name of the company (The CNS does not have one fixed meaning. For detailed explanation see foot note 3)
MOGAHA	Ministry of Government Administration and Home Affairs
PC	Personal Computer
SCRO	Supreme Court Registry Office
TQM	Total Quality Management
UN	United Nations
WTO	World Trade Organisation
WON	Korean Currency

DECLARATION

This thesis is presented in accordance with the regulation for the degree of doctor of philosophy. The work presented in this thesis is entirely original and the author's own, unless otherwise indicated. Moreover, this thesis has not been previously submitted for a degree at this or any other university. The interpretation in this thesis represent nether the view of neither case study organisations nor Warwick Business School. The interpretations are the sole responsibility of the author.

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ABSTRACT

This thesis critically reviews and evaluates theories of organisational learning and IT-related organisational change with particular reference to the task of explaining users' acceptance (or rejection) of new technology. It seeks to develop a conceptual model of organisational learning and apply it to the particular case of recent IT-related (e-government) organisational change in Korea's Supreme Court Registry Office (SCRO).

Hitherto, there has been no systematic attempt to analyse the way in which management theories contribute to the electronic government (e-government) transformation effort within the *public* sector. This thesis seeks to fill this gap by synthesising perspectives drawn from the study of public sector organisation, IT, organisational transformation, and organisational learning.

The analysis of the case study organisation (based on a qualitative research methodology) identifies various organisational learning phenomena occurring during the change project within the SCRO. In particular, it elaborates the interplay between the processes of learning and change in the level of users' acceptance (or rejection) of

the new technology (the change over time is presented graphically in the form of a 'support curve'). The research follows the organisational-transformation project since 1994 in terms of the process innovation diffusion model (Cooper and Zmud), which identifies the following key stages: initiation, adoption, adaptation, acceptance, routinisation and infusion (Cooper and Zmud). For each of these stages, processes of organisational learning are linked to the level of users' acceptance. This aspect of the analysis involves considering the nature and scope of collective, mutual, situated, single-loop and double-loop learning; learning by doing; team learning; and leadership. These various approaches to organisational learning, which emerge from the analysis of the existing organisational-learning literature, are applied to the case analysis to bring out major developments in the SCRO's organisational transformation.

The findings derived from this study provide a framework that can be further applied and tested in future research, and that will also allow public sector management to continuously anticipate the problems involved in cultivating and sustaining users' acceptance of new technology and nurturing appropriate organisational learning.

By applying the theoretical concept of 'the logic of opposition' (first suggested by Robey and Boudreau), this thesis demonstrates that organisational learning is not a

static and universal phenomenon that remains more or less the same throughout an organisational-change project, as many have assumed it to be. Rather, organisational learning is characterised as a multi-faceted and multi-dimensional phenomenon that is extremely dynamic and can best be understood by identifying and examining the relevant promotional and opposing forces that, through their interaction, socially construct processes of learning.

This research contributes to the study of IS (Information Systems) development and organisational change (with particular reference to the public sector) by providing an explorative account that synthesises the existing literature with evidence collected from an in-depth longitudinal case study (of the SCRO in Korea). It also contributes to the theoretical development of organisational learning by integrating different isolated perspectives into a coherent overall framework. Finally, by applying the lens of organisational learning to conceptualise IT-related change in a new way, this thesis extends our understanding of IS development.

CHAPTER ONE: INTRODUCTION

1.1 INTRODUCTION

The concept of organisational transformation has been used and discussed for a long time. There has been a particular interest in the role played by information technology (IT) in shaping the success of an organisation. It has commonly been argued that the development of IT initiatives enables transformation efforts that in turn produce core competencies to form the basis of the competitive advantage of the organisation. Hence, in order to shape these transformation efforts, it is important to understand them better, to learn how to identify and characterise them, and to recognise their benefits and limitations for the development for the organisation.

Organisational transformation has thus been conceptualised, and some of its typical features have been identified and named. These encompass a very wide range of related activities in both private and public sector organisations. For example, authors have written about continuous innovation (Pfeffer and Markus, 1983), continuous renewal (Tushman and O'Reilly, 1997), process redesign (Davenport, 1993; Hammer and Champy, 1993), corporate renewal (Ghoshal and Bartlett, 1996) and organisational transformation itself (Gouillart and Kelly, 1995). Blumenthal and Haspeslagh (1994)

suggest that all strategic transformations face a similar set of challenges. The first is to convince managers and employees of the need for change. The second is to give managers the necessary tools to think strategically. Drucker (1993) argues that fundamental change cannot occur unless managers begin to question existing business theory. It follows that in order to add a new perspective to existing knowledge in the area of organisational transformation, both old and new management theories relating to change must first be set within a challenging framework.

However, there has been no systematic attempt to analyse the way in which management theories contribute to the electronic government (e-government) transformation effort within the *public* sector. This thesis seeks to fill this gap by synthesising perspectives drawn from the study of public sector organisation, IT, organisational transformation, and organisational learning. After this introduction (Section 1.1), the current literature and the research objectives are reviewed in Section 1.2. The research methodology designed for this study is then outlined in Section 1.3. Section 1.4 outlines the contribution of the research findings, and Section 1.5 summarises the structure of the thesis.

1.2 THE CURRENT LITERATURE AND THE RESEARCH OBJECTIVES

The role of technology and its relationship with social and economic development has fascinated many scholars from different backgrounds. Throughout history, there have been numerous examples of instances where technology has been successfully introduced and just as many examples where the opposite is true, in both the private and public sectors.

The 1990s has been heralded as a decade of radical change brought about by the advent of IT, with *transformation* featuring as the 'must do' for organisations seeking to be visible in a rapidly changing, increasingly competitive world (Scott Morton, 1991). In particular, *reengineering* has been identified as the key transformation initiative for achieving business improvement for private sector organisations (Davenport, 1993; Harrington, 1991).

In recent years, the public sector has begun to feel the need to transform itself through the implementation of e-government. Transforming inefficient and ineffective bureaucracies into dynamic customer-driven organisations is widely acknowledged to be one of today's major challenges (McHugh and Benett, 1999; Valle, 1999).

More and more public sector organisations are under pressure to change in multiple directions. For example, developments in IT, increasing public expectations, a more knowledgeable workforce, and the growth of bureaucracy (Lovell, 1995) have placed enormous pressure on organisations. These factors have created tensions between the need to retain control and the need to empower in order to encourage organisational flexibility (Braganza and Myers, 1996).

In general, the driving forces have outweighed inertia in large organisations, leading large bureaucracies to restructure in order to handle the demands of the information age. More and more organisations are reported to be no longer effective with the old Taylorist management style (Ghoshal and Bartlett, 1996). In Korea, since 1994, the initiation of the transformation of the Supreme Court Registry Office (SCRO) through the implementation of e-government is an interesting example of a major step taken by a non-western government towards empowering the public sector to renew public confidence and advance towards the electronic business (e-business) era. This case study forms the empirical basis for the present thesis.

Much has been written on the causes of the failure and success of organisational

transformation efforts (Hammer, 1990; Talwar, 1993; Teng et al., 1995). The key question is whether these factors, identified mainly from the experiences of the private sector, are also applicable in the public sector. The literature reveals a fundamental divide on the question of the importance of exploiting technology in managing transformation. Is IT itself the key to change? Or does success lie in a balance between the technical and social aspects of transformation? Much research has been carried out in pursuit of the answers to these questions. It is an interest in this same question that has prompted the present research. The primary aim is to explore the nature and scope of public sector organisational transformation and to understand how an organisation might learn to embrace the key factors that determine competitive success.

As well as the background literature on transformation in the public sector, the current literature in the area of organisational learning-related activities also provides a vital foundation for exploring and anticipating the dynamics of e-government transformation. Increasingly, the literature is turning for illumination to the area of organisational learning, which provides many clues to how the desired success can best be achieved. In the literature of the early 1990s, much was written about the

learning organisation, a concept which highlights the need for organisations to learn through knowledge sharing and knowledge creation and by externalising knowledge that is often tacit and embedded (Nonaka and Takeuchi, 1995). In addition, other learning theories, e.g. those of mutual learning, collective learning, and situated learning, have enhanced our understanding of how knowledge can most effectively be acquired (Huber, 1991) and discarded (Hedberg, 1981) as a means of supporting organisational renewal (Jones and Hendry, 1994). Individuals are here seen as learners who adapt to, and improve upon, their surroundings: at work, they learn how to do their jobs, and they come to understand the organisation's expectations of their work. Furthermore, it is argued, the organisations that will truly excel in the future will be the organisations that discover how to tap people's commitment and capacity to learn at all organisational levels (Senge, 1991).

E-government transformation has generally been viewed as an unambiguous, sequential process involving the introduction of a clearly delineated technology into a public organisation. Understanding of this process has been sought mainly within the literature in the field of technology. This has proved to be a very limited approach. In particular, previous accounts of IT-enabled organisations have largely failed to take

into account the role of social factors and the dynamics of organisational learning. Gradually, however, as the dominant paradigm has changed, there has been an increasing appreciation of the influence of organisational processes and their effect on the implementation of technology; and this has demanded that further explanation be sought within associated disciplines. A distinctive feature of this thesis is that it seeks to incorporate the concepts of paradigm and organisational learning as a means of exploring in detail the processes of e-government transformation.

Furthermore, Robey and Boudreau's (1999) theory of 'the logic of opposition', which suggests a new way of explaining the role of IT in organisational transformation, has helped greatly to support the arguments of this thesis. In particular, it has helped to underline the importance of incorporating organisational learning as a way of investigating the processes of IT implementation by identifying both promoting and impeding (oppositional) forces. At present, there is comparatively little empirical evidence available that depicts the dynamics of e-government transformation within a specific context, especially in relation to the process of implementing an IT project over a period of time. The perspective of 'the logic of opposition' provides a useful lens through which to anticipate and theorise about the e-government transformation

in the case of Korea's Supreme Court Registry Office (SCRO).

In particular, this thesis aims to identify the key learning phenomena underlying the processes of transformation in the case of the SCRO, and to provide a new perspective on the interplay between organisational learning and users' acceptance towards the change initiatives of the social and technological aspects of organisational change.

Based on a synthesis of the existing literature, three key research questions arise:

- What are the key learning processes characterised SCRO's transformation mechanisms involved in e-government transformation activities?

Compared to some of the prior studies (e.g. Fichman and Kemerer, 1997) that assume organisational learning as a clearly identifiable phenomenon, this research rejects such an assumption. From the critical evaluation of the current literature in organisational learning, it is clear that organisational learning can appear in many different forms and be conceptualised through different ways. Hence, before any other research questions can be appropriately addressed, the need to understand the learning process underlying SCRO's transformation project is clearly evident. Although e-government transformation activities can be notoriously difficult to identify due to variety of

actions and measures, questions like this, vigorously pursued, should lead to concrete answers. Concrete answers which can shed some light on the actions, methods, procedures that affect organisation transformation and technology implementation within the public sector. Essentially, this study argues that the task of organising e-government effectively involves more than investing in computerised systems.

- From the aspect of organisational learning, what are the forces that promote and oppose major issues that affect the process of e-government transformation within SCRO?

Rather than taking a deterministic view between IT and organisational change, this research is aware of the complexity relationship that can be shaped and affected by many different contextual forces. By adopting a logic of opposition (Robey and Boudreau, 1999), the emphasis has shifted from the evaluation of change outcome to the dynamics forces that form the process of change. In particular, by observing and conceptualising the interplay between promoting and opposition forces, this research can generate a more holistic view, rather than some partial understanding between IT and organisational change. Having identified the crucial mechanisms involved in e-government transformation, the second research question outlines the purpose to

identify the importance of key elements associated with processes of e-government transformation activities. In order to provide a new perspective on the interplay of the organisational, social and technological aspects of e-government transformations, the proposed theoretical perspectives (i.e. logic of opposition) will guide the research in identifying the major issues during the process of e-government.

- How does organisational learning influence the way of which users' acceptance and/or rejection of the change initiative? What are the interrelationships between transformation and learning within the e-government transformation?

The relationship between organisational learning and users' acceptance is more often assumed than researched. The lack of theoretical insights supported by empirical evidence portrays the drive behind the design of the third research question. Rather than assuming acceptance as a stable mental stage, this research takes into account the complexity that can influence its consistency.

In proposing the above three questions a theoretical framework of e-government transformation, findings derived from this research are the framework is not based on a mere summary of the foregoing discussion. Rather, it provides some vital at least a

partial integration towards our current understanding of organisational change, organisational learning and user's acceptance of the empirical and theoretical findings. Such integration is, in fact characterised by an organisational learning development process rather than a summary of transformational procedure, for it creates new understanding and new concepts by combining what has been discussed before.

On the whole, the above three research questions will facilitate the answer that the e-government transformation involves more than possessing the technological capabilities or skills to facilitate the existing work processes. In addition, it will direct the answer identifying the need for required organisational learning, social and technological capabilities to transform e-government activities. In particular, the research aim to identify two mechanisms (the promoting and opposing mechanism) which are critical to the facilitation of the e-government process in today's rapidly changing and globalised environment.

1.3 RESEARCH METHODOLOGY

To formulate the conceptual model for this research, an extensive review of the literature relating to the research problem was undertaken in the latter part of 1996.

This early review was necessary to provide guidance and a theoretical background for the subsequent empirical investigation from 1998 onwards. Additional literature reviews were conducted in parallel with the analysis to further explain certain phenomena observed in the field. This in turn was necessary to complete the research cycle.

In order to answer the research questions listed above, empirical evidence was gathered through a qualitative approach (Miles and Huberman, 1994; Yin, 1993, 1994) employing a case study. The case study research design adopted in this thesis is based on the view that e-government transformation can be very difficult to 'measure'. The research questions therefore require flexibility in the use of multiple data collection methods in order to articulate insightful stories embedded within the chosen social context (Van Maanen, 1979). The case study protocol provided clarification of necessary procedures and thereby enhanced the reliability of the study (Stake, 1995; Yin, 1994). This thesis argues that the task of transforming e-government organisation effectively involves more than the implementation of information systems.

The study examines the process involved in the implementation of IT in Korea's

SCRO. The research follows this organisational-transformation project since 1994 in terms of the process innovation diffusion model, which identifies the following key stages: initiation, adoption, adaptation, acceptance, routinisation, infusion (Cooper and Zmud, 1990). The collected data were analysed into appropriate groups and categorisations by using techniques proposed by Miles and Huberman (1994).

1.4 THE RESEARCH CONTRIBUTION

This research makes contributions in three areas: theoretical, methodological and practical. Theoretically, the research explores the nature of the organisational-transformation process with particular reference to the implementation of e-government. More specifically, the thesis discusses the contribution of the concept of e-government transformation to two related areas: (1) *The debate on the problems and challenges of public sector organisational transformation*. Since this transformation is influenced by many factors, the identification of different elements can bring a new insight to the understanding of the e-government transformation process. (2) *The discussion of organisational learning as a key element in energising the e-government transformation-related activities that are commonly neglected in the current literature*. In addition, the contribution of the theory of the logic of opposition (Robey and

Boudreau, 1999) to exploring the dynamics of the concept of organisational learning during the transformation process is emphasised.

This study also contributes a distinctive methodology to the study of e-government transformation. This methodology is based on an empirical investigation designed to extract the e-government transformation effort from the development of different situations within one case study. The methodology has three distinctive features. First, it studies the transformation process of e-government using the process innovation diffusion model (Cooper and Zmud, 1990). The second feature concerns the issue of gaining research access to a public sector organisation. This study provides an example of how a researcher can creatively negotiate access into a government organisation. The third feature concerns the discussion of organisational learning and the acceptance of transformation by presenting a schematic representation using a graphical acceptance curve. This also facilitates the identification of relationships between organisational learning and acceptance during the e-government transformation.

In terms of managerial issues, this study has a number of practical implications. It

outlines potential guidelines for the management of projects in e-government transformation, particularly where many stakeholders are involved. These guidelines could help the project leader to take account of various elements during the project in order to overcome possible barriers. Moreover, by emphasising different forms of learning at various stages of the project, it should be easier to gain acceptance of the project within the organisation. Furthermore, management should be able to understand more clearly that it is not only the implementation of IT that is important for e-government transformation, but also that it is essential to recognise the significance of other social factors.

1.5 AN OUTLINE OF THE THESIS

The structure of the thesis is as follows. The first part is concerned with important conceptual and theoretical elements. After the introductory chapter (Chapter 1), Chapter 2 presents the theoretical foundation of the thesis, describing the key theoretical and conceptual debates within the framework used. In addition, this chapter reviews the different current literatures in the areas of the public sector, organisational transformation, IT and learning as a basis for the subsequent analysis in the following chapters.

Chapter 3 introduces the research methodology. It begins with a description of the sociological and philosophical foundations of the research, and develops a conceptual perspective that guides the empirical findings. Then the research approach, design, timetable and stages are explained and justified by focusing on the selection of one case study. In addition, the practical processes used in the data collection methods are introduced with a discussion of the main methodological issues raised, particularly those associated with interpretation, replicability and validation. The rest of the chapter focuses on the way the research was actually carried out.

The background of the research, consisting of a brief description of the macro context of the national environment in Korea and a short history of the SCRO is provided in Chapter 4. This chapter presents detailed findings from the SCRO case. The objective of this chapter is to provide the reader with the necessary information to understand the environment in which the SCRO operates, and the background to the development of the e-government initiative. The governing rules and regulations are discussed in terms of the environment and the organisational structure. This part stresses the growing need for change in public sector organisations, including industry's interpretation of the management implications related to the implementation of e-

government transformation practice. In addition to the description of the case organisation, the latter part of this chapter follows a chronological order of events and processes. It presents an interpretation and analysis at each stage with reference to the relevant literature.

Chapter 5 presents the findings of the analysis of the e-government transformation, focusing on the implications and processes of transformation detected through this study's observation and analysis. In addition, the identification of promoting and impeding factors is elaborated as a basis for discussing the relationship with support (for the project) and learning. The findings are based on the theoretical and philosophical assumptions discussed in Chapters 2 and 3.

Finally, Chapter 6 summarises the various theoretical and conceptual issues that are raised by the analysis of e-government transformation. Then the main contributions of the research, the major limitations, the methodological problems experienced, and the theoretical concerns related to the advancement of the understanding of the e-government transformation are underlined. Finally, possible directions for future research are discussed.

CHAPTER TWO: LITERATURE REVIEW

2.1 INTRODUCTION

The focus of this research is on the path of e-government transformation in Korea's Supreme Court Registry Office (SCRO) over a period of eight years. While current debates on e-government focus on its transformational effort when enabled with IT, the objective here is to take a broader view of e-government from the perspective of different fields of studies. Since e-government transformation is an emergent field drawing on many disciplines and literatures, any attempt to explore this phenomenon requires a comprehensive literature review covering different issues from various perspectives of organisational studies. At the same time, it is necessary to place some limitations on the scope of the present literature review in order to make it manageable.

Two main issues rose to prominence during the literature-review process. First, it seemed best to concentrate on the transformation process within public organisations as the main focus of this study in order to provide a realistic anchor point. The term 'transformation' encompasses a very wide range of related activities, including continuous innovation (Pfeffer and Markus, 1983), continuous renewal (Barr et al.,

1992; Doz and Thanheiser, 1993; Tushman and O'Reilly, 1997), process redesign (Davenport, 1993; Hammer and Champy, 1993), corporate renewal (Ghoshal and Bartlett, 1996), business rejuvenation (Baden-Fuller and Stopford, 1994), and organisational transformation itself (Gouillart and Kelly, 1995). It must be emphasised that the focus of the present research is on process, and it is in this more restricted sense that the term 'transformation' is employed in this study.

Secondly, the scope of the review is determined by the approach adopted in this study.

The purpose of the review is to highlight important features of the transformation literature in order to explain the complexities involved in e-government transformation. As a result, the review highlights the author's personal reading of the literature based on the belief that the concept of e-government is best understood as versatile, stakeholder-dependent, and situated in a given environment. Therefore, this research stresses not only the content and process of e-government transformation but also seeks to identify other related factors concerning change management, IT issues, and learning issues associated with transformation.

Accordingly, an effort was made to identify the key driving forces of e-government

transformation so that the theoretical foundations of the research could be formulated as clearly as possible. These are threefold. First, IT-enabled public organisational transformation is seen as a phenomenon rather than as a simple IT input. Secondly, there is a need to develop an integrated perspective on the development of e-government transformation. Thirdly, the deconstruction and identification of issues deriving from the distinction between promoting and impeding factors is a useful way to recognise the various aspects of the e-government transformation process. The research also involves a sustained effort to investigate how the transformation was processed, accepted and learnt (Cyert and March, 1963; Argyris and Schön, 1978) in the organisation. In the existing literature, there is generally a lack of empirical evidence and coherent theoretical approaches to e-government transformation. This recognition provides the inspiration behind the present study's efforts to explore further these areas of concern.

2.1.1 The Key Research Questions and the Structure of the Literature Review

Three key research questions, expressed through a review of the main body of the literature, may be summarised as follows:

- What are the key learning processes characterised SCRO's transformation?
- From the aspect of organisational learning, what are the forces that promote and oppose the process of transformation within SCRO?
- How does organisational learning influence the way of which users' acceptance and/or rejection of the change initiative?

The present chapter is divided into four research areas: public sector organisation, organisational transformation, IT-enabled organisational transformation, theoretical perspectives (plus a conclusion). The purpose behind this structure is to enhance our understanding of each area as clearly as possible in order to proceed to answer the research questions.

After the introduction, Section 2.2 explores the distinctive characteristics of the public sector organisation as a specific site for e-government initiatives. Section 2.3 examines the research background on organisational transformation activities and their effectiveness. Section 2.4 looks in more detail at IT-enabled organisational transformation, concentrating on the emergent view of the important role of IT during such transformation. Section 2.5 presents the theoretical perspective that guides this

research in investigating the research questions. This includes a consideration of the research background on learning, which in this thesis provides an important basis for understanding the key issues raised during e-government transformation in the SCRO.

Rejecting the deterministic relationship between IT and organisational change, the logic of opposition is useful in addressing the non-linear relationship and dynamics (Robey and Boudreau, 1999). According to Robey and Boudreau, there are four potential ways to understand the logic of opposition, namely organisational politics, organisational culture, institutional theory and organisational learning. The organisational politics perspective emphasises the identification of incompatible interests emerged from political activities. Organisational culture can be a useful theoretical lens to conceptualise IT as a cultural artefact that is formed and reformed based on a variety of shared assumptions and norms. Institutional theory suggests that institutionalised patterns and practices sustain the legitimacy of the newly adopted technology. The rationale behind focusing only on organisational learning is twofold. First, compared to other perspectives, organisational learning is emphasised much less in the IS literature. In fact, the link between information technology and organisational learning has barely begun to be explored (p. 178). Second, to use one perspective,

rather than more or all, permits the researcher to yield insightful understanding that form the initial step for other researchers to build on.

The overall outline of the literature review framework is presented in Figure 2.1.

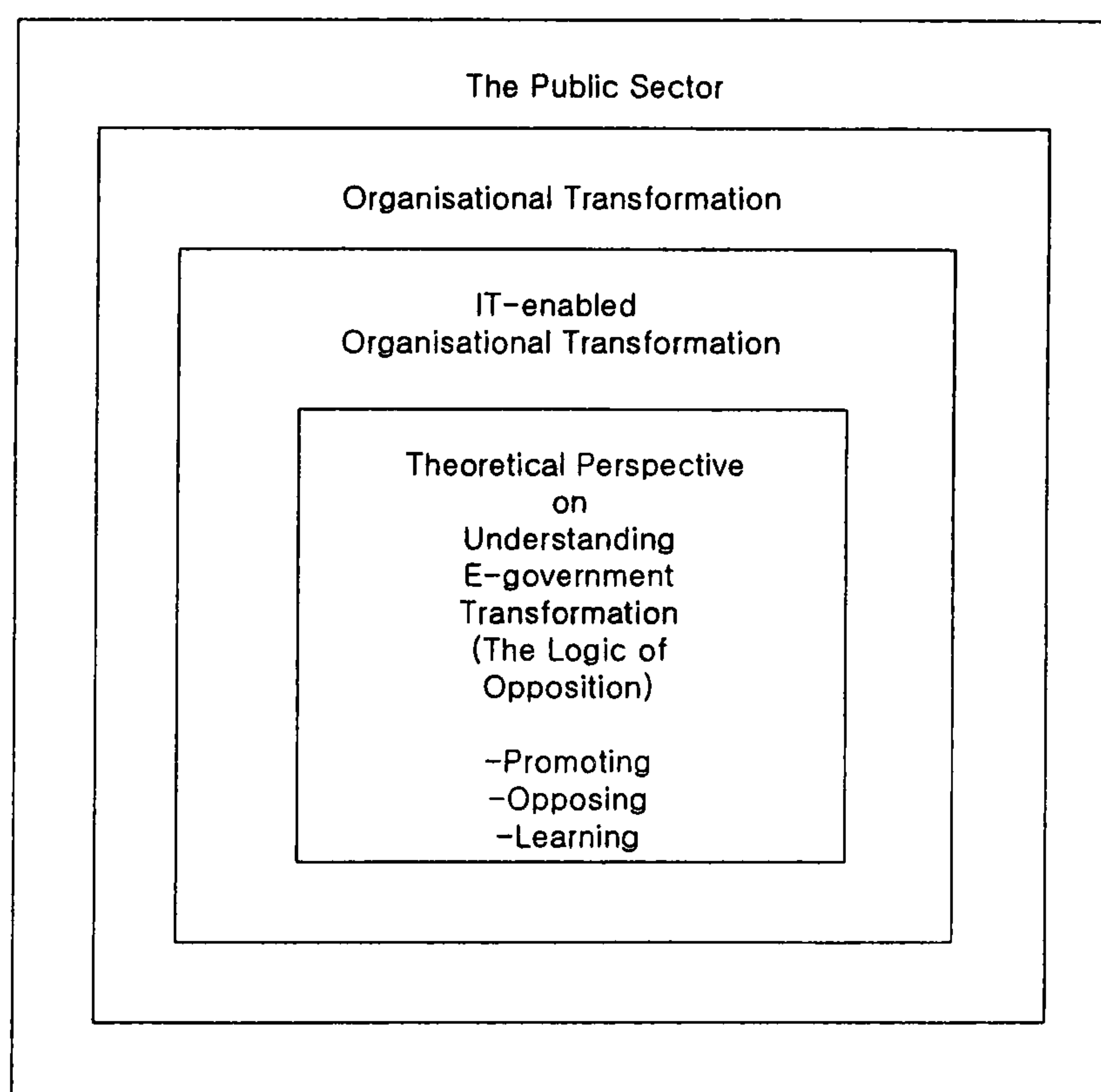


Figure 2.1 The framework of enquiry for the literature review

2.2 THE RESEARCH BACKGROUND: THE PUBLIC SECTOR

The purpose of this part of the discussion is to provide a description of public sector organisations with special emphasis on their recent shift away from bureaucracy towards a new system of management. This section reviews the existing literature on

public sector organisation from a critical management perspective. The increasingly dynamic nature of competition has led public sector organisations to improve and develop more effective ways for providing public service. In general, this stream of studies argues that fundamental change is needed in public sector organisations in order to sustain their close relationship with citizens so that both the public and government can benefit in terms of improved efficiency and effectiveness.

2.2.1 The Distinctive Characteristics of Public Sector Organisations

Public sector organisations encompass, and are surrounded by, bureaucratic settings (Kakabadse et al., 1988). Bureaucracy has been described as an important requirement of state governance, and the phenomenon of bureaucracy has been studied in terms of the way it relates to the environment in which it exists and its constant need to expand outward. The bureaucratic organisation itself does not suddenly ‘appear’ but is purposefully ‘formed’ by and for its founding members (Downs, 1967).

According to Downs (1967), bureaucratic organisations can be formed in several ways.

A group of individuals may be brought together by a charismatic leader and may form a basic bureaucratic structure. Alternatively, one or more groups from society may

deliberately create a bureau out of nothing. A new bureau may be formed through a split from an existing bureau. Finally, a group of individuals may promote a particular policy or belief, for instance, communism, which is then able to gain enough support to form a bureaucracy. The bureaucratic organisation, by its nature, possesses a set of distinctive characteristics that help to identify the bureaucracy in relation to other large organisations. It is important to identify these characteristics in order to distinguish public sector organisations from other organisations.

According to Niskanen (1996, p. 15), a public sector organisation encompasses the following bureaucratic characteristics: First, the owners and employees of these organisations do not appropriate any part of the difference between revenues and costs as personal income. Secondly, part of the recurring revenues of the organisation derives from sources other than the sale of output at a per unit rate. According to Downs (1967), bureaucracies typically encompass characteristics such as a hierarchical structure of formal authority; hierarchical formal communication networks; extensive systems of formal rules; an informal structure of authority; informal and personal communications networks; formal impersonality of operations; and intensive personal involvement among officials, particularly at the highest ranks.

Peters (1989) argues that, as the governance of bureaucracy depends heavily upon rules and regulations, this can also be seen as a weakness. In other words, the intention to implement controls to ensure that the bureaucracy acts both honestly and efficiently has made governance more difficult. For example, Pollitt and Bouckaert (2000) point out that the hierarchy of the bureaucratic organisation produces wastefulness and difficulties, and a lack of transparency and accountability in governing the organisation. This is due to the reliance on a structured top-down principle with many layers of management sitting on top of one another, each seeking to control the area for which it is responsible.

Apart from the issue of bureaucratic characteristics, public sector organisations differ from private sector organisations in many important ways. For example, they are there for, and have been created for, the use and support of the public. According to Flynn and Strehl (1996), public sector organisations do not produce a surplus of goods that can then be circulated throughout the organisation; this is in contrast to the private sector, where goods can be redistributed. Because they are created by government, public sector organisations are accountable to politicians, and laws are used to ensure that the objectives set for them are met. The public sector has particular significance

as its economic health contributes directly to the overall well-being of the nation, especially as public sector organisations are currently the largest employers in many nations. This places a heavy responsibility upon these organisations, with so many people depending not just upon their services and products but also relying on them for their livelihood and future financial security.

Public sector and private sector organisations also function within different operating environments. All organisations set strategies for their lines of business by selecting markets in the industry in which they are located. In the private sector, strategic managers can test possible strategies through feedback and comment. Public sector organisations, however, must be responsive to external stakeholders as well as their public. Consequently, strategies have to focus on a wider context incorporating political, economic and even legal issues. Also, private sector organisations have profit as their key strategic goal (Lovell, 1995; Porter, 1998). However, it is difficult to apply that same concept to public sector organisations, where profit is not the key aim and there are disputes about the perceived goals of such organisations (Nutt and Backoff, 1993).

According to Nutt and Backoff (1993), the factors that differentiate private and public organisations are: markets, constraints, goals, authority, authorisation to act or take action, and performance aims. The authors state that 'the market in a public organisation is made up of rule making bodies, such as a legislature or a board appointed by public officials. Constraints limit flexibility and autonomy, goals are often vague and in dispute, the leader's authority is limited, political interference and scrutiny by outsiders can be expected as a strategy is formed, broad accountability is required, and performance expectations continually shift' (p.300). These elements suggest that appropriate approaches must be re-thought before applying any management practices in a public sector organisation.

The above section has exposed briefly the nature of governance in public sector bureaucracy, and has also tried to address the balance by looking at the key differences between public sector and private sector organisations. The following section discusses the fundamental change issues faced by public sector organisations, and the reforms initiated by various governments.

2.2.2 Change Issues in Public Sector Organisations

There has been a major paradigm shift in governance away from the traditional model of bureaucracy toward a private sector model of 'managerialism' in the public sector (Hugh, 1998). Public sector organisations have to adapt to a constantly changing and volatile environment in which their role as providers of services is coming under increasing pressure, indicating a shift towards the role of monitoring critically the organisation of those services provided to the public via other parties. Along with this has been the emergence of confusion as to how the public sector looks upon its population: are they citizens, clients, consumers or customers? (Lovell, 1995)

The changes made over the past few decades have not just focused on minor matters of management style, but have pointed to a radical shift in the way governments are interacting with society and their citizens. Today, governments are not limited to physical locations or their organisational boundaries. It is now possible for governments to operate globally while working locally, using tools such as mobile phones, digital TVs, the Internet, electronic mail, and PCs through which citizens can interact with government portals (Hood, 1991; Loader, 2000; Lovell, 1995). Like most organisations, governments are becoming more interested in electronic modes of

communication and functionality (Loader, 1998). Institutions and structures established over a century ago are proving to be unsuitable for today's environment because they tend to be bureaucratic, paternalistic, inflexible and out of touch. In general, the structure of government has not kept up with a rapidly changing society (Hood, 1991; Lovell, 1995).

There are many reasons why change and modernisation are necessary within government. Externally, change is driven by political and economic pressures. Political drivers are often influenced by international law, which is capable of driving change in public sector organisations, as the ramifications of any changes in law or the results of enforcing the law can directly affect the trajectory of organisations and their citizens. Intergovernmental and supranational organisations have been established in order to monitor and promote the interests of member nations. Examples of these include The United Nations (UN), The World Trade Organisation (WTO) and the European Union (EU), all of which have a very powerful political presence and can direct and influence national governments through the laws they pass (Schaffer et al., 1999).

Many changes in the public sector are related to the economic pressures associated with the impact of globalisation (Farazmand, 2001). Defining 'globalisation' is not easy due to the many differing and conflicting viewpoints surrounding this area. According to Held (2000, p.124), 'Globalisation is a multi-dimensional process: it applies to the whole range of social relations, cultural, economic and political.' Held (2000) argues that economic corporations and other governments and organisations are able to influence local governments through the scale of their economic might and a set of regulations and reforms that the donor expects the receiving country to adhere to, thus shaping the way governments rule and regulate. He then further argues that 'The globalists and the transformationists argue that power is no longer primarily organised and exercised on a national scale but increasingly, has acquired a trans-national, regional or even global dimension and as a consequence the business of government and politics itself is becoming internationalised and globalised' (Held, 2000. p.135). The process of globalisation continues to force governments all around the world to change and adapt at an ever-increasing rate.

Internal pressures to change can come from the citizens of a country. According to Hood (1991, 1995) and Leadbetter (1999), public sector organisations are increasingly

expected to follow the model of the private sector; this includes allowing some scope for entrepreneurial behaviour. For example, the privatisation and contracting out of governmental services is frequently advocated (Nutt and Backoff, 1993). In addition, Pollitt and Bouckaert (2000, p. 32) argues that higher public expectations for better services are increasingly recognised and expressed through political representatives or via the mass media.

In order to respond effectively to the above environmental conditions, organisations in the public sector need to expand and redirect their efforts as new opportunities and challenges arise. One way of revising their mode of working is to introduce new information systems (Heeks, 1999; Nutt and Backoff, 1993; Stewart and Kimber, 1996). According to Heeks (1999), both information technology (IT) and information systems (IS) have aided reform in various countries, increasing efficiency, promoting decentralisation, increasing accountability, enhancing resource management and supporting marketisation. (p.17). Similarly, the issues of deregulation and cultural change within public sector organisations are described in Osborne and Gaebler's (1992) best-selling book *Reinventing Government*. The authors advocate a more open and decentralised approach to government, reducing the emphasis on rules and

processes, and re-focusing on results and customer service.

While redirecting efforts in relation to new needs and opportunities is not easy, many countries such as the UK (Blundell and Murdock, 1997), the USA (Osborne and Gaebler, 1992), Singapore (Holliday, 2002), Korea (Holliday, 2002) and other Asian countries have undergone a paradigm shift from a rule-bounded bureaucratic tradition to a more proactive and flexible mode of operation. According to Blundell and Murdock's (1997) report, the introduction of private sector practices and techniques has influenced the UK public sector to move from public administration to the new public management. Singapore is aiming to change the way its civil service operates and is driving public organisations to be more efficient, entrepreneurial and effective (Devadoss et al., 2002). Korea is now stressing the importance of environmental demands, and hopes to change its bureaucratic tradition in the direction of a more interactive and proactive form of working that encourages competition, flexibility and citizen-based public service.

While the approaches and purposes of the changes are different, these reforms are all based on the same basic principle: that the current style of working is no longer

sufficient, and that managers and employees need to improve their ways of working and improve their performance. Ban (1995) has studied how public managers cope with these constraints. His findings confirm that managers and employees are expecting to see improved ways of working, and that increased performance is dependent on the management style of those involved and their responses to bureaucratic constraints. In addition, Ban (1995) explains that constraints exist not only in formal structures and regulations but also in the nature of organisational culture.

The above section has discussed the changing issues faced by public sector organisations and the changes initiated by several governments. Public managers are seeking to solve many of the problems caused by bureaucratic constraints and the culture of the public sector. A more detailed account of common change strategies adopted by the public sector is provided later in this chapter. The following sections discuss in broader terms the benefits and challenges of change in the public sector.

2.2.3 The Benefits of Change

One of the first benefits of change within the public sector is a significant

improvement in efficiency. In order to improve efficiency, according to Massey (1993), it is necessary to alter the practice of management to encourage managers to take responsibility for their actions; this is because they have now been given the freedom to manage on their own behalf instead of merely following the guidance of others; so in effect they are given greater autonomy to manage. According to Flynn (2002), efficiency can be brought into a public sector organisation by providing a higher level of service through the introduction of competition and de-regulation. However, efficiency gains in themselves are not sufficient; they also need to be effective.

Another benefit of public sector reforms is an improvement in the effectiveness of public sector governance. Effectiveness is primarily concerned with the relationship between intended outputs and actual outputs achieved (Lawton and Rose, 1994). This drive for improved effectiveness has been undertaken through various changes in structure and style, moving away from administrative processes toward a more proactive management style. In order to do this, Armstrong (2001) suggests, it is essential to introduce staffing changes so that each person finds his/her best role; staff should be allocated to the jobs to which they are best suited and should be given appropriate training as part of a strategic human resource programme. If this is done, then

members of staff should be able to deliver a more effective service to consumers. In addition to this stress on human resource management in relation to effectiveness, Massey (1993) describes how the new integration of the marketplace in general has given the public sector the best techniques from private sector practice, which has led to an improved 'discipline' in service performance and has aided the effectiveness of service delivery. New agencies have been created under the new reforms in order to achieve these aims, and they have embraced IT and human resource strategies in order to maximise both monetary and productive performance. In relation to this, Hughes (1998) points out that the agencies themselves need to have strict performance indicators placed on them in order to ensure that they have made effective use of public resources.

As the drive for greater efficiency and effectiveness continues, there is a need to put in place improved policies for decision making. According to Massey (1993), improved decision making can be practiced by implementing appropriate reform policies. He further argues that this process must start with the de-politicisation of many current governmental policies, and the passing of them from politicians and bureaucrats to professionals and experts within their field. In this way, the design of the new policies

will change from being heavily reliant on existing organisations and structures to a shared goal with defined outcomes. Hughes (1998) suggests that the participation of different types of people in the formation of policy can be beneficial in that it leads to a variety of ideas being put forward, which in turn helps to question the validity of existing policies. This can help governments to develop better long-term strategic goals and to be more outward looking in an attempt to learn from the practices of other countries.

Last but not least, a major benefit of change is improved service delivery. Hughes (1998) explains that through change a reduction in the size and role of government can be expected as new, smaller and more effective agencies are created. In turn, new methods of delivering improved services to citizens can be provided at a reduced cost to the taxpayer. Old methods of bureaucracy can be replaced by a new entrepreneurial spirit through the introduction of rewards for employees and by bringing in new management ideas such as TQM (Total Quality Management) in an attempt to improve service standards.

As well as reflecting on the possible benefits of a new approach to management, it is

necessary to review some fundamental challenges facing the public sector. This is the focus of the next section.

2.2.4 The Challenges Faced by the Public Sector

Often, with change, there are anxieties among public sector members concerning the existing organisational culture, which may initially be a barrier to change. This means that these uncertainties have to be dealt with, and a new commitment to change has to be built during a transformation period. In other words, public sector organisations have to become committed to flexibility, adaptability and openness in the face of change (Valle, 1999). For example, Valle identifies three potential implications of continual environmental change in the public sector: increasing levels of perceived stress; decreasing levels of personal satisfaction for employees; and the manifestation of these in increased rates of absenteeism and turnover. Valle goes on to suggest that, if public sector organisations are to survive in the future, the focus of the public sector leader must be towards developing adaptive and innovative organisational cultures in order to counter these negative implications of continual environmental change.

The need for an adaptive, flexible and innovative organisational culture in response to

turbulence and uncertainty in the organisational environment has long been recognised. In the early 1990s, Kotter and Heskett (1992) identified the adaptive culture as the 'optimal organisational culture'; and they defined an adaptive organisation as one which stimulates and nurtures innovation, and is committed to key constituencies. The authors state that 'only cultures that can help organisations anticipate and adapt to environmental change will be associated with superior performance over long periods of time' (1992, p.44). Bass and Avolio (1993) also highlight the importance of adaptive and flexible organisational culture. They use the distinction between transformational and transactional organisational culture types to identify those organisations supportive of innovation, transformation and change (transformational culture) and those which maintain the status quo, are based on pre-established rules and structures, and inspire limited levels of commitment and motivation (transactional culture). Transformational cultures encourage and support innovation and open discussion of issues and ideas so that challenges become opportunities rather than threats. In this way, they can promote flexibility and adaptability in order to maintain the focus on an ultimate vision. In contrast, a transactional culture focuses on everything in terms of explicit and implicit contractual relationships (Bass and Avolio, 1993). In such a culture, everything is worth a certain value or is quantified financially.

Bass and Avolio state that in this sort of culture individualism is very strong and therefore a concern for self-interest rather than organisational aims dominates. Furthermore, employees working in this type of culture do not identify with a mission or vision of their organisation, and thus commitment is often short-term, existing only to the extent of rewards provided by the organisation. Because a transactional culture tends to support the maintenance of the status quo, it may not provide the degree of flexibility and adaptability that the public sector organisations of the future will require.

Bass and Avolio (1993) suggest that an organisation should have elements of both culture types, but that a transformational culture is necessary to create a flexible and adaptive culture conducive to ongoing change. On the other hand, Theobald (1997) suggests that an organisational culture that becomes more 'flexible' may be detrimental to high-quality public service. He argues that the bureaucratic systems set up within the public sector may be necessary to maintain a standardisation of services, as the more flexible an organisation becomes and the fewer standards and structures are present, the more susceptible decisions are to a dubious or unethical impact. Perrow (1986) suggests that, in order to understand the nature of change, managers need to

look beyond human factors and examine closely the organisational culture, climate, structure, technology and environment, all of which affect the success or failure of organisational change.

In order to balance the transformational and transactional cultures, appropriate and effective leadership is a core challenge for change management (Kotter, 1998; Schein, 1992). As Kotter (1998 p.166) states, 'Only through leadership can one truly develop and nurture culture that is adaptive to change.' Schein (1992) also discusses at length the ways in which leaders influence change management. These ways include a range of change management leadership behaviours, e.g. directing attention to critical incidents, reacting to crises, role modelling, formal statements and the telling of stories, legends and myths. Schein (1992) also includes the symbolism associated with the criteria that determine the allocation of rewards and the selection and dismissal of employees. In addition, Kotter and Heskett (1992, p. 146) state that effective change-management leaders are those who repeatedly communicate their visions, allow people to challenge these messages, and stimulate middle managers to take up the cause and provide leadership themselves. Bass and Avolio (1993) describe five components of change-management leadership: idealised attributes, idealised influencing behaviour,

inspirational motivation, intellectual stimulation, and individual consideration. Idealised influence and idealised attributes describe leaders who act as role models, can be trusted, are respected and demonstrate high ethical standards. Inspirational motivation involves arousing team spirit, motivation and enthusiasm. It also describes the process of creating a vision for the future. Intellectual stimulation describes leadership which supports and encourages innovation and creativity. In addition, intellectual stimulation encourages followers to question old assumptions. As the fourth transformational leadership style, individualised consideration occurs when leaders pay attention to the developmental needs of their followers, and develop personalised interactions and relationships. Similar constructs of change-management leadership are explained by Osborne and Gaebler (1992) as 'new, post-bureaucratic organisation' will require leadership which enables flexibility, horizontal networks, high-trust relationships, adaptability to change and uncertainty, innovation and the empowerment of employees. Valle (1999) also argues that public sector change-management leadership must involve a clear and pronounced vision, effective communication with various stakeholders, and inspired motivation towards organisational goals.

A major challenge faced by the public sector, as with any other organisations where project management is involved, is the relationship with outsourcing companies. Cooperative relationships between government and private entities are extremely important. Many authors stress that often public organisations can benefit from a more cooperative relationship between government and private entities through the development of mutual support relationships which recognise that each party has a stake in the success of the other (Flora et al., 1992; Larkin, 1994; Rosenau, 1999). In order to practice mutually enforcing and cooperative relationships, Larkin (1994) suggests that patience is necessary for both government and the private. Rosenau (1999) emphasises the notion of cost-shifting from one partner to another. He argues that, in order to build the success of a public-private partnership during the duration of a project, it is essential to be clear about each party's contribution and stake in order to avoid any mistrust.

2.2.5 Summary

We have discussed the unique needs of public sector organisations and a number of ways to make fundamental changes in these organisations. To realise a transformational change, leaders must carry out a process in which issues and

innovative responses are proposed, and implementation plans are approached, with the strategic leader framing the vision for public utilisation and pushing the action forwards. Transformational change is achieved by successfully carrying out both strategic management and strategic leadership. Thus, any change strategy must allow for both planned and emergent outcomes if it is to be successful. In other words, the three-step process and its variants must be adapted so that it fosters local innovation that can help organisations to respond better to unexpected opportunities and build on these over time (Senge, 1990).

However, the literature overlooks the fact that the transformation of public sector organisations needs to accommodate much deeper issues than the strategic point of view. In particular, it is essential to take into account organisational members' perceptions and their level of support for the transformation. Organisations need to achieve a balance by helping employees to apply new technology through learning, and by carefully resolving the political struggle that is likely to be embedded in the process of transformation.

2.3 THE RESEARCH BACKGROUND: ORGANISATIONAL TRANSFORMATION

After reviewing various aspects of the public sector, it is now necessary to consider the core elements of change management or 'organisational transformation'. The aim here is to explore the key organisational transformation processes and to understand how an organisation might best approach transformation by pursuing a specific orientation.

2.3.1 What is Organisational Transformation?

The turbulent changing environment observed in the business world is reflected in the increasing uncertainty faced by most organisations. The growing turbulence echoes the words of Nonaka and Takeuchi (1995), who suggest that the only certainty faced by organisations is uncertainty. As a result of increasing uncertainty, organisations are forced to seek resources outside the organisation (Pfeffer and Markus, 1983) as a means of ensuring continuous innovation and transformation.

To begin with, it is important to define some key terms that will feature in the subsequent review. The term 'organisational transformation' is defined and used by

many authors in different contexts. For instance, Scarbrough and Corbett (1992) sees organisational transformation as a process rather than an aggregations of machines and systems. Merali (1997) suggests that transformation within an organisational context can best be understood as the process whereby an existing form is changed into a new form, so that the shape of the organisation is discernibly different after it has undergone transformation. Building upon the above definitions, this study defines organisational transformation as an ongoing process of planning, diffusing, implementing and appropriating innovation, either incrementally or radically, within an organisational context.

For the sake of convenience, we define the focus of our research on e-government transformation in the public-organisational context as ‘organisational transformation’. As well as trying to understand *what* changes during such transformation, it is equally vital to investigate *how* change occurs and *what is learned* so that these insights can be applied to the organisation’s future actions (Fiol and Lyles, 1985). Accordingly, various streams of research that focus on different actions underpinning organisational transformation - such as innovation, diffusion, acceptance, implementation and integration - will here be termed ‘transformation-related activities’.

2.3.2 Perspectives on Organisational Transformation: Planned and Emergent Approaches

It is difficult to categorise different perspectives on organisational transformation in a very clear manner as the concept of transformation is related to many aspects, ranging from strategy to structure, management and IT (Scott Morton, 1990). Organisational transformation perspectives found in the current organisational studies literature tend to be based on how transformation is initiated, with a focus on the distinction between planned and emergent approaches. In other words, it is important to understand the process of organisational transformation, and to know whether organisational transformation is carried out through a project which can be clearly traced and is based on a life-cycle (planned), or whether organisational transformation emerges in a manner that cannot easily be generalised into a recognisable pattern or framework (emergent).

The theoretical development of the planned approach can be traced back to the early influence of Lewin (1951). According to his model, organisational transformation is seen as a continuous cycle consisting of three stages -- unfreeze, change and freeze. In the first stage, there is organisational inertia to the demands caused by external

environmental change. The analysis of this stage has largely influenced the conceptualisation of organisational development theories, in particular Child's (1984) account of how organisations recognise performance decline and strategically respond to, and address, the problem by initiating appropriate change processes. The second stage refers to actions taken by organisations in response to the identified problems. The theoretical assumption underlying this approach, in particular during the second stage, is that solutions to the problem can often be systematically organised and implemented (Benjamin and Levinson, 1993; Dawson, 1994). Finally, the third stage -'freeze'- refers to the increasing inertia which appears to be a common problem for organisations (Denison, et al., 1996; Keen, 1981; Prahalad and Oosterveld, 1999). In other words, after the embeddedness and routinisation of a change initiative, organisations consequently turn into a stabilised mode until further problems are recognised and planned. Furthermore, according to Lewin (1951), an organisation's capability to manage its transformation will largely depend on how two driving forces, notably the promotion of change and the ability to overcome resistance, are managed. Referring to this explanation, Blumenthal, et al. (1994) point out that the planned approach conceptually overlaps with the performance-improvement type of transformation. This is triggered by the identification of problems followed by

strategic actions and routines when the outcome of improvement is actualised. Despite the influence of Lewin's (1951) three-stage model on the development of the organisational transformation literature, there have been some forceful criticisms of the model. In particular, some theorists, such as Dawson (1994) and Pettigrew and Whip (1995), argue that organisational transformation does not always develop in the way that the planned approach suggests, and they argue that a more holistic view is needed.

In contrast with the systematic view of the planned approach, theorists of the emergent approach, such as those adopting a processual perspective (see, for example, Burns, 1996; Dawson, 1994; Pettigrew, 1997) commonly indicate that organisational transformation is a continuous and dynamic process that cannot and should not be frozen. Common themes generated by the emergent approach are threefold. In addition to its processual characteristic, transformation aims to align an organisation's business objectives and activities with its environment (Pettigrew and Whip, 1995; Wilson, 1993). Thus, the constant change of environment indicates the continuous initiation of change within the organisation, which can be at various scales and scopes. Moreover, the emergent approach suggests the need to take into account the context as

a means of observing the phenomenon of organisational transformation. In other words, organisational transformation, as a social reality collectively constructed by organisational members, can only become meaningful only when contextual factors are considered (Karnoe, 1995; Nicolini, 1995; Orlikowski, 1993; Reger, et al., 1994). In conjunction with the need to understand the process and context, time is another critical dimension for theorising organisational transformation (Pettigrew, 1997). According to the seminal work of Pettigrew, the dynamics of organisational transformation require a comprehensive understanding of process, context and content, which can only be achieved through a study of the transformation phenomenon in a longitudinal manner. Compared to the planned approach, the emergent approach offers an alternative yet distinctive view of how organisational transformation can be understood. The strengths of the emergent approach in conceptualising the organisational transformation process over time explain why this perspective has had a significant degree of influence on the theoretical development of the present study.

2.3.3 Different Orientations of Organisational Transformation

The orientation of transformation can be radical or incremental. Each of these orientations will be considered in turn below.

2.3.3.1 Radical Organisational Transformation

In the 1980s, radical organisational changes were often referred to as Business Process Reengineering (BPR) because firms faced unprecedented turmoil due to the impact of globalisation, political realignments, and the rapid advancement of IT. The basic idea of BPR is that a business must not be viewed merely in terms of the functions, products or services it provides but also in terms of the key business process through which products or services are delivered, or different organisational functions are performed. In the words of Davenport and Short (1990), a business process is a set of logically related tasks performed to achieve a defined business outcome. Following their concept, Schnitt (1993) argues that a business process can be considered as a two-way relationship that has the provider at one end and the recipient, often termed as the process customer, at the other. Process customers consist of both internal and external recipients differentiated according to the organisation's boundary.

Drastically diverse aspects of conceptualising BPR are reflected in the continuous debates on what BPR is and how BPR should be defined. From a review of the current BPR literature, it is clear that no consensus has been achieved because there are still various theorisations with different emphases. For instance, Schnitt (1993) defines

BPR as a total organisational transformation including organisational culture, structure and management style, while Bush and Dooley (1992) argue that BPR refers to an organisation's change initiatives, which replace no value-added business processes by those that can add value to the output of the organisation. Davenport and Short (1990) define BPR as a set of logically related tasks performed to achieve an intended business outcome. According to Hammer (1990), BPR is the fundamental re-thinking and radical redesign of business processes to achieve dramatic improvements in critical measures of performance. The sheer quantity of definitions found in the current literature is reflected in the argument of Davenport and Stoddard (1994), who indicate that the 'mystical' character of BPR is largely derived from the diverse perspectives taken to understand the phenomenon. Instead of extending the debates on how BPR should be defined, this study adopts the definition provided by Schnitt (1993, see above) for the following two main reasons. First, the definition is comprehensive in conceptualising the holistic picture of organisational transformation. Secondly, the definition does not impose a predefined set of values, which is the key emphasis of Davenport and Short (1990), Hammer (1990) and Bush and Dooley (1992). In other words, firms might have the intention of adding value to their performance through the redesign of business processes. However, it is not always

clear *which* business processes will provide added value and *which* will not. Moreover, it is questionable whether the outcome of BPR can always align with the actual intention of an organisation.

In order to align business processes with an organisation's intended outcome, factors that contribute to the success of BPR implementation are intensively documented in the current literature (e.g. Hammer, 1990; Talwar, 1993; Teng et al, 1995). For instance, Hammer's (1990) account suggests that the power of IT is evident in the way that new business processes become feasible through the facilitation of new technology. In other words, business processes can be delivered in a more effective way once new technology is in place. Building upon the importance of IT in relation to BPR, Talwar (1993) advocates the importance of strategy in the design, development and implementation of BPR. Echoing the emphasis on strategic planning proposed by Talwar, Teng et al. (1995) address the importance of aligning business objectives with IT planning by incorporating critical inputs from the business and IT functions, which are often operated in isolation. The need to involve different organisational functions in the context of technological innovation is highlighted by Jarvenpaa and Ives (1994), who suggest that the alignment of IT and business

functions can only be achieved through participation and involvement.

In addition to the importance of IT described above, Hammer (1990) also indicates that the success of BPR implementation depends on the achievement of top-down leadership, parallel processing, and employee empowerment. Such a viewpoint is shared by other scholars who emphasise the management of stakeholders and their roles in performing their tasks. For instance, Robey (1997) indicates that, although IT is central in BPR initiatives, process improvement is essentially the change of tasks and social structures underlying the way in which tasks are performed and coordinated. Thus, to ensure that BPR can be implemented with minimum resistance, Wastell et al. (1999) argue the need to take into account how employees can be motivated by reducing the level of stress and improving empowerment. Many researchers (i.e. Davenport and Short, 1990; Earl, 1994 Galliers, 1998) also emphasise the importance of commitment from top management when engaging in radical transformation. The contribution of vision and perspective formulated by the top management are critical for keeping the reengineering initiative on track, ensuring the control of executive time, and keeping the BPR energy and efforts moving.

Using the term 'process innovation' instead of BPR, Davenport (1993) states that one of the most critical elements of reengineering is the change of organisational structure, in particular the change from a hierarchical structure to a flat one. The need to pursue structural change reflects the importance of horizontal integration, which involves breaking down cross-functional boundaries, analysing and assessing workflows, and redesigning business processes that are collectively performed by different organisational functions. To ensure the success of structural change, it is vital to take into account complex implementation issues through an understanding of the workforce, technology and culture. The need to adopt a more holistic approach towards BPR is echoed by numerous studies that advocate the integration of process-based change initiatives. For instance, results from various studies conducted by some practitioners and researchers (e.g. Davenport, 1993; Furey, 1993; Kelemen et al., 2000) suggest that BPR efforts integrated with other process-based management techniques, such as benchmarking, team-based operation, and total quality management (TQM), can achieve enhanced performance.

However, different authors have different views of BPR as a form of radical change.

Earl (1989) argues that BPR is not new; it is the integration of process, IT and

business transformation, and it is this which differentiates BPR from previous management initiatives. Taking this point further, Davenport (1993) argues that changes must add significant value from the consumer's perspective in order to deliver any meaningful means of service; and execution of improvements must start by clearly focusing on the consumer value chain. Manganeli and Raspa (1995) argue that a radical strategy such as 'starting over' is not necessarily essential. This is because many companies in today's business might already provide various forms of value to their customers. Based on this argument, the following section will outline the type of organisational transformation that is characterised by an incremental orientation.

2.3.3.2 Incremental Organisational Transformation

Theoretical debates on incremental organisational transformation are described in many areas of the discipline, especially in the organisational behaviour, innovation and IT literatures (Miller, 1982; Miner and Mezas, 1996; Orlikowski, 1993; Pavitt and Steinmueller, 2002). Amongst various perspectives conceptualising the phenomenon of incremental organisational transformation is the behavioural theory of the firm (BTOF) (Cyert and March, 1963), which has been seen as one of the most

influential theoretical advancements (Miner and Mezias, 1996). According to Cyert and March (1963), the founders of BTOF, each organisation can be perceived as an adaptive learning system in which the organisation acquires knowledge through standard operating procedures. If performance does not meet aspirational levels, however, the organisation will initiate the searching process to generate solutions as a means of solving the problems that prohibit the organisation from achieving its intended performance target. Driven by the need for problem solving, organisations demonstrate incremental transformation behaviours by which organisational routines that appear to produce useful outcomes are retained, while others are discarded. The influence of BTOF is evident in the theoretical development of incremental organisational transformation. For instance, Levinthal and March (1981) propose the concept of an 'adaptive organisational search' through which organisations use previously acquired experience as a basis to make sense of new experience. Organisational competence is therefore developed and refined through the gradual increase of experience acquired by the organisation. Building upon the concept of BTOF, March (1991) describes how organisations are incrementally transformed by performing planned actions based on the exploitation of acquired experience and knowledge.

In addition to the above conceptualisations derived from BTOF, some researchers have emphasised the importance of learning processes as a means of understanding incremental organisational transformation. For instance, Revans (1983) argues that in order to achieve continuous improvement and innovation, an organisation must exceed the rate of change and its capacity to learn so that it can be successful in today's rapidly changing environment. The importance of continuous learning is exemplified in the author's processual account of learning processes through which continuous improvement and innovation in business processes are facilitated, transformed and refined.

In addition to the theoretical debates generated by organisational learning researchers, innovation and strategy theorists also emphasise the importance of incremental organisational transformation. For instance, Eisenhardt and Tabrizi (1995) indicate that an organisation's ability to adapt determines its innovation capability. Based on their argument, such adaptive behaviour represents a mode of incremental transformation. However, when the path of environmental change increases, organisations need to accelerate their adaptive processes in order to cope with the increasing demand for innovation. Moreover, Galuni and Rodan (1998) argue that

innovation is rooted in the recombination of resources that are available to firms. In other words, an organisation's competitiveness does not necessarily derive from radical structural change. Instead, it can be enhanced by improving the way in which organisational resources are recombined and integrated.

Based on the theoretical foundation of organisational innovation, researchers in the area of knowledge management also suggest the need for incremental transformation, in particular through the way strategically valuable knowledge is articulated and utilised. For instance, Nonaka and Takeuchi (1995) indicate in their seminal work that tacit knowledge can only be utilised through the processes of socialisation and externalisation. However, radical change does not always facilitate the development of the necessary enabling conditions. Rather, what is needed is a gradual and incremental change process through which social relationships between different individuals and groups are developed. Similarly, in their conceptual account of social capital and intellectual capital, Nahapiet and Ghoshal (1998) argue that knowledge creation does not always involve radical change. Rather, it is an incremental process through which existing knowledge is exchanged between, and combined by, social actors.

Taking an integrative view, Van de Ven et al. (1995) summarise various attempts to achieve incremental transformation according to four categories based on two dimensions: the unit and the mode of transformation. The four categories are: life-cycle, teleology, dialectics and evolution. Despite the usefulness of these four categories in conceptualising organisational transformation, the authors argue that these typologies tend to over-emphasise the outcomes and consequences of transformation initiatives, and fail to take into account the importance of transformation processes and processual conditions. With this in mind, Van de Ven (1992) offers an instructive formal definition of 'transformation process' and argues that 'process' is used in three ways in the literature: 'first as logic used to explain a causal relationship in a variance theory, second as a category of concepts that refer to activities of individuals or organisations. And third, as a sequence of events that describes how things change over time' (p. 169).

Building upon the conceptual argument of Van de Ven, Pettigrew (1997) theorises process as a sequence of individual and collective events, actions and activities unfolding over time in a given organisational context. According to Pettigrew, processes are seen, on the one hand, to be constrained by structures, and, on the other

hand, to shape those same structures. However, Pettigrew stresses the difficulty of defining the term 'process'. He notes that 'behind the generic definition of process, there lies a plethora of distinctions and complexities' (p. 338), and suggests the need to take into account other areas such as language, time, context and history, all of which are associated with process, in order fully to understand the complexity. In short, organisational transformation is viewed as a complex process inseparable from its organisational context.

2.3.4 Summary

Our discussion of the literature reveals a consensus that issues associated with organisational transformation are not a simple subject that can be studied by focusing purely on one or two aspects. Instead, this is a complex phenomenon which requires us to take account of social, strategic, technological and psychological aspects of the complexity.

Two converging themes emerge from the review of the literature. First, there is a growing recognition of the importance of an integrated change agenda rather than sporadic changes. Organisational transformation should not emphasise only one of the

underlying factors. Rather, it calls for a consideration of both technical and social elements -- an integrative scheme involving the whole range of organisational factors. Secondly, the dissatisfaction stemming from the organisational behaviour perspective indicates a prevailing recognition of the insufficiency of the rational analysis approach. Organisational behaviour specialists argue that organisational transformation should not be subject to the planned approach. In reality, it involves a large amount of interaction between human actors, producing cultural, political and social problems alongside technical problems. To transcend the limits of rationalism, organisations need to understand the underlying assumptions of those change practices. This requires a re-conceptualisation of the organisational model in order to facilitate a new way of perceiving transformation.

Following our discussion of different perspectives, the next section will examine factors, in particular IT that enable the process of organisational transformation. Although the IT aspect is not the only important issue, the review of IT does provide a useful foundation for the conceptualisation of this study.

2.4 THE RESEARCH BACKGROUND: IT-ENABLED ORGANISATIONAL TRANSFORMATION

Our research is rooted in a number of streams of the literature – the public sector, organisational transformation, and technology. These streams are drawn together to develop an understanding of the correlation of technology and the organisation during the process of transformation. This part begins with an exploration of the literature from a technology perspective in order to understand the various aspects related to the implementation of technological change. After reviewing these issues, Section 2.4.5 will provide an understanding of the current literature on e-government, which is here seen as a major public sector transformation enabled by IT.

2.4.1 The Definition of Technology

The term ‘technology’ has a variety of meanings. According to Bessant et al. (1992), at an elementary level, the term refers to a piece of equipment or software. However, this definition does not include aspects of the social context, including the people involved in the use of the equipment. A more comprehensive definition would have to regard technology as a broader process of transformation that includes not only the materials and equipment concerned but also the skills and experience of people

involved. Noble (1985), in an all-embracing view of technology, suggests that we should focus on the various activities undertaken by people in particular social and historical contexts, with particular interests and aims. This observation is helpful because it offers a view of technology that stresses the interrelationship between technology and the organisation.

2.4.2 Technology and Organisation

As we have seen, it is vitally important to understand the interplay between the use of technology and its organisational implications. Previously, the technology itself (i.e. in terms of its key characteristics and rationality) has been too dominant, while other facets of the organisation and the role of individuals in using these technologies have been neglected (Edwards et al., 2000). Moreover, Orlikowski (1992) argues that it is not technology itself that influences organisation; it is organisations that shape technology for specific purposes. In Orlikowski's (1992) work, a structural model of technology is developed. The author criticises Barley's (1986, 1990) perspective for its lack of attention to the change in technology during the period of its deployment. She also points out that previous technological studies have considered technology purely as hardware (Zuboff, 1988). Such hardware-driven studies have been criticised as

deficient because they tend to ignore the action of people in developing, appropriating and changing technology (Barley, 1986; Leonard-Barton, 1988; Orlikowski, 1992, 1993, 2000).

In the last decade, research has tended to move away from technological determinism towards social constructivism. In this respect, the work of Giddens (1984) encouraged Orlikowski (1992) to stress the institutional structures on which technology was based and the constant interaction between technology and organisation. In other words, Orlikowski sees technology as having a dualistic influence on organisations. This implies that technology and its social context are mutually interdependent. Technology constrains or enables human action, and it is simultaneously constructed and enacted by people (Orlikowski, 1992). However, some authors have voiced criticisms of Orlikowski's (1992) arguments. According to Monteiro and Hanseth (1996, p.328), 'studies of the duality of technology are not fine-grained enough with respect to the technology to form an appropriate basis for understanding or to really inform design.' Monteiro and Hanseth (1996) argue that these studies (Orlikowski, 1992; Orlikowski and Robey, 1991; Walsham, 1993) lack the ability to show how and where IT restricts and enables action in relation to organisational issues. Nonetheless, the approach

suggested by Orlikowski (1992) identifies technology as both an object and a socially constructed product, and concludes that technology has both characteristics.

The rapid development of technology has contributed to the recent growth of interest in the use of technology as powerful means of enabling and aiding transformation in organisations. Because of the role technology plays in organisations and the common reaction to the introduction of new technology, it is often suggested that incorporating technology for the purpose of transformation must be viewed from a radical perspective (Orlikowski and Robey, 1991). It is argued that because technology facilitates the activities of users, it must be seen as the product of human action while also having an impact on human actors. In the next section, we will review the key factors which influence organisational transformation.

2.4.3 Influential Factors Affecting Organisational Transformation

A wide range of influential factors in relation to the implementation of technology and organisational transformation is identified in the literature; many of these factors are fundamental to managing any major organisational change. The following sections will describe factors in three categories; shared vision, operational aspects, and socio-

cultural aspects. First, the need to have a shared vision for change has been established as a key determinant for any organisation seeking to meet its expectation of a major change initiative, and is thus of paramount importance to transformation. Many researchers see such a capacity for vision as important for leadership, strategy implementation, and change (Doz and Prahalad, 1987; Hunt, 1991; Kotter, 1990; Sashkin, 1988). However, despite its importance, a generally agreed definition of vision has yet to emerge. Some authors suggest that vision is a form of leadership (Hunt, 1991, p.190-203): a 'visionary leader' alters an organisational culture to bring members to understand, accept and carry forward his or her plans for the organisation. Others view vision as one of the critical tasks top management performs (Pearson, 1989) and as a demonstration of leadership competences (Sashkin, 1992). Vision may also represent a pattern of organisational values oriented towards the organisation's future (Greenwood and Hinnings, 1993). The importance of leadership within the project context is stressed by Nystrom and Starbuck (1984). According to them, leaders influence individuals and teams through their ability to manage a project, to promote team learning, to act as an intermediary, and to offer appropriate rewards. Authors such as Ford and Randolph (1992) and Argote (1982) also stress the importance of the project team leader's ability to maximise coordination. They argue

that this ability is particularly important when more than one project is involved in order to coordinate and oversee the project as a whole.

The second set of influential factors affecting the success of organisational transformation is related to the operational aspects of project management. The popularity of employing project management for organisational transformation is clear in current management studies (e.g. Hutt, Walker and Frankwick, 1995; Prahalad and Oosterveld, 1999). It is evident that organisations use project management for various purposes, including new product development (Clark and Fujimoto, 1991), decision-making (Bishop, 1999) and implementing change projects (Hutt, Walker and Frankwick, 1995). According to Henke, Krachenberg and Lyons (1993), organisations employ project management in order to gather a wide range of expertise from various organisational units to accomplish tasks which cannot easily be dealt with by one unit. In addition, by having representatives from various units participate in the project, sufficient support from the stakeholders can be expected (Steensma and Tetteroo, 2000). The importance of having organisation-wide representation and gaining sufficient support is also reflected in the study by Hutt, Walker and Frankwick (1995), who argue that political hurdles are often more difficult to overcome than operational

ones in the context of strategic change. A similar viewpoint is put forward by several authors (Cooper and Zmud, 1990; Pinfield, 1986; Prahalad and Oosterveld, 1999) who argue that it is crucial to recognise the importance of coordination between other divisions and participants, and to balance the way in which sensitive issues are handled during the project.

The third set of influential factors affecting the success of organisational transformation is related to the socio-cultural dimension. Recent developments in the organisational sciences highlight the importance of staff involvement in organisational projects. Parys (2003) discuss staff involvement and commitment to public sector organisational reform. She argues that developing and maintaining trust through involvement in an organisation is especially important for managers and professionals attempting to undertake major organisational changes in a highly turbulent environment. Similarly, Leonard-Barton and Deschamps (1988) argue that users' perceptions and managers' attitudes have a significant impact on staffs' willingness to accept the implementation of a project through increased staff communication, participation and involvement.

As already explained in our discussion of the research background on the public sector (see Section 2.2.4), resistance to change is widely seen as an important barrier to be overcome during the transformation of any organisation. Overcoming inertia to change at all levels requires time, patience and understanding. Culture and attitudes towards employee involvement, though complex and multi-faceted, can be seen to play a crucial role in the development of a workplace culture that supports innovation and changes (Brass and Burkhardt, 1993). Hence, cultural change and the acceptance of new ways of working with the help of IT are seen as central to the successful implementation of organisational change.

2.4.4 The Model of IT-Enabled Organisational Transformation

There is a pressure on most organisations to make transformational operations more effective and efficient. Different streams of the literature suggest various models in relation to organisational transformation with IT, and highlight significant difficulties associated with IT-enabled transformation (e.g. Child, 1987; Cooper and Zmud, 1990; Drucker, 1988; Nadler and Tushman, 1997). Rather than illustrating an endless list of different models and categories, this section will emphasise and illustrate the model of process innovation diffusion suggested by Cooper and Zmud (1990). This model was

applied in this research due to its specific characteristics and relevance, as will be explained in the following paragraph.

The model of process innovation diffusion suggested by Cooper and Zmud (1990) identifies six stages of organisational transformation with IT implementation: initiation, adoption, adaptation, acceptance, routinisation and infusion. This six-stage model helps us to develop a better understanding of both IT and organisational problems, and the key influential factors during the cycle of transformation. As Cooper and Zmud (1990) explain, 'IT implementation is defined as an organisational effort, directed toward diffusing appropriate information technology within a user community' (p. 124). The model has its roots in 'Lewin's (1951) change model, which incorporates adoption behaviours developed by Zmud and Apple (1989)' (Cooper and Zmud, 1990, p.124). Table 2.1 explains the various stages of this model in terms of process characteristics and product outcomes.

Stages	Process	Product
Initiation	Active and/or passive scanning of organisational problems/opportunities and IT solutions are undertaken. Pressure to change evolves from either organisational need (pull), technology innovation (push), or both.	A match is founded between an IT solution and its application in the organisation.

Adoption	Rational and political negotiations ensue to get organisational backing for implementation of the IT application.	A decision is reached to invest the resources needed to accommodate the implementation effort.
Adaptation	The IT application is developed, installed and maintained. Organisational procedures are revised and developed. Organisational members are trained both in the new procedures and in the IT application.	The IT application is available for use in the organisation.
Acceptance	Organisational members are induced to commit to IT application usage.	The IT application is employed in organisational work.
Routinisation	Usage of the IT application is encouraged as a normal activity.	The organisation's governance systems are adjusted to account for the IT application, which is no longer perceived as something out of the ordinary.
Infusion	Increased organisational effectiveness is obtained by using the IT application in a more comprehensive and integrated manner to support higher level aspects of organisational work.	The IT application is used within the organisation to its fullest potential.

Table 2.1 The model of process innovation diffusion

Source: Adapted from Cooper and Zmud (1990, p.124)

As Table 2.1 shows, the Cooper/Zmud model helps to position the importance of process and product at each stage by examining technology diffusion, organisational innovation, and IT implementation. Kwon and Zmud (1987) identify five characteristic factors which impact processes and products associated with each of these stages. These factors relate to the user community, organisation, technology, the

organisational environment, and the characteristics of the task of the technology. In the present research, it has proved useful to incorporate this model since it stresses the interaction among the five contextual factors. The following section will provide a detailed review of the literature on e-government and IT-enabled organisational transformation.

2.4.5 E-government

Continuing our consideration of the movement of IT-enabled organisational transformation within the public sector, it is necessary to explain precisely what is meant by 'e-government', which is often referred to in the literature on IT, public administration, and organisational transformation. A number of definitions of e-government have been offered. For instance, Silcock (2001) states that e-government means the use of technology to enhance access to, and the delivery of, government services to benefit citizens, business partners and employees. It has the power to create a new mode of public service whereby all public organisations deliver a modernised, integrated and seamless service for citizens. Holden et al., (2003) suggests that e-government is the process of implementing cost-effective models for citizens, industry, employees, and other stakeholders to conduct business transactions

online. The concept integrates strategy, process, organisation, and technology. Moreover, taking a comprehensive view, Aicholzer and Schmutzer (2000, p.379) see 'e-government covering changes of governance in a twofold manner (1) transformation of the business of governance, i.e. improving service quality delivery, reducing costs and renewing administrative processes; (2) transformation of governance itself, i.e. re-examining the functioning of democratic practices and processes.'

Many studies of e-government focus on issues such as e-citizenship (Bucy and Gregson, 2001; Hill and Hughes, 1998), e-democracy (Coleman et al., 1999), e-legislatures (Coleman et al., 1999), governance in the information age (Tapscott, 1998) and e-commerce (Shi, 2002). These approaches can be classified into four perspectives as suggested by Lenk and Traunmuller (2000): e-business, citizens, knowledge and process. To this list we may add the tele-cooperation perspective as discussed by Devados et al. (2002). The E-business perspective considers the use of information technology to improve government, and involves aspects of e-commerce within the government framework. The citizen perspective examines e-government from the end-user's point of view with particular reference to the concerns of citizens.

Within this perspective, the discussion evolves around the delivery mode and access to electronic services (Bucy and Gregson, 2002). The knowledge perspective views employees as a source of knowledge in their tasks. The emphasis is on the utilisation of employees' knowledge in order to prevent any knowledge loss that has accumulated over the period (Lenk and Traummuller, 2000). The process perspective recognises the use of IT to enhance the delivery of public services by redesigning the work processes of organisations. According to Lenk and Traummuller (2000), it is important to recognise the importance of work coordination and collaboration in the many layers of the government. The authors stress government faces the challenge of redesigning the interaction between public service and citizens combined with the reorganisation of business processes. Lastly, the tele-cooperation perspective is useful for understanding various aspects of e-government activities. Devados et al. (2002) find that this perspective is especially useful when seeking to understand the early stages of e-government development. Its focus is on the interaction between a range of agencies and organisations during work processes. Lenk and Traummuller (2000) also consider this approach to be useful because it provides a holistic view in support of computer-mediated cooperation.

The development of the IT stream in recent studies has encouraged an interest in e-government applications and its technical aspects with the aim of investigating the issues, challenges and project lessons learned from large firms engaged in transforming e-government. The electronic environment, driven through the Internet and information and communication technologies, is expected to transform both the way public services are delivered and the way government functions (Barreyre, 1988; Heeks, 1999, 2002). The literature also addresses the contribution of organisational factors in the success of e-government transformation. Shi (2002) identifies two key factors -- leadership and strategic planning for web sites -- as the major influences on the implementation of e-government. He argues that having a transformational leader for the e-government transformation is vitally important, as the leader must be willing to take risks and be highly adaptable to change. In addition, the leader draws on many qualities to perform effectively, and exemplifies the values, goals and culture of the organisation while being aware of the environment. The importance of strategic planning (Shi, 2002; Venkatraman and Henderson, 1994) has also been stressed. Shi (2002) argues that, as with any other IS planning, strategic planning is vitally important for e-government since it provides insights and future directions for government.

As the need to address these challenges intensifies, it is clear that public sector government organisations are moving gradually from an administrative focus to the improvement of value-added services to customers and other stakeholders (Melitski, 2003; Pollitt and Bouckaert, 2000; Stratford and Stratford, 2000). For example, governments emphasise and promise to deliver ease of access to services on-line, enabling citizens to choose how and when they wish to access those services. The fundamental driver for the e-government initiative lies in achieving the goals of improved service quality through introducing static, interactive, transactional and transformational services (Melitski, 2003). Melitski identifies four major capabilities/services that can be delivered by e-government service with reference to the example of the New Jersey Centre for Government Services report. The first service (static) describes the basic information that can be made available on web sites. With this means of service, there is no opportunity to communicate directly with members of the government. Through the interactive means of communication, citizens are able to download information and transmit it to the relevant sector of the government or the department via e-mail. Transactional services enable citizens to transact business with the department on-line, for example when applying for government work contracts and bidding for projects. Through transformational

communication, government can conduct its business and see the outcome of that business as a result of interactive work coordination and collaboration in the many layers of the government. Overall, as explained in earlier paragraphs, the most important thing is for government to deliver interactions based on a reorganisation of business processes between the public service and citizens (Lenk and Traunmuller, 2000).

Public sector organisations now find themselves in a cyclone of change as they try to adapt to today's turbulent environment, often in a pragmatic and systematic way (Lovell, 1995). However, implementing e-government projects can be complicated and difficult due to the lack of fundamental structures and human and technical resources, and the vast size and bureaucratic nature of government. Our review of the literature suggests that to find a successful way of reengineering and transforming the government is by no means easy.

2.4.6 Summary

It is clear from our literature review that the implementation of technology into an organisation is a complex issue. It has as much to do with organisational issues as it

has to do with technological issues. The way in which technology may be successfully implemented in an organisation has changed and evolved over the past 50 years to maintain congruence with the changes experienced in the external world. The above review of the literature highlights two important lessons. First, transformation is an integrative act that takes into account all key organisational factors. Secondly, the resolution of IT implementation requires a consideration of the emergence of a new way of seeing technology and placing it within an organisation so that the organisation is able to respond to change and to handle uncertainty.

Within the e-government context, the role of IT has shifted from a deterministic one to a supporting one, and has been gradually transformed into an enabling role. Also, increasing customer/citizen demands, such as those for a faster and more effective public service, and the initiative of the government to modernise its services by introducing electronic procedures, are gradually making e-government a reality (Pollitt and Bouckaert, 2000). This new way of governing in the electronic environment is expected to change many traditional structures of local authorities. However, e-government should not be seen as a 'revolution' but should be regarded as a vehicle to make public services more customer-oriented, faster, more effective and

less costly. In the literature there is general agreement that the introduction of information systems and IS functions will bring important new developments in e-government electronic services. These developments are likely to help improve services in many areas because, unlike traditional government, e-government can provide flexibility, information, feedback, knowledge sharing and communication to all departments and to citizens and businesses by continuously evolving, redefining and reinventing itself. However, this signifies a need to recognise the role of IT and its influences from a new perspective that encompasses the learning of the various paradigms which underpin the assumptions of organisational transformation and their influences and acceptance in practice.

2.5 Towards a Theoretical Perspective for Understanding E-government Transformation

As our literature review has revealed, it is now becoming apparent that successful technology implementation and organisational transformation are strongly interdependent, and effective technology implementation and assimilation are factors that mediate this process. In order to understand the interrelationships between the implementation of IT and the transformation towards e-government, this part of our

discussion will introduce the theoretical perspective that guides the present research. Section 2.5.1 presents an overview of the theory with a focus on Robey and Boudreau's (1999) concept of 'the logic of opposition'. Section 2.5.2 illustrates the way this logic is used by identifying two distinct but complementary perspectives (promoting and opposing). In order to embrace fully the focus of this research, Section 2.5.3 elaborates the logic of opposition with particular reference to various themes and accounts of learning.

2.5.1 Introduction to the Logic of Opposition

The term 'logic of opposition' was first suggested by Robey and Boudreau (1999) to help explain the role of IT in organisational change by identifying both promoting or enabling forces and impeding or oppositional forces (i.e. barriers to change). According to the authors, many contemporary thinkers consider advanced IT as either a determinant or enabler of radical organisational transformation, but empirical studies have revealed a lack of findings to support the deterministic logic implicit in such arguments. This determinism places technology in the role of an external agent capable of transforming organisations directly. A more moderate determinism portrays managers as rational designers using IT as a tool to fashion radically new

organisational designs that their businesses need. Markus and Benjamin (1997) refer to the enabling role of IT-placed managers as causal agents triggering the transforming 'magic bullet' of IT. However, several critical reviews have questioned the deterministic logic underlying such analyses of the organisational impacts of IT (DeSanctis and Poole, 1994; Markus and Robey, 1988). These critical authors argue for a more complex relationship between IT and organisations, advancing concepts of emergent and reciprocal change, and promoting and impeding factors. In addition, writers concerned with building theory and conducting empirical research have also argued that this perspective is useful for those theorists who typically try to maintain an 'elusive consistency' by refusing to acknowledge paradoxes inherent in the phenomena they are seeking to explain (Poole and Van de Ven, 1989). The acknowledgement of 'the logic of opposition' is thus useful for stimulating theory-building by provoking creative insights capable of accommodating opposing positions.

The reason for adopting the logic of opposition perspective in this research is that it helps to explain the role of IT in organisational change by focusing on opposing forces that which respectively promote and oppose change (Robey and Boudreau, 1999). This approach has the potential to explain a wide range of organisational outcomes.

While both the logic of determinism and the logic of opposition perspectives may be successfully employed to study the organisational consequences of IT, the present author finds that the second approach is more suitable for this study. The following discussion explores how the logic of opposition perspective can help form an alternative approach to the study of IT and organisational-transformation activities.

2.5.2 Using the Logic of Opposition to Study IT-Enabled Organisational Transformation within an E-government Context

The logic of opposition perspective adopted in this study provides a useful philosophical lens not only to understand the nature of e-government organisational transformation, but also to investigate processes of IT implementation, from which various consequences and events might result. As the term ‘logic of opposition’ suggests, this perspective focuses on the contradictions that may occur both across and within individual organisations. According to Robey and Boudreau (1999), contradictions *across* studies in any field tend to be understood as inconsistencies within a body of research, and typically motivate efforts to restore order by explaining the observed discrepancies. Contradictions *within* studies involve results that run counter to expectations based on the theory guiding the research. This often motivates

revisions of the theory so that observations might be explained more satisfactorily.

Within the individual organisation, as within this thesis, three types of contradictions may be identified (Robey and Boudreau, 1999, p.171): 'studies in which the expected consequences of information technology do not occur; studies in which different organisational consequences result from the use of nearly identical technologies in comparable settings; and studies in which contradictory consequences result from the use of the same technology in a single organisation.' In addition, Eisenhardt (1989, p.544) explains that 'conflicting literature represents an opportunity. The juxtaposition of conflicting results forces researchers into a more creative, frame-breaking mode of thinking than they might otherwise be able to achieve.' From these arguments, it is clear that the adoption of the logic of opposition perspective can enable us to consider and observe the positive and negative elements dispersed within the organisation with various degrees of accessibility. A detailed account of how this perspective will be used in the research is presented below.

According to Robey and Boudreau (1999), the logic of opposition incorporates four specific theories of the way in which change occurs as a result of the interplay of

opposing, contradictory forces. As summarised in Table 2.1, the four theories are: organisational politics, organisational culture, institutional theory, and organisational learning. First, the use of organisational politics to understand the role of IT in organisational transformation can be traced to Kling (1980), who identified organisational politics and politics as perspectives which challenge the underlying assumptions in the analysis of IT and organisations. The logic implied in the theory of organisational politics stresses the role of political groups with incompatible, opposing interests engaged in political activity using IT as a resource from which organisational changes emerge. The dimensions of social power, stakeholders, social change and decision process are seen to present the interests of organisational politics. This means that the researcher must be aware of the interests of those promoting and those opposing particular objectives of transformation.

Secondly, the theory of organisational culture can be traced to the interest of Japanese management systems in building strong and cohesive cultures (Smircich, 1983). The theory stresses the importance of the symbolic meaning of technology and the difficulty of implementing systems in a resistance culture. The logic in this theory is that information technologies are produced and interpreted as cultural that symbolise a

variety of values, beliefs and assumptions.

Thirdly, the logic of institutional theory describes the unmovable characteristics of institutional patterns and practices sustained in an organisation. According to King et al. (1994), institutional theory has affected IS research through an examination of the national, cultural and economic influences on IT innovations at the national and organisational levels. Applied in the context of information and organisational transformation, this approach can address conflicts among normative pressures -- for example, efficiency, privacy, and pressures arising from bureaucratic and hierarchical structures.

Finally, the logic of organisational learning argues that existing organisational memory may impair new learning, and the incorporation of IT both enables and disables organisation learning. Argyris (1977) highlights the relevance of organisational learning to IT (Robey and Boudreau, 1999), arguing that the contradictions inherent in systems implementation can be resolved through communication or, as Argyris defines it, 'organisational learning'. In other words, IT is not limited to the storing of organisational memory but is also of benefit to the

process of learning: new learning replaces old knowledge and at the same time creates new knowledge.

Theory	Nature of Logic
Organisational Politics	Groups with incompatible opposing interests engaged in political activity (using information technology as a resource) from which organisational changes emerge.
Organisational Culture	Information technologies are produced and interpreted as cultural artefacts that may symbolise a variety of values, beliefs and assumptions. Integration: Culture is portrayed as unified and consistent, opposing organisational change Differentiation: Culture is composed of subcultures. Conflicts occur at the boundaries separating two or more subcultures. Fragmentation: Culture is viewed as inherently ambiguous and contradictory. Opposing and irreconcilable interpretations may be entertained simultaneously both within and across subcultures.
Institutional Theory	Institutionalised patterns and practices sustain an organisation's legitimacy and are unlikely to change. Information technologies may be adapted to institutional practices or used to reform them
Organisational Learning	Existing organisational memory may impair new learning. Information technologies both enable and disable organisational learning.

Table 2.2 Theories using the logic of opposition

Source: Robey and Boudreau (1999, p. 173)

Table 2.2 summarises the four theoretical areas incorporating the logic of opposition argument. In the present research, the fourth theoretical perspective – organisational learning – has been chosen as the most appropriate framework of analysis. By

employing the logic of opposition, this should help to identify a commonly acceptable interpretation and shared understanding of social consequences (Robey and Boudreau, 1999). In other words, the logic of opposition framework can help us to discover how different sources of events are synthesised and learned through the ongoing interactions between relevant social groups that continuously stabilise and destabilise their social relations; and how those actions and events have an impact on the implementation and acceptance of IT as an enabler of the formation of e-government. These points are mirrored in the concept of *learning* within the logic of opposition, which helps to explain how organisational members learn and acquire the transformation processes, how community memberships are formed through the participation and observation of the experienced members, how various political issues and stakeholders involved in e-government transformation are understood, and how the organisational members modify what they have learnt through their mutual interaction.

The following section will explore the literature of the organisational learning discipline in terms of its relevance to the understanding of e-government transformation. Argyris (1982) offers a useful conceptualisation of organisational

change, using a learning metaphor, arguing that organisational learning occurs whenever a mismatch is detected and corrected through the actions taken by an organisation. In the sense that e-government transformation is not a simple process, and in order to provide answers to the research questions, the following sections will provide an account of organisational learning to enhance our understanding of its research background.

2.5.3 What is Learning?

As pointed out by West and Burnes (2000), the terms ‘organisational learning’ and ‘learning organisation’ are often used interchangeably. In fact, the terms mean very different things. Tsang (1997) differentiates them, noting that ‘organisational learning is a concept used to describe certain types of activity that take place in an organisation while learning organisation refers to a particular type of organisation itself.’ Ulrich et al. (1993) stress that, while organisational learning includes learning by individual members, it is not restricted to and is not the same thing as individual learning. The learning organisation has the ability to acquire and diffuse ideas that cause change and improvement across organisational boundaries. Hedberg (1981) characterises the learning organisation as having the capability to adapt to its changing environment,

while Levitt and March (1988) refer to its capability to encode inference from history into routines which guide behaviour. In contrast, Dodgson (1993) and Crossan et al. (1999) see organisational learning as a construct used to describe certain types of activity or processes that may occur at any one of several levels of analysis; and Schein (1993) sees organisational learning as part of a broader organisational-change process.

From a knowledge perspective, learning may be described as the process by which knowledge is acquired (Huber, 1991). According to the dictionary definition, knowledge, in its broadest form, consists of facts, feelings and experiences known by a person or group of people. In the case of knowledge in the sense it is used here, this definition could be further developed to include the awareness and consciousness gained by the experience of learning. According to Blackler (1995), learning is a process of knowing (what and how), which encompasses both doing and deciding. At a basic level of understanding, Jones and Hendry (1994) explain that learning provides interrelationships between education and training.

Many questions have been raised about *how* learning actually occurs. It is

acknowledged that the learning process for individuals is complex, and that there may be synergy within group learning that remains with a group when individuals cease to be members of that group. In a similar way, there may be a synergy of knowledge embedded within an organisation. Kogut and Zander (1992) examine learning through an organisational perspective, where it is believed that the organisation knows something and is capable of a change of state, i.e. the organisation may learn.

The need for knowledge is crucial during a large-scale transformation since the organisation is dealing with an immense amount of uncertainty associated with the diverse set of demands placed on it during this time. Learning reduces uncertainty by producing knowledge; therefore learning becomes central to the transformation since it involves creating, sharing and applying knowledge (Argyris and Schon, 1978; Huber, 1991). Learning provides the real-time knowledge needed by the organisation to adjust to the changing environment. Here, learning includes: activities to support the organisation in developing leadership (Kotter, 1996); learning from other organisations; learning from the organisation's own experience; continuously improving the transformation approach; and educating and training the workforce in successful transformations.

2.5.4 The Process of Organisational Learning

Organisational learning is essential to an organisation's health and survival; it involves the creation and acquisition of new knowledge. The process of organisational learning has been studied by organisational theorists, social psychologists, manufacturing experts, and systems thinkers (Argyris and Shön, 1996; Daft and Huber, 1987; Fiol and Lyles, 1985; Huber, 1991; Levitt and March, 1988). Organisational learning is generally seen as different from individual learning (Fiol and Lyles, 1985; Hedberg, 1981). For example, Fiol and Lyles (1985, p. 804) distinguish organisational learning from individual learning: 'Though individual learning is important to organisations, organisational learning is not simply the sum of each member's learning. Organisations, unlike individuals, develop and maintain learning systems that not only influence their immediate members, but are then transmitted to others by the way of organisation history and norms.' There is broad agreement that organisations are entities that can act and learn, and this is different from the simple aggregation of individuals' actions and learning (Miner and Menzias, 1996). One assumption commonly shared by these different research disciplines about organisational learning is that organisations, as a whole, are capable of altering their behaviours by imitating other organisations' behaviour or by applying the experience generated within the

organisation for guiding their actions.

The way in which organisations receive and respond to stimuli is conceptualised by March and Olsen (1976) in terms of learning-cycles. According to them, a learning-cycle characterises an organisation's stimulus-response system, in which individuals' actions lead to organisational actions. The learning-cycle represents the learning process through which organisations take necessary actions, often in the form of altering collective behaviour, as a means of responding to environmental change. In addition to the behavioural aspect of the organisational-learning process, some scholars also stress the importance of understanding the cognitive aspect of learning.

Based on the argument that each organisation has a collective memory guiding individuals' actions (Moorman and Miner, 1997, 1998; Walsh and Ungson, 1991), some researchers (e.g. Shrivastava and Schneider, 1984) suggest that the way in which organisations learn affects individuals' cognition and preferences, in particular in influencing individuals' future actions (Fiol and Lyles, 1985). Despite the fact that the distinctive emphases (behavioural and cognitive) of two major groups of researchers are evident, the research findings generated by these approaches are not necessarily contradictory. Rather, according to Miner and Menzias (1996), the two foci

(behavioural and cognitive) are equally vital to understand different aspects of organisational learning. The need to take into account both the behavioural and cognitive aspects is demonstrated in the later development of the organisational-learning literature, which integrates the two aspects and emphasises the dynamics and processes of learning (Huber, 1991).

According to Huber (1991), how an organisation learns can be conceptualised in terms of four sequential processes: knowledge acquisition, information distribution, information interpretation, and organisational memory. The first process -- knowledge acquisition -- refers to the organisational activities that are intended to acquire information or knowledge. As well as formal activities such as gathering customer surveys, research and development activities, and performance reviews, informal activities such as talking with others during coffee breaks are directed toward obtaining information or knowledge. The second process -- information distribution -- refers to the sharing and delivering of information or knowledge within an organisation, and acts as a determinant of both the occurrence and breadth of organisational learning. As a consequence, information distribution leads to more broadly-based organisational learning and various resources; hence, efforts to retrieve

information efforts are effective and are more likely to succeed, and individuals and organisations are more likely to be able to learn. The third process -- information interpretation -- refers to the process through which distributed information is given one or more commonly understood interpretations. Huber (1991) explains that more learning occurs when more and more varied interpretations have been developed, because such development changes the range of the organisation's potential behaviours, and this is congruent with the definition of learning. The fourth process -- organisational memory -- refers to the means by which knowledge is stored for future use. There are several variables that are likely to influence the ongoing effectiveness of organisational memory. These include: membership attrition, information distribution and the organisational interpretation of information, the norms and methods for storing information, and the methods for locating and retrieving stored information.

Despite the fact that many different types of learning are available to organisations, this does not necessarily mean that every organisation is capable of maximising its learning by using different learning approaches adequately. For instance, Nevis et al. (1995) argue that organisations appear to rely on relatively few approaches that fit

their particular cultures and have been adapted to their own specific needs. Over time, these approaches become institutionalised as the organisation's dominant mode or style of learning. The distinctive mode of learning, often reflected in an organisation's culture, could lead to the development of a specific set of learning values; these then influence the decision about how resources should be invested to develop an organisation's learning capability. Based on this argument, it seems that the way to differentiate various organisations' learning processes and styles lies in understanding the distinct learning values that form part of an organisation's culture.

Organisational-learning processes share many of the same characteristics as decision-making and communication processes. For instance, according to scholars such as Daft and Huber (1987) and Garvin (1993), the way in which an organisation learns, like the way in which an organisation communicates and make decisions, can be perceived as a process that is socially embedded and context-dependent. In other words, the organisational-learning process, like the decision-making and communication processes, consists of the social interaction of organisational members and the continuous defining and redefining of shared meanings. In addition to the characteristics of social embeddedness and context dependence, organisational

learning, like decision making and communication, represents an activity that is distributed throughout the organisation, unfolds over time and involves people in diverse departments and positions. However, based on the argument of Senge (1997), the collectiveness of organisational learning is not simply equal to the sum of individuals' learning. In other words, the potential that can be achieved by an organisation as a whole is greater than the aggregation of all individuals' learning within the organisation.

2.5.5 Forms of Developing Organisational Learning

The above discussions have provided useful accounts of the nature and scope of learning and the process of organisational learning. By following the context of organisational learning, this section seeks to identify different forms of organisational learning development.

2.5.5.1 Developing a Consensus

One way to achieve a consensus within the organisation, despite the variance in motivations and ideas, is described by Weick and Roberts (1993). They argue the need for distributed understanding between participants to enable and facilitate collective

activities. Similarly, collective sense making (Boyce, 1995) describes how organisational members collectively create a social reality that then becomes the organisational reality. These two notions both suggest the importance of collective consensus for the formation of understanding towards a desirable outcome. However, they both fail to take into account the issue of who influences whom within a power-distribution context.

Correspondingly, writers on collective learning describe the significance of learning as a source for improving innovation, efficiency and productivity through the acquisition and utilisation of knowledge, and the reflection of past experience (Arrow, 1962; Lave and Wenger, 1991; Levitt and March, 1988). According to Jones and Hendry (1994), this type of learning is also one of the vital forces during the transformation of organisations. Theorists of collective learning argue that learning as a whole or in a group triggers more benefits in terms of outcomes (Senge, 1997). However, the question of how to measure the actual benefits of collective learning is controversial (Huber, 1991; Jones and Hendry, 1994; Kolb, 1984). In order to foster the collectiveness of learning among organisational members, March (1991) proposes the concept of 'mutual learning' to explain how individuals learn from the collective

knowledge of an organisation and simultaneously modify that collective knowledge.

This explains how, through recognising common purpose and understanding, different stakeholders and organisational members can foster interrelations through mutual learning (March, 1991).

2.5.5.2 Learning from Experience

Experience is perhaps the principal source of organisational learning, and individuals' memories collectively contribute to the retention of lessons learned. The framework outlined by Levitt and March (1988) is an historical model based on learning from the experience of history. In order to take advantage of history, the ability to learn from experience must itself become an accepted routine within the organisation. Cohen and Levinthal (1990) suggest that the ability to learn and transfer knowledge is enhanced and improved by the acquisition of knowledge, and thus it is to some extent self-maintaining and self-developing. Learning occurs when people try a new experience, possibly through the cycle of trial, error and try again (Blackler, 1995). Once learnt, the skills are not confined to the area from which they originate; they may be transferred to other learning tasks, and hence the ability to undertake and perform the new task is improved.

2.5.5.3 Learning New Routines That Guide Behaviour

By viewing the organisation as a complex adaptive system (Cyert and March, 1963), we can see that organisations learn from the collective knowledge and behaviours of the individuals within them. The change process takes place at several levels (Levitt and March, 1988). The learning of new routines occurs when the existing routines do not fit the current needs of the firm. This can happen when the organisation understands that the new context of operation is not adequate for the new situation, and a new type of behaviour is needed. New routines are built through experiential learning (Cohen and Bacdayan, 1994). This process is important when the organisation experiences failure. When it begins to realise that failure is linked to its routines, the organisation begins to unlearn the ineffective routines (Bettis and Prahalad, 1995). According to Hedberg (1981, p.18), unlearning is a 'process through which learners discard knowledge.' Huber (1996) suggests several effects of organisational unlearning. For example, an organisation may be temporarily inactive in a context where unlearning has occurred, or it may search for a substitute for the unlearnt knowledge. Most importantly, unlearning opens up the opportunity for new learning to take place.

When much is learnt from previous experience and activities, this can be seen to consist of shared understandings within organisations that influence organisational behaviour; these understandings may be stored and later retrieved. According to Nelson and Winter (1982), the routines serve as the memory in which the organisation stores its best practice. This view raises the question of how the organisation can learn new sets of routines. In response to this question, there are two main views: one cognitive, the other structural. The cognitive view emphasises that learning occurs at an individual level (Huff, 1994). The structural view suggests that learning is an organisational phenomenon, based on the firm's routines (Levitt and March, 1988). Nonaka and Takeuchi (1995) combine these two views and suggest that knowledge creation begins within the individual and then proceeds through the socialisation and integration processes, so that eventually the knowledge comes to be part of the organisation. The routines are much more than a blueprint since they encompass not only *what* to do but *how* to do it; they are more than a recipe (Kogut and Zander, 1992) since they are social constructs embodying rules and procedures. In that sense, we can identify an organisation's learning through changes in its routines. This learning process reflects the sense-making process (Weick, 1995) through which an organisation's members construct a 'common reality' that influences the way in which

they seek to achieve an 'objective' rationality.

2.5.5.4 The Concepts of Single-Loop and Double-Loop Learning

The concepts of 'single-loop' and 'double-loop' learning were introduced by Argyris (1977) to differentiate the nature of learning in organisations. While single-loop learning keeps an organisation going, double-loop learning challenges and redefines the purposes of an organisation (Argyris, 1977). Argyris (1993) points out that learning takes place at more than one level. The first level, single-loop learning, is exemplified by the thermostat, which, when it detects a deviation from the preset temperature, will take corrective action. If the thermostat were able to question whether the preset temperature was appropriate for the circumstances, it would be involved in double-loop learning (Argyris and Schön, 1978; Fiol and Lyles, 1985). For Argyris and Schön (1978), single-loop learning is merely a self-reinforcing trap. They believe that only double-loop learning can provide real benefits to organisations, despite the fact that examples of double-loop learning are extremely rare.

In order to reach a higher level learning, Argyris (1977, 1993) stresses the need for double-loop learning in organisations, i.e. the underlying assumptions, norms and

objectives of the organisation must be questioned. Single-loop learning is fine for routine matters and when things are stable. However, more complex issues such as strategy and the conditions of rapid transformation as a result of change projects call for double-loop learning in an organisation. Argyris (1993) also draws a distinction between *espoused theories* -- people's stated beliefs and assumptions -- and *theories in use*, which result from shared assumptions through the process of socialisation. Double-loop learning requires individuals to be able to alter their theory-in-use and to become much more open, less defensive and more willing to listen. Taking further the ideas of Argyris and Schön (1978), Senge (1997) emphasises the importance of building a shared mental model amongst learners, and indicates that this helps to remove obstacles that block generative learning. Learning comes about by breaking through the cognitive boundaries and defensive routines that isolate people or ideas from each other, and then consolidating a new understanding with the use of learning forums and institutionalised learning mechanisms. Change is blocked unless all the major decision makers learn together, come to share beliefs and common goals, and are committed to take action. Therefore, transformation requires changes in systems and structures, the inclusion of organisational realignments and new performance-management systems.

2.6 CONCLUSION

Our analysis of the literatures from various research backgrounds has contributed to a deeper understanding of e-government organisational transformation. It has enabled us to identify key theoretical issues, and this has led to an identification of the major research questions to be explored in this thesis. However, it must be stressed that not all theoretical issues can be handled in a single study or are indeed researchable. Therefore, the emphasis in this chapter is on selecting researchable questions and sub-questions of broad conceptual significance.

Despite the fact that debates on e-government have flourished in recent years, many aspects remain surrounded by technical issues. It is increasingly recognised, however, that we need to take into account the social elements that underpin e-government transformation as a collective effort in the organisational context. In outlining the logic of opposition perspective on e-government transformation, this study aims to recognise the multi-levels of existence approach described earlier, and thereby show that the transformation efforts created by individuals and organisations can be observed not only at the individual but also at the group and organisational level. Critically, transformational activities referring to the group and organisational levels

cannot simply be perceived as the outcome of an aggregation of individuals. This recognition has led this thesis to emphasise the context that dominates at certain stages of the transformation process.

The contribution of this chapter is twofold. First, it presents the current direction of research in the area of e-government by encompassing various streams of literature. It identifies a shift by moving our understanding of e-government transformation away from a narrow focus on IT implementation; rather it sees the acceptance of IT implementation as the result of a socially constructed process of learning as an outcome of the interplay between the social and technical contexts in e-government transformation activities. The critique of the existing approaches leads to a logic of opposition perspective being adopted in this research. Secondly, from a review of the relevant literature, it is clear that the use of the logic of opposition perspective for understanding e-government transformation is an innovative approach. This highlights the need for more empirical research to identify the multiple issues and processes of e-government transformation. Figure 2.2 summarises the key research questions and their relationship to core ideas drawn from the literature review.

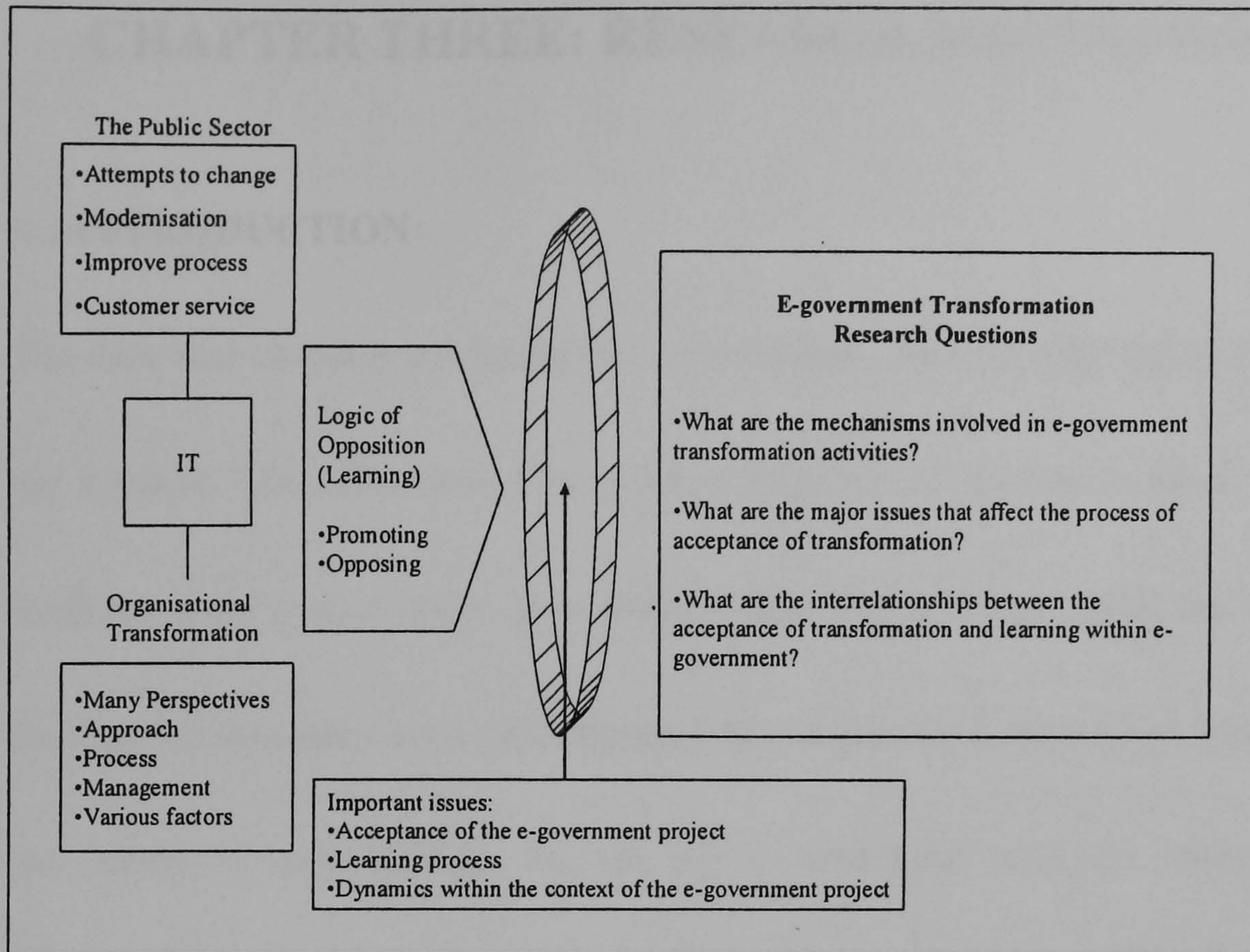


Figure 2.2 Research questions emerging from the literature review

The following chapter outlines various issues related to how the proposed research questions can be answered on the basis of the empirical evidence.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 INTRODUCTION

The first two chapters presented the research aims and the theoretical foundation of the research. The objective of the present chapter is to explain in detail the research methods used in this study. It is divided into five sections. After the introduction, Section 3.2 discusses some philosophical foundations and theoretical issues related to the nature of methodology. Section 3.3 is concerned with the research strategy, explaining the rationale for the case study. Section 3.4 discusses the data-collection process based on the case study protocol, including the selection of the case organisation and the use of specific data-collection procedures. Section 3.5 outlines the techniques and procedures employed to analyse the case. Section 3.6 describes the writing process for the thesis. Section 3.7 addresses the problems and limitations encountered during the research. The methodological contributions of the thesis are described in Section 3.8.

The Supreme Court Registry Office in Korea has been selected as a case study of a distinctive public organisation whose purpose is to transform itself through engaging with IT projects for competitive advantage. The general approach of this study is

interpretative in character, with qualitative research methods being employed to explore and explain the central research questions.

3.2 PHILOSOPHICAL FOUNDATIONS

This section concentrates on philosophical and methodological issues that have been the subject of long-lasting debate in the field of qualitative research. The first part discusses the general issues relating to the philosophical foundations of the methodology; the second part relates to debates on qualitative and quantitative research; the third part describes the rationale for adopting a case study method.

3.2.1 Philosophical Debates

Philosophical debates in social science have their roots in contrasting views of the nature of social reality, and of how knowledge of that reality can be obtained (Alvesson and Sköldberg, 2000; Blaikie, 1993). Differences in philosophical stance can be traced back to fundamental ontological and epistemological concerns. According to Blaikie (1993), ontology represents the science or study of being, and epistemology refers to the theory or science of the method or grounds of knowledge. Differences in perceiving how social reality is constructed and how such reality can be

understood not only differentiate research in terms of selecting appropriate methods but also in terms of the underlying logic of analysis. Based on the a consideration of these underlying ontological and epistemological concerns, research in social science is often divided broadly into two main categories, namely positivism and interpretivism (Easterby-Smith, et al., 1991; Klein and Myers, 1999; Robson, 1993). In addition, there have been numerous attempts in the social and behavioural sciences to make and combine these two major paradigmatic positions through pragmatism (Tashakkori and Teddlie, 1998). Instead of relying on one philosophical stance and one methodology, pragmatism employs mixed methods to connote several different ways of conducting a study. A major principle of pragmatism, according to Howe (1988), is the idea that quantitative and qualitative methods are compatible. Thus, because the paradigm says that these methods are compatible, researchers can make use of both research methods for their research. Similar points are made by Brewer and Hunter (1989, p. 74): 'rather than being wedded to a particular theoretical style and the most compatible method, one might instead combine methods that would encourage or even require integration of different theoretical perspectives to interpret the data.' The following sections concentrate on the differences between positivism and interpretivism as approaches in social science research.

3.2.1.1 Positivism

Positivism signifies adherence to a view of the nature of science, and to a scientific approach to the study of social life on the empiricist model. From the ontological viewpoint, positivism explains human behaviour in terms of cause and effect, the prediction and explanation of the behaviour of phenomena, and the pursuit of objectivity, which is defined as the researcher's 'detachment' from the topic under investigation.

This paradigm regards the world as external and objective, and the observer as independent. In this paradigm, a researcher often focuses on facts, looks for causality and fundamental laws. Emphasis is placed upon trying to reduce phenomena to the simplest elements by formulating hypotheses and then testing them. This paradigm mainly employs methods, such as experiments in controlled environments or datasets generated from surveys, to study the relationship between dependent and independent variables that represent the population from a large sample.

Criticisms of positivism commonly focus on the inappropriateness of applying natural scientific methods to the human or social sciences. For example, Klein and Myers

(1999) argue that consciousness, cultural norms, symbolic meaning, and intention are distinctive human attributes that cannot be adequately addressed and anticipated by positivist methodology because social reality is not necessarily based on universal laws that can be generalised. Chia (1997) stresses that positivism is unable to justify the highly metaphysical character of its own assertions, for example the claim that empirical verification provides the form of knowledge based upon a metaphysical assumption that is itself not empirically verifiable. Bhaskar (1989) also points out that positivism is a theory of the nature, limits and unity of a particular form of knowledge. It is not 'a theory of its possibility. Knowledge is, for positivism, quite unproblematic -- a given fact, it never inquires for a moment into its conditions or conceives that it might not be' (p. 64). Arguing on methodological grounds, Bryman (1989) states that the connection between the measures developed by social scientists and the concepts they are supposed to be revealing is assumed rather than real.

3.2.1.2 Interpretivism

Interpretivism understands the social world as a socially constructed and subjective substance, where science is driven by human interests, and the observer is also a part of what has been observed (Hochschild, 1983). This paradigm focuses on meanings,

and aims to understand what is happening in the social setting by looking at the contextual dynamics of each situation (Pettigrew, 1992) and developing theoretical insights from the data (Orlikowski and Yates, 1994). The strengths of the interpretive paradigm are reflected in its uniqueness in seeking to discover the richness and depth of the studied phenomena (Bryman and Burgess, 1999), and the ability to anticipate social change processes over time (Pettigrew, 1990). Moreover, the interpretive paradigm is useful for understanding meanings created and recreated by social actors (Berger and Luckmann, 1967), for incorporating new phenomenon as they emerge (Mohrman and Lawler, 1984), and for contributing to the evolution of new theories (Eisenhardt, 1989; Strauss and Corbin, 1990).

The interpretive paradigm encompasses various approaches, including symbolic interactionism, phenomenology, ethnomethodology, hermeneutics and structuralism, based on different interpretations of the social reality. Symbolic interactionism, based on the tradition of George Herbert Mead and Herbert Blumer, focuses upon the ways in which meanings emerge through interaction (Glaser and Strauss, 1967). Its prime concern is to analyse the meaning of everyday life via close observational work and intimate familiarity, and from these to develop an understanding of the underlying

forms of human interaction (see, for example, Denzin, 1989). According to Glaser and Strauss (1967), symbolic interactionism generally interprets meaning on a common-sense level. Phenomenology is concerned with the question of how individuals make sense of the world around them, and how in particular the philosopher should eliminate preconceptions in his or her grasp of that world (Husserl, 1964; Schutz, 1972). It involves the systematic investigation of consciousness and assumes that our experience of the world, including everything from our perception of objects upwards, is constructed by our consciousness (Boland, 1985; Easterby Smith, et al., 1991). Ethnomethodology, based on the study of Garfinkel (1967), has its roots in phenomenology and focuses on conventional rules. It focuses on exploring how the living world emerges as a result of microprocesses in the form of social interaction (Giddens, 1984). Such microprocesses are generated from the common-sense knowledge of the participants (Giddens, 1984; Goldthorpe, 1973). Ethnomethodology does not keep any sort of 'official manual' with instructions for research procedures, but has developed different 'local research cultures' using a variety of methodological devices (Alvesson and Skoldberg, 2000; Calás and Smircich, 1992). Hermeneutics emphasises the content of interpretation as well as the form of what is being interpreted (Gadamer, 1960,1992). According to Klein and Myers (1999), the

researcher needs to put himself/herself in the position of the author of the text to look at the meaning of what is produced in relation to its context. After the discussion of different philosophical traditions, the following section will outline the differences between qualitative and quantitative methods.

3.2.2 Qualitative and Quantitative Methods

In most social science research, the philosophical foundations of quantitative and qualitative methodology can be considered as respectively nomothetic and ideographic in nature (Burrell and Morgan, 1979; Luthans and Davis, 1982). It has been suggested by Easterby-Smith et al. (1991) that the choice of methodology is influenced by the researcher's own preferences, the nature of the research question, and the pragmatic issue of access. The authors suggest that research can generally be divided into two categories: qualitative and quantitative. Associated with such a distinction, positivism makes use of the concepts of structure, facts and quantitative hypothesis testing, while 'interpretative social science views reality as a social construction, being primarily concerned with meanings and therefore qualitative hypothesis generation' (Bartlett and Payne, 1997 p.173). Silverman (2001) argues that the differentiation between interpretivism/positivism and

qualitativeness/quantitativeness has been conceptualised as follows. Quantitative research may be seen as an expression of positivism, while qualitative studies are often associated with the expression of interpretative social science. Some authors, such as Dabbs (1982), Bryman (1989), reject the distinction between quantitative and qualitative approaches, and the associations of qualitative research as interpretivism and quantitative research as positivism. The present study agrees with Dabbs (1982) and Bryman (1989) that we must reject the interpretivism/positivism and qualitative/quantitative associations. However, the present study holds that the distinction between qualitative and quantitative methods is still vital. The following discussion will provide a more detailed explanation of the characteristics of quantitative and qualitative research.

3.2.2.1 Quantitative Research

Quantitative research, based on a primary concern with objectivity, seeks to achieve explanations and predications that are generalisable to other circumstances and settings (Maxim, 1999). This type of research emphasises the survey approach, which refers to a group of methods used to obtain data from a proportion of the population. The data collected through methods such as mail questionnaires and telephone

interviews are then analysed statistically to generate results that are then compared with the hypothesis or hypotheses underpinning the research. Attewell and Rule (1991) stress that surveys can accurately document the norm, identify extreme outcomes, and delineate associations between variables in a sample. Jick (1979) suggests that survey research may also contribute to greater confidence in the generalisability of the results. Punch (1998) notes that 'the quantitative approach conceptualises reality in terms of variables and relationship between them. It rests on measurement, and therefore prestructures data, and usually research questions, conceptual frameworks and design as well' (p.242). The quantitative approach is also characterised as consisting of well-established methods for data analysis that are generally more structured and have fewer variables than qualitative studies. Thus, it can be more easily replicated. The quantitative approach brings greater objectivity to the research in the sense that the results of the analysis do not reflect the researcher's own orientation and assumptions. Thus, it enables objective comparisons to be made. Moreover, the measurements involved in quantitative research make it possible to describe overall situations or phenomena in a systematic and comparable way (Punch, 1998).

However, the data collected by a survey approach and analysed using statistical techniques provide results that can only explain one set of predefined relationships between various variables at a certain time. Results generated by such methods yield little information on the underlying meaning of the data. As Gable (1994) observes, ‘the stripping of context buys objectivity and testability at the cost of a deeper understanding of what actually is occurring’ (p. 114).

3.2.2.2 Qualitative Research

By contrast, qualitative research methods are chosen because they enable researchers to obtain rich and holistic insights that are vital for reconstructing real-life experience.

Bryman and Burgess (1999) define qualitative research as:

A strategy of social research which deploys several methods (often in conjunction in specific studies) and displays a preference for: the interpretation of social phenomena from the point of view of the meanings employed by the people being studied; the deployment of natural rather than artificial settings for the collection of data; and generating rather than testing theory. (p. x).

The qualitative approach places more emphasis than the quantitative approach on

context, process and real-life experience (Pettigrew, 1992). By adopting such a method, the researcher's aim is to get as close as possible to what is being studied in order to achieve an in-depth and holistic understanding. In particular, it is crucial to 'go into the field' to comprehend the research setting where the complexity of social life is constructed and reconstructed (Van Maanen, 1979). The qualitative approach has the advantage that it reveals the subjective meanings attached by actors to events and situations. It is also more flexible than the quantitative approach because it does not rely on researcher-imposed constructs (Punch, 1998).

However, there are three common criticisms of the qualitative approach: the difficulties in generalising the population from few selected cases, the risk of improper interpretation, and the lack of repeatability (Gable, 1994; Kerlinger, 1986).

Also, data collection can take up a considerable amount of time and resources, and the analysis and interpretation of the data may be very difficult (Yin, 1994). This thesis does not seek to test or measure the relationship between the chosen phenomena.

Rather, it aims to understand the process of organisational transformation made possible by new IT, and identifies the knowledge required by the learning process, which occurs at the individual, group and organisational levels. Qualitative methods,

rather than quantitative, are clearly more appropriate given this study's research objectives. Nevertheless, the author is aware of the criticisms associated with this method. A more detailed explanation of how these criticisms are addressed is given Section 3.3.3. The following discussion will focus on different orientations, including theory building versus theory testing, as a means of formulating an analytical strategy.

3.2.3 Theory Building versus Theory Testing

Two contrasting orientations observed in the methodological literature are theory building and theory testing. Many authors, including Bryman and Burgess (1999), relate the difference between these orientations to that between quantitative and qualitative research methods. Others, such as Easterby-Smith et al. (1991) and Phillips and Pugh (1987), reject the direct associations between theory building and qualitative research, and theory testing and quantitative research, and argue that it is more appropriate to ask whether data or theory should come first. For example, if the orientation of research is to test an existing theory, the theory must come before the data collection and analysis. In other words, a theoretical framework must be employed to guide the data-collection and analysis process. Findings generated from the data are then compared with the theoretical framework. In contrast, the core belief

of theory building lies in the notion that existing theories are not able to explain the studied phenomenon. Hence, it is necessary to observe the phenomenon from the perspectives of the organisational actors, in particular to conceptualise the meanings constructed by the actors through social interaction (Glaser and Strauss, 1967). According to Eisenhardt (1989), interpretive case studies can contribute towards theory building. Hence, a researcher who aims to generate a theory needs to collect the data, and then follow the logic of induction to develop the theory.

The author of the present study believes that the above distinctions can often oversimplify the function that research aims to serve. To avoid this problem, a more comprehensive distinction proposed by Snow and Thomas (1994) is outlined below. Table 3.1 presents six scenarios linking the two basic orientations (theory building and theory testing) to three distinct purposes of research, namely description, explanation and prediction. The six resulting combinations highlight the major differences between qualitative and quantitative research.

	Description	Explanation	Prediction
Theory Building	Key question is 'what'. Identify key constructs and variables. Studies are usually based on observation and/or interviewing.	Key questions are 'how' and 'why'. Establish relationships among constructs and provide theoretical rationale for observed relationships. Studies usually use observation and/or interviews.	Key questions are 'who', 'where' and 'when'. Examine boundary conditions of a theory. Result may be a middle-range theory. Studies use observation, questionnaire surveys, and interviewing.
Theory Testing	Focus is on developing and validating measures of key constructs. Studies usually use questionnaire, surveys and/or interviews.	Focus is on documenting relationships among variables through hypothesis testing. Large samples are frequently used with questionnaire surveys or field simulations. Because causal links are examined or implied, researchers must be wary of common-method bias.	Focus is on testing competing theories of the same phenomenon through crucial experiments. Because of the dearth of this type of study, no pattern in field method usage can be discerned.

Table 3.1 Theory building and theory testing

Source: Snow and Thomas (1994, p.466)

Despite the fact that these two orientations are widely recognised, it is also vital to recognise that some research does not fit into either of the two categories, in particular research seeking to modify existing theories by applying the theories to different research settings or contexts (see, for example, Orlikowski, 2000; Robey et al., 2000). Considering the nature of the research questions we have proposed, it is best to classify this study as oriented towards theory modification. Moreover, the three different purposes proposed by Snow and Thomas (1994) is still applicable to this study. In particular, the purposes of description and explanation echo this researcher's intention to conceptualise the process of transformation intertwined with the introduction of new technology (the Internet). All the above discussions highlight methodological issues that are applicable to virtually all research areas of social science. The following section pinpoints specific concerns related to IS research.

3.2.4 Approaches to Information Systems Research

The diversity of IS research built on different philosophical traditions is evident. Instead of arguing that one tradition is superior to another, the discussion above indicates that different traditions are useful for different research purposes. For example, Landry and Banville (1992, p.78) suggest that 'no single method could ever

capture all the richness and complexity of organisational reality, and that a diversity of methods, theories and philosophies is required.' Positivism has held a dominant position in the United States. However, there has been an increasing recognition of the importance of social issues related to IS (Walsham, 1995). In recent years, there has been a growing interest in interpretative methods and their applications to IS research (see, for example, Klein and Myers, 1999; Orlikowski and Baroudi, 1991). The interpretative approach is considered applicable in real-life situations when complexity prevents replicability and statistical significance testing in the positivistic sense (Myers, 1997). This has been recognised by IS researchers who acknowledge that an information system is not just an electronic device but a social system involving human communication and drawing upon various disciplines (Mingers and Stowell, 1997). This explains why a researcher into IS needs to involve human interpretations and meanings associated with IS.

According to Walsham (1993), an interpretive approach to IS research should emphasise context and processes. This is for two reasons. First, IS are embedded in an organisational context. Due to this social embeddedness, researchers should stress the multi-level identification of the various systems and structures. In addition to contexts,

which can be identified according to their organisational structure, more subtle contexts for an information system are the various social structures that are present in the minds of the organisational members involved in the systems. Secondly, the structuration of IS cannot be understood by looking at a snapshot. Rather, one must take into account the whole structuration process that emerges over time. Furthermore, some of the principles proposed by Klein and Myers (1999) are important to understanding why interpretive field studies can be useful in IS research. For example, the principle of contextualisation emphasises the importance of the organisational contexts in which IS are implemented, enacted and appropriated. Moreover, the principle of interaction between researchers and subjects is vital to understanding and conceptualising the meanings generated from the interaction between social actors and systems. After explaining the philosophical foundations of this research, the following section will outline the research strategy through which this thesis was conducted.

3.3 RESEARCH STRATEGY

This section explains the research strategy employed to collect empirical evidence to answer the proposed research questions. Based on the tradition of interpretive research and the nature of qualitative methods, a case study is considered to be the most

appropriate strategy for this study.

The case study is defined as a research strategy, which focuses on understanding the dynamics within single settings (Eisenhardt, 1989). According to Yin (1994), a case study refers to 'an empirical enquiry that investigates a phenomenon within its real life context, when the boundaries between phenomenon and context are not clearly evident, and in which multiple sources of evidence are used' (p.13). According to this argument, case studies are appropriate where the objective is to study contemporary events, and where it is not necessary to control behavioural events or variables. Moreover, case studies are appropriate to answer 'how' or 'why' questions.

According to Yin (1994), case studies can involve either single or multiple cases, and numerous levels of analysis. The single case study centres on the selected organisation at a single, global level, and is thus 'holistic'. A single case study is often selected and conducted according to either its criticality or uniqueness (Yin, 1994). In discussing the use of multiple cases, authors describe how the results from multiple cases are more compelling, and the overall study is therefore regarded as being more robust. By comparing two or more cases, the researcher is in a better position to identify

theoretical differences and similarities that can yield useful implications for future research and practice (Eisenhardt, 1989; Yin, 1994).

However, some difficulties related to multiple case studies are evident. First, it is not feasible to conduct multiple cases where the focus is on rare cases. Secondly, it requires extensive resources and time. Thirdly, as Miles and Huberman (1994) note, there is a danger that multiple cases will be analysed at high levels of inference and may aggregate out the lower levels of details and insights that are vital in order to understand a case individually. Hence, as far as this study is concerned, conducting research based on a single case study seemed to be the most feasible option. In particular, the purpose of this research is to investigate the process of organisational transformation in a specific context. Single cases enable the researcher to explore insightful stories in order to generate a comprehensive picture that outlines the broad and deep account of the case.

Given this research's focus on the e-government transformation process, a case study is essential for understanding social actors' collective actions and meanings by taking into account the organisational contexts in which those actions and meanings are

shaped and embedded (Walsham, 1995). The importance of using case studies, in particular through creative interactions with the researched, to explore meanings and actions is echoed by Klein and Myers (1999). As they noted 'participants are interpreters as they alter their horizons by the appropriation of concepts used by IS researchers, consultants, vendors, and other parties interacting with them, and they are analysts in so far as their actions are altered by their changed horizons. This effect is lessened if the researcher is not interacting with the participants, i.e., relies solely on historical secondary data or a concealed one way window' (p.74). The following discussion will elaborate the strengths and limitations of case studies.

3.3.1 The Strengths of Case Studies

The strengths of case studies, commonly discussed in the current literature (see, for example, Black and Champion, 1976; Robson, 1993; Yin, 1994) are threefold. First, case studies enable the capturing of reality and detail by studying a phenomenon in its natural context. Secondly, according to Orlikowski (1993), they allow the researcher to investigate a broader organisational context by examining different aspects of a phenomenon that may not previously have been conceptualised. In particular, case study research is useful for understanding the interactions between information

technology-related innovations and the organisational context (Benbasat et al. (1987).

Therefore, the ability to take into account the complexity of the research setting makes case studies invaluable in developing and refining concepts for further studies, such as research which aims to test the concepts in a quantitative manner (Eisenhardt, 1989).

Thirdly, the case study, with its exploratory characteristics, permits researchers to investigate social phenomena that are verifiable by quantitative research methods (Gummesson, 1991; Lee, 1989).

The strengths outlined above are exceptionally crucial for IS research (see, for example, Cash et al., 1989; Galliers, 1992; Galliers and Land, 1987). As Orlikowski (1996b) argue, they allow the researcher to study IS in a natural setting where social structures are created through the use of IS, and the meaning of IS is shaped through the change of social structures. Benbasat et al. (1987) stress that case studies allow researchers to learn about state-of-the-art IS practice, and generates theories from that practice. Furthermore, the case study method allows the researcher to appreciate the nature and complexity of processes that unfold over time, as reflected in the need for longitudinal studies (Orlikowski, 1996b; Robey and Boudreau, 1999). Finally, Benbasat et al. (1987) state that valuable new insights can be generated to help our

understanding of challenges emerging from the rapidly changing IS field. Despite these numerous strengths, the limitations of case studies need to be taken into account, and we shall do so in Section 3.3.3.

3.3.2 The Use of a Single Case Study

The empirical part of this research project consists of a single case study that investigates the influential factors involved in organisational transformation. One of the choices to be made was whether to explore one organisation or many, to study one organisation in detail or to make comparisons. One of the objectives of this research is to explore the possible value of a conceptual framework for studying organisational transformation. The way in which this framework might be used to explore the process of transformation is an integral part of the research design, and thus the first such study undertaken needs to look in some depth at both the framework and one particular organisation. Weighting the potential contributions of adding further cases to the rich data obtained from a single case, we decided to focus on a single case for two main reasons: the complexity involved in understanding the context in which the transformation occurs, and the time and resources available would not allow an in-depth study of more than one organisation at this stage.

The usefulness of a single case study is highlighted by Dyer and Wilkins (1991), who argue that the essence of case study research is the notion that the careful study of a single case leads researchers to see new theoretical relationships and question old ones. They argue that a single case study can give more attention and visibility to the distinctive and typical characteristics of a particular context, and can reveal significant interrelations and the deep structure of social behaviour. Moreover, according to Yin (1993), the single case study design is justifiable in this particular situation because the case serves a revelatory purpose. On the other hand, Eisenhardt (1989) supports the use of several case studies and suggests that the researcher stop adding cases when theoretical saturation is reached. This theoretical saturation has a pragmatic consideration. In the tension between the richness of a single case versus the insight possible from several cases, Eisenhardt (1989) advises the researcher to decide in favour of the contribution of the incremental improvement of the theory by adding more cases.

The contribution of adding one or more cases is marginal to the effort expended in conducting it. The type of information that is sought requires a great deal of detail and a great deal of time to collect. Thus, deeper understanding is needed for a series of

complex processes, and in the present research it was felt that greater insight would be gained from studying just one organisation extensively than trying to study a number of organisations more generally. Moreover, this research aims to develop an analytical concept, and not to achieve statistical rigour (Yin, 1994).

The use of a single case study as a basis for drawing inferences about a particular area of study stems from an interpretative epistemological stance (Smith, 1990; Orlikowski and Baroudi, 1991; Walsham and Waema, 1994). These researchers argue that the value of one or more cases depends on the plausibility and cogency of the logical reasoning used in describing the results. As far as this research is concerned, according to Walsham and Waema (1994, p.151), an interpretative analysis is ‘an induction, guided and couched within a theoretical framework, from the concrete case situation to the social totality beyond the individual case.’ Thus the theoretical contribution of adding cases is not high. The inductive nature of this research leads our efforts towards a rich case focus rather than the deductive paradigm that advocates a larger sample.

3.3.3 The Limitations and Criticisms of Case Studies

The limitations and criticisms of case studies centre on four main issues: validity, reliability, generalisability and triangulation. Further details of each limitation are provided below, and we also explain how this study addresses these limitations.

3.3.3.1. Validity and Reliability

Yin (1994) considers the criteria for the evaluation of research to be vitally important, and suggests appropriate ways in which case study research can be developed to enhance its ability to meet these criteria. This should involve and address the problems of construct validity, external and internal validity, and reliability (Yin, 1994).

Validity refers to the property of being genuine -- a true reflection of attitudes, behaviour or characteristics. A measure such as a set of questions is considered valid if it is thought to measure the concept or property that it claims to measure. In a qualitative research study, validity is not measured by a statistical figure but is achieved from different interviewees by using multiple data-collection methods. Table 3.2, taken from Yin (1994), provides a useful set of guidelines for ensuring validity and reliability.

Reliability refers to whether or not similar observations could be made by different researchers on different occasions. It is concerned with the question of whether the results of a study are repeatable. Reliability embraces two principal forms of repetition: temporal reliability and comparative reliability. The former refers to whether the same result is obtained when the measurement is repeated at a later time. The latter refers to whether the same result is obtained when two different forms of a test are used, when different researchers apply the same test, or when the same test is applied to two different samples taken from the same population.

In qualitative research, this can be achieved through documentation of the procedures, operationalising steps, and cross-checking the data and interview transcripts.

Tests	Case study tactic	Phase of research in which tactic occurs
Construct validity	<ul style="list-style-type: none"> - use multiple sources of evidence - establish chain of evidence - have case study report 	Data collection Data collection Composition
Internal validity	<ul style="list-style-type: none"> - do pattern-matching - do explanation-building - do time-series analysis 	Data analysis Data analysis Data analysis
External validity	- use replication logic in multiple case studies	Research design

Reliability	- use case study protocol	Data collection
	- develop case study database	Data collection

Table 3.2 Case study tactics for four design tests

Source: Yin (1994, p. 33)

3.3.3.2 Generalisability

Generalisability concerns the external validity of research findings and whether the data applied to one setting of ideas can also apply in other settings. Qualitative case studies are often dependent on context and time. It is difficult to generalise from one analysis to another (Bryman and Burgess, 1999; Tashakkori and Teddlie, 1998). Dyer and Wilkins (1991) condemn the idea of trying to overcome this problem by embracing multiple cases as a basis for generalisability. They state that the focus on building and testing general constructs in multiple cases can harm the visibility of the interrelations with the context of a particular setting. Multiple case studies are not intended as a statistically valid sample of a population, but rather they are seen as a basis for replications. The case study method employs 'analytical generalisability', which depends on the inductive inference derived from cases (Mitchell, 1983, p .207).

The investigation of the research questions was conducted in a single organisation case study employing interview methods. Unlike the situation in a quantitative case

study, the generalisability of a qualitative study is not determined by random sampling and statistical inference, but is derived by gaining an in-depth understanding of the chosen organisation. In this research, the direct and indirect impact of e-government transformation was investigated in relation to transformation activities in different stages, as will be illustrated in the next chapter. Although the results enabled the researcher to identify various interrelationships between the acceptance of transformation and learning within e-government over six stages, these results might be due not only to the successful implementation of technology but also to other factors. That is, the organisation may be distinguished by other differences, for example the behaviour and interactions of organisational elements within a specific context in one particular organisation, as well as their collected efforts in relation to organisational transformation. Thus, the results of this research should be viewed with some caution. It should be noted that this research attempts to conceptualise a transformational phenomenon and relevant social relations during the transformation, rather than offering the simple description of immediate appearances.

In relation to the use of the model of process innovation diffusion (Cooper and Zmud, 1990) to guide the research, this study stresses the usefulness of employing a scheme

of detailed stages to investigate the e-government transformation. Rather than focusing only on the technology implementation at the beginning of project, this model helps the researcher to think beyond implementation to the acceptance, routinisation and infusion stages. Thus it is likely that the use of this model in practice could be useful in project planning as a means of anticipating the possible outcome.

3.3.3.3 Triangulation

According to Denzin (1978), triangulation is defined as an approach that uses multiple observers, theoretical perspectives, sources of data, and methodologies to enhance the validity and reliability of a case study. In other words, triangulation entails using more than one method or source of data in the study of social phenomena to ensure accuracy and alternative explanations.

In qualitative research, triangulation may be performed by checking observations with interview questions to determine whether there might have been any misunderstandings. In particular, triangulation in case study research involves the use of multiple data- collection methods to determine the reliability of data (Bryman, 1989; Yin, 994). Furthermore, multiple sources of evidence in case studies allow an

investigator to address a broader range of historical, attitudinal and behavioural issues.

Triangulation can operate within and across research strategies. Taking this view, Miles and Huberman (1994) stress that contradictory checking provides a rich source of creativity for researchers. Deacon et al. (1998) describe how triangulation is also being used to refer to a process of cross-checking findings deriving from both quantitative and qualitative research. However, Payne (1997) states those existing, contradictory results from various data cannot resolve a problem that has already been encountered.

Denzin (1978) identifies four types of triangulation. First, data triangulation refers to the use of various data sources or to data collected over various time scales. Secondly, investigator triangulation implies the use of several researchers or evaluators to collect data on the same situation, after which results are compared. Thirdly, theory triangulation involves borrowing models and multiple perspectives from one discipline and using them to interpret situations in another discipline. Finally, methodological triangulation engages multiple methods to study a single problem or programme. In other words, both quantitative and qualitative approaches are

employed.

3.4 THE DATA-COLLECTION PROCESS: FIELDWORK

After explaining the various methodological concerns that have shaped the foundation of this research, this section describes the process by which empirical data were collected. Drawing on the current methodological literature, especially the work of Eisenhardt (1989), Miles and Huberman (1994), Stake (1995) and Yin (1994), a number of key issues emerge. This section considers the case study protocol (Yin, 1994), selecting and gaining access to case material, and collecting data from the field.

3.4.1 The Case Study Protocol

Yin (1994) defines the case study protocol as 'a major tactic in increasing the reliability of case study research [that] is intended to guide the investigator in carrying out the case study' (p. 63). A case study protocol contains an overview, field procedures, research questions and a guide for the case study report. This serves as a guideline that facilitates and reminds the researcher when he/she is in the field (Stake, 1995; Yin, 1994). The importance of the protocol is twofold. First, it acts as a reminder to the researcher of the case study; secondly, it helps to overcome and

anticipate problems by careful foresight.

One of the components of the case study protocol is related to the unit of analysis. A unit of analysis is a critical factor in any case study. According to Yin (1994), a unit of analysis can be a system of action, an individual or group of individuals. In this research, the unit of analysis is the 'IT transformational project' implemented by the case organisation. The rationale underlying the decision to choose the IT transformational project as the unit of analysis is twofold. First, the nature of the proposed research questions demands a holistic understanding of the transformation that can only be achieved by examining the initiative as a whole. Secondly, the adoption of IT projects as the unit of analysis is commonly endorsed in the IS literature (see, for example, Orlikowski, 1993).

This research employs a protocol suggested by Yin (1994), with a focus on enhancing the validity of data through further available methods such as non-participant observation, semi-structured open-ended interviews, diaries, and company and official documentation (Burgess, 1981; Miller et al. 1997; Silverman 1998). The following section will describe the researcher's use of the case study protocol in detail.

3.4.2 Case Selection

During the early phase of this research, in the beginning of the data collection procedure, the research design suggested a selection of three cases representing public, private and joint public-private organisations, all of which had initiated large scale IT-related change projects. The author carried out three cases studies (i.e. a Bank, an Internet Company and a public sector organisation) and these were selected based on the criteria of similar scale, project duration and level of technology complexity. The rationale behind having organisations in three different sectors was as follows. The service industries, throughout different sectors, tend to emphasise serving customers effectively by using information communication technologies, as well as by improving internal processes. Despite the fact that basic goals seem to be shared by different sectors, the importance of articulating similarities and differences across all sectors is evident. On the one hand, the selected organisations characterise three different sectoral contexts where same technologies are implemented. On the other hand, evidence collected from the three sectors helps to identify the similarities and differences in their transformational process. After more than three years of data collection in the Internet company and two in the bank, the researcher has yielded a very significant amount of data. All the collected data were analysed individually, and

a case report was written for each case. However, when the researcher proceeded to the second stage of analysis, cross-case comparison, it was clear that the amount of background information, themes and concepts is far from being manageable.

However, after careful consideration and evaluating the strengths and weakness of all cases, the author decided to make a decision to focus on one single case so that the depth of discussion would not be compromised by the level of breadth required to cover all cases. Given that each case is rich in its own right, the selection was not easy.

The final decision to select the SCRO case was supported by the outstanding insights and interesting stories collected from this organisation in order to take a single case study approach for the following reasons. First, subsequent literature reviews pointed to the prevailing widespread academic as well as practical interests in e-government transformation. Second, in order to fulfil the aim of longitudinal study, the author had to consider implications such as time and resources that the author could extend conducting further follow up interviews. With these reasons, single case approach was taken in the specific context of public sector organisation transformation.

With the research objectives in mind, the selection of the case site in public sector was

based on the following three criteria. First, the selection of sites must primarily emphasise theoretical relevance in relation to the chosen research phenomenon (Eisenhardt, 1989; Orlikowski, 1993). Following this principle, the selected organisation must have implemented transformational IT projects. In addition to that, the aim of the research is to generate a comparative longitudinal account. Hence, the duration of a transformational IT project was considered as one of the most important dimensions. Specifically, the case selected had transformational IT projects spanning at least five years. Secondly, the selected organisation should be in the public sector since the aim of the research is to investigate e-government. Thirdly, the selected organisation should ideally emphasise not just an effective public service for citizens using information communication technologies, but also improved internal processes. Fourthly, the increasing emphasis in Korea on the use of technology in government for enhancing competitiveness, and the use of the Internet to leverage transformation is evident (*Business Korea*, 2000; Kim, 1996; Lee, J.W.,2000; Lee, H.J., 2000). The lessons learnt from Korea can be exceptionally useful for other organisations in different countries.

The Supreme Court Registry Office (SCRO) in Korea was selected as a public

organisation that has undertaken a process of e-government transformation. The SCRO, unlike many other public organisations, is able to demonstrate important tangible benefits from the transformation, including dramatic improvements in internal work process and citizens' public service. Moreover, the pioneering efforts of the SCRO transformation and the diversity of stakeholders involved at many levels underline the crucial role played by organisational factors in securing these benefits over and above the role of IT.

3.4.3 Gaining Access

The process of gaining access to the site began in September 1997. With the research objectives in mind, the first step was to identify public organisations for possible research. Organisations were identified by reviewing newspapers, databases and the current literature. Consequently, all potential public organisations were narrowed down to two possible organisations within the public sector with distinctive characteristics (i.e. implemented transformational IT projects, the increasing use of technology, and a public service mission). In addition, both case sites were related by providing the same public service from different locations, yet differed in size and levels of organisational structure. Introductory contact letters were sent out to the

organisations, including three to the SCRO itself, two to the regional public organisation, and three to the government department.

Problems were encountered in gaining an access in 1997. In the SCRO most people were helpful; however, contacting core personnel who were engaged in transformational IT projects was a major challenge. In particular, most projects were outsourced to private IT consultancy firms. To trace the personnel from those IT consultancy firms created another layer of difficulties requiring more phone calls and e-mails. The response letters from the regional public organisation stated that the organisation was reluctant to get involved in the research project because of the complexity and time involved in obtaining permission and reporting such research to the superior levels of the organisation. Moreover, due to the fact that the researcher contacted all organisations from England, time differences between England and Korea made the access to this organisation more difficult. It was not possible to obtain prompt responses.

Eventually, all problems and difficulties encountered were resolved when the researcher was able to make an approach to the head of project management in the

consulting company who was in charge of the transformational project for the SCRO. By changing the approach strategy, major obstacles that had inhibited the researchers from gaining access were eased. Obstacles to finding the right personnel within the SCRO were solved by using personal names. In addition, since this particular SCRO project was interlinked with sub-projects with the regional public organisations, acting as the head of the big project, the decision was made to start the research by following the main project and considering the regional sub-project later.

When the selection of the organisation was finally decided and confirmed, the fieldwork was arranged, and further preparations based on the case study protocol (Yin, 1994) were made. In particular, more background information about the selected organisation and its public services was collected from various sources including newspapers, the Internet, and the current literature. This background information was useful not only for enhancing the researcher's understanding of the selected case organisation but also to design interview questions prior to the fieldwork. Despite the fact that interview questions were devised at this stage, the researcher was aware of the possible need to modify the interview questions when a better understanding of the case was obtained. Telephone calls were made not only for the

purpose of verifying key dates for data collection but also to introduce the researcher to the personnel engaged in the project.

3.4.4 Data Collection

According to Easton (1995), the advantage of collection of data by case study is in its ability to capture complex interdependencies by managing rich sources of data and multiple forms of data collection. For instance, in this study three major sources of data -- interviewing, archival documentation, and non-participant observation -- were used. Interviewing data were collected from interviews with project team members, top management, various stakeholder groups, and external consultants. The design of the interview questions was guided by Cooper and Zmud's (1990) model of process innovation diffusion, which comprises six stages of transformation: initiation, adoption, adaptation, acceptance, routinisation, and infusion. This diffusion stage requires the data to be collected in a longitudinal manner. Therefore, the case had three waves of interviews -- between January and April 1998, August and November 1999, and February and May 2001 -- to ensure that events occurring at each stage of diffusion were captured¹. In addition to the need to collect longitudinal data, breaks

¹ More details of the times when each wave of interviews was conducted are outlined in the section dealing with 'The Selection of Interviewees'.

between the three waves of interviews permitted the researcher to design more appropriate interview questions based on the previous wave of interviews. Following the above principles, archival documentation was collected for this research. This included office memos, internal documentations, letters, and official government documents and reports. The importance of non-participant observation is reflected in the work of Van Maanen (1988), who argues that field notes are an ongoing stream of consciousness commentary about what is happening in the research. Also, its importance was shown in the way in which insights generated from non-participant observation significantly helped to refine the interview questions. More details about interviewing, archival documentation, and non-participant observation will be discussed in the following sections.

3.4.5 Interviews

From the current methodological literature, it is evident that interviewing can be categorised according to three key characteristics, namely: level of structure, degree of openness, and requirements of depth. According to Robson (1993), three categories of interviews can be distinguished based on the interview structure. The first category consists of structured interviews, which involve predetermined questions and a

standardised schedule. The second category consists of unstructured interviews, in which interviewers have a general area of interest, and the interviewing process is determined by the conversation flow. The third category refers to the middle ground between the first and second categories, and incorporates semi-structured interviews with a defined purpose and a degree of questioning flexibility. Based on the degree of open-endedness, Yin (1994) distinguishes between two categories of interviews. The first describes the type of interview in which a researcher asks questions aimed at obtaining more clues and insightful stories in order to achieve a broad understanding of the studied phenomenon. The second category describes the other extreme of interviewing, in which a researcher only collects data that fit into the specifically predefined research questions. Finally, according to the dimension of depth, two categories of interviewing are proposed by Merton et al. (1990). The first requires the researcher to focus more on an in-depth understanding of the studied phenomenon, whereas the second emphasises a broad representation of the researched area.

Taking into account the characteristics of this study's research questions, it was felt appropriate to conduct interviews with a higher degree of openness and depth. It was also decided to conduct semi-structured interviews instead of highly structured or

unstructured ones in order to ensure that a balance between interview flexibility and structure was achieved. This integrative approach yielded not only the degree of depth required by the nature of this study but also the flexibility needed when the researcher has no control over the studied phenomenon (Yin, 1994).

During the interviews, the majority of questions were based primarily on the guiding principles derived from the process innovation diffusion model proposed by Cooper and Zmud (1990). Despite the fact that this model imposed a predefined framework upon the interviewees, the interviewees were encouraged to explore and unravel their personal involvement and experience in the IT transformational project. By so doing, a high degree of internal consistency was achieved without failing to obtain the required level of depth that was considered to be the most important aspect of the study. Also, the researcher did her best to ensure that all interviewees understood a given question in the same way. For example, when the respondents were asked about a theme concerning the project, explanation was provided when it was necessary. After explaining the principles behind the design of interview questions, the following section will provide more details related to the selection of interviewees.

3.4.5.1 The Selection of Interviewees

Interviewees were selected in order to provide a wide range of different perspectives (Glaser and Strauss, 1967). In order to achieve this aim, the researcher interviewed executive members of the organisation as well as project members, managers, stakeholder groups, and external consultants, based on the technique of snowballing (Von Meier, 1999). Decisions regarding the choice and number of interviewees to be interviewed were made based on the principle of 'getting a multiplicity of views from various members of the same group' (Bresnen, 1988, p.47). The range of interviewees adequately covered the different personnel who represented different management levels in the transformation project. Discussions concentrated on the details of implementation processes, how interviewees perceived the effects of transformation on the organisation, specific features of the implemented technology, each interviewee's responsibilities, and how interviewees perceived the social relationships and dynamics among those involved in the same process.

Each interview lasted about 90 minutes on average. Detailed notes, instead of tape recordings, were taken during interviews. Due to the sensitivity of discussing a broad level of issues concerning the organisation, a large number of interviewees were

reluctant to allow the interviews to be recorded. Notes were taken during each interview to capture key points raised by the interviewee. More comprehensive notes were made soon after each interview to ensure that critical details were not missed out. These comprehensive notes were incorporated into the field notes, which were taken on a daily basis. Table 3.1 summarises all key dates when interviews were conducted, and the following discussion will outline each case in more detail.

	The first wave	The second wave	The third wave	Total
SCRO	Jan. to Apr. 1998	Aug. to Nov. 1999	Feb. to May 2001	
	28	15(4) ²	7(3)	50

Table 3.3 Time-line and the number of interviews

For the Supreme Court Registry Office (SCRO) case, 50 interviewees were selected from the project team, covering various organisational functions including management, the Court, the Registry Office, and the external consultancy team that was responsible for delivering the transformation project. In addition to the various organisational functions, seven interviewees were also selected from the seven largest district offices (out of 32) dispersed across different parts of Seoul. The first wave of

² () refers to the number of follow-up interviews.

interviews was conducted between January and April 1998, and 28 interviews were conducted. The second wave was conducted between August and November 1999, and 15 interviews were conducted, four of which were follow-up interviews. The final wave of interviews was conducted between February and May 2001, and seven interviews were conducted, of which three were follow-up interviews.

After each interview was narrated, the script was shown to the interviewee to ensure that the researcher had correctly reported the factual matters and the interviewee's personal viewpoints. A 'new information' category was created to capture information that was important from each interview but that had not previously occurred to the researcher. The new information was then used for further interviews, both in the same wave and the next wave. In addition to the interviews, archival documentation was found to be extremely crucial. The following section will outline the detailed procedures involved in collecting data from this source.

3.4.6 Archival Documentation

The importance of archival documentation is evident in the current methodological literature (see, for example, Bailey, 1982; Geertz, 1973; Yin, 1994). Archival

documentation frequently refers to evidence from written reports, administrative documents, newspapers and any other written information. The importance of archival documentation is reflected not only in the insights that such documentation reveals but also as a vital means of obtaining evidence for triangulating with other sources of evidence (Yin, 1994). Hence, it is clear that archival documentation does not merely confirm or supplement evidence. Rather, it is a source of evidence with its own relevance and importance (Bailey, 1982).

Referring to the present study, information concerning the general picture of each industry was obtained from various archival sources, such as journals, government announcements and daily IT and economic newspapers. The researcher referred to a database that filed the information from journals and daily economic newspapers as an initial step. Then, the researcher followed up with more detailed searching and browsing of each document to obtain more information about the chosen industries and selected case organisations. In addition to the general search aided by an electronic database, much of the SCRO information was recorded on binding paper. This is because of the need to ensure that the regulatory parties could be provided with written proof if necessary.

3.4.7 Non-Participant Observation

The importance of non-participant observation is that it can show how research questions can best be answered by observing how organisational members interact in their social settings (Altheide and Johnson, 1997; Yin, 1994). In contrast with positivism, which emphasises the externality of social reality and the independence of the researcher, the phenomenological tradition argues that the researcher is engaged in the process of social construction with the researched (Blaikie, 1993; Easterby-Smith, et al. 1991; Robson, 1993). One of the major advantages of non-participant observation is that it permits in-depth experience and understanding of the case site (Garvin, 1993; Lincoln and Guba, 1985). Referring to the present study, non-participant observations were made during the data-collection process. Although the intensity of observation was different on each occasion, two common benefits from of this technique were evident. First, it helped the researcher to understand the organisation's characteristics, culture, social dynamics and business processes. Secondly, it equipped the researcher with vital knowledge of the case, which was then applied to make sense of the data. In particular, field notes from observations were essential to verifying, elaborating and triangulating data during the analysis stage. Informal interactions with the researched, such as conversations with employees

during coffee or lunch breaks in the community lounge, and attendance at other social gatherings, were also very useful for obtaining insightful stories that were not always available through formal channels.

3.5 DATA ANALYSIS

The literature on data analysis presents a variety of options. According to Van Maanen (1988), data analysis is a process of searching for rich and complex descriptions and presenting ideas in a narrative fashion. Yin (1994) explains that ‘data analysis consists of examining, categorising, tabulating or otherwise recombining the evidence to address the initial propositions of a study’ (p. 102). Miles and Huberman (1984) are concerned with the operational elements of simplifying complex data through various techniques of data reduction and display. Specific to information systems research, in particular based on the interpretative tradition, a piece of research does not predefine dependent and independent variables (Myers, 1997). Instead, interpretive research focuses on the full complexity of the studied phenomenon embedded in the social setting (Kaplan and Maxwell, 1994; Klein and Myers, 1999).

The way in which this research analysed various sources of evidence was

characterised by the interpretive tradition, which emphasises the process, actions and meanings collectively constructed and commonly shared by organisational members (Klein and Myers, 1999; Walsham, 1993, 1995). In order to achieve high-standard data analysis, a framework, based on the process innovation diffusion model by Cooper and Zmud (1990), was employed. In addition, the theoretical perspective of the logic of opposition (Robey and Boudreau, 1999) was used. The reasons for using this framework and incorporating this theoretical perspective are twofold. First, a framework focuses the research effort. This is reflected in the words of Klein and Myers (1999), who state that a theoretical framework can be used 'as a sensitising device to view the world in a certain way' (p.75). Secondly, a framework helps to capture relevant details and simultaneously facilitates the complex analysis of the organisational elements interlinking with the implementation of the new technology and the dynamics of organisational transformation. The logic of opposition perspective not only guided the theoretical foundation but also provided the analytical lens to identify crucial factors.

The analysis of the research data consisted of two phases. The focus of phase one was on the understanding of organisational change by analysing the case according to the

open coding technique proposed by Straus and Corbin (1990). This involves exploring how change processes evolve over time. In particular, the emphasis is placed on grouping data with similar characteristics into different categories and concepts. In addition to the open coding, various techniques proposed by Miles and Huberman (1994) were employed to analyse the data based on the time dimension and significant events. The aim of phase two was to draw out the theoretical and managerial implications related to learning and acceptance in the context of technology implementation by identifying promoting and impeding factors. The issue of triangulation as a means of ensuring the validity of the data analysis is discussed in a later section.

3.5.1 Phase One: The Preliminary Analysis of Data

The purpose of the preliminary analysis of data is to assemble collected materials into sensible groups and categorisation. This is what Glaser and Strauss (1964) call 'open coding'. Extending the notion of open coding, Eisenhardt (1989) argues that 'researchers take advantage of the uniqueness of a specific case and the emergence of new themes to improve resultant theory' (p. 539). It is crucial to acknowledge that even though the research was not geared towards theory generation, the coding

technique proved to be useful. Moreover, Ryan and Bernard (2000) describe how coding forces the researcher to make judgements about the meaning of text by using approaches such as sampling, identifying themes, and building codebooks. The importance of developing categories and themes through data displays and flow charts is also stressed by Miles and Huberman (1994).

In any research, in order to prepare for the preliminary analysis of data, the following considerations must be taken into account. First, account has to be taken of the importance of timing in relation to the categorising process. In other words, critical themes need to be developed as soon as possible so that the process of categorisation can be clearly and effectively carried out. Secondly, account has to be taken of the need for careful selection of themes from the initial set of transcripts, field notes, and documents. Therefore, critical, interesting, important and significant themes from the data will surface during the preliminary stage. In this research, the analysis of data for the preliminary stage was based on the case study. The data were categorised by time dimension, events and contextual factors within the organisation. Employing techniques suggested by Miles and Huberman (1994), initial analyses were carried out by conducting a Time Ordered Display, which exhibited data by time and sequence,

preserving the historical chronological flow. In particular, Event Listing and Time Ordered Matrices were employed. Conceptually Ordered Display techniques, also suggested by Miles and Huberman (1994), were also employed in order to display data by concept. In particular, applying Conceptually Clustered Matrices brought together data according to the conceptual coherence principle.

Benefiting from these practices, the time series of the transformation and events that facilitated and inhibited the innovation implementation were clearly identified. Based on the emerging themes, iterations between the collected data and themes were executed to ensure that all the collected data were exhausted (Orlikowski, 1993). Triangulation of the identified themes was based on a comparison between different interviewees' experiences and viewpoints and other sources of evidence, including the archival documentation and notes taken from non-participant observation. After analysing the case, the second phase aimed at generating learning themes and support curves, and identifying promoting and impeding factors.

3.5.2 Phase Two: Generating Learning Themes and Identifying Factors

Guided by the six process stages suggested by Cooper and Zmud (1990) (initiation,

adoption, adaptation, acceptance, routinisation and infusion), findings from time and event analysis were further analysed according to the six stages. The case was summarised in a table presenting the development of the transformation according to the time series and six stages. The table generated from the case provided guiding principles for further analysis. After the case had been examined, it was put together for further analysis. By incorporating the logic of opposition perspective, the research tried to identify two factors -- promoting and impeding -- for events that occurred at each stage. Benefiting from the practice of phase one, emergent themes were helpful to identify various learning themes that were identified at each stage. Learning themes were inserted into each applicable cell as a means of demonstrating the differences and similarities across the case, which permitted the researcher to start with an in-depth understanding of the case. (See Table 3.3.)

Stages	Learning theme	Level of Support	Promoting Factors	Impeding Factors
Initiation				
Adoption				
Adaptation				
Acceptance				
Routinisation				
Infusion				

Table 3.4 Data analysis table incorporating the logic of opposition perspective

The level of support in column three was determined by recognising the influential factors related to learning. A more detailed account of the level of support will be provided in Section 3.5.3.

Although the current research is based on a single case study, the literature provides useful insights for understanding the phenomenon and analysing the data, and the importance of iteration generated by several analyses is also evident (Eisenhardt, 1989; Orlikowski, 1993). According to Strauss and Corbin (1990), the process of iteration is conducted for the purposes of comparing the emerging theory with all the collected data to ensure that theoretical saturation is achieved. Despite the fact that this research is not designed on the principle of grounded theory, the iteration process remains useful. In particular, the iteration process is crucial when addressing the differences proposed by this study through comparison with prior studies. Moreover, the principle of iteration was carried out by continuously identifying themes, factors and interrelationships generated from the case with the collected data.

3.5.3 Identifying the Support Curve

The case was accordingly summarised in terms of six stages of transformation and according to the logic of opposition theory by identifying promoting and impeding

factors at each stage of the transformation. Following the suggestions of writers on interpretative research (e.g. Kaplan and Maxwell, 1994; Klein and Myers, 1999), the researcher made an effort to analyse the extent of the support for transformation in the organisation at each stage by reviewing the promoting and impeding factors. By means of ignoring predefined and dependent and independent variables (Myers, 1997), the researcher tried to view the studied phenomenon in the embedded social setting in full complexity by listing all promoting and impeding transformational events that occurred. Then the lists were compared with the interview transcripts in order to overview and relate the context within the organisation.

After identifying and cross-checking the promoting and impeding transformational events, the researcher tried to emphasise crucial influential factors that could be explored further and explained by incorporating various forms of learning. As mentioned already, the influential factors involved in key events at each stage affected the level of support given by organisational members, so that the support curve was seen to either ascend or descend during the transformation. The way the level of support is described as ascending or descending, emphasising the process rather than specifying numerical calculations, is based on the philosophical foundations of this

research. Therefore, no quantitative identifications were used to locate the point where the level of support changed. Further explanation of the support curve will be given in the analysis chapter.

3.5.4 The Issue of Triangulation

As explained earlier, triangulation uses multiple sources to enhance the validity and reliability of a case study. In case studies, triangulation can be done by cross-checking evidence from multiple sources (Yin, 1994). The need to incorporate a triangulation procedure means that it is essential to ensure that all sources of data are considered during the analysis to form a clearer picture of the studied phenomenon. Furthermore, the use of the triangulation technique is essential to make sure that the researcher does not impose a conceptual chronology or any other form of conceptualisation that might affect the data-analysis process (Huber and Power, 1985).

During the two phases of data analysis, triangulation was conducted through a constant reviewing of collected materials. Triangulation was based on the comparison between different interviewees' experiences and viewpoints and other sources of evidence, such as internal documentation and notes taken from observation. In

addition to triangulating the data by the researcher, the process was also facilitated by the research participants. For example, findings generated from the case were shown to organisational members to ensure that the way in which the researcher interpreted the data correctly represented their viewpoints.

Hence, it is clear that in the present study the contribution of organisational members was not merely to provide corrections of factual materials but also to ensure the validity and reliability of data interpretation and representation.

3.6 WRITING

This section outlines the writing process involved in the construction of the thesis. Starting with a review of the current literature during the early phases of the research, the emphasis in writing was placed upon synthesising existing findings to identify gaps in the existing research. Various literature reviews were conducted, in particular during and after the data analysis. Some work related to methodological issues was conducted prior to the data-collection process. The lessons learned from data collection and analysis were then incorporated into the methodology chapter. While the process of refining the previous two chapters continued, the case report was

written to form the basis of the Data Analysis Chapter. Early versions of the case report emphasised the need to describe insightful stories, and were shown to the participating organisation. Feedback generated from the research participants was then used to correct any factual mistakes and refine the findings.

Several drafts of the case description chapter, based on the early versions of the case study report, were written and rewritten to ensure that sufficient background information was provided to support the findings presented in the data analysis chapter. In particular, Section 4.3 of the case description chapter was written following the six-stage process model. For example, in the initial stage of analysis, writing tended to describe various events that helped to make sense of different meanings assigned to a social phenomenon and actions taken to structure that phenomenon. During the later stages, writing emphasised the dynamics and process of transformation based on the earlier descriptive accounts. Various chapters (in particular the literature review chapter) that were drafted earlier were then continuously refined so that the consistency of the whole thesis was enhanced. Writing about the implications of the findings was developed in all chapters and given particular attention in the Conclusion.

3.7 Methodological Problems

Through the reality of conducting multi-disciplinary research in a rapidly changing environment, the researcher was confronted with a number of methodological challenges and difficulties. Five main challenges, including the pace of new announcements by the government in relation to various projects, are outlined in the following discussion.

First, in terms of the pace of new announcements, it was essential to be aware constantly of the latest news about the project, and an effort had to be made to relate those events to the current transformation project in order to accurately capture the studied phenomenon. Secondly, the implications of the difficulties lay in the amount of data that needed to be collected. To ensure the research was conducted in a longitudinal manner, the data-collection process had to be spread over three years. The length of the data-collection process meant a large number of visits to the case organisation, and also underlined the sheer amount of effort required to analyse the data. Regular contact and follow-up with key personnel reinforced a mutual trust and deep understanding that helped the researcher to obtain additional information when it was required.

Thirdly, in relation to the theoretical foundations of this research, the researcher was confronted with a vast quantity of related subjects in the study of e-government transformation due to the multi-disciplinary context of study. The range covered a number of key issues in public administration; public organisation management; technical, business and managerial concerns; and current trends in the e-business context. In addition to the task of literature review, the researcher had to decide on a fundamental theory on which to base the research. The careful review and consideration of research questions led to a focus on the holistic view of the literature in the belief that this view would provide a broader foundation for this exploratory study. This view also helped the researcher to make decisions about the theoretical foundation. As a result, the researcher was able to provide a wider range of discussions within the limited depth of the analysis that this research could provide.

A fourth challenge concerned practical problems: the empirical research could not employ more extensive interviews or in-depth methodologies such as focus groups and participation observation. During the interviews, the researcher recognised the need to improve the research tactics in order to find a way to identify more outsourcing relationships during the intensifying technology implementation

processes. However, the researcher could not go further due to the fundamental limits placed on engaging project members and organisational members in one place for discussion and interview. In addition, the inability to conduct participant observation severely restricted this research in relation to the role of different communities in learning and promoting support for the transformation.

A fifth challenge the researcher had to face was the issue of bias during the research. In order to prevent the emergence of any possible bias during the data collection, the researcher had to be aware of the effects of her presence at the case study site on events and the behaviour of participants. During the data-analysis process, the researcher had to be careful that her own beliefs, values and prior assumptions did not have an undesirable influence on the analysis of the case study. By taking into account these dangers, the researcher tried to prevent bias by taking research transcripts word by word, and asking interviewees if the meaning of particular words was clear or not. Clarifying the meaning of words during the interviews was vitally important, as the meaning might be different from one person to another depending on their work responsibility. For example, the word 'process' might be understood differently by strategic personnel and technical personnel. In addition, during the analysis, because

the interviews were in the Korean language, the researcher had to be careful not to influence the process of translation. During the analysis, the researcher had to constantly refer back to original transcripts in order to confirm the understanding and meaning of the translation. Although this procedure led the researcher to spend more time than anticipated on the analysis, it certainly helped to identify even the smallest events and their implications.

When the researcher mentioned the study of government organisation in Korea, many friends and academics expressed concern about the chosen organisation. Typical comments were: ‘Are you sure you want to go into this bureaucratic organisation? ‘You don’t get any direct response and answers from civil service people, let alone government officials.’ Indeed, at first it was not easy to arrange and conduct the interview process, but as time passed and more and more social meetings and interactions took place, this task became much easier and more rewarding.

3.8 CONCLUSION

This chapter has elaborated some epistemological and ontological issues underlying methods in the social sciences. In addition, the implications of key issues regarding

the design of the research have been addressed. The purpose of a qualitative case study is to understand a phenomenon by approaching social reality and interpreting social actors' significance. Since issues of transformation can only be interpreted by developing a deep understanding of the social context, the researcher needs to obtain information from a holistic point of view. The research involves an event reconstruction of the designated period for each organisation, and a longitudinal study of what processes took place.

In this research, a case study methodology is preferred because of the nature and scope of the research aims, which involve examining how the transformation of a public sector organisation was carried out, and how learning and organisational support evolved. Taking this into account, the use of a case study was predominant because of its appropriateness in seeking to answer 'how' and 'why' questions (Yin, 1994). Authors such as Eisenhardt (1989), Miles and Huberman (1984) and Yin (1994) have provided broad guidelines for using the case study method.

Data collected through interviews, non-participant observation and documentation were analysed according to the variables to which they referred. Data were analysed

by the techniques proposed by Miles and Huberman (1994), and themes that were unique and applicable to the case were identified through a Conceptually Ordered Display. In particular, incorporating the logic of opposition theory, identified themes were further analysed so that an organisational support curve could be drawn. The findings from this analysis were then set in their theoretical context in order to draw conclusions relating to the original research proposition, and to compare and contrast the emergent theory with other theories in the literature. The following two chapters will present, respectively, a descriptive account and an analytical account of the case.

CHAPTER FOUR: A CASE STUDY OF THE SUPREME COURT REGISTRY OFFICE (SCRO)

4.1 INTRODUCTION

Chapter Three elaborated numerous methodological issues relating to this study. The present chapter will highlight the data collected from the research site with the aim of broadly describing the organisational background and the efforts made towards organisational transformation. This chapter discusses the case of the Supreme Court Registry Office (SCRO) to illustrate the process of government transformation through the implementation of information technology (IT). Our investigation of the transformation programme seeks to examine key factors at a broad contextual, processual and organisational level. The focus is on an overall holistic view of transformation.

The following sections present the ‘story’ of the transformation of the SCRO from 1996 to 2001. Based on an interpretivist perspective, significant themes emerging from the story are systematically analysed and presented. A general account of the transformation process and important issues related to organisational-change actions

and their implications is also offered. Section 4.2 explains the national environment of Korea in relation to e-government. Section 4.3 explains the organisational background of the SCRO as a government body. Section 4.4 considers the transformation programme of the SCRO according to the model of process innovation diffusion described in Chapter Three, identifying key issues in each of the six of stages of transformation. For example, to begin with, the motivation for the transformation programme is examined in relation to the programme's initiation and purpose, and the way in which the process was inaugurated. Also, the integrative aspects of the implications of transformation, concentrating on organisational expectations such as regulations, systems operation and people issues raised during the process of transformation, are examined. Concluding remarks are presented in Section 4.5.

4.2 THE NATIONAL ENVIRONMENT

Before presenting the case study organisation, it is necessary to understand the national (Korean) environment in which this organisation is operated and managed. In order to provide efficient services to citizens and enhance the competitiveness of the nation as a whole, in the mid-1990s the Korean government engaged policy-makers, scholars and ministerial civil servants in a think tank to examine the nation's

technology infrastructure, capabilities and service quality as a basis for shaping the strategic direction of future government development. Among various initiatives, such as 'The National Infrastructure of Technology Network' and 'The Knowledge-Based Society', the Korean government decided to undertake fundamental changes in the way in which services were delivered to the public. From 1996, various projects, such as The National Digital Library and Registry Office, sought to provide better services to the public and formed the building blocks of the Korean e-government initiative. In addition to providing better services to the public, the rationale behind the initiation of e-government is threefold. First, the aim is to promote unrestricted and flexible communications between different government bodies and between these bodies and the public. For example, prior to the initiation of the e-government initiative, communications between different government bodies relied heavily on written reports and documents, which had a negative effect on timeliness and efficiency. Also, communication between government bodies and the public often seemed to be very slow. Secondly, the aim is to improve the management of resources by reducing the cost of communication and co-ordination, and avoiding the duplication of resources, which inevitably results in poor coordination between government bodies. For example, instead of collaborating on the creation of a broadband network standard, the

Ministry of Telecommunication and the Ministry of Science and Technology competed with each other. An unnecessary duplication of resources occurred because the two Ministries spent taxpayers' money on outsourcing similar research projects to different research bodies including universities and IT management consultants. A third aim is to revamp the government's reputation for inefficiency compared with the governments of developed countries such as the USA and the UK.

According to the explanation provided by the departmental reform committee of the Ministry of Budget and Planning, the e-government initiative encompasses four major components: on-line service government, paperless government, knowledge-based government, and clean government. The first of these, on-line service government, aims to provide a one-stop fast and efficient service to the public via the Internet. The second component, paperless government, seeks to improve the existing work process by transferring paper-based documents to an electronic format that will enable civil servants to engage more efficiently in their work in any government location. Thirdly, knowledge-based government seeks to transform the traditional bureaucratic worker into a knowledge worker by promoting the practices of knowledge gathering, storing and sharing. This approach will be applied to improve both the individual work

process and also the provision of public services. Fourthly, clean government aims to improve public trust by providing information on procedures and the current state of the work by answering queries more efficiently.

The decision to pursue this transformation had a far-reaching effect on many areas of government activity. For example, it was acknowledged that the government as a whole, and not just as an aggregation of separate bodies, needed to strengthen the government-citizen connection, e.g. in the provision of public announcements of administrative information, advice to citizens, and policy initiatives. Fundamentally, the transformation towards e-government is characterised by the notion that national competitiveness can only derive from the effective management and utilisation of information, knowledge and technology. Various government bodies have participated in the e-government initiative, including the SCRO.

4.3 THE SUPREME COURT

The Supreme Court is the highest court in Korea, overseeing several tiers of lower courts. To begin with, it is necessary to explain the general structure of the Supreme Court in order to comprehend the relationship between the Supreme Court and the

Supreme Court Registry Office and its branches across the country. Figure 4.1 shows the organisational structure of the Supreme Court. The SCRO is a separate body under the Supreme Court. It is the headquarters of a nation-wide network of registry offices and also provides a registry office public service in its own right. Under the SCRO are 13 regional registry offices, each of which is incorporated under one of 13 district courts. The aim of these regional offices is to provide guidance and regional support to district registry offices.

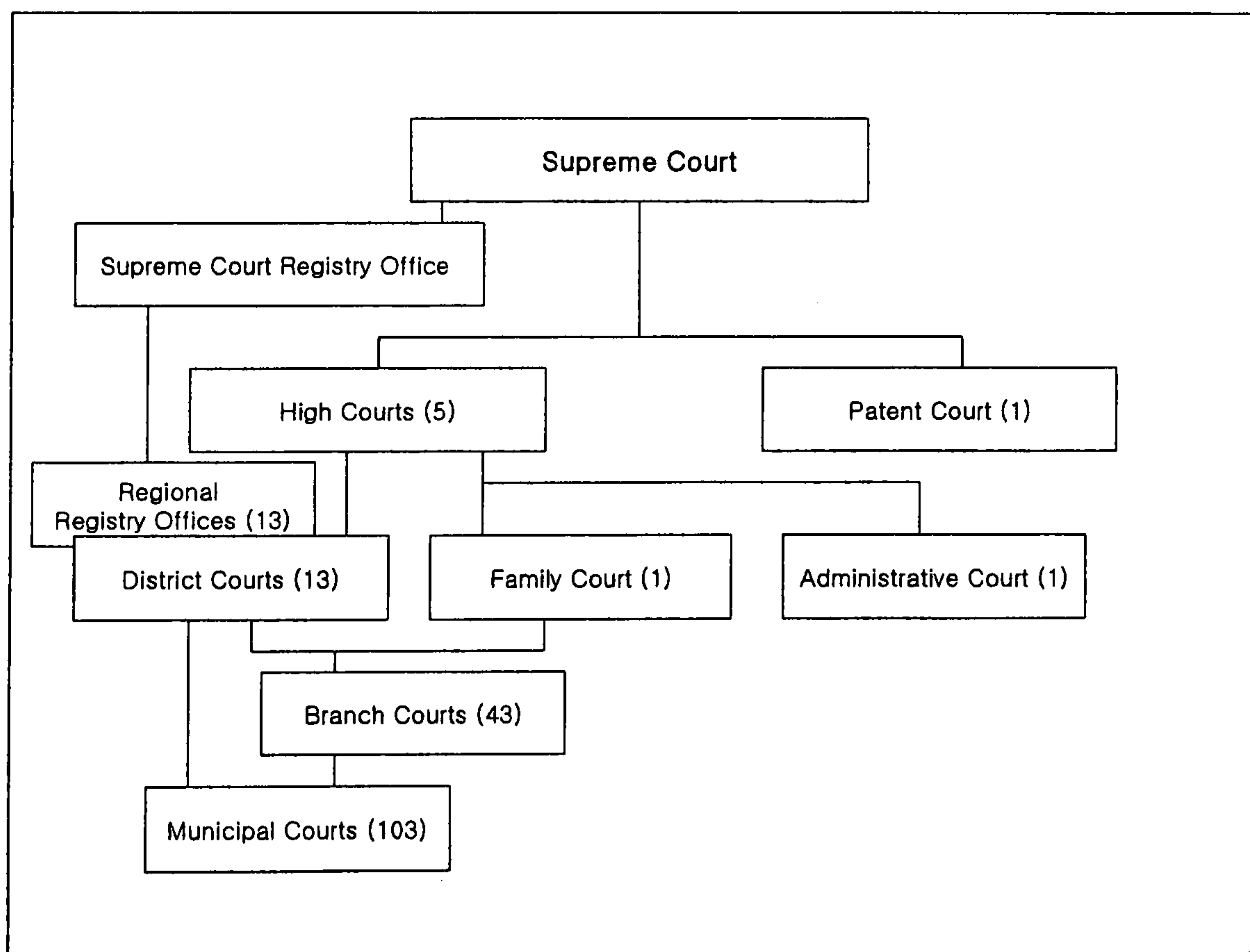


Figure 4.1 The organisational structure of the Supreme Court

Source: SCRO internal document

Under the Supreme Court there are four major bodies responsible for administrative work (see Figure 4.2): the Law Training Institution, the Court Library, the Court Administration, and the Court Civil Servants Training Institute. The SCRO operates under the Supreme Court and also communicates with the registry section under the Department of Law. The role of the registry section is not only to liaise between the Supreme Court and the SCRO but also to provide legal regulations and answers to questions associated with registration documents. Among these main bodies, the Court Administration is particularly important in overseeing directly most procedures and everyday work schedules. It consists of three departments: Strategic Planning, Management and Law. The Strategic Planning Department is responsible for proposing long-term schedules of the Supreme Court, and is divided into three sections: Information Technology, Budget and Administrative Management. The Budget section is involved in planning long-term financial arrangements and linking with ministries on financial matters. The Department of Management has responsibility for accounting and finance. The Law Department provides regulations and investigates issues related to law and registry.

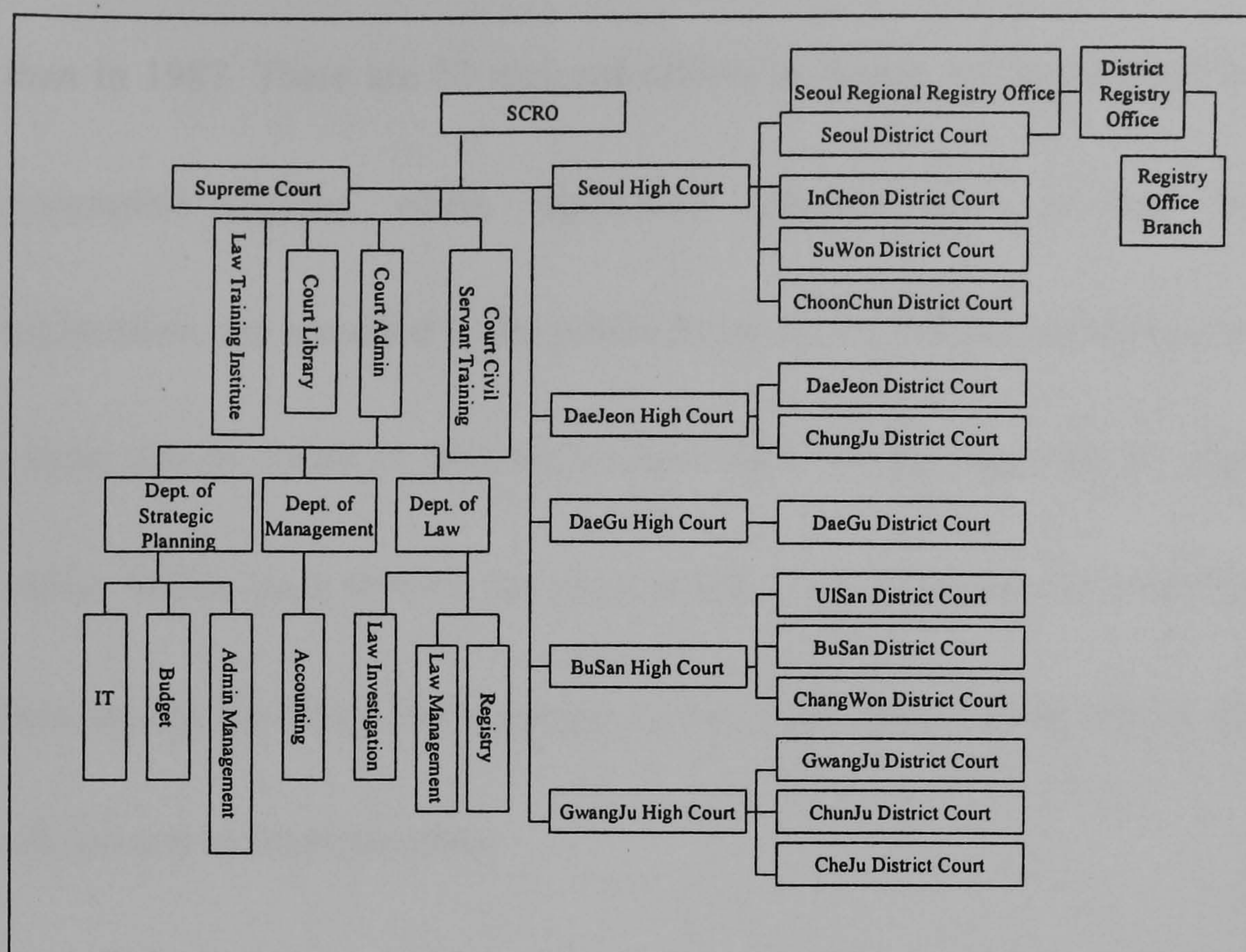


Figure 4.2 Outline of the SCRO's organisational structure

Source: Consulting company internal document

4.3.1 The Supreme Court Registry Office (SCRO)

According to the structure of the SCRO, there were 49 district registry offices, including district head offices, and 143 local branches across the country in September 1994, i.e. before the implementation of the e-government initiative. The number of district and local offices was increased to 53 district registry offices and 157 local branches by 2002 in order to fulfil the growing demand for public services. The growing number of district and local offices is reflected in the increasing number of employees working for the SCRO. There are now over 15 per cent more employees

than in 1987. There are 13 regional offices in Korea, set up on the basis of distinct geographic regions, where registration services, such as land and residency registration, are provided to the public living in the designated region. Several district offices can be found in each region, and these are managed by the regional registry office. Within each district, there are several local branches that report directly to the district registry office. For example, in the Seoul region there are 14 district registry offices and 18 local branches.

The SCRO provides services for property registration (registering one's own property including land and buildings); commercial registration for corporate, special-category registration; shipping registration; and foundations and trusts registration. The need for various documents required by the public, in this case, property registration documents, is shown in Figure 4.3

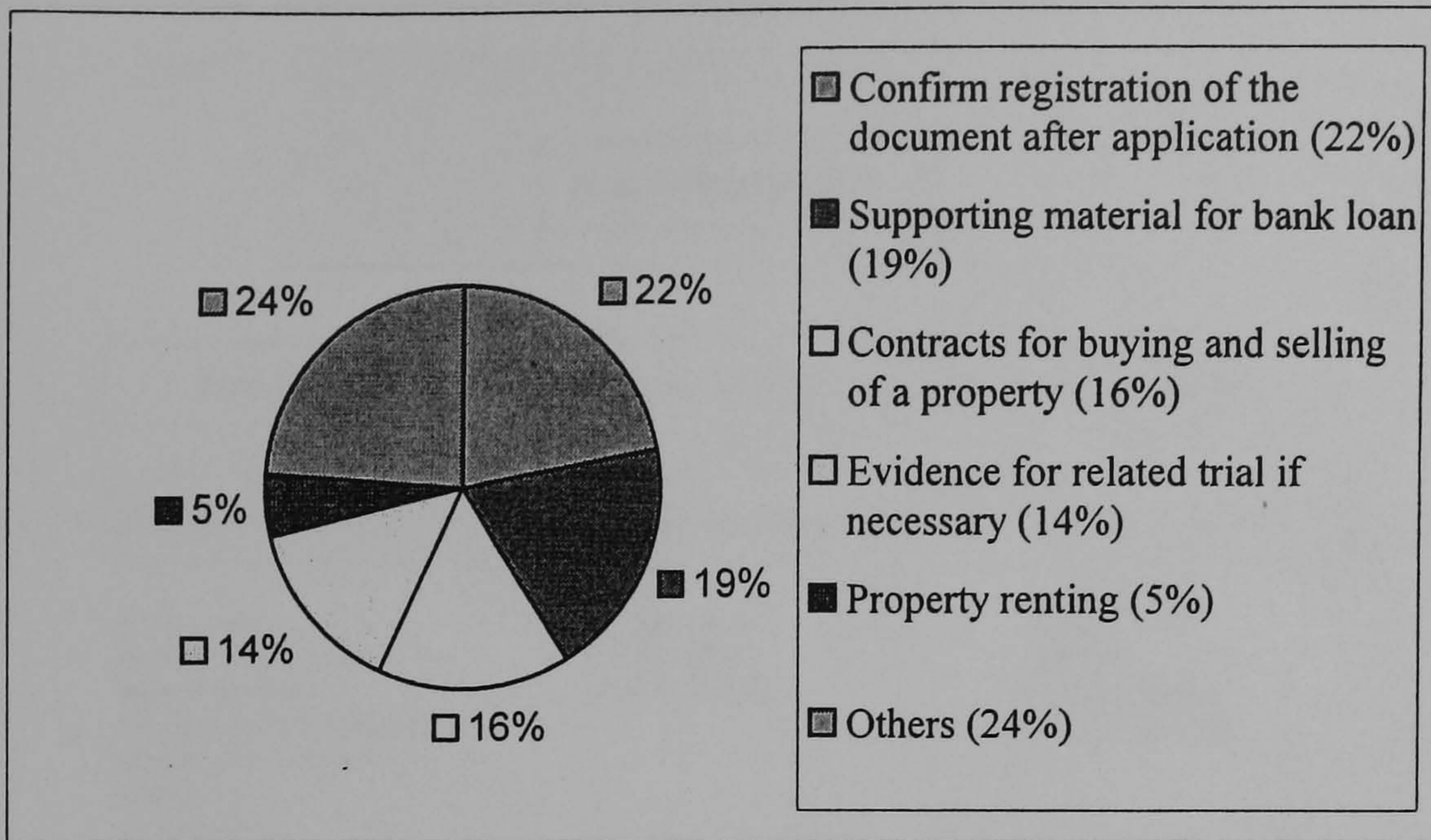


Figure 4.3 The public's need for various property registration documents

Source: Consulting company internal analysis

The three levels of offices -- regional, district and local -- provide similar services related to property registration, commercial registration, shipping registration, foundation registration, and other specialised documents (see Figure 4.3).

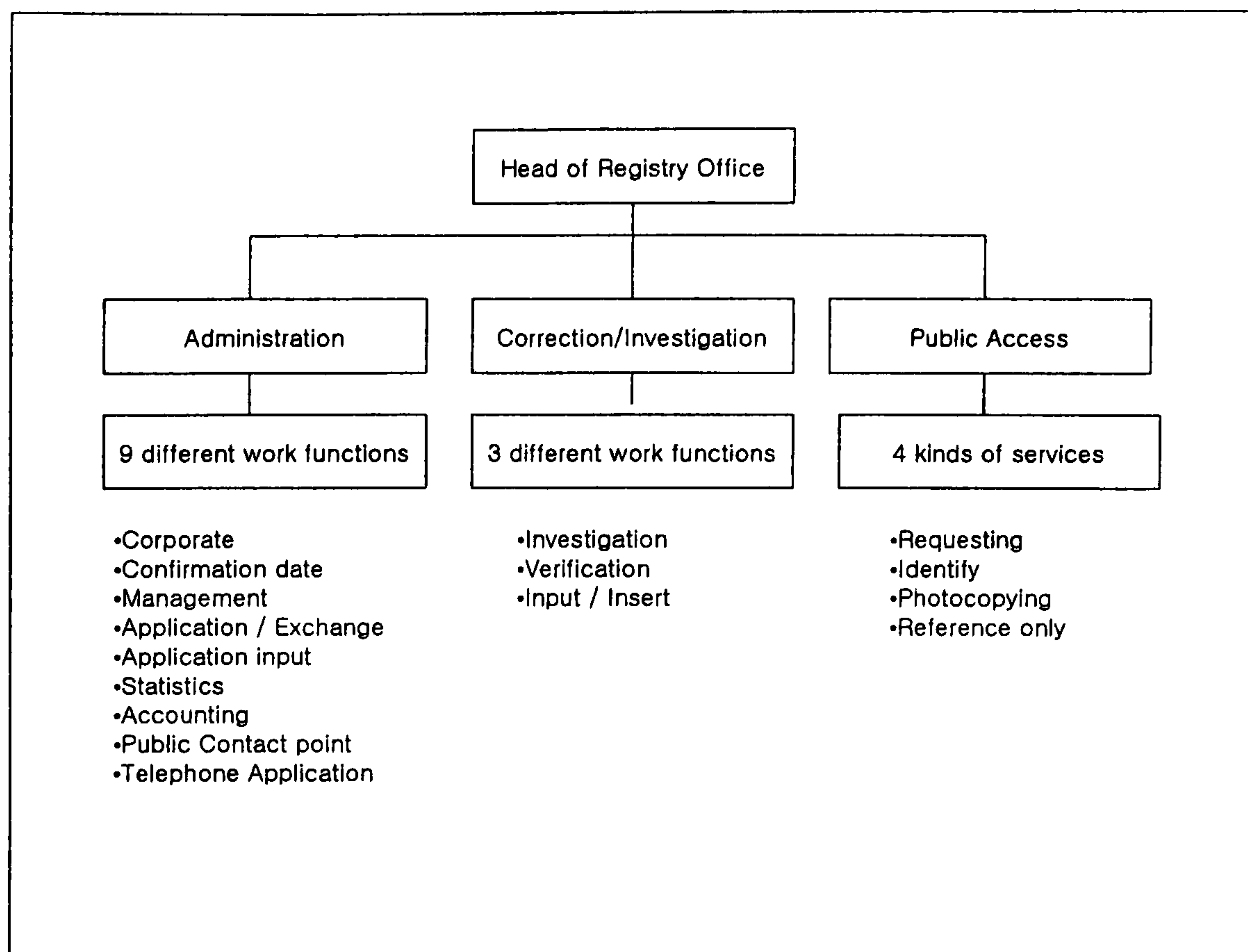


Figure 4.4 The organisational functions of registry offices

Source: SCRO internal document

As Figure 4.4 shows, three major functions are performed by registry offices at the regional, district and local levels. First, the Administrative Division embraces nine different work categories. Four of these -- application and exchange, application input, public contact point, and telephone application -- require direct interface with the public. A major change after the e-government initiative was instituted was the increasing availability of on-line services and simplified procedures for applying for registry documents. In terms of the availability of on-line services, the public can now view documents on the Internet, and corporate users can place orders via the Internet if more than 50 copies of documents are required. In terms of simplifying application

procedures, various steps were taken. Initially, most of the application forms were modified by reducing the number of columns and using clearer terminology. With simpler forms, the need for checking and correcting applications was substantially reduced, and hence the processing of applications became easier and quicker.

Secondly, the Correction and Investigation Division is responsible for three work categories: investigation, document verification, and input and insert. The purpose of correction and investigation is to search for and evaluate related information, while document verification examines the legitimacy of documents. Input and insert amends application information as necessary. As already explained, the simplification of application forms greatly improved the efficiency of documentation checking. This in turn meant that the other two functions could reduce the time needed to respond to the public.

Thirdly, one of the main services provided by the Public Access Division is to handle the public's request for registry documents, which are processed by the Administrative Division. One of the key benefits stemming from the e-government initiative was to reduce the time required to access, retrieve and photocopy paper-based documents.

This is because the availability of the computerised database permits members of staff to search, download and print registry documents very quickly. This means a much more efficient service to the public. Furthermore, resources can be used to monitor and analyse the quality of service delivery, which was less likely when members of staff had to deal with a large volume of paper documents.

4.4 THE JOURNEY OF THE E-GOVERNMENT PROJECT ALIGNED WITH THE MODEL OF PROCESS INNOVATION DIFFUSION

This section presents and illustrates the SCRO case in alignment with the model of process innovation diffusion, i.e. six stages of transformation, as suggested by Cooper and Zmud (1990) and with reference to a wide range of literature from IS and organisational studies. This is not a full account of the case analysis; the aim is to outline the six-stage model to guide us in our more detailed elaboration of the e-government transformation in the next chapter.

As described in the literature review chapter (see Section 2.3.4) in summary the six stages of transformation, as applied to the SCRO, are as follows: (1) The *initiation* stage describes the SCRO's ambition to initiate transformation towards e-government

through the self-analysis process, allowing the SCRO to identify environmental factors and recognise problems. (2) The *adoption* stage stresses the importance of decision making through various interactions of stakeholder groups. At this stage, emphasis was placed on an understanding of the project's scope and the distribution and sharing of information for rational and political negotiations in order to ensure organisational backing for implementation of IT applications and the achievement of the benefits of the project. Also at this stage, the importance of the relationship between the outsourcing company and government organisations was recognised, highlighting the need for trust and reliable and accurate communications between private and public institutions. (3) The *adaptation* stage focuses on the process of the implementation of IT including development, installation and maintenance. The analysis of this stage examines the operational matters of the project and the difficulties associated with the coordination of project work. (4) The *acceptance* stage examines the level of acceptance that organisational members are induced to commit to the usage of new information systems. (5) The *routinisation* stage involves the organisational efforts to routinise the new process and the use of the system through training courses and education. Organisational practices related to formal training as well as informal shared experience are elaborated. (6) Finally, the *infusion* stage

highlights the outcome of benefits, such as increased organisational effectiveness, enhanced integration, the capability to retrieve information, and geographical diversity. Also of importance in this stage is the effect of the emergence of the Internet across the industry on government. The following sections elaborate the findings for each stage.

The past decade has presented numerous challenges for organisations of all types, including the need to do more with fewer resources; the increasing expectations of customers and stakeholders, and of an increasingly diverse workforce; a changing regulatory environment; and advances in information technology (Kotter, 1996). As the need to address these challenges has intensified, it has become clear that public sector and government organisations have to improve the value-added part of their services to customers and other stakeholders. (Numerous international examples are documented in Neely, Walters and Austin, 2002; Pollitt and Bouckaert, 2000). Public sector organisations, as explained in the literature review, now find themselves in a cyclone of change as they try to adapt to the turbulent environment, often in a pragmatic and systematic way (Lovell, 1995). In Korea, these organisations have been subject to innovation in government efficiency allied to demands for enhanced

effectiveness and improved processes. Moreover, public sector organisations are now expected to exhibit many features of the private sector, including some scope for entrepreneurial behaviour (Pollitt and Bouckaert, 2000). The public sector has responded by shifting policy towards greater competition in the public sector itself and by applying private sector-style management practices to the public domain (Hood, 1991). This has usually involved transformation initiatives of various kinds that are balanced by approaches that recognise the core values of the public sector (Hood, 1995). The following account of the SCRO case shows that implementing transformation tasks in the public sector is far from being a simple task.

4.4.1 The Initiation Stage

The SCRO began its transformation initiative in 1994. One of the key elements of this initiative was a master plan that aimed to introduce the concept of BPR (Business Process Reengineering) into the SCRO. The purpose of the BPR project was to provide a better service to the public by creating an improved workplace in which employees would no longer have to handle a massive volume of paperwork. The master plan clearly indicated the need for a breakthrough improvement. An incremental approach would not be sufficient to achieve the internally set goal of

reducing time, providing an effective workplace, and making a dramatic improvement in communication. Therefore, a reengineering approach seemed to be the best improvement strategy (Davenport, 1993; Hammer and Champy, 1993).

The initiative to move towards e-government in the SCRO was underpinned by three main aims according to internal reports. First, it was essential to promote unrestricted and flexible communications between different government bodies and between those bodies and the public. Previously, government communications had relied on written reports and documents, which often resulted in delays because of the time it took to respond. Moreover, much misunderstanding and miscommunication was created among the different levels of administration. Often, communication was downwards (from the top to the bottom), and senior management did not get accurate and sufficient information from below. Secondly, there was a need to manage resources effectively by reducing the cost of communication and coordination. This would help to avoid the duplication of resources and the consequent poor coordination between various government bodies. For example, the duplication of resources occurred because two ministries spent taxpayers' money outsourcing similar research projects to different research bodies, such as universities and IT management consultants.

Resource limitations were often not readily understood at different organisational levels. There was too much concern with what reports had to be produced and what strategies would have a big impact. For some employees it did not matter if government resources were wasted. For instance, it was reported that an additional photocopier was requisitioned when three were lying unused. Thirdly, it was urgent to change the government's public reputation for inefficiency when compared with countries such as the United States and the UK.

These three factors are triggers of change, and these may be classified in several ways, for example as external changes (relating to customers, competition, the regulatory environment, etc.) and internal changes (relating to personnel, culture, technology, etc.). Change triggers must be synthesized into a clear and shared 'burning platform' defining the most important reasons why the organisation must do something different, establishing a sense of urgency for the necessary transformation (Kotter, 1996).

4.4.1.1 The Problems

In the initial stage of the SCRO programme, the problem-identification process involved a concerted effort to articulate various problems and barriers that undermined

and inhibited the improvement of services provided by government bodies. For example, many government bodies, especially the SCRO, could not provide a sufficiently efficient and effective public service because of the difficulty of handling large quantities of paper documentation.

In order to identify clearly the core problems, numerous meetings, including brainstorming sessions, workshops, conferences and organisational interviews, were held in early 1994. These meetings involved various stakeholders across the Supreme Court, including judges, civil servants, personnel and finance staff, information systems workers and other employees. The barriers to delivering an effective service to the public were perceived by the stakeholders in terms of four major concerns. First, problems were identified through detailed environmental and organisational analysis, including the evaluation of structure, the size of the workforce, processes and technology. Outcomes generated from these exercises indicated that even though the government bodies did not face direct competition, as did organisations in the private sector, the need to leverage the level of efficiency by adopting cutting-edge technologies was evident. There was recognition of the importance of providing organisations in the private sector with a high quality of service and support. At a

more detailed level, issues related to service provision, such as the design of registry application forms, the length of waiting times, and the multiplicity of procedures the public had to go through when they applied for registry documents, were assessed. Prior to the project, the relationship between the public and the SCRO was clearly a vicious circle. As explained by one person queuing to apply for registry documents:

The services we receive from one government office are just as bad as the services from others. Certainly, there is no way that we would be treated in the same way by companies in the private sector; and if we were, they would be out of business. We can appreciate that government offices do not have the same amount of resources as those of some of the private firms. However, there is no excuse for not having the sense to see the need to treat citizens as customers and provide reasonable services to those who need them. Even some simple improvements, such as greetings to customers and being attentive and helpful, would not do anyone any harm. [Source: Interview with a member of the public at a branch registry office]

Closely related to the first set of problems, the second issue raised by the stakeholders was the bureaucratic, hierarchical and authority-driven image of the SCRO as perceived by the public and the SCRO's workforce. The implications of this image were twofold. First, the public were continuously faced with the problem of not receiving prompt service, and were often referred to other government bodies because they were not aware of the internal procedures of the SCRO. Secondly, the SCRO's workforce felt it was not able to provide the level of service expected by the public. This was because its workload was constantly increasing, yet the available internal support was not sufficient to motivate the workforce. Since the SCRO has direct interaction with the public, the relationship between the public and the SCRO would need to be significantly improved. Even though the SCRO does not face any direct competition, the importance of motivating staff members through service improvement cannot be underestimated. As one branch manager explained:

It became very difficult to handle and process each application for a registry document due to the increasing number of documents. Employee morale dropped to rock bottom. We could not go anywhere without any major changes. Our employees wanted to work in a place

where they could maintain their pride and provide an efficient service to all citizens. After all, we ourselves could be using the service anywhere in the country. [Source: Interview with a registry branch manager]

One approach to revitalising the relationship with the public was reflected in the third issue identified by the stakeholders: the need to change fundamentally the way in which information was managed in the SCRO. Specifically, the sheer volume of documents generated each year made effective information sharing across divisions exceptionally difficult. When information was widely dispersed in the SCRO and poorly managed, it was almost impossible to obtain comprehensive information. As one member of staff complained:

It was frustrating when we were preparing reports. I found it extremely difficult to chase after the right information, simply because you didn't know where you could get it. People seemed to place an awful lot of emphasis on security and authorisation, rather than on something that could make other people's lives easier. No one could be bothered unless

it had something to do with their work. [Source: Interview with a member of staff at the registry office]

Due to the fact that the information possessed by one division was often not available to other divisions, the public typically had to pay several visits to various divisions. This problem should have been avoided. Moreover, for the government as a whole, the information collected and managed by the SCRO was vital for other bodies, such as the Statistics Bureau and the Forecasting Department, which needed the information for strategic planning. Thus the value of initiating the SCRO programme was not merely in terms of improving the quality of service delivered to the public, but also in enhance the timeliness and comprehensiveness of the management of information across the government.

This benefit, derived from the more effective management of information, leads to the fourth issue identified by the stakeholders, which was the need to change the workforce's day-to-day work through improved information management. This issue needs to be investigated from several distinct but interrelated angles. In terms of the management of registry documentation, this was physically demanding, because

members of staff had to visit the storage room very frequently, manually photocopy the documents, and return the originals to where they were stored. As a result, members of staff, in particular those who worked in the Public Access Division, became physically and mentally exhausted. This problem was further aggravated because the demand for the service from the public was continuously growing. In particular, during the SCRO's 'rush hour' -- between 2 p.m. and 5 p.m. - members of staff were not able to take a break from their hectic workload. To overcome these problems, the stakeholders recognised the need to transform the SCRO into a paperless organisation. By digitising all paper documents into a database, the demand for physical copies would be significantly reduced. Moreover, members of staff would be better able to use their time for positive interaction with the public.

Initiation	Aspects	Related Elements
	Evaluating various requirements and potential achievable as a means of generating an optimal solution to address all stakeholders' needs and interests.	<ul style="list-style-type: none"> (1) Recognising the need to establish a nationwide IT infrastructure. (2) Identifying inadequacy in existing information-processing capacity of SCRO to provide unrestricted service. (3) Seeing the need to improve performance by aligning the new technological solutions with SCRO's business processes. (4) Aiming to change the image of the SCRO as being bureaucratic, hierarchical and authority-driven. (5) Searching and selecting a suitable outsourcing vendor for the project.
	Forming a steering group.	<ul style="list-style-type: none"> (1) To manage the budget. (2) To facilitate the selection of the vendor. (3) To select and form the project team. (3) To support the project team.
	Forming a project team and carrying out the initial project analysis.	<ul style="list-style-type: none"> (1) Selecting team members from two different groups (SCRO and Supreme Court). (2) Analysing current business processes and technology. (2) Evaluating existing performance as a base for goal-setting. (3) Identifying the needs of the public.

Table 4.1 The aspects and related elements of the initiation stage

4.4.2 The Adoption Stage

The adoption stage can be characterised as a process of rational and political negotiations in order to ensure organisational backing for the implementation of IT applications (Cooper and Zmud, 1990). Conflict and disagreement are more often

found at this stage in relation to decision making during political negotiations and planning. This requires strong coordination between other divisions and participants (Cooper and Zmud, 1990; Pinfield, 1986; Prahalad and Oosterveld, 1999).

After initiating the project, at the adoption stage the SCRO had to make some crucial decisions. First, it needed to address key regulatory issues. Due to the many regulations associated with SCRO documentation, the SCRO had to consult with the Supreme Court judges to clarify the legal implications of the project. For instance, the registry documents needed to be handled extremely carefully as they were deemed to be a part of national heritage. The processing of such documents had to comply with regulations governing the management of historical objects. The SCRO needed to make sure that these processes complied with the law and regulations in order to finalise project details.

Secondly, there were major operational matters, such as the need to finalise the outsourcing partner and the number of personnel involved in the project, to assign the members with responsibilities based on their expertise, to undertake action planning and timetabling, and to schedule the project milestones. In addition, technological

solutions needed to be considered, for example in relation to adopting a new server, PCs, networks and software, and developing a database based on the outcome of a technology feasibility evaluation.

At the SCRO, according to an interview with one internal member, the project's emphasis on operational matters at this stage placed particular emphasis on the issue of outsourcing. Members of the SCRO and the government saw outsourcing as something that would provide the means to combine the efficiency and expertise from the private sector with the public interest, accountability and broader planning functions of the government. Furthermore, the steering group members believed that this partnership would allow government and the private sector to learn from each other, thus creating a vital synergistic effect for both parties. In this respect, there is abundant evidence indicating that many countries have benefited from a more cooperative relationship between government and private organisations (Flora et al., 1992; Larkin, 1994; Rosenau, 1999).

At this stage, the relationship between the SCRO and the outsourcing company was not yet mature. In order to cooperate, both parties insisted on having formal meetings

every week, despite the hectic schedule, in order to gain a comprehensive understanding of the project. In addition, informal dinner meetings followed by formal meetings provided an opportunity for both parties to get to know each other socially and to gain significant background and behind-the-scenes information. For example, one dinner function after a long meeting provided previously undisclosed knowledge of the government's overall plan, thus helping to build a more detailed background to the project. This strategy also provided guidance on the expected outcomes and aims of the project. From the outsourcing company's viewpoint, these informal meetings were emphasised to find out where the real power lay just in case any crisis arose during the project life-span.

Although there is no magic formula for a successful public-private partnership, previous studies have identified several key factors. First, and foremost, a successful public-private partnership is often based on a very high level of cooperation between the two parties. The hallmark of a successful partnership is a cooperative and mutually supporting relationship, and a realisation that each party has a stake in the success of the other (Lockwood et al., 2000). Without this recognition and cooperation, the partnership becomes a waste of time and resources, and fails to produce the desired

results. Another key to a successful partnership is strong leadership (Flora et al., 1992). Because a partnership involves many players from both government and the private sector working closely in tandem, it is essential to have a coordinator who can provide effective leadership and can move the process forward by addressing the various complex issues that arise along the way. Another necessary element for a successful partnership is patience from the government and the private sector (Larkin, 1994). Successful partnerships seldom occur spontaneously. They require long-term investment and farsightedness from both parties. McGraw (1984) discusses several pillars of success in the public-private partnership. They include: a sense of crisis; a coherent strategy implemented by first-rate talent; performance measures; and some means of controlling the agenda. The SCRO case clearly illustrates the importance of high-level cooperation by both parties from the beginning of the project in order to achieve the benefits of full public-private partnership. In this case, various social meetings helped to enhance co-operation, enabling the parties to develop mutually supporting relationships for the duration of the project.

Thirdly, the SCRO needed to engage the steering group members to sustain the level of support required by the project team throughout the project. Due to the long project

life- span, it was necessary to involve steering group members from the start of the project in order to ensure that they appreciated the nature and scope of the whole project. This would help to gain their full support in the event of possible difficulties and complexities that might arise. Project team members anticipated the difficulties in relation to the cost and implementation of IT in various registry office branches. Although they were guaranteed a huge budget and full backing from both government and the public, the cost issues were never underestimated. Rosenau (1999) stresses that most of the challenges that public-private collaborations face are in relation to cost-shifting from one partner to another, and managing risk and uncertainty. The latter is certainly crucial to the success of any public-private partnership. Cost-shifting from the less profitable part to the public sector partner is one effective way to reduce risk (Rosenau, 1999). It can increase the attractiveness of the project from the private partner's point of view and demonstrate the government's active support and participation.

Overall, the SCRO case demonstrates the importance of the public-private partnership at the adoption stage prior to embarking on the implementation of the project. It shows that the project is more likely to perform well if there is broad community or societal

consensus around the value of the policy goals. Public-private partnerships are also likely to be successful if key decisions are made at the very beginning of the project and set out in a concrete plan, if achievable goals are set down, if incentives for partners are established, and if progress is monitored (Rosenau, 1999). If this can be achieved at the highest level of business and government, it is a very good sign for subsequent stages of the project.

4.4.2.1 Decisions to be Made

The results of the problem-identification process led to decision making on various transformation actions with three key objectives in mind for the overall transformation programme. First, the aim was to improve the work process in order to reduce the high workload. In practice, there was a reduction of 35 per cent in the time required to perform all SCRO tasks. Secondly, an effort was made to improve the quality of service by attaining greater efficiency and effectiveness. Thirdly, it was considered to be essential to create a synergy from the first two objectives in order to transform the SCRO as a whole from a paper-based, bureaucratic and inefficient organisation to a system of electronic-based government. The three objectives were integrated into the design, planning and implementation of the two building blocks (i.e. Business Process Reengineering [BPR] and the Internet project) of the SCRO programme. To actualise

the three objectives, the SCRO stakeholders teamed up with consultants from LGCNS³ to analyse the existing organisational processes and generate a 'comprehensive plan for action'. Issues considered in this plan included arrangements for human resource allocation, definitions of new work processes, the conditions required to enhance service efficiency, and the necessary training to enable members of staff to become familiar with the new processes.

The BPR project emphasised internal transformation and the foundations for computerisation. The Internet project focused on external links with the public and the need to provide better services. The BPR project was characterised by three main IT systems, namely the 'property registry application system', 'the reference and request for copies of documents system', and the 'statistical management system'. The Internet project involved creating a web page, building links with various government bodies, and integrating with the BPR project. More details of each system will be provided in the section on the adaptation stage.

The SCRO programme is unique in three ways. First, its uniqueness is reflected in the

³ LGCNS is the name of the consulting company. The CNS in LGCNS does not have one fixed meaning. According to the company, C stands for consulting, communication, connection and collaboration; N stands for network and new; S stands for solution, system and service. For more details, see Section 4.4.2.2.

way in which previous BPR efforts were built on for further process innovation, in this case the Internet project. Secondly, innovation was initiated and implemented not only within the governmental sector but also between that sector and the public in terms of enhanced interaction. Thirdly, the programme has involved a large number of stakeholder groups. For instance, in addition to LGCNS, many organisations in the public and private sectors, including the Assembly of the National Congress and financial institutions, have contributed to the project. The uniqueness of the SCRO programme provides an especially interesting context in which to examine, understand and conceptualise the process and dynamics of transformation. The following sections will explain in more detail how outsourcing arrangements were decided and how the project team was formed.

4.4.2.2 Outsourcing

The transformation programme was outsourced to an IT consulting firm – LGCNS. This firm was formed through a 50:50 joint venture between LG and EDS, and was originally named LGEDS. In early 2002, the joint venture partnership broke up. LG took over ownership and changed the company name to LGCNS. LGCNS benefited from the strong reputation already built by LGEDS in undertaking new IT projects in

the public sector. The firm's consulting service includes the review and analysis of overall organisational work practices, the design of organisational processes, and the provision of training to users at various managerial levels. The joint efforts of the two initiatives formed a large public sector programme, spanning a period of over nine years from 1994 until 2003. The overall cost is estimated as 450 billion Korean Won (approximately 240 million pounds sterling), which accounts for the largest IT outsourcing contract in Korea.

In anticipation of the start of the project, SCRO members prepared the project team room, produced ID passes and informed relevant departments. According to one SCRO administrator, this caused quite a stir in the Administrative and Management Department of the SCRO, since this was a new experience for them. The Department had to come up with new categories for designating the ID passes and also parking spaces. It also had to make long-term adjustments in the use of rooms for the project team, and had to prepare extra rooms for the anticipated large number of meetings that would have to be held. This was time-consuming work that required well-balanced planning. In addition, the SCRO had to provide IT hardware and computers for a large number of people. Because of an initial lack of resources, the Administrative and

Management Department had to request an increased budget. In the end, however, the consulting company decided to bring its own equipment to the project.

4.4.2.3 The Project Team

The master project was initiated in the Supreme Court in April 1994 by the Department of Strategic Planning with the aim of fundamentally changing the work process and thereby enhancing operational effectiveness and service quality. A central team was formed with 24 members, eight of them representing the Supreme Court and 16 representing the consulting firm. The eight members from the Supreme Court included one judge, the heads of the Strategic Planning, Administration and Law Departments, and four level-5⁴ civil servants from various divisions. These eight members did not have an in-depth knowledge of the method of BPR process implementation and the technological aspects of the Internet, but they were selected according to their experience and understanding of various functions and work processes in the Supreme Court. The other 16 members represented several hundred of the consultancy's firm's workforce; in that sense, the number of people from LGCNS

⁴ In Korea, civil servants in this context are ranked from level 9 to level 1. Civil servants who are ranked as level 1 have the highest pay and authority. By contrast, level 9 civil servants have the lowest pay and authority in the public sector. Level 5 civil servants are regarded as high-ranking officers as they are in charge of strategic planning. Furthermore, this is the dividing line between the upper and lower levels by examination.

involved in the SCRO programme at various stages was far greater than 16. The collaboration between members from the Supreme Court and LGCNS was built on the following format. While the consultants carried out most parts of the implementation, members from the Supreme Court were responsible for monitoring the project's progress and facilitating the development, nurturing and maintenance of social relationships between the consultants and the SCRO's staff members.

Hartley and Lord (1998) discuss issues of staff involvement and commitment to organisational reform in the public sector as a consequence of the greater emphasis on organisational change and strategic planning. Organisations have sought more employee compliance and conformity in order to gain the active commitment of staff through processes such as team-working. This approach also enables enhanced staff communication, participation and involvement in the modernisation of public administration systems (Walton, 1985). In this case, not all members from the SCRO participated in the formation of the project due to the large size of the organisation. However, the participation of SCRO members in the project consortium helped to create a sense of broader SCRO involvement. Other employees were able to contribute their opinions on the project and their expectations of outcomes through

communication with the internal project team members.

Due to the long duration of the programme, the membership of the project team changed over time. Difficulties stemming from personnel change influenced the implementation of the programme in two ways. First, new members faced a steep learning curve. Not only did they have to become familiar with their responsibilities; they also needed to understand the key events and problems that arose as the programme developed. Secondly, it was not always easy for new members to enter the social network established by their predecessors. Their lack of social contacts made it more difficult for them to obtain the information they needed. For example, it was noted by one of the consultants that

A project of this scale is always a difficult job not only from the project management perspective, but also from the viewpoint of the people who are carrying out the job. Most new people involved in the project have difficulties in obtaining a history of the project and an account of progress made so far, and gathering relevant information for the job. Meanwhile, how fast you can

adapt to the work depends a lot on the social network you develop.

As soon as you feel comfortable in the organisation, you are ready

for the work. [Source: Interview with a senior-level consultant]

In 1994, the SCRO project team initiated a distinction between the existing organisational processes and new processes by considering the former as an ‘as is’ model and the latter as a ‘to be’ model. The ‘as is’ model included the analysis of the existing processes and the efficiency of service delivery. This analysis was used to generate solutions that formed the basis of the ‘to be’ model. Specifically, the ‘to be’ model produced a blueprint which covered issues such as the new organisational processes, the required level of effectiveness, cost and risk analysis, human resource reallocation, and process execution.

Adoption	Aspects	Related Elements
	Addressing regulatory issues.	(1) Supreme Court judges were consulted over the legal implications of the project. (2) Project details were finalised for implementation to ensure that they complied with current regulations.

	Finalising some of the key issues of the project.	<p>(1) Finalising the outsourcing partner.</p> <p>(2) Projecting the number of personnel involved in the project and assigning involved personnel with responsibilities based on their expertise.</p> <p>(3) Scheduling key project milestones, including analysis, software programming, coding, implementation, pilot testing and service launch.</p> <p>(4) Deciding technological specification, including new server, PCs, networks and software, and developing a database based on the outcome of a technology feasibility evaluation.</p>
	Engaging the steering group members to sustain the level of support required by the project team.	<p>(1) Involving members from the steering group to attend all monthly project meetings.</p> <p>(2) Regularly updating the steering group about the progress</p> <p>(3) Informing the steering group about current and potential barriers affecting the progress.</p>

Table 4.2 The aspects and related elements of the adoption stage

4.4.3 The Adaptation Stage

The adaptation stage involved the implementation of IT including development, installation and maintenance (Cooper and Zmud, 1990). In the SCRO, the BPR project engaged process reconfiguration, the development of a computerised database and software programmes, and the establishment of a central Local Area Network (LAN) system to link 12 local and central electronic centres in order to improve the efficiency of public access to registry documents. The development of a computerised database and software programmes acted as a technical platform for the overall Property

Registry Application Process Programme.

The follow-up of the Internet Project aimed to improve the way in which the Registry Office delivered services to the public by building on the early work of the BPR project. The development and deployment of technology was intended to transfer paper-based information to the new computerised database, which networked 241 registry offices throughout the country. The Internet project involved shaping a service strategy plan, the development of a web site (<http://registry.scourt.go.kr>), and taking account of a number of key issues, such as the need for IT security and the process of interlinking with financial institutions for a fee-paying service via the Internet for the purpose of service delivery.

The initial work started with the design of three systems in accordance with the results derived from the system analysis method. Once the systems were designed, the installation of hardware and software proceeded in conjunction with other activities, including training the users and testing the new systems individually and as a whole. While the installation was in progress, another activity was to digitise all paper documents – amounting to about 160 million pages -- into electronic form. The aim

was to reduce the amount of manpower needed to deal with documents, and to create a centralised database that would eventually be shared and networked throughout the organisation. A property registry application system was installed to allow members of staff in the Administration Division to input application information documents more quickly. The reference and requests for copies of documents system helped members of staff in the Public Access Division to retrieve electronic documents efficiently. The two systems further enabled other supporting tasks, such as the provision of statistics and the management of information. More detailed accounts of each system will be provided below.

4.4.3.1 The Property Registry Application System

The need for an improvement in the property registry application system was articulated during the problem-identification stage. From the employees' perspective, simplified application forms were needed for two reasons. First, too much time and effort was needed to process the existing forms. The implication was that once information was processed by administrative personnel, such information could be modified relatively easily compared to information in paper form. Secondly, there was a need to enhance collaboration across divisions. This is because the information

processed by the administrative personnel needed to be double-checked by the Correction and Investigation Division. The exclusion of all unnecessary information from the application forms meant that the investigation process could be streamlined. The introduction of the new system and simplified application forms helped not only to automate the workflow in the SCRO but also to support the new work process, thereby reducing the length of time needed to investigate, correct and store the application information. This benefit was also welcomed by the public. In particular, the outdated style of application forms had caused much confusion, and people had found it very time-consuming to complete the forms. By comparison, the new forms were much clearer and easier to fill in. This was particularly important for the public because fewer errors in the application forms meant that there was less need for correction.

4.4.3.2 The Document Referencing and Requesting System

In parallel with the above system, another initiative was to introduce a system to facilitate the process of referencing and requesting registry documents. All individual PC stations in registry offices across the nation were networked to the central server in Seoul, where all information related to property registration would now be stored.

By allowing all members of staff throughout the country to gain access to the centralised database, registry office employees could effectively retrieve and print out any documents requested by the public and stamp them for verification.

The benefits deriving from the implementation of this system are threefold. First, employees in the Public Access Division now have to handle less paper. For example, the old practice of handling papers by fetching documents from cabinets and the stockroom has been replaced by a new process that allows the work to be done in one place through a networked PC (Personal Computer). Secondly, members of staff in different registry office branches are able to obtain information directly via the national network. This means that there is no longer a delay in requesting information from other branches. Thirdly, the public also benefit from the new system because the service provided by the SCRO has become faster and more reliable. Moreover, certain services, such as those relating to property registry documents, can be obtained from self-service machines in various locations such as local council offices and registry office branches.

4.4.3.3 The Statistical Management System

The statistical management system was designed to analyse the registry information that is continuously generated by the Administration Division. Some of the analysis carried out by the system produces demographic information which highlights important demographic change throughout the country. The introduction of the statistical management system not only created a mechanism to automate the process of producing statistical reports but also helped significantly to improve the quality of those reports, in particular in terms of their timeliness and accuracy. For members of staff in the Statistics Bureau, the new system not only helped to reduce the amount of work involved in processing, preparing and producing reports but also helped other governmental bodies by cross-sharing information and statistics. This is because relevant government bodies need to utilise these reports for policy making. The significant improvement of statistical report quality and efficiency has enabled policy makers to shape new policies accurately and promptly, and to modify existing policies to reflect the needs of the public. In the future, the new system will serve as a communication mechanism across the government. Governmental bodies, such as the Tax Bureau and District Councils, will benefit from the notification of information that stems from declarations made by the public. For example, the Tax Bureau will

receive automatic notifications through the new system. Hence, a letter to the new owner of land or property will be generated and posted once the ownership has been established. While the above three systems were implemented to enhance the efficiency and quality of service delivery by the SCRO and the government as a whole, the focus is mainly within the government itself. To ensure that the public can obtain services via different channels, such as the World Wide Web, the Internet project was initiated. More details of this project will be provided in Section 4.3.4.1.

4.4.3.4 Coordination Difficulties

Although everyone tried hard to meet their responsibilities on the project, problems were encountered when it came to the coordination of the project. First, the problems became apparent when there were changes in the membership of the project team. Due to the length of the project life-span, it was inevitable that there would be changes of team membership, for personal reasons and because of the impact of the restructuring of the external consulting company. Membership changes affected the project team in both positive and negative ways. Positively, the new members broke the inertia within the team. Negatively, the project team had to make an effort to introduce new members to the overall development of the project.

Secondly, coordination difficulties emerged due to the heavy workload and psychological burden assigned to the team members. By this stage, the internal team members were not actually present within the project team. Although they still acted as a link to the external members, they had moved back to their own offices. This increased the external consultants' workload, in particular the time needed to manage and check the project process, and report to relevant personnel in the SCRO.

Thirdly, problems arose in the working arrangements between the project subgroups. These subgroups consisted mainly of external consultants who worked separately in different branches of the registry office. This geographical dispersion of the subgroups encouraged each of them to develop its own ways of working and participating with branch registry offices. Good social relationships had to be developed as these were essential to the emergence of a shared understanding between project subgroups and branch registry office members. It was also essential, while the subgroups were working in the branches, to develop a shared understanding with the head project team members. Inevitably, the dispersed project subgroup members felt isolated (see Nohria and Eccles, 1992). This sense of isolation was recognised by interviewees when they talked about the existence of organisational silos. Difficulties in cross-functional

communication- and knowledge sharing became evident with the emergence of these silos within the project team. Since the project subgroups were away for three to six months, it was enormously difficult to narrow the silo gap, and this intensified the social isolation of the different subgroups. In order to overcome the distance barrier, use of the Intranet became vitally important as a means by which the project members could communicate their problems and exchange solutions. This encouraged information sharing and collaboration across different functions and branches, and helped to overcome the feeling of isolation of the project team members (Ciborra and Suetens, 1996; Jarvenpaa, Knoll and Leidner, 1998). According to one interviewee, this was particularly helpful when the subgroups were located away from their colleagues as it helped to provide a sense of continuous involvement.

Finally, the technical dimension of coordination had to be addressed. The project scope demanded a high level of coordination between different technological experts. The lack of communication between different technological experts in the project team led to disaster before the launch of the pilot test. This was a time when the SCRO needed to show the public and the steering committee that the project was proceeding on time. However, trouble arose when it was noticed that the data had not

been transferred from the old testing server to the actual server. It was therefore clear that the pilot testing would have to be postponed. First, the project team had to move quickly to make sure that every relevant party was notified in order to reduce disappointment and embarrassment. In so doing, it enlisted the help of the PR section of the head office. Secondly, the project team needed to find out exactly how long it would take to transfer the data. At this point, the project manager ordered the project team to identify the earliest possible date for completion. Thirdly, the team had to prepare a report on this crisis and how it happened. The report concluded that the core problems were poor communication and failure to confirm the process of data transfer. No one in the team had recognised these failures because it was assumed that the expertise of all team members could be taken for granted.

4.4.3.5 Operational Difficulties

Apart from the difficulties associated with the coordination of the work of the project team, a number of general operational difficulties became apparent at this stage. Despite numerous meetings, brainstorming sessions and agreements, several obstacles had to be overcome. In the early stage of the programme, problems emerged relating to new processes and law; and in the later stages the main problems were linked to system implementation, e.g. difficulty in operating the system in pilot services,

especially the management of the server transfer from the old version to the new version. In addition, people issues became more apparent. Staffs were not informed properly of the new work schedules and the specification of the IT systems to be used, and this caused a lot of errors. A more detailed account of specific operational difficulties will be presented below.

4.4.3.5.1 Regulations

The main difficulties were seen in relation to regulation issues, which caused delays in opening the improved SCRO service to the public. According to four interviewees, one of the most unexpected problems emerging during the implementation of BPR and amplified during the Internet project concerned the issue of regulations. Despite the fact that the implementation of the BPR and Internet projects was complicated in terms of their duration, scope and scale, most of the team members commonly agreed that a large proportion of effort was devoted to managing regulatory problems. The challenge for the project team was to solve and deal with regulations in order to make the process work. For example, the project team had to check every new process that had to be implemented with the appropriate governing body. Even though all team members had a common understanding of project and process management, it was

argued by one of the members that they did not have sufficient experience in dealing with registration documents, relevant regulations, and details of the law. For instance, during the planning stage of the Internet project, team members considered having a system that would allow the public to submit registry applications on-line. However, it soon became apparent that, according to the existing regulations, such electronic submission of applications would not have the same legal validity as applications that were submitted in person.

In addition to the legal requirements for registry document applications and requests, the team also encountered some regulatory difficulties in dealing with existing registry documents. Team members' reliance on regulators' confirmation of regulatory compliance caused significant delays. It was not always easy to match complex registry documents, some of them a hundred years old, to the appropriate regulations. Team members had to categorise all documents for the purpose of putting them into electronic form. If any of the categories were unusual, they had to find the best way to incorporate them into subcategories, or, failing this, they had to consult with members of the SCRO. In many cases, the discussions went on for some time, and this meant further delays. The project team found it very difficult to standardise the digitalisation

of data, and team members found themselves constantly having to raise the issue of regulation change. For example, the content of many registration documents was very complicated, and this inevitably delayed the implementation of the BPR project. This is because additional resources were required to double-check these complicated documents. Moreover, some registry documents relate to issues of national heritage. Hence, the way in which these documents are handled must comply with the regulations governing the management of historical properties and objects. In summing up the seriousness of the regulatory problems, one manager stated:

We did not realise that we have so many complicated and outdated documents which need organising; some are in great need of conservation. In particular, properties and lands owned by more than one person take more time to deal with than others. And when this happens, double-checking is needed by authorised personnel to make sure that the document will not cause any legal disputes. [Source: Interview with a registry branch manager]

Another manager, in charge of system management, observed:

When these issues arose in the first place, we spent a lot of time in our group discussing how we could overcome them. In particular, we had to take into account the regulatory implications of our systems development in order to satisfy the management groups. In hindsight, we could have spent more time thinking about a better solution. However, given the tight deadline and the pressure from the management groups, we could only schedule our work into various segments. So we did what we could, and we compromised when we had to. [Source: Interview with a system management manager]

At this stage, the project team was engaged fully in moving the project on. Daily meetings between the project subgroup leaders and members, as well as two meetings per week between different departments of the SCRO working together helped to promote good communication. A project team was responsible for the full review of the project plan, overseeing the detailed technological and process implementations. Also, the project team needed to make sure of any modifications that were needed in accordance with their findings. For example, in the adoption stage they had identified the importance of regulation issues. This meant that they had to verify all

technological specifications in order to comply with the regulations. While the project team members were setting the ground for the implementation, those who were responsible for technology development began their work. This included the preparation of infrastructure, customising the systems, and installing new hardware and software.

4.4.3.5.2 Systems Operation

At this stage, technological complexity was another major challenge for project members. It proved to be especially difficult to build the backbone IT structure, which would have to carry all the network systems. But once this task was accomplished, the team members could see the end product more clearly. The accomplishment of this great IT success also meant that the project team members could test the new system as frequently as possible to ensure that the new processes and the database were working properly.

Technical concerns related to the implementation and operation of systems started to emerge at various stages of the BPR project. For example, during database development several concerns were raised because all information related to any registry changes (e.g. ownership and shareholdings) needed to be stored. In order to

comply with the regulations, the database design team had to take into account the length of time, as stipulated by the regulations, for the storage of transaction details.

As one IT development manager explained:

As with other database-related projects, we do have to make decisions on how far we should take history management for the database. In particular, when you handle documents containing information about the public, you have to recognise the fact that the information is the government's property. To handle this type of property, you have to understand that no mistake is allowed. Also, not knowing whether to keep or delete the information, you tend to keep everything for the sake of being legally correct. [Source: Interview with an IT development manager]

In contrast to the view of the database expert, a different perspective on information management emerged. For instance, one manager from the registry office noted:

We would like to keep everything because it will be used in the future.

That is why we have to insist that the database will store all information during the design stage. We know that this might not be technically sensible, but at the end of the day we are dealing with registry information. It is always better to have over-stored information than omitted information which might be needed in the future. [Source: Interview with a registry office manager]

Another issue that arose during the pilot testing was the problem of testing failure caused by poor communication across various divisions within the SCRO and between the SCRO and LGCNS. According to one manager from the IT Division, during the pilot testing, information stored in the testing server was supposed to be transferred to the actual server. However, poor coordination and planning between the IT personnel in the SCRO and LGCNS meant that there was a miscalculation of the amount of time required to get the transfer ready. Even though the initial testing was, according to some interviewees from the SCRO, a disaster, some high-ranking personnel did not want to make a big thing out of this incident; rather they wanted to concentrate on solving the problem and making sure it would not happen again. In retrospect, it is clear that the way in which this failure was interpreted varied between

the SCRO and LGCNS. For instance, IT personnel from the SCRO considered this failure to be due mainly to manual errors occurring during the manual uploading and downloading operated by LGCNS. However, for personnel from LGCNS, the problem was due to the existence of major barriers to effective communication between various divisions of the SCRO.

Several interviewees commented that the implementation of the new systems was satisfactory. In particular, the property registry application and the document referencing and request systems were found to be very useful for handling the growing number of applications. Also, the networked and centralised databases provided a common IT platform to share information more effectively than before. The improvement of information sharing was generally welcomed by members of staff working in branches outside Seoul.

4.4.3.5.3 People

Another difficulty faced by the team was related to the sheer number of stakeholders involved at various stages of SCRO programme implementation. Stakeholders who were directly or indirectly responsible for the programme implementation included the project team, relevant departments within the SCRO, and government bodies outside

the SCRO, such as the Ministry of Planning and Budget and the Ministry of Law. The project team consisted of eight members from the SCRO and 16 from LGCNS. At the initial stage, members from the SCRO did not have any technological background in the new systems and their development processes; and members from LGCNS did not have a sufficient understanding of the work procedures performed by the SCRO. The project team reported directly to the Strategic Planning Department, which then reported to the Court Administration. In addition, the Ministry of Planning and Budget authorised, evaluated and audited the amount of money spent by the SCRO on a yearly basis. Because of the large number of stakeholders, it took a long time to reach an agreement, and the project team encountered difficulties in obtaining sufficient resources for the implementation. Also, the degree of flexibility of programme implementation was limited because of the way in which decisions were made and resources were allocated. For example, when the project team proposed an outline strategy to the stakeholders, a lot of time was spent deciding and clarifying what level of personnel should have the authority to review and change the registry documents, e.g. in terms of ownership and address, and confirming any changes with relevant departments. According to one project team member:

We have faced similar problems with projects that involved many stakeholders. In particular, when the subject matter is sensitive, i.e. concerning regulations, we need to be aware that each stakeholder's opinion is complicated but at the same time valuable. In order to make the change happen, we have to make sure that we take into account all viewpoints expressed by the stakeholders, in particular subjects that are regulated by laws. [Source: Interview with a project team member]

Because of the involvement of so many stakeholders, the team spent a considerable amount of time organising meetings with personnel who represented different parts of the government. The need continuously to organise meetings and seminars made the team aware of the importance of better time management to ensure that the programme would be implemented properly. Meetings often had to be extended because of the need to solve problems that had not been foreseen during the planning and design stages. For example, during the implementation stage there was a discussion of the need to develop a new IT system to support one of the SCRO's functions -- to allow national house bond certificates to be issued and confirmed instantly.

In addition to difficulties stemming from the number of stakeholders, differences in stakeholders' expectations were also evident. Because the programme was perceived as a showcase for the e-government initiative in Korea, there were high expectations not only from the SCRO but also from other governmental bodies, the public and LGCNS. These high expectations undoubtedly added to the pressure on the project team, e.g. in terms of ensuring that key milestones were achieved and the programme costs were kept within the available budget. Moreover, major events, such as the announcement of the programme and pilot testing, were intensively reported by the media. This suggests that the team and the SCRO as a whole were constantly monitored by the public.

According to three project team members, the employees within the SCRO were another source of high expectations. In particular, the workforce's strong belief in the potential benefits of the programme, e.g. in terms of reducing the workload and improving the efficiency and quality of the services provided by the SCRO, forced the team to pay close attention to these issues. The key necessity was to ensure that users' expectations were aligned with the programme. One interviewee from the project team offered the following observation:

There really is a huge amount of budget involved in this project. To deliver the benefits to the workforce and the public makes it truly worthwhile to go through all the troubles and spend time making sure that we have done a proper job. We just hope that this project will not run over the time that we originally proposed. [Source: Interview with a project team member]

4.4.3.6 The Progress of the Project

Following the organisation's decision to initiate the project and adopt a new process and technology in the SCRO, there were changes in users' perceptions of the implementation. This trend supports the argument of Leonard-Barton and Deschamps (1988) that users' perceptions and managers' attitudes have an impact on their willingness to support the installation and implementation of a project. Many studies emphasise that if an organisation is to adapt effectively to enable the use of a new technology, it is necessary to foster the mutual adaptation of both the organisation and the technology (Attewell, 1992; Barley, 1986; Leonard-Barton, 1988; Orlikowski, 1993, 2000; Szulanski, 2000). In other words, technology and its social context are mutually interdependent: a technology is constructed and enacted by human agents,

and at the same time it constrains or enables human action (Orlikowski, 1992). The SCRO's effort to promote the project and keep stakeholders and organisational members informed ensured their willingness to support the installation and implementation of a project.

For those involved with overseeing the project progress at a high level, formal report meetings and social meetings were continually held as a means of encouraging awareness. As time passed, the social meetings played an important role in cementing social ties, which would be vitally important if any crisis emerged. In the Korean context, during social meetings people often seek to identify social ties, explore political affiliations, and discover links through schools and places of birth. This process is further heightened through the identification of certain common interests, such as expectations of monetary benefits, power, authority and social status. In some circumstances, these processes can contribute to organisational conflicts such as intra-management distrust and rivalry. However, in the SCRO case there was positive encouragement to develop strong ties with high-level stakeholders. According to one project member, informal meetings after a formal presentation were often used to gather more detailed information.

4.4.3.6.1 Training Courses

The project team organised training courses and workshops for every level of the registry office to equip end-users with the necessary skills. For example, the training offered to registry managers included system training, office management under the new system environment, system management training, and management for new procedures and employees. More direct operational-level training was given to office employees – including system training, change of roles with the new system and new procedures, system operation and management training. The importance of fostering constant awareness and encouragement (Huang and Newell, 2003) is clearly demonstrated in this case.

The effects of all the training courses at the managerial and operational levels only became apparent at a later stage. At the adaptation stage, after several training sessions, it was noticed that the managerial-level employees were facing some difficulties. Unlike operational-level employees, they were slow in taking instructions and found it difficult to encompass the overall functions of the system. Accordingly, operational-level employees guided managerial-level employees in the use of computer-based learning. They did so with some caution as they did not want to offend their seniors.

Therefore, in parallel with the implementation of the BPR project, various training courses, e.g. in using new software, customer interaction guidance, and new procedures, were organised for the employees to prepare and become familiar with the new process.

Table 4.3 presents a summary of the training courses provided to registry office members of staff.

Personnel	Registry Office Managers	Registry Office Employees
Training Courses	<ul style="list-style-type: none"> ▪ System training ▪ Office management under the new system environment ▪ System management training ▪ Management of new procedures and employees 	<ul style="list-style-type: none"> ▪ System training ▪ Change of roles with the new system and new procedures ▪ System operation and management training

Table 4.3 Summary of the training course offered to registry office staff

Source: Consulting company internal document

Even though various training courses were tailored to fulfil each user's specific needs, the extent to which users became familiar with the new systems varied. A strong generational divide was evident. As suggested by some of the interviewees, those who

had never used a computer before found that the effectiveness of the training courses was very limited. By contrast, those who were younger found that they were able to benefit from the courses because they could explore their existing computing skills through close interaction with the trainers. One of the implications of this generational gap was that when those younger members of staff were off sick, those who did not have strong IT skills found it difficult to cope with the tasks that they were asked to perform temporarily. The problem of equipping the older users with adequate computing skills cannot be underestimated. According to two interviewees, the only way to explore fully the potential of the new systems is to rely not only on the maintenance of the systems but also on the appropriate level of skills possessed by the users.

Adaptation	Aspects	Related Elements
	Modifying project plan to comply with the regulations.	(1) Investigating possibilities on law change. (2) Making a decision to modify project plan to incorporate regulations.
	Establishing the technical infrastructure, the systems were customised, and new hardware and software were installed.	(1) Customising the new systems used in all parts of the SCRO. (2) Replacing and upgrading old hardware. (3) Installing new software.

Promoting the project to ensure that various stakeholder groups are aware of the progress and their expectations are carefully managed.	<ul style="list-style-type: none"> (1) Organising training courses and workshops to equip end-users with necessary skills. (2) Various road shows are arranged to communicate and showcase key milestones that the project has achieved. (3) Utilising various media channels to inform the public about the project's progress.
Resolving co-ordination difficulties experienced by the team.	<ul style="list-style-type: none"> (1) Overcoming new team members' learning curves, resulting from personnel change in the team. (2) Distributing increasing workload to the team members. (3) Communicating assumptions held by different experts in the project team (e.g. when there was a need to transfer data to the new server).
Managing emerging operational difficulties:	<ul style="list-style-type: none"> (1) Evaluating delay caused by the amount of time required to address the issue of regulatory compliance. (2) Understanding and assessing the interdependence between individuals' tasks and the potential chain effect on delay when one member's task was delayed. (3) Standardising the way of which recorded data was digitalised.
Addressing some of the unexpected technological complexity.	<ul style="list-style-type: none"> (1) Evaluating the continuous growth of the project scale due to the increasing need for networked systems (2) Fulfilling the increasing shortage in different technological expertise required.

Table 4.4 The aspects and related elements of the adaptation stage

4.4.4 The Acceptance Stage

The acceptance stage involves the satisfaction of organisational members with the use and performance of the implemented application (Cooper and Zmud, 1990). The variation in organisational-support levels can be seen at various stages of the SCRO project from initiation to infusion. A detailed account of support at individual stages is

presented in the next chapter (Chapter Five) with a full account of the analysis. Here, the discussion of 'acceptance' (using this term suggested by the six-stage transformation model, although it clearly implies the notion of 'organisational support') is focused on a general account of the case in response to system implementation.

After the adaptation stage, the immediate benefit of the new organisational processes and system had a huge impact on employees' acceptance of the project. The new system allowed an immediate reduction of the workload for employees in the Public Access Division of the registry office. For example, the amount of time required to retrieve documents from the storage room and photocopy them was reduced by installing computer systems on the counter. This allowed employees to improve work efficiency, including the processing time and information quality and accuracy. For the public, the new organisational process helped to improve access to information through different regional offices and branches without having to travel. This changed the public's image of registry offices as boring, dull and incapable of responding to the public's needs. The public's experience of higher standards of public service in turn persuaded SCRO employees to support/accept the project. The issue of user

support is discussed by Davis et al. (1989), who suggest that the use of a system depends on the prospective users' attitude to that system.

Users' (employees') attitudes reflect their perceptions about the system's usefulness and ease of use, thus emphasising the crucial role of system design. Others focus on immediate organisational factors, in particular how users of the system see and interpret the wider context within which a system is designed and used (Dishaw and Strong, 1999; Knights and Murray, 1994; Markus, 1983; Walsham, 1993). Others examine how influential players interpret and react to external changes (Boddy et al., 2000; Dawson and Gunson, 2002). In the SCRO case, the recognition of the new benefits of the system through the training courses encouraged the employees of the registry office to reflect on their perceptions towards the acceptance of the system in the workplace. In addition, the various players, such as registry office employees, the project team and the public, interpreted and valued the implementation of the system as they responded to the new context. This provided an opportunity for the players to adopt a wider view of the registry process, giving them a greater sense of control over what they were doing.

In terms of the usage rate of the new systems, interviewees commonly suggested that during the first six to eight months the majority of users only used a very small proportion of available applications. Through the training courses and frequent use of the new systems, members of staff continuously exploited the potential embedded within the systems. For example, in the beginning they were using the systems for specific tasks only; but over the following months they explored other related tasks, e.g. opening and viewing data on the number of times a registry document was requested during a particular time period. The need to become familiar with the new systems and procedures was also reflected in the way in which the public obtained services from the SCRO. In particular, the increasing number of services delivered via different channels, such as self-service machines, required the public to be aware of the new instructions in order to use the services effectively.

While the number of offices providing services via different channels is still increasing, future plans, built on both the BPR and Internet projects, are also being initiated. For example, according to some SCRO officials, the existing services will be extended by allowing the public to submit registry application forms via the Internet. Another initiative aims to overcome the problem of the lack of legal validity of

documents that are downloaded and printed from the SCRO's website. The SCRO, after consulting the Law Department, discovered that the submission of application forms online would not have the same legal validity as submitting the forms in person.

As one representative from the LGCNS put it:

We have been facing regulatory issues from the beginning of the project.

This has been one of the major concerns in deciding what we should do and how we should change and validate registry documents. Some brilliant ideas could not be fully actualised simply because of their legal implications. For example, to make services available through the self-service registry document vending machines is a wonderful idea.

However, at the moment, the machines can only provide very limited functions. Surely, regulations need to be changed. When they are, we will be able to add more services to whatever we are currently able to offer. [Source: Interview with a LGCNS consultant]

Acceptance	Aspects	Related Elements
	Impact on organisational process.	(1) Reduced workload. (2) Improvement of work efficiency, including processing time, information quality and accuracy. (3) Improvement of access to information for different regional offices and branches.
	Users' perceptions	(1) Users were generally satisfied. (2) Employees could see the usefulness of the project because of its timeliness, the reduced workload, and the benefit of having a centralised database. (3) Employees agreed that the service provided to the public had improved significantly.
	New problems encountered.	(1) Generation gap between young and older users. 2) Users' learning curve for maximising the potential of the system. 3) High expectations from the public, in particular of the SCRO employees' capability to use the new system, created unnecessary tension.

Table 4.5 The aspects and related elements of the acceptance stage

4.4.5 The Routinisation Stage

The routinisation stage involved the use of IT applications as a normal activity.

Organisations are constantly engaged in finding orders which separate them from external uncertainty by emphasising efficiency, standardisation and routinisation after IT implementation (Cooper and Zumud, 1990). At this stage, in the SCRO case, emphasis was placed on efforts to routinise the new process and the use of the system.

This involved providing continuous training sessions to employees for more advanced

use of the system. At the training sessions, employees were encouraged to make mistakes while they were undertaking sample tasks. Many of the advanced sample tasks were built on more simple daily tasks that employees were performing. This enabled them to go through the experience of building on various tasks while at the same time providing an opportunity to master their job functions. For example, the back-office personnel were able to use the new system to produce highly graphical reports in addition to the standard ones that they had learned from their basic training courses.

As well as the formal training sessions, employees (users of the system) shared their experience of using the system through informal interactions, such as coffee breaks, lunch breaks and social events. Such informal occasions, especially coffee breaks, encouraged a more detailed exchange of individual experiences. Even when senior employees were present, there was an honest discussion of any problems that had been encountered in using the system, and suggestions were made for overcoming these problems. More general accounts of the project and the atmosphere of the registry office were exchanged during social (dinner) events. Here, quite often employees were able to show off their skills and joke about the people who were not very good at

using the system. This lightened discussions of the difficulties involved in absorbing the new technology, and smoothed out the situation for those who were not sure what to do.

The process of routinisation involved clear steps forward in the use of the new system. For example, there was evidence that the time taken to deal with a document was reduced from several minutes to a few seconds. At first, there were difficulties, e.g. even searching for the right icon on the computer screen took time; but gradually, as operators began to feel comfortable with the system, it became easier to understand and link the various functions and make sense of any mistakes that were made. In addition to the reduction of time, consistent results on high levels of usage were found over a three-month period. The assessment of users in applying basic system functions helped to achieve routinisation. The assessment was carried out by examining how users worked and by asking them to complete a simple questionnaire. The purpose of these assessments was *not* to assess users' actual ability to use the system, and there was no intention of taking into any matters regarding pay or other working conditions. The purpose was to boost the speed of the routinisation process via a type of formal recognition.

However, the assessment caused controversy within the registry office. Rumours began to spread that one had to achieve a high score in order to satisfy the management level. The management in turn felt that these kinds of rumours were at least helping the employees to settle down into their routines. Employees were still concerned about the possibility of unfair evaluation, discipline and reward practices. Bae and Rowley (2000) argue that performance evaluation is sometimes biased and subjective, and that managers cannot always make an objective assessment of performance and recommend a fair system of reward and punishment because the expression of honest opinion may invite unfavorable consequences. In this case, many employees were worried about the evaluation, but they were satisfied by the manager's assurance that the results would not be used in any way that was detrimental to employees.

As routinisation became established, employees gained in confidence when using the new system in front of the public. They seemed to be much more relaxed when they had to face the public. They smiled more and engaged customers in friendly conversation. At the same, they were able to process documents efficiently. This confirms the finding in the literature that IT does improve access to public information

for citizens (Scheepers, 1994; Steyaert, 2000), and facilitates communication between citizens and public sector employees.

Routinisation	Aspects	Related Elements
	Routinising the new system and process.	<p>(1) Providing continuous advanced training sessions for users.</p> <p>(2) Increasing ability in the back-office personnel to use the new system to produce highly graphical reports in addition to the standard ones that they had learned from the basic training courses.</p> <p>(3) Sharing experience between users through informal interactions (e.g. coffee breaks, lunch breaks and social events).</p> <p>(4) The time required to process a document was reduced from several minutes (searching for the right icon, linking different functions, and making sense of mistakes) to a few seconds (as an automatic procedure).</p> <p>(5) The assessment of users in using basic functions of the system showed consistent results over a three-month period.</p> <p>(6) Growing capacity to provide better services to the public through utilising the new system.</p>

Table 4.6 The aspects and related elements of the routinisation stage

4.4.6 The Infusion Stage

The infusion stage is marked by increased organisational effectiveness. In this case, this was obtained through the use of the IT application in a more comprehensive and integrated manner (Cooper and Zmud, 1990). Through the implementation of the

system, organisational effectiveness increased with the further routinisation of use of the system and the consequent infusion of system benefits.

Some of the evident benefits were: an increased information-processing capability; enhanced integration; an enhanced capability to retrieve information; and geographical diversity of access. First, the immediate benefits could be seen through the employees' ability to process cases in a shorter time. For example, the availability of the computerised database allowed employees to search, download and print registry documents from the database, rather than having to go to the storage area to obtain files of documents. This made it much quicker to access, retrieve and photocopy paper-based documents. In turn, this generated more spare time for users, in particular those who directly served the public, since they could now handle more enquiries without compromising service quality.

Secondly, there was an enhanced integration between different divisions within the branch registry office and between different registry offices. Within the branch registry office, employees were able to share information without having to trace the document physically. With the help of the new system, they knew the exact status of a

registry document, for example if it were pending, being processed or finalised. Between different registry offices, there was now the possibility of shared access to documents. The enhanced integration of work processes between different divisions and branches points to the importance of knowledge integration as a process that enables information sharing to take place across functions.

Thirdly, a new, much improved capability to retrieve information was established. It was not only the various divisions and branches of the registry offices that benefited from improved information sharing. Policy makers in different government bodies were also able to benefit from the timeliness, comprehensiveness and accuracy of information. Before, policy makers had depended on paper-based statistical data, which had often led to reporting delays and the inaccuracy of information. However, with the help of the new networked system and the establishment of the centralised data warehouse, any authorised persons could retrieve the statistical information required to process, prepare and produce reports. All employees benefited from the new cycle -- from information collection to improve information-sharing. They were able to retrieve and share information more easily without geographical restrictions and time delays. Furthermore, SCRO staff now had to spend much less time on

paperwork and manual tasks, which meant a great increase in efficiency. The Administration Division was especially pleased because of the reduction in processing time; the Correction and Investigation Division was impressed by the fast and effective retrieval of documents; and the Public Access Division was delighted that the public's enquiries were dealt with instantly. The importance of these trends is confirmed by the literature on the impact of information sharing (e.g. Combs, 1993; Hansen, 1999; Solomon, 1998; Vadlamani, 1997) and knowledge-integration processes (e.g. Huang and Newell, 2003; Pisano, 1994). Researchers have argued that information sharing facilitates knowledge creation and improves the integration of work by assembling dispersed knowledge embedded within various parts of the organisation. In the SCRO case, the integration of new work processes has contributed greatly to better information sharing, which in turn has made it easier for employees of different government bodies to create new knowledge. For example, the Tax Bureau and district councils can now easily obtain the information they need from other government agencies. According to internal assessments, this should make it much easier to produce reliable reports based on accurate statistical information.

Finally, geographical diversity of access has been achieved. The public can now

request a registry document from any registry office located near them without having to travel to the place where the document was first registered. The public can also request documents by telephone, through the Internet, and by using vending machines. These other means of access have also led to a reduction of employees' workload, thus enabling them to concentrate on customer service.

4.4.6.1 The Internet Project

The Internet project started in 1998, when the popularity of Internet technology was sweeping from the private sector to the public sector. During the implementation of the BPR Project, it was recognised by the SCRO project team that the benefits of Internet technology could be incorporated into the project. One of the benefits enabled by the Internet technology was the possibility of changing the way in which the public registered, applied for and requested registry documents. In particular, members of the public with Internet access would be able to access the SCRO's services directly without having to visit the registry office. This would have the potential to improve greatly the level of convenience for the public and reduce the workload of staff by promoting customer self-service. These considerations persuaded the SCRO's stakeholders to embark on the Internet project as an extension of the SCRO

programme.

Specifically, the purpose of this project is to enhance the level of interactivity of communication between the government and the public. This enhancement not only helps the government to understand the needs of the public but also allows the public to express their opinions more effectively to the government. For example, the SCRO's web site is regularly updated to ensure that the public are aware of any service changes. Moreover, a Bulletin Board System (BBS) is available on the SCRO's web site to enable the public to express their opinions and make suggestions. When the public submit their opinions to the site, the webmaster will reply according to the content of those opinions. In addition, according to some of the SCRO stakeholders, the initiation of the Internet project helped enormously to change the government's image from 'old and bureaucratic' to 'active and service-oriented'. Figure 4.5 shows one example of a web page that presents a new, modernised image of new Internet-enabled government.



Figure 4.5 Web page of the SCRO

Source: <http://www.scourt.go.kr/main.html>

This project was assigned to the same IT service provider -- LGCNS. Based on the combined, collective effort of the SCRO and LGCNS, a master plan was drawn up covering such key issues as the service plan, the time schedule, and the operating plan. Some of the actions initiated by the team embraced the establishment of the Supreme Court's and the SCRO's web sites, with interactive features to promote effective communication with the public. The two web sites also provide links with other sites, such as those of the National Policy Agency, the National Assembly Library, the Ministry of Justice, and the Office of the President of the Republic of Korea. There are also links with financial institutions such as credit card companies and banks.

Through the Internet, the public can now view, print and order registry documents in advance for subsequent collection. It must be stressed, however, that registry documents downloaded and printed from the SCRO's web site do not have any legal validity⁵. In other words, the public can only use such printouts for reference, but not for legal purposes such as house or land transactions. Some public Internet services are provided free of charge, e.g. searching for duplicate corporate names, real-time searching for corporate registrations, downloading applications, and service inquiries. Despite the fact that the focal point of the Internet project is primarily the need to leverage the SCRO's service delivery through the use of Internet technology, other implications are also evident. For example, for the SCRO it is very important to encourage feedback from the public so that it can improve service quality. The expected end result of the Internet project is to transform the SCRO into a cutting-edge service organisation as part of the e-government initiative.

The service provided by the SCRO officially opened on 1 February 2001 after an intensive public trial. Initially, there were 100 offices (including regional, district and

⁵ Documents copied for the public must have the government seal of approval stamped on the paper to be effective. However, the law will be changed in 2004 to provide for the legal validity of printed documents. The printed documents will be embedded with numbers that can be cross-checked by the user on the SCRO web site. Also, invisible watermarks will be encoded on downloaded documents for added security.

local branches), which started to provide services via the Internet for corporate registration documents. In early 2002, more services were incorporated into the existing ones, and services were extended from corporate users to the general public. Also, seven more offices were able to benefit from the new systems. As more offices are added to the system, details will be given on the SCRO's homepage. Even though the services provided by the SCRO are still in their infancy, they are regarded as an important milestone as they represent the first case of a government-to-customer (G2C) initiative in Korea.

The experience gained from this project will certainly be a valuable source of inspiration not only for other e-government initiatives but also for the ongoing development within the SCRO. As one of the project team members explained:

Like many other projects in the public sector, you can never see where it ends. We are preparing the second, third and even fourth generation of our services as the project and our experience grow. We will conduct a major review very shortly, and prepare the second generation of our service, which is expected to be launched in 2006.

While we are preparing for 2006, we are also thinking about what we can do in 2012... It just never ends. [Source: Interview with a senior-level manager in the project team]

The emergence of the Internet across private-sector industry has also created opportunities in the public sector. There has been a rapid diffusion of advanced IT applications to government, based on such capabilities as digital communication, IT-integrated processes, sophisticated data-sharing capabilities, geographic information systems, and web-based systems enabled by the Internet and mobile technologies. The SCRO case is no exception: the emphasis has been on using the full potential of the technology to maximise the public service externally and to promote internal integration and collaboration with other government bodies. Such uses of IT make it feasible to access, integrate and analyse extensive data and to facilitate new patterns of communication and public-government linkages (Bellamy and Taylor, 1998; Masser, 1998). The government has made a continuous effort to improve the services provided to the public through the Internet. It has also been motivated by the desire to keep up with technology trends and thereby to enhance the nation's competitiveness, and to ensure the integration and collaboration between different government departments.

The IT infrastructure was already in place as a result of the BPR project, and this provided a technological foundation for the SCRO. This further helped the SCRO to incorporate the Internet into its service delivery by introducing an e-government portal to serve as a communication mechanism across the government and between the government and citizens. As explained in the previous chapter, this was aimed at increasing the level of interactivity and communication between the government and the public with the help of the enhanced features of the Internet.

In addition to the regular update of the SCRO web site to inform the public of any changes in the services provided, a bulletin board system has also been introduced. This allows the public to post their opinions on the web site. The messages are processed by dedicated staff before being passed on to relevant personnel. Another interactive feature of the SCRO web site is the provision of links to other government web sites, such as those of the National Policy Agency, the National Assembly Library and the Office of the President of the Republic of Korea. The report by West (2000) on the condition of e-government revealed a high level of public expectation about accessing information, participating in group discussions and decision making, and transacting business with government anywhere and at any time over a secure network.

The efforts made by the SCRO not only offered substantial and potential benefits of IT to organisations but also gave rise to new management and policy challenges.

The SCRO's approach to the Internet era needs to be discussed in relation to the strategic planning activities within the IS. In this case, strategic planning for web sites has been conceptualised, operationalised and evaluated in terms similar to those of strategic planning for the organisation in general. This first involved identifying e-government's objectives, strategies and critical success factors. Then a detailed process analysis was performed, and an information framework was developed to meet the requirements of the process. According to Venkatraman and Henderson (1994) and Segars and Grover (1998), strategic planning activities within IS are very similar to those in broader organisational systems. The general process of strategic planning does indeed provide important insights into strategic planning for information systems and especially for web sites.

Infusion	Aspects	Related Elements
	The emergence and evidence of the transformation outcome.	<p>(1) Increased information-processing capability, i.e. the number of cases that could be processed has been significantly increased.</p> <p>(2) Growing number of work process integration between different divisions.</p> <p>(3) Policy-makers benefited from the timeliness, comprehensiveness and accuracy of information.</p> <p>(4) Convenience enabled by the availability of different channels of access available to the SCRO's employees and the public.</p>
	Continuous extension of innovation.	<p>(1) Continuous improvement of services provided to the public, e.g. introducing customer self-service, and interactive communication between the government and the public.</p> <p>(2) Enhanced capability to keep up with the technology trend in order to improve the nation's competitiveness.</p> <p>(3) Enabling better integration and collaboration between different government departments.</p>
	Adding new technologies to the existing infrastructure.	<p>(1) Establishing an Internet platform.</p> <p>(2) Improving system integration between different government's sites.</p>

Table 4.7 The aspects and related elements of the infusion stage

4.5 CONCLUSION

This study has collected information through interviews with the project team and other members of staff who have been involved in the SCRO's organisational transformation. Based on the principle of observation rather than seeking answers to any specific questions, this study has hopefully achieved its initial goals.

Both projects demonstrate the SCRO's ability to implement and manage a radical organisation-wide programme. Even though the process of implementation has been far from smooth, and the actual measurement of the success of the programme has not yet been notified, the programme's benefit in terms of the achievement of long-term organisational advantage is evident. The lessons and experience articulated from the projects are particularly valuable, especially in relation to understanding the importance of expectations and the challenge of coping with regulations.

The discussion in this chapter has offered a brief description of the e-government transformation process at the SCRO through the BPR and Internet projects. The implications of this transformation are wide-ranging. IT-enabled organisational transformation requires comprehensive coverage as well as the ability to identify important issues other than IT. Merely identifying what IT assets are available is not sufficient. It is also essential to identify the potential of each transformation-process asset and each combination of IT assets. Of course, without IT acquisition, organisational transformation can become a pointless activity in today's turbulent environment. But in addition to the dynamics of IT acquisition itself, we also need to consider vitally important social aspects of change.

In order to elaborate the case description fully, this chapter has incorporated the use of a six-stage model of transformation to illustrate the discussion of the e-government project journey by focusing on the various aspects of project development. We have identified major issues at each stage by following the six-stage model of initiation, adoption, adaptation, acceptance, routinisation and infusion. Within each stage, the key organisational efforts and practices were described and analysed using theoretical reference points drawn from various management disciplines. The in-depth analysis of the case will be presented in Chapter Five, which provides a full account of the support curve and learning themes identified in relation to promotional and impeding factors.

CHAPTER FIVE:

ANALYSIS -- AWARENESS, LEARNING AND ORGANISATIONAL TRANSFORMATION

In the previous chapter's discussion of the project transformation stages, we focused on the various aspects of project development in the SCRO. We identified six stages of transformation: initiation, adoption, adaptation, acceptance, routinisation and infusion. Within each stage, the key organisational efforts and practices were described and analysed using theoretical reference points drawn from various management disciplines.

In this chapter, we turn to an in-depth analysis of the six stages of transformation, drawing out learning themes identified in relation to factors that (1) promoted support for the project by managers and branch-level employees, and (2) acted as opposing factors, i.e. barriers to project acceptance by managers and branch-level employees. These factors are brought out for each of the six stages in turn in relation to the distinctive organisational learning challenges presented in that stage, and the consequent movement and shape of the support curve as a result of the interplay of

promoting and opposing factors (For a diagrammatic summary of the main arguments for each stage, see Table 3.3). Since the concept of a support curve is a key part of this analysis, and is offered in this thesis as an original tool of investigation, we shall offer a further explanation and justification of this concept in the next, introductory section, and we will explain why we consider the concept of support to be crucial to an understanding of the progress of the SCRO transformation project.

5.1 INTRODUCTION: THE SUPPORT CURVE AND ITS RELATION TO ORGANISATIONAL LEARNING

Various influences and activities associated with organisational learning can be identified at each stage of the transformation, and these all had an effect on the level of support for the project within the organisation. This aspect of the analysis involves considering the nature and scope of collective, mutual, situated, single-loop and double-loop learning; learning by doing; team learning; and leadership. These various approaches to organisational learning have already been signalled in Chapter Two of this thesis, and in the present chapter we will apply them to the case analysis to bring out major developments in the SCRO's organisational transformation. This broad perspective is essential if we are to understand the significance of the support curve.

The discussion follows the schematic representation of support relationships throughout the transformation in order to identify the key factors and triggers that influenced the support curve. The aim is to identify emerging learning themes that were apparent at particular stages of the transformation.

The schematic representation of the support relationship through transformation in Figure 5.1 shows that barriers as well as positive events can cause an irregularity of support by users. In this case, the term 'users' refers to all organisational members, such as the SCRO's management and branch-level employees. The irregularities of support are vitally important because they influenced the approaches and orientation of learning within the organisation, and this in turn presented users with difficulties in maintaining their continuous learning during the transformation. These irregularities of support and learning during the transformation can be explained by the organisation's ability to assimilate, adopt and recognise key influential factors. The notion of the organisation's absorptive capacity to accept transformation and its capability to learn are illustrated in Cohen and Levinthal's (1990) analysis. They argue that the organisation's ability to assimilate and adopt new IT is limited by its absorptive capacity and ability to recognise external emerging opportunities.

In this research, the absorptive capability to accept and learn from organisational events had a major impact on the support curve (see Figure 5.1). The curve shows various ascending and descending patterns resulting from organisational members' actions and external and internal opportunities, and the organisational capability to absorb and handle the project. These variables in turn, through the changing parameters of support, ultimately determined the progress of the project and led, in some situations and in some stages, to setbacks that then had to be overcome. It is, therefore, the link between organisational learning challenges, factors that promoted or hindered acceptance, and the outcome of the transformation project in each stage that is the focus of attention in the present analysis.

The analysis follows each stage in turn and, for each stage, discusses the shape and dynamics of the support curve, the key organisational challenges, promotional factors, and opposing/impeding factors.

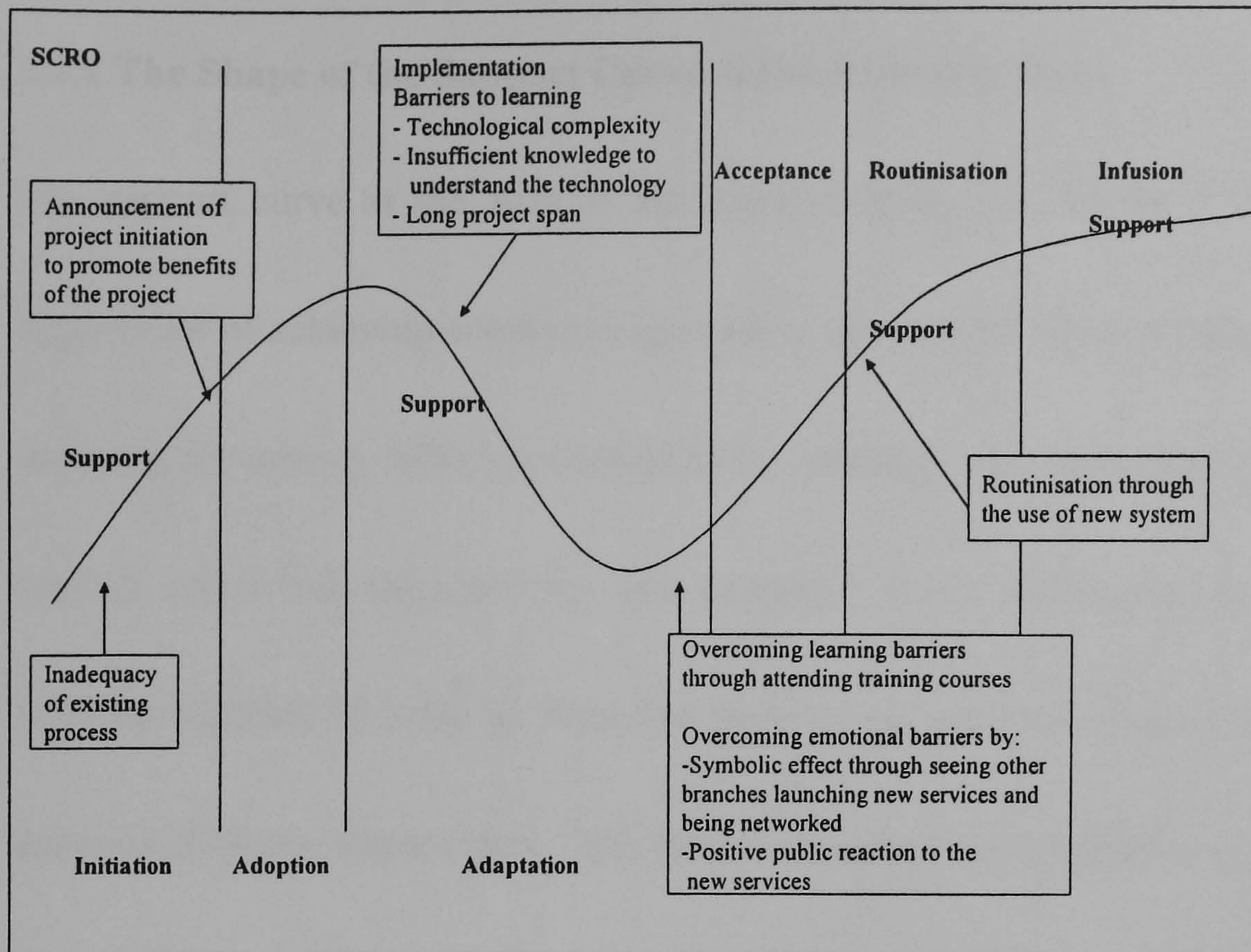


Figure 5.1: The SCRO's support curve

5.2 THE FIRST (INITIATION) STAGE

When the project's launch was first announced (in the initiation stage), it was welcomed by organisational members, who knew very well that the existing process was inadequate. The announcement led to high expectations among employees of the SCRO and registry office branches. At the same time, there were some concerns about the project and the impact of change.

5.2.1 The Shape of the Support Curve in the Initiation Stage

The support curve at the start of the transformation (see Figure 5.1) reflected the importance of achieving consensus in order to increase the level of support within the organisation among different stakeholders. Initially, the ascending pattern of the support curve was triggered by, and benefited from, socialising, networking and working together in order to form the basis of an understanding of transformation between different departments. This helped to reduce the prejudice against a radical approach to transformation. The anticipated provision of IT and its beneficial impact on all processes and the working environment raised the level of support. The advancement and growing popularity of certain technologies, such as databases and networking, during the technological decision phase not only eased the valuation of potential IT solutions but also allowed the SCRO to understand the anticipated benefits of the IT applications.

5.2.2 Organisational Learning Challenges in the Initiation Stage

We can identify three major challenges for organisational learning in the initiation stage of the project: collective learning, mutual learning, and a radical approach. The first two of these concepts were introduced in Chapter Two with reference to the

organisational learning literature (Section 2.5.5). The third concept – a radical approach – refers here to the restructuring of key organisational processes, norms and assumptions with the help of the rapid advancement of IT. We shall discuss each of these challenges in turn.

A. Collective Learning

In the initiation stage, the importance of achieving consensus about the desirability and significance of the project among both managers and branch-office employees became apparent. To begin with, it was necessary to promote consensus towards the transformation project at various levels of the organisation and in government ministries to improve the existing organisational process. The broad recognition among managers and employees that the existing organisational processes must be improved was a key promotional factor at this point in the project's development. During the e-government planning stage, various ideas were confronted and synthesised to reach an agreed direction for the transformation. In order to reach agreement on the different ideas and suggestions, it was necessary to form a consensus through communication with various ministries. During this consensus-building process – a form of collective learning - ministries tried to persuade each other about

the best way to achieve transformation.

The effort to achieve an acceptable consensus despite variance in motivations and ideas is illustrated by Weick and Roberts (1993) in their discussion of the importance of achieving consensus. This stresses the need for distributed understanding between participants to enable and facilitate collective activities. Similarly, collective sense making (Boyce, 1995) describes how organisational members collectively create a social reality that then becomes the organisational reality. These two notions both highlight the importance of collective consensus for the formation of an understanding of desirable outcomes. Yet neither takes into account the issue of who influences whom within the power distribution between involved parties.

In this case, the need to achieve a consensus at a broad organisational level through a common understanding emerged as one of the vital forces for the transformation of the organisation (Weick and Roberts, 1993). The consensus was formed through a fundamental understanding of the transformation needs, acquired by organisational members during socialisation and involvement at the group level (Arrow, 1962; Lave and Wenger, 1991). During the formation of a consensus, members were aware of the

dominant influence of the Ministry of Government Administration⁶. The Ministry was able to suggest the best way to achieve a transformation, propose an overall plan, and liaise with the Ministry of Budget and Planning. This was due to the Ministry of Government Administration's responsibility for taking charge of the overall project, and the nature of the project itself, which focused on internal organisation.

This dominant power positively influenced the organisational members to acquire a new understanding and helped to achieve consensus at the beginning of the transformation project. This early formation of consensus made the support curve gradually ascend, and contributed to the smooth start of the project. Organisational members were also able to learn about the importance of transformation through the examples of detailed pictures and flowcharts presented by colleagues during social events. In other words, the recognition by individuals of the need for change did not automatically trigger the support required by the SCRO. Only when genuine consensus to change was achieved throughout the organisation was it possible to commence the transformation successfully. This relied heavily on learning by observing and evaluating other organisations' best practices as an initial step to drive

⁶ Now renamed MOGAHA [Ministry of Government Administration and Home Affairs]. As an administrative arm of the central government, MOGAHA was established on 28 February 1998 through the merger of the former Ministry of Government Administration and the former Ministry of Home Affairs.

the transformation.

Through the formation of the think tank committee, the SCRO was able to observe and identify other organisations' practices. Before the initiation, the delivery of effective services to the public was prevented by the insufficiency and inappropriateness of the existing organisational process. This was for a time a major opposing/impeding factor in fostering collective learning and acceptance of the project. As reported in the consultants' internal analysis, the guide time for processing one registry document in the public access division was 30 minutes in the morning and one hour in the afternoon. This evidence helped employees to realise the difficulties involved in the existing work processes. Different ideas were generated through observation as a means of benchmarking other organisations, and the results were presented to the SCRO in documentation to show what could be done. For example, by benchmarking other organisations, different visions and ideas about the best way to achieve transformation were proposed and discussed by the SCRO and the government ministries before finalising a master plan.

Learning from observation can be explained through the lens of a 'community of

membership' (Lave and Wenger, 1991) and social learning theory (Bandura, 1977). Lave and Wenger (1991) state that socialising with other community members with experience and skills provides role models for other members. This perspective is based on the assumption that environmental contingencies have a significant impact on guiding human behaviour. It stresses that individuals learn from models, understand the consequences of action by observing models, and then act. For Bandura (1977), observation and reinforcement are the two most important mechanisms that catalyse the learning process. In the SCRO's case, observation and reinforcement had a major impact on learning by organisational members. Through observation, members were able to see the possible outcomes of the project and come up with visions that in turn acted as reinforcement during the project. The learning process provided the opportunity to organisational members to acquire not only new information but also to broaden the social dimension of their understanding. Having a broad perspective facilitated the learning process through observation, and this contributed to a high level of support for the transformation.

B. Mutual Learning

The incorporation of new technology into the design of the transformation project was

a key aspect of what we may call mutual learning, a process that is 'constructed and reconstructed continually by individuals through the ongoing activities of contributing, representing, and subordinating' (Weick and Roberts, 1993 p. 365-6).

Every member of the organisation was aware of the benefits that IT would bring to the workplace. Members' anticipation of an improvement in the efficiency of work through IT strengthened the level of support and helped promote members' radical learning of IT. The reason for perceiving the new technology as radical is reflected in Orlikowski and Robey's (1991) argument that 'information technology is the product of human action' (p. 153). In the SCRO case, the preliminary decision on incorporating the new technology was conducted through constant interactions between different stakeholders. They were able to see the benefits and radical elements of the technology, which were reflected in the overall project design. This is because 'technology will tend to reflect the assumptions and objectives of its designers and engineers' (p.153). Hence, it is vital to understand that even though the technology considered by the SCRO might not be the most up-to-date technology available in the market, it signified a radical solution for the stakeholders of the SCRO. As indicated by Orlikowski and Robey (1991), IT also has its impact on human actors

because it facilitates the activities of users. Hence, it is clear that the need for a radical technology cannot be isolated from a transformation initiative that encourages, nurtures and develops radical learning (Miner and Mezias, 1996) and hence promotes support for the initiative.

In addition to this promotional factor in relation to technology acceptance, a key opposing/impeding force (barrier) was also observed in the case. Due to the fact that the amount of resources for IT investment was limited and needed to be equally distributed between different government bodies, cost efficiency was the dominant norm in selecting the technology, rather than focusing on how the technology could best fulfil the SCRO's needs. However, this dilemma of technology choice was resolved by taking account of the government's future IT initiatives, which incorporated updated technology, a fast network, and the restructuring of the national backbone network. This enabled the SCRO to select cost-effective solutions at the time, but these were guided by possible plans for future upgrades and second-edition improvements.

C. A Radical Approach

The SCRO members' need to be involved in the project was identified at the beginning of project formation. To be involved in the project was to understand one's own problems as well as to understand other participants' intentions as a means of creating opportunities to share more resources. Also, some interviewees stated that one of the motivations for getting involved in the project was to ensure that they would obtain resources and know exactly what was involved in the processing of registry documents through collaboration with other members. The way in which organisational members acquired knowledge through cross-functional horizontal collaboration amounted to a radical approach to transformation. This aspect of organisational learning can best be illustrated through the practice of community membership. This concept is discussed by authors such as Brown and Duguid (1991) and Orr (1990), who seek to show how members learn through narrative sharing and socialisation within a community.

According to Brown and Duguid (1991), collective knowledge can be acquired by socialising with other community members. This enables members to acquire new knowledge of the project and the impact it will have on them. Also, this provides the

opportunity to learn by observing other members with experience and skills; these members then serve as role models for newcomers. In the SCRO case, socialisation through community membership was apparent during coffee breaks, smoking with others, and at after-work gatherings. In particular, on these occasions, some of the junior members were eager to catch up with the background of the project and to learn from seniors' experience. This enthusiastic behaviour towards the project is reflected in an ascending support curve. In other words, the chance to acquire new insights into the project and learn from other members had an indirect impact on the level of support for the transformation. Although community of membership did not directly affect the acceptance of transformation by all members of organisation, it did influence the involved members positively, and they in turn were then willing to promote the project to others.

As well as the importance of socialising with other community members in order to acquire information about the project, this case identifies 'network ties' as a key factor influencing the shape of the support curve. Some organisational members tried to access valuable resources sooner than other members in order to acquire further project information. This is reflected in the work presented by Nahapiet and Ghoshal

(1998), who suggest that three dimensions of social capital -- the structural, the cognitive and the relational -- affect the processes of exchange and combination amongst organisational members. For example, members of a social network benefit from better access, timing and referrals of knowledge than do those who do not belong to the network. In particular, network ties enable organisational members to access valuable resources sooner than people who are not part of the network.

The dimensions of social capital, in this case network ties, can be illustrated by examples of two groups of people. First, consultants were willing to spend more time, and to share vital knowledge, with the SCRO and government ministry members on the current project situation in order to establish a positive perspective on the project. In addition, these network ties were seen as a benefit for the consultants when they were trying to establish their experts in public projects. Also, these network ties were seen as an opportunity to persuade organisational members who seemed to be reluctant to embrace the project. This led to the growth of trust and an acceptance by organisational members. Secondly, from the organisational members' point of view, forming network ties with other members enhanced their understanding of the project. It was important for the various parties involved in the transformation project --

consultants, the SCRO, the steering committee, and internal divisions -- to collaborate consistently. This in turn involved the need to carry out a task given to them by the top management, which require horizontal collaboration between divisions. In other words, the need to infuse the decisions generated by the top management encouraged individual members to communicate and collaborate with each other. This collaboration between divisions led to a deeper understanding of the project, providing organisational members with a good reason to accept the transformation. Ironically, the hierarchical organisational structure allowed decisions to be made quickly, in particular at the top of the hierarchy. This reinforced the ascending level of support.

However, at the same time, the hierarchical organisational structure of the SCRO made it difficult to communicate and achieve prompt infusion throughout the organisation in a short time. Communication between the top management and those at a lower level of the organisation was often poor because there were too many lines of communication, and this prevented swift discussion and conversation. This was a major opposing/impeding factor that made organisational learning difficult and hence threatened to hinder the degree of consensus and level of support.

It must be stressed that the radical approach to transformation involved many different stakeholders, including the government, the SCRO and the Ministry of Budget and Planning. Remarkably, all of these achieved a collective consensus and agreed to embark upon the project with the aim of bringing about fundamental change in the workplace. They recognised that the project involved more than just the detection and correction of error in the organisational process; it represented a fundamental shift in underlying norms and practices. The consensus achieved for the project was significant not only because it influenced the support curve but also because it reinforced the project's radical thinking. Organisational members were able to adopt a radical approach to transformation with less prejudice. This helped to ensure that sufficient backing could be obtained during the later stages of the project by building a shared mental model among organisational members.

This radical approach can be partially explained by the cognitive advancement of the management's thinking (Argyris and Schön, 1978). In this case, the thinking of the SCRO's management's was shaped by its bureaucratic, centralised organisational structure, which tended to act promptly to orders from the top management. These organisational characteristics contributed to the effective promotion of the

transformation, thus enabling the SCRO to trigger a radical approach. This echoes the conceptual account of Pavitt (1991), who argues that a centralised organisational structure can often trigger more radical change than a decentralised one. The SCRO case illustrates the strong presence of bureaucratic, centralised organisational characteristics, with a focus on the hierarchical line of communication and the importance of reporting to the senior level. This helped to produce an ascending support curve.

The radical approach in the SCRO towards transformation was received positively by organisational members, and this had a major impact on the level of support. The effects of changes in attitude and changes in the mental model were reflected in the shape of the support curve; and this trend can be further elaborated through the theory of single-loop and double-loop learning (Argyris and Schön, 1978). For these authors, single-loop learning is merely a self-reinforcing trap. They believe that only double-loop learning, the radical approach, can provide real benefits to organisations. In this case, although the benefits were yet to be seen at this stage, organisational members exhibited double-loop learning when they accepted the project by changing their attitudes and mental modes from the start of the project. The enhanced support for the

project demonstrated the benefits of double-loop learning. (For a more detailed account of this debate, see Section 2.5.5.4).

5.3 THE SECOND (ADOPTION) STAGE

After the launch of the transformation, in order to overcome any major concerns that might have a negative effect at a later stage, continuous promotion, persuasion and negotiation were employed by senior management and the project team. These activities enabled employees to gain additional knowledge about the nature, scope and direction of the project.

5.3.1 The Shape of the Support Curve in the Adoption Stage

The support curve during the adoption stage (see Figure 5.1) shows a steady ascendant pattern. This was influenced by several factors that encouraged the stabilisation of the support curve. These factors will be discussed in turn below.

The support curve in the adoption stage of the transformation was greatly influenced by the developing interrelations between project team members. By practicing community membership, team members were able to increase the productivity of the

project through involvement and the sharing of experience. In addition, through the project teams' effort to rectify unexpected problems, they were able to practice, socialise, network and work together, which in turn helped to maintain the support curve in its ascendant mode. The managerial aspects of team learning and the role of leadership also helped to enhance the support curve, regardless of some members' hesitation to follow the leader's command. In general, collective learning was more influential than individual learning in terms of the level of support for transformation.

5.3.2 Organisational Learning Challenges in the Adoption Stage

We can identify four major challenges for organisational learning in the adoption stage of the project: mutual learning, situated learning, learning by doing, and team learning and leadership. 'Mutual learning' has already been explained in Section 5.2 above. 'Situated learning', 'learning by doing' and 'team learning and leadership' will be discussed with reference to the organisational learning literature. We shall discuss each of these four challenges in turn.

A. Mutual Learning

Continuing the earlier effort to develop consensus and understanding, the project

participants and the organisation members were able to shape the detailed direction of the project. However, some differences were noticed among the stakeholders, in particular between consultants and the SCRO members, when they were solving project-related problems together. For example, one consultant recalled that in 1994 major conflicts and disagreements were apparent while the future of the project process was being discussed; but a focus on positive project outcomes helped to overcome this difficulty. In the end, these differences did not affect the gradual increase in the support curve at this stage. A shared understanding was facilitated by effective communication between different stakeholders in order to generate solutions to problems faced by the project.

The need to foster good interrelations between different stakeholders can be explained in terms of the mutual learning approach. The term 'mutual learning' was first used by March (1991) to explain how individuals learn from the collective knowledge of an organisation and simultaneously modify that collective knowledge. In this case study, mutual learning took place between organisational members who participated in the project and external consultants. This was a two-way process. First, organisational members and consultants were able to achieve mutual learning by simultaneously

communicating with each other in order to reach a desirable outcome. Secondly, during the process they were able to collect knowledge of the SCRO organisation, and this collective knowledge helped them to develop mutual learning (see Weick and Roberts, 1993).

The need to foster interrelations helped to build mutual learning, and this in turn increased the support level. Different participants and stakeholders within the SCRO project interrelated by contributing their own expertise and knowledge, and by developing links between each other's actions, thereby enabling them to foster mutual learning. As senior project team members pointed out, the ongoing identification and negotiation towards the contributions and responsibility required by the project provided critical reasons to focus on the interaction between different stakeholders in order to achieve mutual learning.

This case also underlines the importance of achieving a shared understanding between different stakeholders through interviews and discussions with project team members.

This is crucial in order to minimise any errors and to deal with unforeseen problems in advance through interaction between different government ministries, internal

members and external consultants. In this case, different stakeholders' involvement in the formation of the overall project plan made it necessary for them to interact through meetings and report sessions on various issues. In particular, delicate issues such as those concerned with regulations and IT meant that stakeholders had to interact constantly and communicate with the project team. In this way, they were forced to consider many issues that were directly related to the immediate effects of the project (e.g. in terms of IT implementation and the new process outline), and they also had to think about how any decisions they made would have consequences for other stakeholders. This enabled the mutual understanding between all involved stakeholders to grow, and helped to ensure that the increase in the level of the support curve was sustained.

Although desirable outcomes were achieved through countless discussions and meetings, working together with various stakeholders whose experiences and interests were different impeded the progress of the project at this stage. Crisis meetings had to be held to seek a consensus among the stakeholders. For instance, the need to design new paper application forms for the SCRO in alignment with the computer database led to meetings with Ministry of Law. The project team was very keen to consider all

possible ways of making application forms simple to use by the public. However, certain old categories of form were still needed due to the constraints of the law. This had not been anticipated by the project team, and consequently it had to spend unnecessary time resolving the problem. As one senior project team member recalled, at this stage members came to appreciate the differences between the participants. This points to the significance of subcultural differences within the organisational context (Allcorn, 1995). Evidence from this case suggests that it is difficult to build a completely shared understanding between different subcultural groups. For example, the difficulties with the design of the new paper application forms demonstrated the existence of different perspectives, and these in turn influenced the shape of the support curve. The sub-cultural differences were resolved to some extent through mutual learning, but inevitably some stresses could not be avoided.

B. Situated Learning

Following the mutual learning approach (March, 1991), we find that another influential factor found at this stage of the SCRO case was the effort by project team members to increase the productivity of the project through involvement. External consultants were able to understand more about the SCRO's organisational processes

while they were engaged on the project. They were able to obtain knowledge of new customers by engaging in the development of interpersonal relationships with internal members during the implementation of the project. External and internal members had to understand each other in order to promote mutual cooperation to ensure the flow of interaction during the project, thereby contributing to the ascending pattern of the support curve.

In this case, the situated learning perspective provides a useful perspective for examining and depicting how people can understand their organisation, and can gain and access knowledge through close social interaction. As presented by Lave and Wenger (1991), the concept of situated learning refers to 'an integral part of generative social practice in the lived-in world' (p. 35). Lave and Wenger (1991), Brown and Duguid (1991) and other authors suggest that through participation, observation and social interaction, learners with various experiences blend together to create a coherent learning community.

The importance of generating social practice as a basis for learning is clearly illustrated in this case by the involvement of newcomers. For instance, due to the long

time period of the project, personnel change in the project team was inevitable. This acted as an opposing/impeding factor (barrier) to both the remaining and new members through its effect on existing working and social relationships. In the beginning, new members were unsure of the working styles that had been established over the years. They had to learn how the project operated and how project team members associated with each other in the face of a steep learning curve. At the same time, existing members were also expected to provide support to new members by socialising with them. New members were helped by those who had previously been responsible for the specific tasks they were given. They were introduced to other members of the team and given an opportunity to participate in numerous social meetings. In the SCRO case, a participative social practice (Lave and Wenger, 1991) by both new and old project members was demonstrated through a variety of social meetings at which they were able to exchange information and knowledge – concerning, for example, difficulties that had been encountered and their different perspectives on the project.

A few project members, however, recalled difficulties they had faced as newcomers to an existing community of practitioners. They found it especially difficult to absorb

transferred and acquired knowledge and skills, as suggested by Lave and Wenger (1991). Although they certainly learnt through participation, facilitated by the differences of perspective among the community members, putting what they had learned into practice was another matter. Despite the difficulties faced by newcomers, social interaction was crucially important in helping them overcome these difficulties and thereby increase the level of the support curve. The example of the development of interpersonal relationships among the consultants, internal members and newcomers illustrates how they were gradually able to work more closely for the benefit of the project.

C. Learning by Doing

Another factor influencing the shape of the support curve can be seen in the project team's efforts to rectify unexpected problems, especially those relating to the regulation of registry documents. The lack of understanding of the importance of legal issues surrounding registry documents promoted the project teams' need to learn by doing. Interestingly, the lack of understanding of the legal issues benefited the project team members by helping to provide enhanced knowledge; but in general this was an impeding factor in the progress of the project. The details of various regulations

associated with the registry documents were not properly taken into account. For instance, the need to address regulatory issues in the project was not adequately transferred to the project team and the SCRO members, and was not emphasised enough for the project team to realise its importance. This was due to project team members' limited understanding of the legal requirements associated with the particular governmental organisations dealing with the various legal issues that directly or indirectly affected the project.

As a result of this limited understanding, project team members had to learn through trial and error or 'learning by doing' (Pavitt, 1991). This involves what has been described as tacit knowledge (Polanyi, 1958), procedural knowledge (Cohen and Bacdayan, 1994) and know how (Sanchez and Heene, 1997). It is clear that this type of knowledge placed a limit on the project team's ability to understand the underlying importance of the legal issues. Efforts to overcome this limitation and come to terms with the constraints were recognised by project team members and stakeholders when they tried to solve problems related to legal issues.

Nonaka and Takeuchi (1995) argue that it is relatively difficult to externalise and

codify these types of knowledge due to the tacit nature of know-how and know-why. In the SCRO case, the difficulty of communicating such knowledge influenced the development of the support curve. Furthermore, this difficulty can be explained by reference to the concept of knowledge redundancy, as suggested by Nonaka (1994): a degree of knowledge redundancy between the participants not only provides a foundation to build a shared understanding amongst them, but also helps the participants to acquire new knowledge. As found in this case, the complete absence of legal knowledge among the external consultants created an opportunity to learn more about the SCRO.

D. Team Learning and Leadership

In addition to the efforts related to rectifying unexpected problem, evidence abstracted from this case points to the importance of team learning and leadership. In order to form the foundation for the project, a project team was established and coordinated with internal and external members. This team was responsible for implementing new organisational processes and infrastructure, coordinating the project, and also providing support in training and education. Since the project team included different members from different divisions and organisations, it was necessary to achieve a

coherent understanding within the team to act as the mental foundation for the project.

The importance of team learning and leadership, especially the leader's ability to coordinate the team to achieve a successful project, is illustrated in much of the literature, which stresses the great value of team learning to help organisations achieve breakthrough innovation (Kasl, Marsick and Dechant, 1993; Savage, 1990; Senge, 1997). In this case, the effort to achieve a coherent understanding within the team was expressed in each organisational member's contribution to, and support for, the project. By contributing their expertise, they were able to manage differences and develop overlaps between different concepts (Hedberg, 1981; Weick and Roberts, 1993) that were articulated within the team. This helped them to achieve a high degree of self-motivation as team members, and this in turn contributed to the practical success of building the transformation project.

Different subgroups, with their own expertise, successfully developed interrelations between their actions, thereby creating a group synergy by fostering repeated practice and developing a consensual mind among the team members. The consensus (Weick and Roberts, 1993) identified within the project team stressed not only the

achievement of common understanding but also the role of interdependence (communication and co-ordination) within the team. This enabled the team to participate in a learning process that benefited team members and strengthened the support curve.

The role of leadership in fostering team learning and the effective management of the project was very important in this case. According to Nystrom and Starbuck (1984), leaders influence individuals and teams through their ability to manage a project, to promote team learning, to act as an intermediary, and to offer appropriate rewards. Ford and Randolph (1992) and Argote (1982) also stress the importance of the project team leader's ability to maximise coordination.

In the SCRO case, the leaders did not emphasise individual learning, but through their management style they shaped a strong team approach. An individual project leader, who was in charge of all sub-team units within the project, was especially crucial as a coordinator of the project. He was well qualified, with a management-level rank and title as an executive within the LGEDS. The project leader's ability to coordinate the project between different subgroups and to promote interaction within the SCRO was

a crucial element in cementing the roles of different subgroups and different stakeholders.

Leadership was further enabled by the project team members' devotion to the leader's command, which corresponded to the Korean cultural norm of 'respecting one's superior'. This aspect of Korean culture (see Bae and Lawler, 2000; Lee, 1994; Lee and Kim, 1998; Sommer, et al., 1995) is a clear manifestation of the role that hierarchical seniority plays in Korean organisations. In this case, the norm of respect for one's superior had a positive, promotional impact on the project, reducing the likelihood of disturbance by offering strong guidance and management to team members.

However, at the same time, this social norm also pressurised individual members within the team, as they were not able to express their individuality or challenge the leader. This caused irritation to some members who wanted to speak out and express their individual learning. This was a major barrier that had to be overcome. In general, the ascendant pattern of the support curve at this time indicates a strong level of support despite this problem, suggesting that collective team learning was

especially crucial in its influence on the project's successful development.

5.4 THE THIRD (ADAPTATION) STAGE

This stage presents a rather different support-curve pattern due to several factors that limited the awareness of the project among organisational members. A detailed account of the shape of the support curve will be explained in the following sections.

5.4.1 The Shape of the Support Curve in the Adaptation Stage

The support curve during this stage assumed a new shape. A sharp fall was evident in the level of the support curve due to two major inter-related factors: technological complexity and emotional paradigms. Technologically, project team members faced a major challenge not only because of the volume of data and number of registry documents they needed to deal with, but also because of the need to co-ordinate a technology platform for each registry branch. The registry offices faced difficulties in understanding the technology due to their inadequate knowledge. This suggests the need to determine the nature of the relationship between IT and the adopting organisation, as discussed by Markus and Robey (1988). Emotionally, the long life-cycle of the project led to the declining enthusiasm of project team members, registry

office employees and organisational members. This resulted in the fall of the of the support curve, reflecting the degree of emotional turbulence and the burden placed on all those involved.

The support curve at this stage of the transformation reflected the diversity and difficulties of implementation of IT and the new process. The complexities of IT in trying to incorporate the best database structure and format capable of encompassing legal issues led to the decline of the support curve in the early phase of adaptation. Also, the incorporation of new processes in registry offices placed a burden on both project team members and the SCRO members, and this had a negative impact on the support curve.

Towards the end of this stage, the support curve began to rise again thanks to the efforts and activities of the project team members. Knowledge-exchange practices, involving on-the-job learning, training in skills, and top management support, also had a positive effect. By working together, team members were able to increase their social interaction and solve particular problems presented in the early part of this stage. Also, the project team members' enthusiasm and commitment in undertaking the project contributed greatly towards putting the progress of project in the picture and

providing support through training and education within the organisation. The turnaround of the support curve continued into the next stage, routinisation, enabling the SCRO to advance the project.

5.4.2 Organisational Learning Challenges in the Adaptation Stage

We can identify five major challenges for organisational learning in the adaptation stage of the project: situated learning; knowledge sharing; training, the diffusion of skills and unlearning; on-the-job learning; and learning and top management support.

Most of these concepts have already been introduced and applied in this chapter.

Knowledge sharing refers to the process of socialisation through which organisational members exchange ideas and thoughts from intensive social interaction. On-the-job learning describes the learning occurring through the actions taken while on the job.

We shall discuss each of these five challenges in turn, in each case drawing attention to major promoting factors and major opposing/impeding factors.

A. Situated Learning

We have already seen that the challenge of situated learning arose in the second (adoption) stage. It continued to be an issue in the third (adaptation stage). The need to

be involved and the importance of knowledge exchange through socialising were key factors. The social interaction between project team members grew in depth at this stage, and was enhanced by the experience of working together in order to solve particular problems. For example, in order to solve database design problems, members from technology, design, process and planning had to get together to discuss the potential drawbacks and benefits. As the project team had to perform highly differentiated tasks, involving different members, there was a growing mutual understanding of each member's skills. This was a very significant promoting factor. As one member explained: 'In order to achieve a constantly high level of reliability, members with different tasks and skills needed to interact and collaborate as an interconnected system.'

The SCRO case demonstrates how, by fostering collaboration between members to define, utilise and complement each other's specialised skills and capabilities, enhanced learning was promoted. In order to maximise each member's skills effectively, it was important to promote open communication and social networking as a base for knowledge exchange (Nahapiet and Ghoshal, 1998) and situated learning (Lave and Wenger, 1991). In this case, collaboration to develop a coherent learning

community was promoted by developing confidence in everyone's ability. The project members often casually praised each other for the work they were doing in customising the system and implementing reliable IT. This enabled project members to appreciate each other while socialising through participation.

However, unlike in earlier stages, fostering collaboration between project team members did not help to raise the level of the support curve. This could be seen to reflect a limited success in seeking to create an influential and coherent learning community. Although much of the social interaction through participation and observation helped to foster a mutual understanding of different tasks, the actual completion of tasks presented problems because of the high differentiation of tasks, which led to the tendency to cause a chain effect delay between individual tasks. This was a major opposing/impeding factor or barrier.

This problem suggests that the situated learning (Lave and Wenger, 1991) concept does not provide a full explanation of the conditions of a learning community. As one project team member explained:

When someone is not sure of the internal process, it is very difficult to ask to design a good process, which requires a clear explanation to the database design people. All tasks had to be aligned and functional in clear format in order to avoid a chain delay.

The above example of the need to understand different tasks in order to create a coherent learning community points to the importance of appreciating the role of distinct organisational subcultures. Different subcultures and tasks were embedded in different project participants, indicating that issues of knowledge integration, even within the same project team, often revolve around the problem of understanding organisational subcultures (Allcorn, 1995; Lam, 1997). Subcultural differences represent not only differences in people's mentality, but also differences in the way knowledge is constructed and organised. Such differences complicate knowledge sharing across organisational subcultures and make it difficult to complete work tasks on time. In this case, different mentalities between the process design, planning and technology groups were evident. Process design and planning performed their work by following the flow of process and then planning from the process design. However,

the technology group relied on visualising tasks through the computer screen and IT platform. These differences in approaching tasks within the project team can be explained through the uniqueness of each project subculture and its social identity.

The subcultures within the project team had a negative impact on the development of a coherent learning community, which would have been of great assistance to the project and would have further strengthened members' acceptance of the project. This case suggests that fostering collaboration between the members certainly enhances learning, but in order to develop a coherent learning community an organisation must try hard to overcome subcultural differences.

B. Knowledge Sharing

As the project progressed into the adaptation stage, the emphasis was placed on the input of internal and external project team members to project implementation. As well as implementing appropriate IT across local branches, the external consultants were concerned with enhancing the experience and knowledge they had gained. They were asked to interact with other consultants from Head Office for the purpose of knowledge sharing, and systematically to document the main activities performed

during the project, feeding this information into the LGEDS intranet. This approach illustrates the concept of single-loop learning, which, according to Argyris and Schön (1978), explains the routine, incremental and conservative process that serves to maintain stable relations and sustain existing rules (see Section 2.5.5.4). In this case, external consultants' efforts to document the project regularly into the LGEDS Intranet enabled the organisation to learn about a particular project and enabled it to divide the project into elements that could be addressed separately in order to share the full range of knowledge. This was further enhanced by promoting factors such as consultants' commitment in documentation during the early stage of implementation. This commitment helped to establish a routine process of documentation, and project team members were eager to use this to share their experience of the e-government transformation project.

During this stage of the implementation, the external consultants were left in charge of the project's completion; in particular, they were responsible for IT implementation, support in training, testing, and the opening of the service. Their expertise served as the main function in facilitating an enhancement of experience for the SCRO organisation's members and registry branch employees, who were able to acquire new

knowledge from the consultants during training courses and by interacting with them while at work. This encouraged them once again to build a shared understanding and shared knowledge of the new process and the new technology, and this in turn further strengthened the level of support.

The importance of knowledge sharing is explained by Nonaka and Konno (1998). They argue that achieving a shared understanding of the underlying knowledge is important not just in terms of the content but also in terms of the context of that knowledge. Cognitively, knowledge sharing requires an understanding of the paradigms pursued by other individuals or communities. Boland and Tenkasi (1995) and Krauss and Fussell (1991) label cognitive knowledge sharing as ‘perspective taking’, which suggests that the exchange of information represents only a very partial view of the knowledge-sharing activity. The essence of knowledge sharing lies in unveiling and synthesising paradigmatic differences through social interaction. In the SCRO case, the unveiling of differences was very much facilitated by the development of interdependence between the external consultants and registry office employees through training courses. The courses provided the opportunity to share different perspectives on the transformation of the SCRO through communication

over the IT functions, which encouraged a discussion of various issues, such as the way to handle new processes and views on anticipated outcomes.

However, the case also demonstrates the difficulties arising during the development of the interdependence between external consultants and the registry office employees.

Although the need for interdependence was recognised, it was not easy to achieve a mutual understanding. For example, registry office employees encountered difficulties in learning technical terminology, and the external consultants could not easily understand why the legal system worked in a particular way. In other words, insufficient overlap in their expertise and the organisational environment made them aware of major problems.

The evidence suggests that knowledge sharing and knowledge creation in a task-specific project are inhibited by the nature of knowledge, how it is constructed, and where it is embedded. The idea of 'interpretive barriers', as proposed by Hutt, Walker and Frankwick (1995), refers to the difficulties created by participants' different knowledge backgrounds when making decisions, but the authors do not provide a clear explanation of how the nature of knowledge influences the creation of barriers.

The knowledge within the registry office and among the external consultants in relation to IT implementation in the SCRO was often functionally specific and constructed through the organisational process and the environment. It was evident that 'know-how' and 'know-why' types of knowledge created a barrier that blocked other organisational and project members from understanding the meaning underlying such knowledge.

Surprisingly, despite these difficulties, the support curve continued to rise. Unlike at the beginning of the project, when even slight difficulties were seen as a barrier to the acceptance level, at this later stage, these interactions and exchanges of knowledge did not seem to cause such a problem. The support curve was positively influenced by knowledge sharing and the growing interdependence between employees and external consultants. At this time, both groups were eager to see the anticipated outcomes, so minor difficulties did not stop them from interacting with each other. As a result, they were able to learn despite their different contexts of knowledge.

While documenting the case into the Intranet, the role of the external consultants in the project team was seen as that of an intermediary in knowledge documenting and

reuse. The role of intermediaries, according to Markus (2001), is vitally important in successful knowledge reuse. Intermediaries contribute to the creation and distribution of knowledge, and to the authoring of content, in order to persuade organisational members to think, experiment and advance arguments in a way that forces them to reflect on the organisation as a whole. At the SCRO, external consultants were able to contribute IT and project-related knowledge that they had acquired over several years. By participating in this project, they were also able to gain further experience that they could then distribute to others through the company intranet. The growing interdependence between the external consultants and registry office employees was a major promoting factor.

However, towards the later part of this stage of the project, there was a noticeable decrease in the role of intermediaries, e.g. in terms of a reduced level of documentation input into the company Intranet and the use of the Intranet for the discussion. This was due to the fact that project members had adapted well to their work tasks, and at the same time external consultants felt that they had actually eliminated similar repetition problems. This could be seen as a significant opposing/impeding factor. Eventually, the lack of overlap and understanding

prohibited the effective communication between the consultants and registry office employees.

This particular example does not provide any direct reasons for the fall of the support curve, but it offers a possible explanation. The SCRO and other organisational members did not have much more opportunity to keep informed of the progress of IT implementation. It was only at the last minute that they were notified of the overall schedules of detailed IT implementation. This failure reduced organisational members' awareness of the project, and it made them lose interest in the project.

C. Training, the Diffusion of Skills and Unlearning

The increasing level of support was rapidly enhanced through two practices. First, engagement in training and education programmes was introduced at the local branch level, aiming to provide prior experience and an opportunity to learn the new system. Following the initial detailed internal process analysis, the need to organise training courses, seminars and workshops was recognised. These were promoted further by the employees, who reacted positively to the training courses held to equip them with essential skills. In the SCRO, this action prompted employees to learn actively by

shifting from old processes and skills to new procedures through training and education. For example, training sessions provided at the branch level helped the employees to understand that there were other important matters besides registry documents. Registry employees were beginning to develop a broader view of job specifications. They were able to acquire new knowledge, e.g. knowledge about customers' views and enquiries, completing work within a time frame, and sharing information. This evidence supports the view of those authors who see training and education as vital processes supporting knowledge acquisition (e.g. Huber, 1991), and regard learning as equivalent to education plus training (Jones and Hendry, 1994). The SCRO case demonstrates not only the importance of knowledge acquisition through training but also how the outcome of learning from training can be collectively understood by the organisational members.

On the other hand, some impeding factors tended to hinder training. Although most employees reacted positively to the training courses and showed enthusiasm once they started, employees' increasing workload provided very limited free time for the employees to attend the training courses on a regular basis. This lack of time had a negative effect on the enhancement of experience and knowledge acquisition. Another

factor can be identified by looking at the relationship between employees and the project members. Prior to the provision of training, collaboration between the branches and the project team was hindered due to the branch employees' emotional stress and anxiety. For example, employees wanted to delay the start date of the training courses so that they could finish urgent tasks and gain some free time to attend the courses.

Secondly, the increasing level of support was rapidly enhanced through the example of other local branches' practice as a benchmark. For example, by seeing other branches launching new services and being networked, employees became convinced of the effectiveness of application functions. This provided an indication of learning as an 'integrated cognitive and socio-emotional process' (Kolb and Fry, 1975, p. 34). In other words, the collection of data and observations about experience influenced the cognition of the registry office employees, enabling them to recognise the value of the project and hence increase their level of support.

The above practices, including training courses and the observation of other branches, helped employees to generate learning in the use of the system and to appreciate the

importance of customer reaction. They thus operated as a channel for increasing the support level.

D. On-the-Job Learning

The project team members had numerous opportunities to learn while they were on the job by coordinating with various branches. In particular, the members' enthusiasm and commitment in undertaking the project contributed positively to this coordination effort. This is due to the importance of the project as the first e-government initiative in Korea. By visiting branches and coordinating with them, the project team members gained a better understanding of the local branches' practice. For example, they were able to learn and become aware of real working environments, workloads and the pressures that local branches faced before the project. They were able to talk to counter clerks, who were in direct contact with customers, and also to build social relationships with branch personnel. This yielded more awareness of the situation and offered strong motivation to some of the project team members to embrace the change project. However, users' (local branch registry offices employees) emotional deterioration had a negative affect at the beginning of the coordination between the project team members and local branches. This was due to the lack of information on

the progress of the project held by the local branch employees. Although the latter understood the need of coordination, they were not sure of their role, particularly before the provision of training.

This evidence echoes the concept of 'learning beforehand' -- in Pisano's terms, 'learning before doing' (Pisano, 1994) and 'learning by doing' (Pavitt, 1991). For Pisano, 'learning before doing' indicates that with prior knowledge of the products and their development, companies are able to utilise their existing knowledge to predict potential outcomes. Pisano argues that 'such knowledge might be embedded in formal or informal models containing the relevant underlying variables, their interactions and their impact on outcomes' (p. 89). Similarly, 'learning' by doing indicates that organisations with very limited prior knowledge need to acquire knowledge during the experimental process in the laboratory environment. Pisano (1994), in using this term, extends his analysis of the relationship between learning and knowledge integration, and argues that the learning processes within the organisation are shaped by integration of knowledge during development. In the SCRO case, learning by doing during the project implementation acted as an enhancement of beforehand learning, which reflected the project team members' prior

acquisition of knowledge and understanding of the potential outcomes of the project.

The above example of learning by doing reveals the importance of involvement and contact by the project team members at the branch registry offices. Moreover, these efforts triggered a reversal of the decline of the support curve, which had previously showed a constant decline to its lowest point. The reversal of this trend came about directly as a result of project team members' increasing involvement in the branch registry offices. On-the-job learning provided an opportunity to re-emphasise and demonstrate the benefits of the project. By working together and observing the demonstration of the IT systems, registry office employees were able to feel that there was tangible progress of the project and that they were at the centre of the project.

E. Top Management Support

Top management support was also vital in reinforcing the overall support level through enhanced organisational learning. At the SCRO, top management support was provided by the steering committee, which acted as a facilitator to ensure the continuity of project implementation. This was a key promoting factor. For example, the committee played a major role in overcoming implementation barrier problems. It engaged in the project process and encouraged the team to come forward with any

problems. In addition to acting as a facilitator for promoting the implementation, the steering committee also acted as a gatekeeper to monitor the project's progress. As a gatekeeper, it imposed tight control on the project; this was a negative (opposing/impeding) factor because it hampered the degree of freedom and flexibility required for the project team by placing time constraints on key tasks, e.g. administration, progress checking, asking for reports, and formal meetings. Despite the negative characteristics of these constraints, the latter helped to enhance the project in terms of time management and also encouraged project members constantly to check and administer the progress of the project. The importance of top management support has been stressed in much of the management and IS literature. Ferris and Fanelli (1996), Yoon et al. (1994), and Guimaraes and Lgbaria (1997) discuss the importance of learning organisations' top management in moving change projects forward. According to Ferris and Fanelli (1996), top management in a learning organisation promotes the continuous learning and knowledge creation of all employees so that the organisation can grow, change and innovate. In these organisations, the role of supervisors in supporting employees in the workplace is also of key importance (Cavaleri and Fearon, 1996). Similarly, Guimaraes and Lgbaria (1997) describe top management support as a key factor in shaping the acceptance of a

project and its success.

In the SCRO case, the top management's constraint served as a learning mechanism for project team members to cross-check project progress and identify any abnormality during the report preparation. This process provided the project team with the opportunity to recognise and rectify problems that they might otherwise have overlooked. In so doing, they were able to learn continuously from the mistakes and encompass new knowledge. The constraints imposed by the steering committee helped to ensure the continuity of project implementation and the attainment of expertise in the project team by imposing control and at the same time providing support through resource distribution, communication and interaction.

As a facilitator, top management support provided the opportunity to increase the level of support indirectly among the SCRO members as well as the branch registry office employees. The learning processes described above indirectly influenced the effectiveness of the implementation process as project team members were able to enhance the project's quality. By observing how problems were rectified and eliminated with the help of the steering committee, the SCRO members and branch

registry office employees believed once again in the project's importance. Also, the organisational priority given to the project by top management contributed indirectly to the increasing level of support.

5.5 THE FOURTH (ACCEPTANCE) STAGE

This section focuses on the continuously increasing level of the support curve in the acceptance stage, and shows how the resulting benefits contributed towards the routinisation stage. The importance of continuous training will be emphasised together with difficulties faced during training by employees.

5.5.1 The Shape of the Support Curve in the Acceptance Stage

Following the continuous rise of the support curve from the adaptation stage, this stage shows a stabilising increase of the curve. The immediate benefit of the new organisational processes and system had a huge impact on employees' support for the project. Furthermore, through the provision of continuous training, most employees were satisfied with the implementation and the use of the system. The support curve at this stage of the transformation reflected the importance of training before and after the implementation of IT and the new process. The combination of continuity of

training and on-the-job use of the system enabled the users to acquire full use of the system, and this in turn led to the process of routinisation.

5.5.2 Organisational Learning Challenges in the Acceptance Stage

We can identify two major challenges for organisational learning in the acceptance stage of the project: continuous training, and the importance of customer service. The concept of training has already been introduced and applied in this chapter. Customer service refers to the evidence that employees recognised the value of the service they provided to the public. We shall discuss each of these two challenges in turn, in each case drawing attention to major promoting factors and major opposing/impeding factors.

A. Continuous Training

In contrast to the initial training provided at the adaptation stage, which was aimed to provide beforehand experience and an opportunity to learn the new system, training in the acceptance stage was engaged more towards revising practice and problem solving. The aim was to provide a practical work habit by solving problems when needed without delaying or ignoring any incident. This stresses again the notion of

importance in training and education as vital processes supporting knowledge acquisition (Huber, 1991).

Another reason to provide the continuous training through the acceptance stage was to eliminate some difficulties associated with users' steep learning curve in seeking to maximise the potential of the system. Although full training was given to them, their lack of confidence initially reduced their level of support. For example, regardless of how simple the system was, seeing it in different environments and settings meant that users needed to time to absorb and bring out the knowledge that they gained from learning.

However, there were some difficulties involved in users' (employees') acceptance of, and support for, the new process and the new system. These were: the generation gap; users' learning curve; and the public's high expectancy of the system. First, differences were noticed between young and older users of the system. As previously seen during the training courses, the older users found it difficult to take an overview of the new processes and the use of the system. They were astonished with the fast turnover of work that arrived on their desks on their computer monitors. They made

many mistakes by pressing the wrong button on the system, and then it took time to correct the error. Young users were initially a bit confused, but they quickly became confident about facing the challenge of different work processes and the new system.

B. The Importance of Customer Service

Employees learnt that the new system allowed an immediate reduction of the workload, leaving them with an opportunity to concentrate on servicing the customers.

The increased level of support was further strengthened by the positive public reaction to the new improved services, which made employees recognise the direct benefits of the new system. Employees were able to provide a fast, efficient service through the reduction of the time required to access, retrieve and photocopy paper-based documents. The availability of the computerised database permitted members of staff to search, download and print registry documents from the database, rather than having to go to the storage room to retrieve the files. Hence, members of staff were experiencing real benefits of the system, and at the same time they were able to provide a higher quality of service to which the public responded very positively. As one branch registry officer remarked:

I personally felt we had learnt something through the training given for us at the branch level. We were not sure how well we could use the system or fully exploit it at that time, but the training courses made us visualise the different ways of working. Demonstrations impressed us and showed how quickly, almost within a few seconds, one document could be processed, and how easily we could access the document. We hoped that our learning on this new process and system would be of benefit to us as well as the customers. After seeing the system in work, we were absolutely sure of the whole project and felt confident in the new process.

However, a few difficulties arose because of the public's high expectations. The stress placed on registry office employees using the new system created unnecessary tension. Civil servants are highly respected in Korean society regardless of their relatively low level of wages. They have to pass national examinations at all levels, and people admire them for this. This notion of what others think about the service was stressed in the registry office when the system was first introduced. This led employees to feel

uncomfortable about using the system in front of the counter at the registry office. This reflects Bellamy and Taylor's (1998) notion that government officials are expected to follow a certain code of conduct. They have to aspire to mutual obligation, order and harmony, and good conduct, and must follow the example of a superior man possessing benevolence and wisdom. This led public sector employees to express high levels of job prestige due to the public sector's unique bureaucratic culture, and, in the case of the SCRO, employees were eager to show that they were capable of using the new system

5.6 THE FIFTH (ROUTINISATION) STAGE

The adaptation stage exhibited a rapid fall of the support curve at the beginning before this trend was reversed to the ascending pattern. The continuously ascending pattern of the support curve throughout the acceptance stage continued into the routinisation stage.

5.6.1 The Shape of the Support Curve in the Routinisation Stage

The rise of the support curve from the acceptance stage to the routinisation stage indicated that the project was advancing throughout the SCRO. The rise was evident

due to the impact of two major issues. First, the continuous use of the system had a positive effect on the support curve, since, for example, it meant that users became more willing to experiment with the system's more advanced features. Secondly, employees were able to maintain the benefits of the application by generating and distributing information resulting from the constant use of the system. Each branch and office was also effectively integrated and managed through the established centralised database.

5.6.2 Organisational Learning Challenges in the Routinisation Stage

We can identify two major challenges for organisational learning in the routinisation stage of the project: learning-by-doing, and experiential learning. The latter term refers to learning acquired through practice, understanding, and familiarity during an event of the process (see Section 2.5.5.3). We shall discuss each of these two challenges in turn, in each case drawing attention to major promoting factors and major opposing/impeding factors. Although these two challenges may seem to involve similar types of learning, here we will distinguish between them in terms of the contrast between learning-by-doing (i.e. what one learns while actually carrying out the job) and experiential learning (learning already acquired through previous

experience and practice).

A. Learning by Doing

Registry office employees' efforts to come to terms with the new system in routine daily working life directly influenced the sharp rise of the support level. In the SCRO, employee's daily working practice, supported by the new system, and their willingness to try the new system helped them to achieve their tasks more easily.

They found that they were able to use their previous training and education in their daily tasks, and this helped them to recognise the full potential of the implemented system, thus generating an increased level of support. In particular, they were able increasingly to embed the concept of customer service into their day-to-day practice.

A major promoting factor in this respect was the fact that users, in particular those who directly served the public, were able to reduce their workload in handling paperwork and to generate more spare time for the public. On the other hand, as an opposing/impeding factor, customers were demanding more convenient services, including new channels (such as the Internet) for the delivery of services.

B. Experiential Learning

Employees in the registry offices were enthusiastic about discovering new features of the system after mastering its basic functions. Through continuous attendance at the training sessions, they became familiar with the more advanced features of the system. This was a major promoting factor. Discussion and sharing of experience further helped to enhance this familiarisation, especially during informal interactions during coffee breaks, lunch breaks and social events.

This echoes the theory of experiential learning (Cohen and Bacdayan, 1994; Kolb, 1984; Kolb and Fry, 1975), which argues that an organisation derives its routines from its history. In other words, the routines serve as the memory in which the organisation stores its 'best practice' (Nelson and Winter, 1982). This raises the question of how an organisation can learn new sets of routines. There are two main answers to this question: one cognitive, the other structural. The cognitive view emphasises that learning occurs at an individual level, and focuses on individual perception and individual mental models (Huff, 1994; Porac et al, 1995). The structural view suggests that learning is an organisational phenomenon, based on the organisation's routines (Nelson and Winter, 1982; Levitt and March, 1988). In the SCRO case, the everyday

practice of new routines and the training not only helped to shape the individual-level memory, which meant that employees could acquire the best practice that suited them in a new environment; it also increased the level of support through the recognition of new organisational routines. In other words, the SCRO demonstrated organisational learning through changes in its routines, which also influenced the employees to acknowledge the project as a whole.

Also, through the day-to-day practice of serving customers, the employees accepted the importance of offering a better customer service, i.e. by embedding the structure of their beliefs and paradigms, as explained by Levitt and March (1988). For example, the employees' behaviour in seeking to find the right way to deal with a particular query can be seen as a *routinisation* of the use of the system. Rather than looking through heavy guideline books, they were beginning to rely on computer systems. If they were not able to find the answer, they felt disappointed and hesitated to look into the guideline book.

Some impeding factors can be identified at the routinisation stage. These factors hindered the learning process but did not have any significant impact on the level of

the support curve. First, an increasing public expectation of a more sophisticated service could be observed. For example, the public wanted to access documents from home without having to go to the registry office. This indicated an increasing awareness among the public of the new online service's potential, which resulted in the public requesting more information from employees. These enquiries encouraged employees to think about, and learn, more about possible ways of improving the service. Thus, the recognition of new opportunities presented by technology, especially the Internet, triggered the public to expect more convenient channels of service delivery. This positive recognition undoubtedly had a role to play in shaping the rise of the support curve.

Second, an impeding factor faced by the employees was the application of advanced features of the system. However, this did not have any impact on the level of the support curve due to differences in individual response. Although users were more willing to try out new features of the system, some features they had learnt about were not practicable due to their lack of relevance to specific tasks. The three divisions -- Administrative, Correction and Investigation, and Public Access -- were responsible for their own divisional tasks. Also, the need for authorisation on certain tasks

prevented the users from trying out some new features. For example, individual job specifications prevented users from applying many new functions they had learnt in their own tasks. By this stage, employees were able to use the system confidently for their tasks with a high level of support for the system. This did not cause any inconvenience for employees even if they had not been able to use certain new features of the system. As long as they could manage the system for their own tasks, employees were happy to continue to support the project with enthusiasm.

The practice of day-to-day organisational tasks, illustrated above, helped to establish the new routines after implementation. Many authors have advanced the view that behaviour in organisations is based on routines (see, for example, Cyert and March, 1963; Nelson and Winter, 1982). Such routines include ‘the forms, rules, procedures, conventions, strategies and technologies around which organisations are constructed and through which they operate.’ They also include ‘the structure of beliefs, frameworks, paradigms, codes, cultures and knowledge that buttress, elaborate and contradict the formal routines. Routines are independent of the individual actors who execute them and are capable of surviving considerable turnover in individual actors’ (Levitt and March, 1988 p.319). The routinised behaviour argument implies that when

individuals in the organisation need to choose the appropriate response to stimuli, their actions tend to be within a set of actions previously undertaken by the firm. In other words, these actions are not derived from a rational calculation of the benefits of each type of action (Levitt and March, 1988; Pentland and Rueter, 1994); rather they constitute a programme of actions (Cyert and March, 1963).

In the SCRO case, the daily practice of behaviour generated the new routines and also the overall learning process. Through the new routines, employees were able to learn and to broaden their perspectives on better customer service. This further enabled the process of learning by doing (Pavitt, 1991) through continuous practice and process, which helped the employees to settle into the new routinised work forms, rules, procedures, conventions, strategies and technologies. Over time, the organisation developed a new set of behaviours for the new situation.

Organisational routines (Nelson and Winter, 1982; Levitt and March, 1988) also had an impact on the support curve because the organisation was now able to adapt and sustain the implemented project. By viewing the organisation as a complex adaptive system (Cyert and March, 1963), we can identify the ways in which the level of

support for the project was modified over time through the change process that took place at several nested levels (Levitt and March, 1988). In particular, the routinised stage in this case revealed the importance of forming the routines through practicing everyday tasks in order to sustain the implemented project. As explained by Cohen and Bacdayan (1994), this can happen when an organisation understands that the new context of operation is not adequate for the old situation, and a new type of behaviour is needed.

5.7 THE SIXTH (INFUSION) STAGE

Continuing from the routinisation stage, this stage exhibits a stable support curve as a result of the absorbed new routines and processes within the organisation.

5.7.1 The Shape of the Support Curve in the Infusion Stage

The support curve in the infusion stage indicated stabilisation after the constant rise of the curve during the routinisation stage. In the infusion stage, employees, the public and SCRO members were not only fully aware of the new process and the new system, but they also utilised the process and the system without difficulties. In addition, the promise of the Internet era brought a golden opportunity for the organisation to

engage in a second project facilitating utilisation of its previous learning experience.

The results of the Internet project taught the SCRO the importance of promoting continuous innovation by building upon previous success.

5.7.2 Organisational Learning Challenges in the Infusion Stage

We can identify two major challenges for organisational learning in the infusion stage of the project: generative learning, and double-loop learning. The concepts of generative and double-loop learning require some further explanation, although these were initially introduced in Chapter Two. We shall discuss each of these two challenges in turn, beginning with double-loop learning, in each case drawing attention to major promoting factors and major opposing/impeding factors.

A. Double-Loop Learning

The support curve during the infusion stage showed a continuous stabilisation after its rapid rise in the routinisation stage. By the infusion stage, employees, the public and SCRO members could see the enormous benefits of the project. In particular, the clear benefits resulting from more interactive communication and Internet access brought anticipation of further technological development and continuous innovation by

building upon the success of the existing project. In addition, previous experience gave the SCRO the confidence to engage in new initiatives. The members from the SCRO were confident that they could make use of their past experience of handling project management. On the other hand, the consultants adopted a more cautious approach to the second project (the Internet project).

Discussions with regard to the Internet project led to an intense debate between the SCRO members and the consultants. Although the benefits of the Internet had been described and explained in many internal and external reports for the SCRO, one particular issue – that of security – caused apprehension among members of the SCRO, resulting in extensive discussions with representatives of the Supreme Court. This did not have a negative impact on the high level of support nor on the launch of the Internet project; rather it broadened the view of what needed to be done in the coming years.

The willingness to engage in continuous innovation by building upon previous success is captured in such concepts as paradigmatic change (Kuhn, 1970), double-loop learning (Argyris and Schön, 1978), and generative learning (Senge, 1997). Drawing

on the last two ideas, the outcome of the SCRO's engagement in the Internet project can be seen as a new opportunity for learning based on full acceptance of the previous project. This portrays the notion of double-loop learning as explained by Argyris (1977, 1993): it is necessary to use higher-level learning and achievement in order to challenge and redefine the purposes of an organisation. The SCRO's capacity to take account of the public's comments on system difficulties demonstrated the effort to generate and integrate knowledge (Senge, 1997) in order to achieve further opportunities for development. This effort also confirmed that the project had so far been fully exploited and accepted.

One impeding factor that hindered the process of double-loop learning (but that did not affect the rise of the support curve) can be identified. The advance announcement of other electronic government initiatives confused the external consultants, especially because of the need to integrate existing projects with future initiatives. The consultants were confused about whether they needed to consider a possible add-on to the existing service to support future e-government projects, or whether they should prepare a completely different infrastructure. This in turn did not help the project members to fully exploit their previous knowledge.

B. Generative Learning

The SCRO's engagement in the Internet project convinced the SCRO that continuous innovation, through building upon the success of the existing project, was vitally important. As one of the team members explained:

Like many other projects in the public sector, you can never see where it ends. We are preparing the second, third and even fourth generation of our service, as the project and our experience grow.

We will conduct a major review very shortly, and prepare the second generation of our service, which is expected to be launched in 2006. While we are preparing for 2006, we are also thinking about what we can do in 2012... It just never ends.

However, no evidence can be found of learning through the original project being applied in the new expanded Internet project. One possible reason for this is that project team members' experiences derived from problem-solving processes were often not part of the SCRO project's documentation, so they were seldom transferred to other people during the course of the project. In addition, concerns associated with

the long duration of the SCRO project, the change in membership of the project team, and the creation of a new project team created an environment in which it was not easy to transfer what had previously been learnt.

According to Cooper, Lyneis and Bryant (2002), and Schindler and Eppler (2003), a number of conditions contribute to, and perpetuate, the failure to systematically learn in projects. First is the misguided prevalent belief that every project is different, that there is little commonality between projects, or that the differences are so great that separating the differences from the similarities would be difficult if not possible. Secondly, the difficulty in determining the true causes of project performance hinders our learning. Even if we take the time to ask successful managers what they have learnt, do we really believe that they can identify what has worked, and what has not, what works under what project conditions but not others, and how much the difference between one practice and another makes? Thirdly, projects are transient phenomena, and few companies have organisations, money, systems or practices that span them, especially for the purpose of gleaning and improving upon transferable lessons of project management. Natural incentives pressure us to getting on with the next project and not to dwell on the failures of the past. Fourthly, while there are individuals who

learn -- successful project managers who have three or four great projects before they move to different responsibilities or retire -- their limited span and career paths make systematic assessment and learning of transferable lessons that get incorporated in subsequent projects extremely difficult (Schindler and Eppler, 2003).

In the SCRO case, although external consultants practiced and shared experience through their Intranet among different projects, nevertheless it was still difficult to justify project conditions and how different they were from one practice to another. For example, justifying the BPR project conditions and the Internet project conditions was almost impossible due to the fact that each project had different team members, applied different technologies, and operated in different environments. Also, it is never easy to identify the true causes of project performance. There were many reasons behind the success of the SCRO project, and quite often it was not possible to capture these reasons in statistical performance measures. On the issue of transferring knowledge, both the SCRO and the LGEDS failed to make an effort to improve the transferable lessons of project management. The sharing of information through the LGEDS Intranet provided a platform, but with so many different projects it was difficult to penetrate effectively previous project learning experience into the second

project. The BPR implementation success provided the confidence to move forward to the Internet project, thus illustrating the phenomenon of double-loop learning within the SCRO.

The utilisation of previous learning also provided the need to regenerate and extend further the infusion of the processes of integration of work across different governmental departments. For example, linking all the government public services under one Internet site to provide a new G4C (Government for Citizen) service was received very positively by the public. From the various reports in the media, it is clear that the public could see the government's determination to improve its image by providing better services. The public clearly had confidence in the way in which the government managed the change projects. The benefits resulting from the e-government initiative at the SCRO were more than simply the provision of an additional channel of service. The project also aimed to increase the level of interactivity and communication between the government and the public.

The account of the SCRO reported here represents only a segment of what has been done and what will be done in Korea in the long term. The growing interest in

transforming other government bodies through the leverage of information communication technologies, in particular the Internet, suggests that in the near future new services will be introduced. The experience already gained from the SCRO case will certainly be a useful source of inspiration, not only for other e-government initiatives but also for the ongoing development within the SCRO.

5.8 CONCLUSION

The process of e-government transformation elaborated in the present chapter reveals a complex and intertwined picture of how organisational members and project participants learnt through each stage of the transformation, utilising their skills and integrating knowledge through the planning, designing and implementing phases. In addition, this analysis has sought to address the multifaceted relationship between levels of project support and learning by participants and organisational members. Each stage of the transformation was distinctive and was influenced by a range of issues; but at the same time, the purposes of the project remained interconnected and mutually reinforcing. The result was a major contribution to the renewal of organisational transformation. Table 5.1 presents a summary of the six stages discussed in line with learning, supporting, promoting and impeding/opposing factors.

Table 5.1 Summary of six stages: learning, support, promoting and impeding/opposing factors

Initiation		Level of support	Promoting factor	Opposing factor
Collective learning	<p>Learning</p> <ul style="list-style-type: none"> -Consensus forming through communication. -Learning by observing. -Evaluating other organisations' best practices served as an initial step to drive the transformation. 		<ul style="list-style-type: none"> -Fundamental understanding of transformation needs. -Broad recognition at various levels to improve existing organisational processes. -Successful examples illustrated by similar projects in different counties. 	<ul style="list-style-type: none"> -Existing organisational processes prohibited the delivery of effective services to the public. -Inadequate IT infrastructure limited the potential for the introduction of new services.
Radical Approach	<ul style="list-style-type: none"> -Through analysing internal process and IT infrastructure, the need to initiate a radical transformation facilitated by the use of IT, as a means of enhancing national competitiveness, was recognised. 	Ascending mode	<ul style="list-style-type: none"> -The advancement and growing popularity of certain technologies (e.g. DB and Networking) provided the SCRO with potential IT solutions. 	<ul style="list-style-type: none"> -The amount of resources that the government was allocated to invest in new technology and maintenance made it difficult for the SCRO to catch up with the trend of new technology.

<p>Mutual learning</p>	<p>-Recognising the need to foster collaborations between different functions horizontally as the basis for transformation. For example, encouraging the development of network ties through socialising.</p> <p>- Nurturing community of practice to acquire new insights.</p>		<p>-Involvements of SCRO members in the project.</p>	<p>-Hierarchical organisational structure prolonged communications between the top and the bottom.</p>
<p>Single-loop and Double-loop learning</p>	<p>-Achieving consensus between different stakeholder groups help to recognise the need for a radical change and the way of which learning is organised at the SCRO.</p>		<p>-Positive reaction to the transformation project.</p>	<p>-A large number of staff was not equipped with the required knowledge to rollout the transformation.</p>

Adoption

	<p>Learning</p>	<p>Level of support</p>	<p>Promoting factor</p>	<p>Opposing factor</p>
<p>Mutual</p>	<p>-Developing shared</p>		<p>-Ongoing assessment and</p>	<p>-Differences between stakeholders'</p>

learning	understanding and consensus between different stakeholders, i.e. consultants and the SCRO members.		negotiation required by the project provided numerous opportunities for stakeholders to interact. -Effective communication facilitated mutual learning to take place.	experiences and interests made the development of shared understanding and consensus difficult. -A significant amount of time was spent on resolving problems due to subculture differences.
Situating learning	-External consultants obtained the understanding of the SCRO's organisational processes through engaging in the project implementation.	Change of mode from ascending to descending	-Project team members' commitment and involvement. -The development of interpersonal relationships between the consultants and internal members.	-Personnel change in project team (internal and external) imposed a steep learning curve on the new team members.
Learning by doing (Behaviour)	-Recognising the need to address regulatory issues which were not dealt with at the beginning of the project.		-Experiencing the limitations and constraints on the project progress triggered the need to re-access the team's learning approach.	-Project team members had limited understanding of the legal requirements that directly or indirectly affected the project.
Team	-The project team leader		-Respecting the superior as	-Project team members often hesitated to

learning and leadership of leadership	encouraged co-ordination between different subgroups which were responsible for different parts of the project.		part of the social norm in Korea, permitting the effectiveness of leadership to be maximised.	challenge the leader, because this was against the social norms.
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Adaptation

	Learning	Level of support	Promoting factor	Opposing factor
Situated learning (Importance of sub-cultures and community learning)	-Fostering collaboration between project members by defining, utilising and complementing each member's specialised skills and capability.		-Highly differentiated tasks in the project team helped to maximise each member's skill to effectively fulfil the project requirement.	-The way in which tasks was differentiated led to the tendency of causing a chain-effect delay between individuals' tasks.
Knowledge sharing	-Channelling external consultants' expertise into the SCRO.	Rapid decline of the support curve in the beginning before reversing direction to gradual rise	-The development of interdependence between the external consultants and registry office employees.	-The lack of knowledge redundancy prohibited effective communication between the consultants and registry office employees.
Training, the diffusion of skills and	-Organising training courses, seminar and workshops to equip the users with		-SCRO employees reacted positively to the training courses.	-Increasing workload provided very limited free time for the employees to regularly attend the training courses.

unlearning	essential skills.				
On-the-job learning	-Coordinating with various branches permitted the project team members to equip with an understanding of local practice.		-The project team members' commitment was enhanced by the symbolic importance of the project, because it was the first electronic government initiative in Korea.	-Users' emotional deterioration, in particular prior to the provision of training, hindered the collaboration between the branches and project team.	
Learning and top management support	-Steering committee acted as a facilitator to remove barriers of implementation, and a gatekeeper to monitor the progress.		-Help provided by the steering committee facilitated the team to ensure the continuity of implementation.	-The tight control imposed by the steering committee hampered the degree of implementation flexibility required by the project team.	

Acceptance

	Learning	Level of support	Promoting factor	Opposing factor
Continuous training	-Reduction in the requirement for paper work helped to generate more time to service the public.	Continuous increase allowing	-Customers welcomed the change towards new simplified procedures.	-Employees found it difficult to start immediately using the new system due to new environment. -Senior and Junior employees showed different

Importance of customer service		enabling routinisation to take place		<p>rates of learning during training sessions.</p> <p>-High expectation from the public, in particular the use of the new system, created unnecessary tension.</p> <p>-User's learning curve in maximising the potential of the system.</p>
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Routinisation

	Learning	Acceptance level	Promoting factor	Opposing factor
Learning by doing	-Embedding the concept of customer service into day-to-day practice.	Sharp increase leading to continual rise	-Users, in particular those who directly served the public, were able to reduce their workload in handling paperwork and to generate more spare time for the public.	-Customers were demanding more convenient services, including alternative service delivery channels, e.g. the Internet.
Continuous and experiential learning	-Users' were more willing to try out new features of the system after being capable of using the basic functions of the system.		-Basic skills required through training and operating the new system provided a foundation for exploiting other functions of the system.	-Senior and junior employees showed different degrees of competence in using the new system.

			<p>-Users continuously attended training sessions in order to familiarise themselves with the more advanced use of the system, and shared their experience of using the system through informal interactions (e.g. coffee break, lunch break and / or social events).</p>	<p>-Due to the high specialisation of tasks, users found that many new functions they learnt could not be applied to the tasks they performed. The need for authorisation on certain tasks prevented the users from trying out some new features.</p>
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Infusion

	Learning	Level of support	Promoting factor	Opposing factor
Generative learning	<p>-Information collected and generated from each branch and office could be effectively integrated, managed and used for future innovation.</p>	<p>Support curve stabilised</p>	<p>-The establishment of the centralised data warehouse in line with the design of new organisational processes permitted effective communication across different functions and geographic locations.</p>	<p>-Customers still had difficulties with particular tasks, e.g. preparing supporting documents to submit with registration.</p>

	<p>-The hype of the Internet across the industry and nation generated a technology push that provided further opportunity for innovation.</p>		<p>-The IT infrastructure set up during the BPR project provided a technological foundation for the SCRO to incorporate the Internet into their service delivery.</p>	<p>-Growing concerns towards Internet security and privacy were brought up for discussion in every meeting by staff from the Supreme Court.</p>
<p>Double-loop learning</p>	<p>-Recognising the need for continuous innovation by building upon the success of the existing project.</p> <p>-More advanced technology could bring new ways of improving the integration of work across different governmental departments.</p>		<p>-Employees' recognition of the benefits delivered by the project motivated them to engage in new initiatives.</p> <p>-The implementation success of the SCRO provided the confidence required for other electronic government initiatives in Korea.</p>	<p>-The difficulty in codifying all the learning experienced due to the tacitness and embeddedness of the learning.</p> <p>-Continuous change in the overall direction of electronic government initiatives makes detailed plan and effective integration very difficult.</p>

Five particularly important lessons may be drawn from this study. First, the achieving of consensus through collective and mutual learning, identified at the early stage of the project, was vitally important, because a shared understanding had a major impact on the diffusion of the project initiation. It is clear that organising a project in a government organisation is a more complex task than models of IT implementation and transformation might suggest (Heeks, 1999, 2002). While previous e-government studies have focused on either the importance of technology adoption or the new process, this study suggests that organising a project that involves many stakeholders in a dispersed organisation actually requires integration between a deep understanding of the purpose and the facilitation of the right approach. Maintaining the process of shared understanding and the integration of rational and political negotiations in order to ensure organisational backing for implementation of IT applications is crucial not only for the project participants, but also for the establishment of emotional attachment (Lembke and Wilson, 1998) between the participants and the stakeholders.

Secondly, several different aspects associated with learning activities were found to be a critical element in the gaining of acceptance during the implementation processes of IT transformation. As explained earlier, the acceptance schema represented in the

adaptation stage reveals the ups and downs of organisational members' anticipation towards the project through vital project events. The acceptance of the transformation was context-dependent and multi-layered, and was often developed through social interactions and actions by project team members and organisational members. In this respect, an understanding of the relationship between various activities and the support level is vitally important. Instead of focusing on IT, organisations need to understand that activities to enhance the project, such as training in the diffusion of skills, on-the-job learning, and management support, are as much a social activity as a technical one, and that transformation that facilitates this kind of interaction is more likely to be effective. For example, the practice of learning-by-doing and experiential learning at the routinisation stage, which embedded learning within everyday tasks, could only be meaningful to organisational members when it was fully applied and embedded into organisational routines and practices.

Thirdly, the organisational and managerial capability to recognise the significance of learning and acceptance activities for the broader organisational transformation was crucially important. The focus of the analysis in this study has been on the interaction between technology implementation in a government organisation and peoples'

(organisational members', external and internal project members', and other stakeholders') acceptance/support and learning in order to facilitate transformation. The findings lead us to the conclusion that undoubtedly the activities illustrated here have contributed greatly to the relatively successful acceptance of transformation at the SCRO. In other words, it can be said that no transformational efforts will be effective without the fundamental understanding of the project and consensus among the people and management. This recognition also helps us to identify key acceptance and learning issues that need to be addressed with the same urgency as the issue of technological infrastructure. This is an important lesson at a time when e-government transformation can easily be oversimplified by focusing only on technology matters.

Fourthly, the research finds that a transformational organisation needs to possess the capability for dealing with environmental uncertainties, the different characteristics of organisations, and complicated communication processes. In particular, in the SCRO case, the start of the second cycle of the project demonstrated how the use of a new system and process enabled the organisation's operation to develop further to take an Internet platform for the purpose of building a one-stop public service. For example, the infusion of the transformational effort contributed to the further renewal of

organisational transformation through the Internet opportunity and through the discarding, redefining and combining of practices in which learning and knowledge were embedded.

Finally, one of the most important findings from this case study concerns the effect of learning and support on an e-government transformation. This broadens the previous general prescriptions about IT-enabled government transformation, which emphasise that the implementation and utilisation of a particular IT is all that is necessary to facilitate effective transformation. Rather, this case study shows that a successful e-government transformation is dependent not only on the use of particular technologies but also on the acceptance of the transformation through learning and the co-ordination of related activities.

The above discussion underlines the need to focus on the issue of employees'/users' support for e-government transformation, as well as on how each stage of transformation is interwoven with various types of learning, which are crucial in explaining and understanding transformational activities within the context of the broader e-government project. It must be recognised, however, that there are inevitably

some limitations of the present study. In Chapter Six we will offer a more detailed account of the theoretical and managerial contributions of this study, as well as acknowledging the limitations of the study and briefly indicating some possible directions for further research in the future.

CHAPTER SIX: CONCLUSION

6.1 INTRODUCTION

The purpose of this research study is to examine the challenges of e-government organisational transformation and to confirm the importance for that transformation of accommodating key social factors, especially a shared vision for transformation, and an effective learning environment. The findings presented in this thesis address several factors that contribute to the understanding of the processes of technology implementation in e-government transformation. In particular, the case study explored in this thesis focuses on the way in which the e-government transformation develops in stages, and the way in which an organisational learning process strengthens the support for the transformation by organisational members.

The literature review (Chapter Two) identified the driving forces behind the key research questions in order to establish the theoretical foundations of the research. The literature was drawn from three main areas of study: public sector organisation, organisational transformation, and IT; and the literature identified various issues, classifications and definitions. The theory of the logic of opposition was discussed as a foundation of the theoretical perspective, since it enabled the identification of

promoting and impeding factors that contributed to effective learning and support for the transformation.

The case study is based on detailed empirical evidence of the e-government transformation in one public sector organisation in Korea: the SCRO. The data used in the case study were derived from a variety of sources and helped to create a retrospective picture of the organisation from 1994 to 2001. This study has outlined various transformational efforts that the SCRO undertook over the period of the project's duration. In addition, by following the model of process innovation and diffusion (comprising six stages: initiation, adoption, adaptation, acceptance, routinisation, infusion), the detailed events, processes and challenges were identified and categorised. These detailed findings were then set within our basic research framework, organised according to key themes. The logic of opposition was explored as a new paradigm for understanding the dynamics of these findings by identifying significant promoting and impeding factors.

The findings of the study, presented in Chapter Five, underline the importance of social factors during the process of e-government transformation. Organisational learning has

emerged in this analysis as a means of balancing the conflicting and yet complementary factors of transformation. In addition, the findings of the case study allow the research to present a heuristic model of the support curve of organisational transformation. This represents the flow of support for the transformation within the SCRO, and suggests that the relationship between the level of support over the six stages and organisational learning is an especially significant factor for leveraging effective e-government transformation.

In the present chapter, we discuss the main findings of the research and consider the next stage in researching the future of e-government transformation. Section 6.2 summarises the theoretical, methodological and managerial contributions of the research, and considers the implications of this study for the examination of e-government transformation. Part 6.3 summarises some limitations and reflections, while Part 6.4 presents suggestions for future research.

6.2 RESEARCH CONTRIBUTIONS AND IMPLICATIONS

This thesis provides an exploratory empirical account of a chosen case study of e-government organisational transformation, based on a careful examination and analysis

of collected data. By identifying the promoting and impeding factors involved in e-government transformation, it seeks to make a novel and useful contribution to this area of research. Three major contributions - theoretical, methodological and managerial - will be outlined below.

6.2.1 Theoretical Contributions

The research findings have several theoretical implications. First, the research attempts to integrate the existing organisational transformation literature from various disciplines in order to demonstrate the need to understand the complex nature of e-government issues. By developing the literature review in a multi-disciplinary manner, this research has shown that the transformation to e-government has tended to be focused on the area of IT. Consequently, the significance of organisational factors is generally neglected. By exploring a different concept of organisational transformation in the public sector, this research has demonstrated that e-government transformation is influenced not only by IT but also by many other factors. The identification of different influential elements brings a new insight to bear upon the understanding of the e-government transformation process. In addition, this thesis presents systematic empirical evidence of a case study of e-government transformation in a public sector organisation in Korea, thereby adding

significantly to the limited existing literature in this area of enquiry.

The second theoretical contribution is related to the construction of the 'logic of opposition' theory and its application to e-government transformation. While the social and organisational issues of public sector organisational transformation have increasingly attracted the attention of researchers, much of the existing literature still concerns the promoting factors involved in such a transformation. While most research has focused on just one element in the equation, the present study represents a fresh attempt to understand the complex, multi-layered, multi-dimensional and context-dependent concept with which many previous studies have struggled. It deliberately seeks to avoid identifying only promoting factors in this area of discussion. Rather, public sector organisational transformation is here understood, from a logic of opposition perspective, in order to identify both promotional and impeding factors and processes. This view has also encouraged the researcher to adopt a multi-disciplinary approach towards understanding e-government transformation. This focus on the dynamics of the logic of opposition, as pointed out by Robey and Boudreau (1999), greatly assists an in-depth exploration of the e-government transformation process.

Thirdly, the theory of organisational learning, as applied in this thesis, enables us to take into account the link between such learning and organisational transformation. This study seeks to achieve this objective by exploring the processes and mechanisms of how organisational members learn during the successive stages of the organisational-transformation project.

Fourthly, the bringing together of organisational learning theory and the logic of opposition theory enables us to concentrate on the specific behavioural features that emerge during the transformation within its project environment. That is to say, this makes it possible to link organisational members' behaviour towards the transformation and various key, intertwined social and organisational elements. This in turn underlines the notion of support for the transformation within the organisation and among the perceptions of organisational members and the public during the project period. The support curve (presented in the previous chapter) is used to illustrate the ups and downs of support, and sees the level of support as the outcome of organisational members' learning and various events occurring in the successive transformational stages.

Fifthly, the organisational learning concept suggests that the future path of public

organisation transformation towards e-government should take into account the crucial role of learning as an enactment of social reality (Weick, 1995). This learning governs the development of possibilities that are open to the organisation. By acknowledging the role of learning during the transformation, organisational members can experience the benefit of a much deeper understanding of the purpose of transformation. As a result, any individual member's recognition of the transformation effort could be turned into a collective recognition, thereby helping to achieve a more consistent level of organisational support for the transformation effects. This perspective on organisational support provides an important new outlook on the interplay between organisational learning and the organisational- transformation context, suggesting the need for 'an integrating paradigm to guide theory development and to provide a common frame of reference within which to integrate various research streams' (Davis et al., 1989, p.983).

Referring to the current theoretical development, it is clear that the challenge of achieving consensus in our perspective is further amplified by the growing number of research. Grant (2005) points out the difficulty in defining what constitutes e-government research, in particular when key constructs and notions are still being developed and articulated. This research serves as an in-depth account that allows other

to build on. Also, this thesis bridges e-government research that emphasises on the implementation of technology (e.g. Landsbergen and Wolken 2001; Musso, Weare, and Hale 2000; Peled 2001; Ventura 1995) and transformative change in the public sector (e.g. Farazmand, 200; Hood, 1991; Loader, 2000; Lovell, 1995) and address the socio-technical nature of IT-related transformation.

Compared to some of the empirical research, some similarities and differences are outlined. For example, Ten et al., (2005) investigate the phenomenon of e-governance from a stakeholder perspective. Based on a case study of the implementation experience of an electronic tax filing system in Singapore, they suggest that the failure to align different agents' interests was largely caused by the over-emphasis on coercive control as a means of gaining compliance. One of the most crucial findings derived from their study is that there are limits to the extent to which stakeholders' interests can be served. The authors suggested that in the context of e-governance certain stakeholder interests may have to be subjugated to maintain the interest of the public. Compared to the case presented here, some contextual similarities are clearly evident. Their findings coincide the arguments presented in this research about the importance of managing stakeholder, balancing control and collaboration elements, and how these

actions can facilitate the acceptance towards a new e-government initiative. However, it is also clear that organizational learning, which was not emphasised by Ten et al., is a vital ingredient to create the required level of acceptance.

In view of radical transformation as an implicit feature of e-government implementation, Kawalek and Wastell (2005) provide similar evidence in elaborating the difficulties in defining a change initiative's scale and scope at the early stage of implementation. Based on their case studies of the SPRINT methodology, they suggest that radical change articulated in plans generated by participants in the process redesign were usually scaled down or abandoned during the implementation stage. They explain that institutional inertia provides a strong countervailing force against the implementation of radical plans. Also, the authors argue that most projects do not match up their potential for generating transformational change. Given the complexity and institutional inertia associated with public sector organisations, they question whether radical change is a feasible option and recommend the option for an incremental change over time. Findings presented here show that a radical change can be implemented successfully, even though the difficulty and ambiguity in clearly defining its scale and scope during the early stage of implementation. The need to

perceive, approach and manage radical transformation as a learning experience rather than a technological project is clearly illustrated in this thesis. Also, the need to continuously maintain users' acceptance and support, in particular for a project which spanned over 7 years, is paramount.

In conclusion, this research has enabled us to view e-government transformation-related aspects as the outcome of the emergent interplay between promoting and impeding factors, as organisationally and socially constructed, and as a product of organisational learning during the transformation context. Differing in these respects from most previous research accounts of e-government transformation, this research proposes that e-government transformation activities can be more practically understood through the application of multi-disciplinary approaches taking into account the interacting roles of technological, social, organisational and public factors over time.

6.2.2 Methodological Contributions

Methodologically, this study contributes a new way of studying e-government transformation in Korean public sector organisations. It is based on longitudinal in-depth field research shaped by the logic of opposition perspective incorporating the

process innovation diffusion model (Cooper and Zmud, 1990). This approach enabled the case study to identify the significance of IT, events, processes and stakeholders within the organisational context throughout the six stages of transformation outlined by Cooper and Zmud. The understanding of the e-government transformation was further enhanced through the analysis of the case study findings based on an interpretive position incorporating different sources of evidence.

The research methodology has three distinctive but interrelated features. First, it studies the transformation process of e-government using the process innovation diffusion model (Cooper and Zmud, 1990). In spite of the progress toward understanding e-government transformation, the literature has a tendency to focus largely on the process of IT implementation. The initial challenge for the researcher was to decide whether to adopt a framework that would focus exclusively on the IT implementation process, or to adopt a framework that would enable the researcher to examine the whole range of transformation-related activities from a holistic and longitudinal viewpoint. The decision to adopt the latter approach in the present research was motivated by the desire to produce results that would reflect the practicality and complex interaction of the e-government transformation process. The

process innovation diffusion model (Cooper and Zmud, 1990) identifies six stages of transformation: initiation, adoption, adaptation, acceptance, routinisation and infusion. This model provides a set of useful guidelines for conducting an empirical study, in particular during the data-collection process of a case study. Previous accounts of research methodology have tended to place an emphasis on how research can be conducted and how data can be analysed (e.g. Miles and Huberman, 1994; Yin, 1994). Therefore, the researcher believes that this thesis represents the first effort to apply the process innovation diffusion model to the study of e-government transformation. The study investigates not only the role of IT but also the interrelating social and organisational context associated with the transformation. In addition, by applying the process innovation diffusion model to describe and illustrate the e-government transformation (Chapter Four) in a longitudinal manner, this thesis has been able to provide a clear and coherent account of organisational transformation in a complex public sector organisation. There are relatively few studies that provide clear guidelines on how to organise the various stages of longitudinal transformation. In particular, empirical studies rarely state the problems encountered during fieldwork. In the current literature, we find a large number of cases with an impressive set of interviewee lists. What is needed is a guided description of techniques and frameworks

that others can follow in order to understand longitudinal transformation research. Furthermore, the use of the process innovation diffusion model in our analysis has helped us to produce a schematic representation of a support curve for the case study, and this has strengthened and highlighted the importance of organisational support and organisational learning during the e-government transformation.

Secondly, building on the practical concerns of this research, there is the question of research access. The concept of e-government transformation suggests the need to use different penetration tactics for gaining access. Because the empirical dynamics of the e-government transformation process are under-researched, any opportunity to negotiate access to a government organisation has to be dealt with carefully and creatively. This study presents a method for gaining research access to a complex government organisation. For example, as well as contacting the organisation, the researcher also tried to gain access through the outsourced consulting company that was in charge of the transformation project. Approaching the task from two directions undoubtedly speeded up the process of gaining access. Furthermore, this research shows that trust can be obtained when the research project is introduced by different people, thereby reducing the uncertainty that may surround an approach by just one

researcher. This particular access negotiation strategy could be of wider interest for future researchers intending to study sensitive organisations.

The third innovative part of the research methodology concerns the development of a schematic representation of a support curve derived from the findings (see Figure 5.1).

The analysis of the e-government transformation process in relation to organisational learning and support facilitated this schematic representation. We have seen that organisational learning is undoubtedly a very important issue in the development of the understanding of e-government transformation. By understanding the way in which organisational learning affects the e-government transformation process, we can more easily identify and present the notion of support during the process of transformation.

Figure 5.1 illustrates the schematic presentation of the support curve. Most importantly, the points at which the support curve rises and falls may vary from organisation to organisation, and it might be argued therefore that the degree of organisational learning is related to the level of support. In other words, the use of the support curve might be beneficial not only for further research within the area of e-government transformation but also for other studies seeking to explore and exploit social processes during technological implementation. Therefore, one suggestion for those applying the same

method is not to overlook the complexity of the organisation, which can be seen in relation (for example) to the behaviour of, and interactions between, the various organisational elements within a specific context, as well as their collected efforts in relation to the transformation.

6.2.3 Managerial Implications

This study has several managerial implications. In particular, three major sets of practical guidelines can be identified. These are discussed in turn below.

6.2.3.1 Managing Stakeholders

Since any e-government transformation is likely to involve many stakeholders, understanding these stakeholders and their behaviour is essential for managing the transformation. As Nutt et al. (2000) point out, the current literature says little about how to uncover problems and integrate ideas for strategic change to cope with key issues by involving crucial stakeholders. The recognition of the importance of this issue would greatly help management. In our case study of the SCRO, the project leader had to manage key stakeholders, i.e. government officials, ministry members, organisational members, and project team members, so that key personnel were informed appropriately

and taken into account over a long period of time. The support for transformation depends greatly on the active participation of various individual stakeholders. In addition, due to the fact that the management of sub-project teams and cross-departmental relations can be especially problematic, teamwork does not always operate as expected. For this reason, it is important to have sufficient and effective means of communication between various stakeholders.

This study suggests that there should be constantly evolving communication arrangements between different people and units in the organisation in order to facilitate as much communication as possible (Nahpiet and Ghoshal, 1998; Nonaka and Takeuchi, 1995). Furthermore, from the HRM (Human Resource Management) perspective, stakeholder management must be carefully applied to ensure that everyone is provided with equal information on the progress of the transformation. This helps stakeholders to identify the promoting and impeding factors that will ultimately determine the acceptance of the transformation.

6.2.3.2 Continuous Learning

This study suggests that however successfully a public sector organisation is

transformed, it is important to be aware of the continuing importance of organisational learning. In particular, by continuously generating an effective learning environment, organisational members are able to promote double-loop learning (see Section 5.7) and build a community in which individual organisational members feel comfortable with new knowledge as it is put into practice. Furthermore, establishing a reward system through incentive payments, career paths, or other recognition schemes for new ideas and practices in a public sector organisation can effectively encourage continuous learning even after the initial transformation has been achieved. This would certainly help the management of any public sector organisation to recognise that e-government transformation is not a one-off project effort but needs to be continuously renewed.

6.2.3.3 The Recognition of Organisational Issues during the Project

By following the various stages of IT-enabled e-government transformation, this research highlights the importance of technology as an enabling mechanism that incorporates and revolves around many social and organisational issues. This recognition not only stresses the importance of choosing the best strategy for deciding what particular IT to implement, but also underlines the need to take into account organisational issues from the start of the transformation. If an organisation could

successfully anticipate the key promoting and impeding factors that might arise during the planning, design and implementation of a project, then this would make it much easier to deal with the impact of unexpected events.

The implementation of IT as an enabling mechanism is also crucial for the delivery of effective, efficient processes for the formation of e-government. The expectation is that IT externally creates the unrestricted availability of, and access to, information for the public, and internally IT helps to reorganise work processes in order to establish shorter and more efficient lines of communication. While many public sector organisations view e-government initiatives as an extension of the implementation of IT, often with a very narrow focus on the choice of technologies, the emphasis should be placed on the acceptance of such technology to be used collaboratively in the organisation. As the research findings suggest, regardless of how great the benefits of technology are, it is up to the employees of the organisation to accept the technology, appreciate its importance, and understand how it can be used to regenerate their organisation..

As explained already in Section 6.2.2, the use of a schematic representation of the

support curve provides a useful tool to ensure and direct the long transformation in any organisational sector that might view IT enabled transformational initiatives as an extension of the implementation of IT. First, this would be useful for project managers in the field who recognise the need not to place too much emphasis on the importance of IT implementation without recognising the use of the system by the organisational members. Secondly, the tool of the support curve could be helpful to the organisational members themselves who are going through the process of transformation. Quite often, organisational members are left out during the transformation, and are not properly informed and notified. By using a graphical representation of the rising and falling support curve over the period of transformation, e.g. by displaying it on a wall, it would be possible to raise awareness of the key points and problems involved in the various transformation stages.

6.3 LIMITATIONS AND REFLECTIONS

The researcher recognises the limitations of the present research, and suggests that these limitations can be viewed as opportunities for future research and reflections. First, given the nature of the study, and in order to elaborate the concept of e-government, this research was limited to a single case study. As a result, the validity of

the study might be limited and might lack general applicability in public and private sector organisations. Future studies should attempt to replicate this research in different industries and settings. In this research, the emphasis was on e-government rather than e-business, where competition is more fierce and complicated. In different organisational settings, for example in a private company aiming to establish an e-business, the impetus for transformation might be shaped and recognised by different forces. In addition, because of the difficulty of gaining access to senior public administrators, and the sensitivity of national information, the empirical study was limited to the public sector of Korea. Given that the idiosyncrasies of the public sector are bound to affect its success in seeking to achieve organisational transformation, the empirical findings are therefore influenced by the Korean context, particularly the impact of e-government initiatives.

The second limitation of the research concerns the question of the idiosyncratic nature of an organisation's transformation process. As explained previously, some transformation efforts are similar across organisations, while others are based on the each organisation's distinct history, and hence the transformations are idiosyncratic. However, when we look at different organisations within the same environment,

technology or market, it is interesting to see the relationship between the transformation efforts of each organisation. Accordingly, the relationship between the context and the organisation's transformation efforts should be studied in more detail. For example, it would be useful to study a set of organisations within a similar context in order to identify the role of the environment and the way in which the organisations adjust to change in this environment.

The third limitation concerns the detailed account of acceptance by the public. In this study, the acceptance of organisational transformation from the public's point of view throughout the six stages was not addressed on the basis of any systematic survey. This is in fact not an easy task since many transformation projects do not integrate the public directly into the project implementation. Future studies would be enhanced if a survey of the public could be conducted in order to gain more detailed information about the public's perception and acceptance of (and support for) the transformation.

The fourth limitation is that this thesis did not study empirically or in any depth the communication process and its information flow. Such a study would have allowed us to identify the exact configuration of the flow of organisational learning through communication processes among organisational members. Because the research

focused on organisational transformation, IT, learning and acceptance, the communication process did not receive sufficient attention. Thus, future research could be useful in this area in order to determine precisely how communication contributes to transformation and consequently to learning.

The key variable in this research that has been identified is that of *time*. It is inextricably linked to all areas but it fails to follow any particular scale. Transformation, learning and acceptance all vary with time. Organisations, processes, tasks and individuals have a variety of learning curves. Within competitive organisations, the aim is to optimise the effects of time in order to achieve the desired results. The overriding desire to be 'first' and to be 'the best', and to remain at the top, means that there is continual striving to be ahead, sequentially as well as technologically. The research design recognised that time was an important factor, but the fieldwork served to emphasise the complexity of the sequential link. The use of directed search based on a diffusion process model with a reflection of perception over time (Chapter Four) provides an especially interesting insight into this study of complex transformation.

This research has highlighted the role of organisational learning and the importance of

organisational support for successful e-government transformation. It has also addressed the need to balance the various critical factors that emerge as a result of e-government transformation initiatives. The research findings were summarised in the form of a schematic representation of a support curve. This was empirically supported by the evidence collected by identifying promoting and impeding factors that interacted to shape the process of public sector organisational change in the Korean SCRO.

Despite the evident limitations of this research, the researcher would like to raise a few challenging and positive reflections. These concern the use of the innovation diffusion model; the logic of opposition; organisational learning; and the support curve. Together, these elements underpinned the vital theoretical and methodological contributions to this study. The elaboration of the dynamic interrelationships between those four aspects suggests that, in the process of e-government transformation, their contributions are highly interconnected and mutually reinforcing. As shown in Figure 5.1, this study emphasises the importance of aligning programme participants, organisational members and stakeholders intellectually and emotionally as a means of overcoming potential difficulties, as well as maintaining transformational progress.

The use of the process innovation diffusion model provided a very useful guide for identifying crucial processes and events over the long period of transformation. This enabled the researcher to follow the complex transformation step by step, incorporating not only the role of IT but also that of various key organisational elements. The logic opposition approach reflects the fact that the process of transformation cannot be perceived as a straightforward activity. Rather, it is also vital to take into account the complexity of opposing factors derived from emotional, social and organisational elements. The diversity of organisational learning as one of the key elements of the e-government transformation is evident as a source of understanding inter-group conflict and organisational members' efforts to achieve transformation. The importance of the support curve and its application to the six transformational stages was found to be crucial for the refinement of e-government transformation. Undoubtedly, this requires the penetration and practice of organisational learning, in particular the type of learning needed to enhance transformational support. Learning, awareness, and support were found to be three ongoing processes that helped to make transformation a success. Finally, reflecting on the researcher's personal experience of using, elaborating and applying the above four concepts, and her experience of conducting this research, she hopes that she has been able to offer some interesting means of approaching e-

government transformation, and that these will be useful for future researchers, especially those in the early stages of their research career.

6.4 FUTURE RESEARCH

Given that the learning and acceptance of e-government transformation is a dynamic and ongoing process, and that, due to the chosen method of study, it was impossible to measure the support curve in a mathematical sense, one suggestion for further research is to conduct a quantitative study in parallel with the longitudinal study of an organisation undergoing a major transformation exercise. By using interdisciplinary approaches simultaneously, future studies could provide more evidence to explain the elements that constitute a pattern that impedes and facilitates transformation in the organisation.

Based upon the arguments and findings in this research, we have proposed a 'logic of opposition' theory of organisational learning in a dispersed organisation. It would be useful to incorporate other aspects of the logic of opposition to explore key areas in which further research is needed.

Another potentially fruitful task for further research is to replicate the study in other organisations, so that the framework used in this research and its findings can be further analysed and refined for application to other national public sectors, between public sector organisations in Korea, and even in the private sector. Therefore, future research in these areas would contribute immensely to developing a more pluralistic view of an organisation's transformation capabilities. In particular, the understanding of an organisation's capability to transform itself could also provide a foundation for designing transformation plans to increase the level of organisational support.

In conclusion, both transformation and learning should be treated as indivisible requirements for the continuous adaptation and the long-term survival of a public sector organisation. In this sense, the recent literature that accentuates transformation as a key process for successful organisational evolution offers only a partial solution.

The evolutionary dynamics of organisations involve complex processes and mechanisms that bring together learning and transformation. In this sense, organisations need to continue to transform and learn on a continual basis in order to adapt to instability and unpredictability in today's rapidly changing environment and technological resources. A balanced combination of transformation and learning

enables an organisation to improve its adaptability on both a short-term and long-term basis. If an organisation simply focuses on the improvement of learning capability without carrying out transformation in the most effective way, it could be caught in a competence trap. Similarly, if an organisation focuses on simply implementing the transformation programme without appropriate learning practices, it could also find it very difficult to gain a competitive advantage.

References

- Aichholzer, G. and Schmutzer, R. (2000). "Organizational challenges to the development of electronic government." Proceedings from 11th International Workshop on Database and Expert Systems application, Sep 6-8, London, 379-383.
- Allcorn, S. (1995). "Understanding organizational culture as the quality of workplace subjectivity." *Human Relations*, 48(1), 73-96.
- Alvesson, M. and Skoldberg, K. (2000). *Reflexive methodology: New vistas for qualitative research*, Sage, London.
- Argote, L. (1982). "Input uncertainty and organisational coordination in hospital emergency units." *Administrative Science Quarterly*, 27 (3), 420-434.
- Argyris, C. and Schon, D. (1978). *Organisational learning, a theory of action perspective*, Assison-Wesley, London.
- Argyris, C. (1982). *Reasoning, learning, and action, individual and organisational*, Jossey-Bass, London.
- Argyris, C. (1977). "Double Loop Learning." *Harvard Business Review*, 55(5), 115-125.
- Argyris, C. (1993). *Knowledge for action: Changing the status quo*, Jossey-Bass, San Francisco.
- Argyris, C. and Schon, D. (1996). *Organizational Learning II: Theory, Methods, and Practice*, Addison-Wesley, New York.
- Armstrong, M. (2001). *A Handbook of Human Resource Management Practice*, 8th edition, Koogan Page, London.
- Arrow, K. (1962). "The economic implications of learning by doing." *Review of Economic Studies* 29 (2), 166-170.

Attewell, P. and Rule, J. (1991). "Survey and other methodologies applied to IT impact research: experiences from a comparative study of business computing." *The information systems research challenge: survey research methods*, K.L. Kraemer, eds., Harvard Business School Press, Boston.

Attewell, P. (1996). "Technology diffusion and organizational learning: The case of business computing." *Organizational learning*, M.Cohen and L.Sproull, eds., Sage, London.

Baden-Fuller, C. and Stopford, J. (1994). *Rejuvenating the mature business: The competitive challenge*, Routledge, London.

Bae, J. and Lawler, J. (2000). "Organizational and HRM strategies in Korea: Impact on firm performance in an emerging economy/" *Academy of Management Journal*, 43(4), 502-517.

Ban, C. (1995). *How do public managers manage?: Bureaucratic constraints, organisational culture, and the potential for reform*, Jossey-Bass, San Francisco.

Bandura, A. (1977). *Social learning theory*, Prentice Hall, Englewood, NJ.

Barlett, D. and Payne, S. (1997). "Grounded Theory-Its basis, rationale and procedures. understanding social research perspectives on methodology and practice, P. Powell, J. McKenzie, and R. Usher, eds., Falmer Press, London.

Barley, S. (1986). "Technology as an occasion for structuring: evidence from observations of CT scanners and the social order of radiology departments." *Administrative Science Quarterly*, 31(1), 78 – 108.

Barley, S. (1990). "The alignment of technology and structure through roles and networks." *Administrative Science Quarterly*, 35(1), 61-103.

Barr, P., Stimper, J. and Huff, A. (1992). "Cognitive change, strategic action, and organizational renewal." *Strategic Management Journal*, 13 (Summer Special Issue), 15-36.

Barreyre, P. (1988). "The concept of 'impartition' policies: a different approach to

vertical integration strategies.” *Strategic Management Journal*, 9(5), 507-520.

Bass, B. and Avolio, B. (1993). “Transformational leadership and organizational culture.” *Public Administration Quarterly*, 17(1), 112-121.

Bellamy, C. and Taylor, J. (1998). *Governing in the information age*, Open university press, Buckingham, U.K.

Benbasat, I., Goldstein, D. and Mead, M. (1987). “The case research strategy in studies of information systems.” *MIS Quarterly*, 11(3), 369-386.

Benjamin R. and Levinson, E. (1993). “A Framework for Managing IT-enabled Change.” *Sloan Management Review*, 34(4), 23-33.

Berger, P. and Luckmann, T. (1967). *The social construction of reality: A treatise in the sociology of knowledge*, Anchor Books, New York

Bessant, J., Levy, P., Ley, C., Smith, S. and Tranfield, D. (1991). “Changing organizational design and practices for computer integrated technologies.” *International Journal of Technology Management*, 6(3), 211-221.

Bhaskar, R. (1989). *Reclaiming reality*, Verso, London

Bishop, S. (1999). “Cross-functional project teams in functionally aligned organizations.” *Project Management Journal* 30(3), 6-12.

Black, J. and Champion Dean J. (1976). *Methods and issues in social research*, John Wiley & Sons, London.

Blackler, F. (1995). “Knowledge, knowledge work and organisations: An overview and interpretation.” *Organization Studies*, 16(6), 1021-1046.

Blaikie, N. (1993). *Approaches to Social Enquiry*, Blackwell, Cambridge.

Blumenthal, B. and Haspeslagh, P. (1994). “Toward a definition of corporate transformation.” *Sloan Management Review*, 35(3), 101-106.

- Blundell, B. and Murdock, A. (1997). *Managing in the Public Sector*, Butterworth-Heinemann, Oxford.
- Boddy, D., Macbeth, D. and Wagner, B. (2000). "Implementing collaboration between organizations: An empirical study of supply chain partnering." *Journal of Management Studies*, 37(7), 1003 – 1018.
- Boland, R. and Tenkasi, R. (1995). "Perspective making and perspective taking in communities of knowing." *Organization Science*, 6(4), 350-372.
- Boland, R. (1985). Phenomenology: A preferred approach to research in information systems, *Research methods in information systems*, E. Mumford, R. Hirschheim, G. Fitzgerald, and A. Wood-Harper, eds., Elsevier Science, London.
- Boyce, M. (1995). "Collective centring and collective sense-making in the stories and storytelling of one organization." *Organization Studies*, 16(1), 107-137.
- Braganza, A. and Myers, A. (1996). "Issues and dilemmas facing organisations in the effective implementation of BPR." *Business Change and Reengineering*, 3(2), 38-51.
- Brass, D. and Burkardt, M. (1993). "Potential power and power use: An investigation of structure." *Academy of Management Journal*, 36(3), 441-472.
- Brewer, J. and Hunter, A. (1989). *Multimedthod research: A synthesis of style* Sage, Newbury park, CA.
- Brown, J. and Duguid, P. (1991). "Organizational learning and communities of practice: toward a unified view of working, learning and innovation." *Organization Science*, 2(1), 40-56.
- Bryman, A. (1989). *Research methods and organisational studies*, Unwin Hyman, London.
- Bryman, A. and Burgess, R. (1999). "Introduction: Qualitative research methodology- A review." *Qualitative research volume I*, A. Bryman and R. Burgess, eds., Sage, London.

- Bucy, E. and Gregson, K. (2001). "Media participation: a legitimizing mechanism of mass democracy." *New Media and Society*, 3(3), 357-380.
- Burns, B. (1996). *Managing change: A Strategic approach to organisational dynamics*, Pitman Publishing, London.
- Burrell, G. and Morgan, G. (1979). *Sociological Paradigms and Organisational Analysis: Element of the Sociology of Corporate Life*, Heinemann, London.
- Bush, D. and Dooley, K. (1992). "A learning process for transformation to continuous improvement management." *Human Systems Management*, 11(4), 181-192.
- Calas, M. and Smircich, L. (1992). "Rewriting gender into organizational theorizing: Directions from feminist perspectives." *Rethinking organization: New directions in organizational theory and analysis*, M. Reed and M. Hughes, eds, Sage, London.
- Cash, J. and Markus, M. (1989). "Case Selection in a disconfirmatory case study." *The information systems research challenge: Qualitative research methods*, J. Cash, and P. Lawrence, eds, Boston, Mass.
- Cavaleri, S. and Fearon, D. (1996). *Managing in organizations that learn*, Blackwell, Oxford.
- Chia, R. (1997). "Essay: Thirty years on: from organizational structures to the organization of thought." *Organization Studies*, 18(4), 685-708.
- Child, J. (1987). "Information technology, organisation, and the response to strategic challenges." *California Management Review*, 30(1), 33-50.
- Ciborra, C. and Suetens, N. (1996). "Groupware for an emerging virtual organisation." *Groupware and teamwork*, C. Ciborra, eds., John Wiley & Sons, Chichester.
- Clark, K. and Fujimoto, T. (1991). "Product development performance: Strategy, organisation, and management in the world auto industry." *Harvard Business School Press*, Boston.
- Cohen, M. and Bacdayan, P. (1994). "Organizational routines are stored as procedural

memory.” *Organization Science*, 5(4), 554-568.

Cohen, W. and Levinthal, D. (1990). “Absorptive capacity: A new perspective on learning and innovation.” *Administrative Science Quarterly*, 35(1), 128-152.

Coleman, S., Taylor, J. and Van de Donk, W. (1999). *Parliament in the age of the Internet*, Oxford University Press, Oxford.

Combs, K. (1993). “The role of information sharing in cooperative research and development.” *International Journal of Industrial Organization*, 11(4), 535-551.

Cooper, K., Lyneis, J. and Bryant, B. (2002). “Learning to learn, from past to future.” *International Journal of Project Management*, 20(3), 213-219.

Cooper, R. and Zmud, R (1990). “Information Technology Implementation Research: A Technological Diffusion Approach.” *Management Science*, 36(2), 123 – 139.

Crossan, M., Lane, H. and White, R. (1999). “An organizational learning framework: From intuition to institution.” *The Academy of Management Review*, 24(3), 522 – 537.

Cyert, R, and March, J. (1963). *A behavioural theory of the firm*, Blackwell, Cambridge, Massachusetts.

Daft, R. and Huber, G. (1987). “How organizations learn: A communication framework. *Research in the Sociology of Organizations*, 5, 1-36.

Davenport T. and Short, J. (1990). “The new industrial engineering: IT & BP.” *Sloan Management Review*, 31(4), 11-27.

Davenport, T. and Stoddard, D. (1994). “ Reengineering: Business change of mythic proportions?.” *MIS Quarterly*, 18(2), 121-127.

Davenport, T. (1993). *Process Innovation*, Harvard Business School Press, Boston.

Davis, F., Bagozzi, R. and Warshaw, P. (1989). “User acceptance of computer technology: A comparison of two theoretical models.” *Management Science*, 35(8), 982-1003.

- Dawson, P. (1994). *Organizational Change: A Processual approach*, Paul Chapman, London.
- Dawson, P. and Gunson, N. (2002). "Technology and the politics of change at work: The case of Dalebake Bakeries." *New Technology, Work, and Employment*, 17(1), 35-45.
- Denison, D., Hart, S. and Kahn, J. (1996). "From chimneys to cross-functional teams: Developing and validating a diagnostic model." *Academy of Management Journal*, 39(4), 1005-1023.
- Denzin, N. (1989). *Interpretive Interactionism*, Sage, Newbury Park, CA
- DeSanctis, G. and Poole, M. (1994). "Capturing the complexity in advanced technology use: Adaptive structuration theory." *Organization Science*, 5(2), 121 – 147.
- Devadoss, P., Pan, S. and Huang, J. (2002). "Structural analysis of e government initiatives: a case study of SCO Decision Support Systems." 34(3), 253-269
- Dishaw, M. and Strong, D. (1999) "Extending the technology acceptance model with task-technology fit constructs." *Information & Management*, 36(1), 9-21.
- Dodgson, M. (1993). "Learning, trust and technological collaboration." *Human Relations*, 46(1), 77-95.
- Downs, A. (1967). *Inside Bureaucracy*, Little Brown and Company, Boston, Canada.
- Doz, Y. and Prahalad, C. (1987). "Process model of strategic redirection in large complex firms: The case of multinational corporations." *The Management of Strategic Change*, A. Pettigrew, eds., Basil Blackwell, Oxford.
- Doz, Y. and Thanheiser, H. (1993). "Regaining competitiveness: A Process of organisational renewal." *Strategic thinking: Leadership and the management of change*, J. Hendry, G. Johnson, and J. Newton, Wiley, Chichester.
- Drucker, P. (1993). *Post-capitalist society*, Butterworth-Heinemann, Oxford

Drucker, P. (1988). "The coming of the new organization." *Harvard Business Review*, 66 (1), 45-53.

Dyer, W. Gibb, Jr., Wilkins, A. (1991). "Better stories, not better constructs, to generate better theory: A rejoinder to Eisenhardt." *Academy of Management Review*, 16(3), 613-619.

Earl, M. (1989). *Management Strategies for IT*, Prentice Hall, UK.

Earl, M. (1994). "The new & the old of BPR." *Journal of Strategic Information Systems*, 3(1), 5-22.

Easterby-Smith, M., Thorpe, R. and Lowe, A. (1991). "Management research: An introduction." Sage, London.

Edwards, T., Jones, O. and Beckinsale, M. (2000). "Technology Management in a Mature Firm: Structuration theory and the innovation process." *Technology Analysis and Strategic Management*, 12(2), 161-177.

Eisenhardt, K. (1989). "Building Theories from case study research." *Academy of Management Review*, 14(4), 532 – 550.

Eisenhardt, K. and Tabrizi, B. (1995). "Accelerating adaptive process: Product innovation in the global computer industry." *Administrative Science Quarterly*, 40(1), 84-110.

Farazmand, A. (2001). "Globalisation, the state and public administration: A theoretical analysis with policy implications for developmental states." *Public Organisation Review*, 1, 437-463.

Ferris, W. and Fanelli, A. (1996). "The learning manager and the innerside of management." *Managing in organizations that learn*, S. Cavaleri and D. Fearon eds., Blackwell, Oxford.

Fichman, R. and Kemerer, C. (1997). "Assimilation of software process innovations: An organizational learning perspective" *Management Science*, 43(10), 1345-1363.

Fiol, C. and Lyles, M. (1985). "Organizational learning." *The Academy of Management Review*, 10(4), 803-813.

Ford, R. and Randolph, W. (1992). "Cross-functional structures: A review and integration of matrix organization and project management." *Journal of Management*, 18(2), 267-294.

Flora, J., Green, G., Gale, E., Schmidt, F. and Flora, C. (1992). "Self-development: a viable rural development option?" *Policy Studies Journal*, 10(2), 276-88.

Flynn, N. (2002). *Public Sector Management*, Prentice Hall, London.

Flynn, N. and Strehl, F. (1996). *Public Sector Management in Europe*, Prentice Hall, London.

Ford, R. and Randolph, W. (1992). "Cross-functional structures: A review and integration of matrix organization and project management." *Journal of Management* 18(2), 267-294.

Furey, T. (1993). "A six step guide to process reengineering." *Planning review*, 21(2), 20-23.

Gable, G. (1994). "Integrating case study and survey research methods: An example in information systems." *European Journal of Information Systems*, 3(2), 112-126.

Gadamer, H. (1960, 1992). *Truth and Method*, The crossroad publishing, New York.

Galliers, R. and Baets, W. (1998). *Information technology and organizational transformation*, Wiley, Chichester.

Galliers, R. (1992). *Information systems research: Issues, methods and practical guidelines*, Blackwell Scientific, Oxford.

Galliers, R. and Land, F. (1987). "Choosing appropriate information systems research methodologies; Viewpoint." *Communications of the ACM*, 30(11), 900-902.

Galuni, D. and Rodan, S. (1998). "Resource recombination in the firm: Knowledge

- structures and the potential for Schumpeterian innovation.” *Strategic Management Journal*, 19(12), 1193-1201.
- Garfinkel, H. (1967). *Studies in Ethnomethodology*, Prentice Hall, London.
- Garvin, D. (1993). “Building a learning organisation.” *Harvard Business Review*, 74(4), 78-91.
- Gefen, D. Rose, Gregory M. Warkentin, Merrill. And Pavlou, Paul A. (2005). “Cultural Diversity and Trust in IT Adoption: A Comparison of Potential e-Voters in the USA and South Africa.” *Journal of Global Information Management*, 13 (1), 54-79.
- Ghoshal, S. and Bartlett, C. (1996). “Rebuilding behavioral context: A blueprint for corporate renewal.” *Sloan Management Review*, 37(2), 23 - 36.
- Giddens, A. (1984). *The constitution of society: Outline of the theory of structure*, Polity Press, Cambridge.
- Glaser, B. and Strauss, A. (1967). *The discovery of grounded theory*, Aldine, Chicago.
- Goldthorpe, J. (1973). “A revolution in sociology?.” *Sociology*, 7(3), 449-462.
- Gouillart, F. and Kelly, P. (1995). *Transforming the organisation*, McGraw-Hill, New York.
- Grant, Gerald (2005). “Realizing the promise of Electronic Government.” *Journal of Global Information Management*, 13(1), 1- 4.
- Greenwood, R. and Hinings, C. (1993). “Understanding strategic change: The contribution of archetypes.” *Academy of Management Journal*, 36 (5), 1052- 1082
- Guimaraes, T. and Igarria, M. (1997). “Client/server system success: Exploring the human side.” *Decision Sciences*, 28(4), 851 –877.
- Gummesson, E. (1991). *Qualitative methods in management research*, Sage, London.
- Hammer, M. (1990). “Reengineering Work: Don't Automate, Obliterate.” *Harvard*

Business Review, 68(4), 104-112.

Hammer, M. and Champy, J. (1993). *Reengineering the corporation: A manifesto for business revolution*, Harper Business, New York.

Hansen, M. (1999). "The search-transfer problem: The role of weak ties in sharing knowledge across organization subunits." *Administrative Science Quarterly* 44 (1), 82-111.

Harrington, H. (1991). *Business Process Improvement*, McGraw Hill, New York.

Hartley, J. and Lord, A. (1998). "Organizational commitment and Job insecurity in a changing public service organization." *European Journal of Work & Organizational Psychology*, 7(3), 341-355.

Hedberg, B. (1981). "How organisations learn and unlearn." *Handbook of Organizational design*, P. Nystrom and W. Starbuck, eds., Oxford University Press, New York.

Heeks, R. (1999). *Reinventing Government in the Information Age: International practice in IT enabled public sector reform*, Routledge Publishing, London.

Held, D. (2000). *A Globalising World? Culture, economics, politics*
The Open University, London, UK

Henke, J., Krachenberg, R., and Lyons, T. (1993). "Perspective: Cross-functional teams: Good concept, poor implementation!." *Journal of Product Innovation Management*, 10(3), 216-229.

Hill, K. and Hughes J. (1998). *Cyberpolitics: Citizen Activism in the age of the Internet*, Rowman and Littlefield, Lanham, MD.

Hochschild, A. (1983). *The managed heart: Commercialization of human feeling*
University of California Press, London.

Holden, S., Norris, D. and Fletcher, P. (2003). "Electronic Government at the local level." *Public Performance & Management Review*, 26(4), 325-344.

- Holliday, I. (2002). "Building e-government in East and Southeast Asia: Regional rhetoric and national in action." *Public Administration & Development*, 22(4), 323.
- Hood, C. (1995). "Contemporary public management: a new global paradigm?" *Public Policy and Administration*, 10(2), 104-107.
- Hood, C. (1991). "A public management for all seasons?." *Public Administration*, 69(1), 3-19.
- Howe, K. (1988). "Against the quantitative-qualitative incompatibility thesis or dogmas die hard." *Educational Researcher*, 17(1), 10-16.
- Huang, J. and Newell, S. (2003). "Knowledge integration processes and dynamics within the context of cross-functional projects." *International Journal of Project Management*, 21(3), 167.
- Huber, G. (1996). "Organizational learning: A guide for executives in technology-critical organizations." *International Journal of Technology Management*, 11(7, 8), 821.
- Huber, G. (1991). "Organisational learning: The contributing processes and the literatures." *Organization Science*, 2(1), 88-115.
- Huberman, A. and Miles, M. (1994). "Data management and analysis methods. Handbook of qualitative research." N. Denzin and Y. Lincoln, eds., Sage, California.
- Huff, A. (1994). "Mapping Strategic Thought." John Wiley & Sons, Chichester.
- Hughes, O. (1998). *Public management and administration: An introductory text*, Prentice Hall, London.
- Hunt, J. (1991). *Leadership: a new synthesis*, Sage, Newbury Park, CA.
- Husserl, E. (1964). *The idea of phenomenology*, Martinus Nijhoff, Hague.
- Hutt, M., Walker, B. and Frankwick, G. (1995). "Hurdle the cross-functional barriers to strategic change." *Sloan Management Review*, 36(3), 22-30.

Jarvenpaa, S., Knoll, K. and Leidner, D. (1998). "Is anybody out there? The antecedents of trust in global virtual teams." *Journal of Management Information Systems*, 14(4), 29 – 64.

Jarvenpaa, S. and Ives, B. (1994). "The global network organisation of the future: Information Management Opportunities and Challenges." *Journal of Management Information Systems*, 10(4), 25-57.

Jick, T. (1979). "Mixing qualitative and quantitative methods: Triangulation in Action." *Administrative Science Quarterly*, 24 (4), 602-611.

Jones, A. and Hendry, C. (1994). *The learning organisation: A review of literature and practice*, University of Warwick, Coventry.

Kakabadse, A., Brovotto, P. and Holzer, R. (1988). *Management Development and the Public Sector*, Gower Publishing Company Limited, Avebury, England.

Karner, P. (1995). "Competence as process and the social embeddedness of competence building." *Academy of Management Journal*, Special Volume / Best Papers Proceedings, 427.

Kasl, E., Marsick, V. and Dechant, K. (1997). "Teams as learners: A research-based model of team learning." *Journal of Applied Behavioral Science*, 33(2), 227.

Kawalek, P. and Wastall, D. (2005). "Pursuing Radical Transformation in Information Age Government: Case Studies Using the SPRINT Methodology." *Journal of Global Information Management*, 13 (1), 79-102

Keen, P. (1981). "Information Systems & Organisational Change." *Communications of the ACM*, 24(1), 437-447.

Kelemen, M., Forrester, P. and Hassard, J. (2000). "BPR and TQM: Divergence or convergence.?" *The reengineering revolution: Critical studies of corporate change* D.Knights and H. Willmott, eds., Sage, London.

Kerlinger, F. (1986). *Foundations of Behavioural Research*, CBS Publishing London.

- Klein, H. and Myers, M. (1999). "A set of principles for conducting and evaluating interpretive field studies in information systems." *MIS Quarterly*, 23(1), 67-94.
- Kling, R. (1980). "Social analyses of computing: theoretical perspectives in recent empirical research." *Computing Surveys*, 12(1), 61 – 110.
- Knights, D. and Murray, F. (1994). *Managers divided--Organizational politics and information technology management*, John Wiley and Sons, New York.
- Kogut, B. and Zander, U. (1992). "Knowledge of the firm, combinative capabilities, and the replication of technology." *Organization Science*, 3(3), 383-397.
- Kolb, D. (1984). *Experiential learning: Experience as the Source of Learning and Development*, Prentice-Hall, New Jersey.
- Kolb, D. and Fry, R. (1975). "Towards an applied theory of experiential learning." *Theories of group processes*, C, Cooper, eds. John Wiley & Sons, London.
- Kotter, J. (1998). "Cultures and coalitions." *Rethinking the future; rethinking business, principles, competition, control and complexity, leadership, markets and the world*, R. Gibson, eds., Nicholas Brealey, London.
- Kotter, J. and Heskett, J. (1992). *Corporate Culture and Performance*, The Free Press, New York.
- Kotter, J. (1990). *Force for change: how leadership differs from management*, Collier Macmillan, New York.
- Krauss, R. and Fussell, S. (1991). "Perspective-taking in communication representation of other's knowledge in reference." *Social Cognition*, 9(1), 2-24.
- Kuhn, T. (1970). *The structure of scientific revolutions*, The University of Chicago Press, Chicago.
- Kwon, T. and Zumd, R. (1987). "Unifying the fragmented models of information systems implementation." *Critical issues in information systems research*, R.Boland and R.Hirschheim, eds., John Wiley & Sons, Chichester.

Lam, A. (1997). "Embedded firms, embedded knowledge: Problems of collaboration and knowledge transfer in global cooperative ventures." *Organization Studies*, 18(6), 973-996.

Landry, M. and Banville, C. (1992). "A disciplined methodological pluralism for MIS research." *Accounting, Management and Information Technologies*, 2(2), 77-97.

Landsbergen, Jr., D. and Wolken, Jr. G. (2001). "Realizing the Promise: Government Information Systems and the Fourth Generation of Information Technology." *Public Administration Review*, 61(2), 206-20.

Larkin, G. (1994). "Public-private partnerships in economic development: a review of theory and practice." *Economic Development Review*, 12 (1), 7-9.

Lave, J. and Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*, Cambridge University Press, Cambridge.

Lawton, A. and Rose, A. (1994). *Organisation and management in the public sector*, Pitman, London.

Leadbetter, C. and Oakley, K. (1999). *The independents: Britain's new cultural entrepreneurs*, Demos, London.

Lee, A. (1989). "A scientific methodology for MIS case studies." *MIS Quarterly*, 13(1), 33-52.

Lee, A. (1994). "Electronic mail as a medium for rich communication: An empirical investigation using hermeneutic interpretation." *MIS Quarterly*, 18(2), 143-157.

Lee, G.H. and Kim, Y. G. (1998). "Implementing a client/server system in Korean organizations: Interrelated IT innovation perspective." *IEEE Transactions on Engineering Management*, 45 (3), 287-295.

Lembke, S. and Wilson, M. (1998). "Putting the "team" into teamwork: Alternative theoretical contributions for contemporary management practice." *Human Relations* 51 (7), 927-944.

Lenk, K. and Traunmuller, R. (2000). " Perspectives on electronic government."

- Presentation at the IFIP WG 8.5 Working Conference on Advances in Electronic Government, F. Galindo and G. Quirchmayr, eds., Zaragoza, 11-26.
- Leonard-Barton, D. and Deschamps, I. (1988). "Managerial influence in the implementation of new technology." *Management Science*, 34(10), 1252 -1265
- Leonard-Barton, D. (1988). "Implementation as mutual adaptation of technology and organization." *Research Policy*, 17(5), 251 – 267.
- Levinthal, D. and March, J. (1981). "A model of adaptive organizational search." *Journal of Economic Behavior and Organization*, 2(2), 307-333.
- Levitt, B. and March, J. (1988). "Organisational learning." *Annual Review of Sociology*, 14, 319-340.
- Lewin, K. (1951). *Field theory in social science*, Harper & Row, New York.
- Loader, B. (2000). *Digital Democracy: Discourse and Decisions Making in the Information Age*, Routledge, London.
- Loader, B. (1998). *The Governance of Cyberspace Politics, Technology and Global Restructuring*, Routledge, London.
- Lockwood, S., Verma, R. and Schneider, M. (2000). "Public private partnership in toll road development: an overview of global practices." *Transportation Quarterly*, 54(2)
- Loverll, R (1995). *Managing change in the new public sector*, Longmann, London.
- Luthans, F. and Davis, T. (1982). "An idiographic approach to organizational behavior research: The use of single case experimental designs and direct measures." *Academy of Management Review*, 7(3), 380-391.
- MacIntosh, R. (2003). "BPR: Alive and well in the public sector." *International Journal of Operations & Production Management*, 23(3/4), 327-345.
- Manganelli, R. and Raspa, S. (1995). "Why reengineering has failed." *Management Review*, 84 (7), 39-43.

- March, J. and Olsen, J. (1976). *Ambiguity and choice in organizations*. NorwayUniversitetsforlaget, Bergen.
- March, J. (1991). "Exploration and exploitation in organizational learning." *Organization Science*, 2(1), 71-86.
- Markus, L. (1983). "Power, politics, and MIS implementation." *Communications of the ACM*, 26(6), 430-444.
- Markus,L. (2001). "Toward a theory of knowledge reuse: Types of knowledge reuse situations and factors in reuse success." *Journal of Management Information Systems*, 18(1), 57 –94.
- Markus, L. and Robey, D. (1988). "Information technology and organisational change: causal structure in theory and research." *Management Science*, 34 (5), 583-598.
- Markus, L. and Benjamin, R. (1997). "The magic bullet theory in IT-enabled transformation." *Sloan Management Review*, 38(2), 55-68.
- Masser, I. (1998). *Governments and Geographic Information*, Taylor and Francis, Bristol.
- Massey, A. (1993). *Managing the Public Sector*, Edward Elgar, Aldershot, UK
- Maxim, P. (199). *Quantitative research methods in the social sciences*, Oxford University Press, Oxford.
- McGraw, T. (1984). "The public and private spheres in historical perspective." *Public-Private partnership: New opportunities for meeting social needs*, H. Liebman and C. Schelling, eds., Ballinger Publishing Company, Cambridge, MA.
- McHugh, M. and Benett, H. (1999). "Introducing teamwork within a bureaucratic maze." *The Leadership & Organization Development Journal*, 20(2), 81-93 .
- Melitski, J. (2003), "Capacity and E-government performance: An analysis based on early adopters of Internet technologies in New Jersey." *Public Performance & Management Review*, 26(4), 376-390.

Merali, Y. (1997). Strategic Information Management, Lecture Note.

Miles, M. and Huberman, A. (1994). An expanded sourcebook: Qualitative data analysis, Sage, London.

Miller, D. (1982). "Evolution and revolution: A Quantum view of structural change in organizations." *The Journal of Management Studies*, 19(2), 131-151.

Miner, A. and Mezias, S. (1996). "Ugly duckling no more: Past and futures of organizational learning research." *Organization Science*, 7(1), 88-99.

Mingers, J. and Stowell, F. (1997). "Critical systems thinking and information systems research." *Information Systems: An Emerging Discipline* J. Mingers and F. Stowell, eds., McGraw-Hill, London.

Mohrman, A. and Lawler, L. (1984). "A review of Theory and research." *The information systems research challenge*, F. McFarlan, eds., Harvard University Press, Boston, MA.

Monteiro, E. and Hanseth, O. (1996). "Social shaping of information infrastructure: On being specific about the technology." *Information technology and changes in organizational work*, W. Orlikowski, G. Walsham, M. Jones, J. DeGross, eds., Chapman & Hall on behalf of the International Federation for Information Processing (IFIP), London.

Moorman, C. and Miner, A. (1998). "Organizational improvisation and organizational memory." *Academy of Management Review*, 23(4), 698-723.

Moorman, C. and Miner, A. (1997). "The impact of organizational memory on new product performance and creativity." *Journal of Marketing Research*, 34(1), 91-106.

Musso, J., Weare, C., and Hale, M. (2000). "Designing Web Technologies for Local Governance Reform: Good Management or Good Democracy." *Political Communication*, 17(1), 1-19.

Myers, M. (1997). "Qualitative Research in Information Systems." *MIS Quarterly*, 21(2), 241-242.

- Nadler, D. and Tushman, M. (1997). "Implementing new designs: Managing organisational change." *Managing Strategic Innovation and Change*, M. Tushman and P. Anderson, eds., Oxford University Press, New York.
- Nahapiet, J. and Ghoshal, S. (1998). "Social capital, intellectual capital, and the organizational advantage." *Academy of Management Review*, 23(2), 242-266.
- Nelson, R. and Winter, S. (1982). "An evolutionary theory of economic change." Harvard University Press, Cambridge.
- Nevis, E., DiBella, A. and Gould, J. (1995). "Understanding organisations as learning systems." *Sloan Management Review*, 36(2), 73-85.
- Nicolini, D. and Menzner, M. (1995). "The social construction of organizational learning: Conceptual and practical issues in the field." *Human Relations*, 48(7), 727 – 746.
- Niskanen, W. (1996). *Bureaucracy and Public Economics*, Edward Elgar, Glos, UK.
- Noble, D. (1985). "Social choice in machine design: The case of automatically controlled machine tools." *The Social Shaping of Technology*, D. MacKenzie and J. Wajcman, J. eds., Open University Press, Buckingham.
- Nohria, N. and Eccles, R. (1992). "Face-to-face: Making network organizations work." *Networks and organizations: Structure, form and action*, N. Nohria and R. Eccles, eds., Harvard Business School Press, Boston.
- Nonaka, I. (1994). "Dynamic theory of organisational knowledge creation." *Organization Science*, 5(1), 14-37.
- Nonaka, I. and Takeuchi, H. (1995). *The knowledge-creating company, how Japanese companies create the dynamics of innovation*, Oxford University Press, Oxford.
- Nonaka, I. and Konno, N. (1998). "The concept of "ba": Building a foundation for knowledge creation." *California Management Review*, 40(3), 40-54.
- Nutt, P. and Backoff, R. (1993). "Transforming Public organisations with Strategic

- Management and strategic leadership.” *Journal of Management*, 19(2), 299.
- Nutt, P., Backoff, R. and Hogan, M. (2000). “Managing the paradoxes of strategic change.” *Journal of Applied Management Studies*, 9(1), 5-31.
- Nystrom, P. and Starbuck, W. (1984). “To avoid organizational crises, unlearn. *Organizational Dynamics*, 12(4), 53-65.
- Orlikowski, W. and Baroudi, J. (1991). “Studying information technology in organizations: Research approaches and assumptions.” *Information Systems Research* 2(1), 1-28.
- Orlikowski, W. and Yates, J. (1994). “Genre Repertoire: The structuring of communicative practices in organizations.” *Administrative Science Quarterly*, 39(4), 541 – 574.
- Orlikowski, W. (1996b). “Improvising organizational transformation over time: A situated change perspective.” *Information Systems Research*, 7(1), 63 – 92.
- Orlikowski, W. and Robey, D (1991). “Information technology and the structuring of organizations.” *Information Systems Research*, 2(2), 143- 169.
- Orlikowski, W. (1993). “CASE tools as organizational change: Investigating incremental and radical changes in systems development management.” *Information Systems Quarterly*, 17(3), 309-340
- Orlikowski, W. (1992). “The Duality of technology: Rethinking the concept of technology in organizations.” *Organization Science*, 3(3), 398 – 427.
- Orlikowski, W. (2000). “Using technology and constituting structures: A practice lens for studying technology in organizations.” *Organization Science*, 11(4), 404-428.
- Orr, J. (1990). “Sharing knowledge, celebrating identity: War stories and community memory in a service culture.” *Collective remembering: Memory in society*, D. Middleton and D. Edwards, eds., Sage, Beverly Hills, CA.
- Osborne, D. and Gaebler, T. (1992). *Reinventing Government: how the entrepreneurial*

spirit is transforming the public sector, Addison-Wealey Reading, Mass.

Parys, M. (2003). "Staff participation in the Belgian public sector reform." *International Journal of Public Sector Management*, 16(6) 446 – 458.

Pavitt, K. and Steinmueller, W. (2002). "Technology in corporate strategy: change, continuity and the information revolution." *Handbook of Strategy and Management*, A. Pettigrew, H. Thomas, and R. Whittington, eds., Sage, London.

Pavitt, K. (1991). "Key characteristics of the large innovating firm." *British Journal of Management*, 2(1), 41-50.

Pearson, G., Pearson, A. and Ball, D. (1989). "Innovation in a mature industry: A case study of Warp Knitting in the U.K" *Technovation*, 9(8), 657-678.

Peled, A. (2001). "Centralization or Diffusion? Two Tales of On-line Government." *Administration and Society*, 32(6), 686-709.

Pentland, B. and Rueter, H.H. (1994). "Organizational routines as grammars of action." *Administrative Science Quarterly*, 39(3), 484-510.

Perrow, C. (1986). *Complex organizations: A critical essay*, Random House New York.

Peters, G. (1989). *The politics of Bureaucracy*, Longman, New York.

Pettigrew, A. and Whipp R. (1995). "Managing the twin processes of competition and change." *Implementing strategic processes change learning and co-operation*, P. Lorange, P., eds., Blackwell, Oxford.

Pettigrew, A. (1987). "Context and action in the transformation of the firm." *Journal of Management Studies*, 24(6), 649-670.

Pettigrew, A. (1990). "Longitudinal field research on change: Theory and practice." *Organization Science*, 1(3), 267-292.

Pettigrew, A. (1997). "Success and failure in corporate transformation initiatives." *Information Technology and Organisational Transformation*, R. Galliers and W. Baets,

eds., Wiley, Chichester.

Pettigrew, A. (1992). "The Character and Significance of strategy process research." *Strategic Management Journal*, 33(2), 163-183.

Pettigrew, A. (1997). "What is a Processual Analysis?" *The Scandinavian Journal of Management*, 13(4), 337 – 348.

Pfeffer, J. and Markus, M. (1983). "Power and the Design and Implementation of Accounting and Control Systems." *Accounting, Organizations and Society*, 8 (2, 3), 205-216.

Phillips, E. and Pugh, D. (1987). *How to get a PhD*, Open University Press, Milton Keynes.

Pinfield, L. (1986). "A field evaluation of perspectives on organizational decision making." *Administrative Science Quarterly*, 31(3), 365-388.

Pisano, G. (1994). "Knowledge, integration, and the locus of learning: An empirical analysis of process development." *Strategic Management Journal*, 15 (Special Issue), 85-100.

Polanyi, M. (1958). *Personal knowledge*, University of Chicago Press, Chicago.

Pollitt, C. and Bouckaert, G. (2000). *Public Management Reform*, Oxford University Press, Oxford.

Poole, M. and Van de Ven, A. (1989). "Using paradox to build management and organization theories." *Academy of Management Review*, 14(4), 562-578.

Porac, J.F., Thomas, H., Wilson, F., Paton, D. and Kanfer, A (1995). "Rivalry and the industry models of Scottish knitwear producers." *Administrative Science Quarterly* 40 (2), 203–227.

Porter, M. (1998). *Competitive strategy and techniques for analysing industries & competitors*, Free Press, London.

Prahalad, C. and Oosterveld, J. (1999). "Transforming internal governance: The challenge for multinationals." *Sloan Management Review*, 40(3), 31-39.

Prahalad, C. and Bettis, R. (1986). "The dominant Logic: A new linkage between diversity and performance." *Strategic Management Journal*, 7(6), 485-502.

Punch, M. (1998). "Politics and ethics in qualitative research." *The landscape of qualitative research*, N.K. Denzin, eds., Sage, Thousand Oaks, CA.

Reger, R., Gustafson, L., Demarie, S. and Mullane, J. (1994). "Reframing the organization: Why implementing total quality is easier said than done." *The Academy of Management Review*, 19(3), 565 -584.

Revans, R. (1983). *The A.B.C. of action learning*, Chartwell-Bratt, Bromley.

Robey, D. and Boudreau, M. (1999). "Accounting for the contradictory organizational consequences of information technology: Theoretical directions and methodological implications." *Information Systems Research*, 10(2), 167-185.

Robey, D., Khoo, H. and Powers, C. (2000). "Situated learning in cross-functional virtual teams." *IEEE Transactions on Professional Communications*, 43(1), 56-66.

Robey, D. (1997). "The paradoxes of transformation." *Steps to the future: Fresh thinking on the management of IT based organisational transformation*, C. Sauer and P. Yetton, eds., Jossey-Bass, San Francisco, CA.

Robson, C. (1993). *Real world research: A resource for social scientists and practitioner-researchers*, Blackwell, Oxford.

Rosenau, P. (1999). "Introduction: The strengths and weaknesses of public-private policy partnerships." *The American Behavioral Scientist*, 43(1), 10-35.

Sanchez, R. and Heene, A. (1997). "A competence perspective on strategic learning and knowledge management." *Strategic learning and knowledge management*, R. Sanchez and A. Heene, eds., Sage, Chichester.

Sashkin, M. (1988). "The visionary leader." *Charismatic leadership*, J. Conger, and R.

Kanungo, eds., Jossey-Bass, San Francisco, CA.

Savage, M. (1990). 5th generation management, Digital Press, Bedford, MA

Scarbrough, H. and Corbett, M. (1992). Technology and organisation, Routledge, London.

Schaffer, R., Earle, B. and Agusti, F. (1999). International business law and its environment. West Publishing, Minnesota.

Scheepers, A. (1994). "Information in street level bureaucracies: Bureaucratic competence and discretion in Dutch Municipal Social Services Departments." *Information and the Public Sector*, 3(1), 47-61.

Schein, E. (1993). "On dialogue, culture, and organizational learning." *Organizational Dynamics*, 22(2), 40-51.

Schein, E. (1992). *Organisational cultural and leadership*, Jossey-Bass, San Francisco.

Schindler, M. and Eppler, M. (2003). "Harvesting project knowledge: a review of project learning methods and success factors." *International Journal of Project Management*, 21(3), 219-228.

Schnitt, D. (1993). "Reengineering the organisation using IT." *Journal of Systems Management*, 44(1), 14 – 20.

Schutz, A. (1972). *The phenomenology of the social world*, Heinemann, London.

Scott Morton, M. (1991). *The corporation of the 1990s: IT and organisational transformation*, Oxford University Press, Oxford, UK.

Segars, A. and Grover, V. (1998). "Strategic information systems planning success: an investigation of construct and its measurement." *MIS Quarterly*, 22(2), 139-163.

Senge, P. (1991). "Team learning." *The McKinsey Quarterly*, 2, 82-93.

Senge, P. (1997). *The fifth discipline: The art and practice of the learning organization*.

Century Business, London.

Shi, W. (2002). "The contribution of organization factors in the success of electronic government commerce." *International Journal of Public Administration*, 25(5), 629-658.

Shrivastava, P. and Schneider, S. (1984). "Organizational frames of reference." *Human Relations*, 37(4), 795-809.

Silcock, R. (2001). "What is e government?" *Hansard Society for Parliamentary Government, A Parliamentary Affairs*, 54, 88-101.

Silverman, D. (2001). *Interpreting qualitative data : methods for analysing talk, text and interaction*, Sage, London.

Smircich, L. (1983). "Concepts of culture and organizational analysis." *Administrative Science Quarterly*, 28(3), 339-358.

Smith, N. (1990). "The Case study: a useful research method for information management." *Journal of Information Technology*, 5(3), 123-133.

Snow, C. and Thomas, J. (1994). "Field research methods in strategic management: Contributions to theory building and testing." *Journal of Management Studies*, 31(4), 457-80

Solomon, C. (1998). "Sharing information across borders and time zones." *Workforce*, 3(2), 12-18.

Sommer, S., Bae, S.M. and Luthans, F. (1995). "The structure -climate relationship in Korean organisations." *Asia Pacific Journal of Management*, 12(2), 23-26.

Stake, R. (1995). *The art of case study research*, Sage, London.

Steensma, H. and Tetteroo, A. (2000). "Attitudes toward cross-functional quality project groups: Net utility and procedural justice." *Total Quality Management*, 11(1), 123-128.

- Stewart, J. and Kimber, M. (1996). "The transformation of bureaucracy." *Australian Journal of Public Administration*, 55(3), 37-48.
- Steyaert, J. (2000). "Local governments online and the role of the resident: government shop versus electronic community." *Social Science Computer Review*, 18(1), 3-16.
- Stratford, J. and Stratford, J. (2000). "Computerized and networked government information." *Journal of Government Information*, 27(3), 385-389.
- Strauss, A. and Corbin, J. (1990). *Basics of qualitative research: Grounded theory procedures and techniques*, Sage, London.
- Szulanski, G. (2000). "The process of knowledge transfer: A diachronic analysis of stickiness." *Organizational Behavior and Human Decision Processes*, 82(1), 9-27.
- Tapscott, D., Lowy, A. and Ticoll, D (1989). *Blueprint to the digital economy: creating wealth in the era of e-business*, McGraw-Hill, New York.
- Talwar, R. (1993). "Business Reengineering: a strategy driven approach." *Long Range Planning*, 26(6), 22-40.
- Tashakkori, A. and Teddlie, C. (1998). *Mixed methodology: combining qualitative and quantitative approaches*, Sage, Thousand Oaks, CA.
- Teng, J., Fiedler, K. and Grover, V. (1995). "An empirical study of IT enabled BPR and corporate competitive strategy." *European journal of Information Systems*, 4(1), 17-30.
- Theobald, R. (1997). "Enhancing public service ethics: More culture, less bureaucracy?" *Administration and Society*, 29(4), 490-505.
- Tsang, E. (1997). "Organizational learning and the learning organization: A dichotomy between descriptive and prescriptive research." *Human Relations*, 50(1), 73-90.
- Tushman, M. and O'Reilly, C. (1997). *Winning through innovation: A practical guide to leading organisational change and renewal*, Harvard Business School, Boston.
- Ulrich, D., Von Glinow, M. and Jick, T. (1993). "High-impact learning: Building and

- diffusing learning capability.” *Organizational Dynamics*, 22(2), 52- 66.
- Vadlamani, B. (1997). “An integrative framework for R&D management in system industries.” *International Journal of Technology Management*, 13(7), 818-832.
- Valle, M. (1999). “Crisis, culture and charisma: The new leader's work in public organisations.” *Public Personnel Management*, 28(2), 245-257.
- Van de Ven, A. (1992). “ Suggestions for studying strategy process: A research note.” *Strategic Management Journal*, 13 (Summer special issue), 169 – 188.
- Van de Ven, A. and Poole, S. (1995). “Explaining development and change in organization.” *Academy of Management Review*, 20(3), 510-540.
- Van Maanen, J. (1979). “Reclaiming qualitative methods for organizational research.” *Administrative Science Quarterly*, 24(4), 520-526.
- Venkatraman, N. and Henderson, J. (1994). *Strategic management and information technology*, JAI Press, Greenwich CT.
- Ventura, S. J. (1995). “The Use of Geographic Information Systems in Local Government.” *Public Administration Review*, 55(5), 461-67.
- Walsh, J. and Ungson, G. (1991). “Organisational memory.” *Academy of Management Review*, 16(1), 57-91.
- Walsham, G. (1993). *Interpreting IS in Organisation*. Wiley. Chichester.
- Walsham, G. (1995). “Interpretive case studies in IS research: Nature and method.” *European Journal of Information Systems*, 4(2), 74 – 81.
- Walsham, G. and Waema, T. (1994). “Information system strategy and implementation: a case study of a building society.” *ACM Transactions on Information Systems*, 12(2), 150-173.
- Walton, R. (1985). “From control to commitment in the workplace.” *Harvard Business Review*, 63(2), 2.

Wastell, D. (1999). "Learning dysfunctions in information systems development: Overcoming the social defences with transitional objects." *MIS Quarterly*, 23(4), 581-600.

Weick, K. (1995). *Sense making in organizations*, Sage, London.

Weick, K. and Roberts, K. (1993). "Collective mind in organizations: Heedful interrelating on flight decks." *Administrative Science Quarterly*, 38(3), 357-381.

West, D. (2000). *Assessing E-Government: the Internet, democracy, and service delivery by State and Federal Government*, Brown University e-government report.

West, P. and Burnes, B. (2000). "Applying organizational learning: lessons from the automotive industry." *International Journal of Operations & Production Management*, 20(10), 1236.

Wilson, D. (1993). *A Strategy of Change: Concepts and Controversies*, Routledge, London.

Yin, R. (1993). *Applications of case study research*, Sage, London.

Yin, R. (1994). *Case study research: Design and methods*, Sage, California.

Zmud, R. and Apple, L. (1992). "Measuring information technology infusion." *The Journal of Product Innovation Management*, 9(2), 148-156.

Zuboff, S.(1988). *In the age of smart machine: The future of work and power*, Basic Books, New York.

APPENDICES

Appendix A Sample of Interview Questions.

Appendix B A work profile of a time event analysis.

APPENDIX A – Sample of Interview Questions

Your organisation recently embarked on a transformational project. How did it all started?

What, how and by whom have the projects been processed and implemented?

How was the scope (extent) of the project determined? (why? By whom?)

Who participated and in what capacity in different stages of the project?

How was the project progressed communicated to various affected or interested parties?

How diffused are the information?

Could you describe major challenges and issues faced during the project?

Were there any technical challenges and difficulties during the project?

What were general reactions from organisational members and members of the public on the e-government transformation? Has any reactions affected the project progress and outcome?

Were there any human implications regarding changes took place on structure, decision levels, roles and responsibility?

How have organisational members attitudes towards the project changed over time? (Why? What caused?)

What extent was the project successful in meeting its objectives? And why?

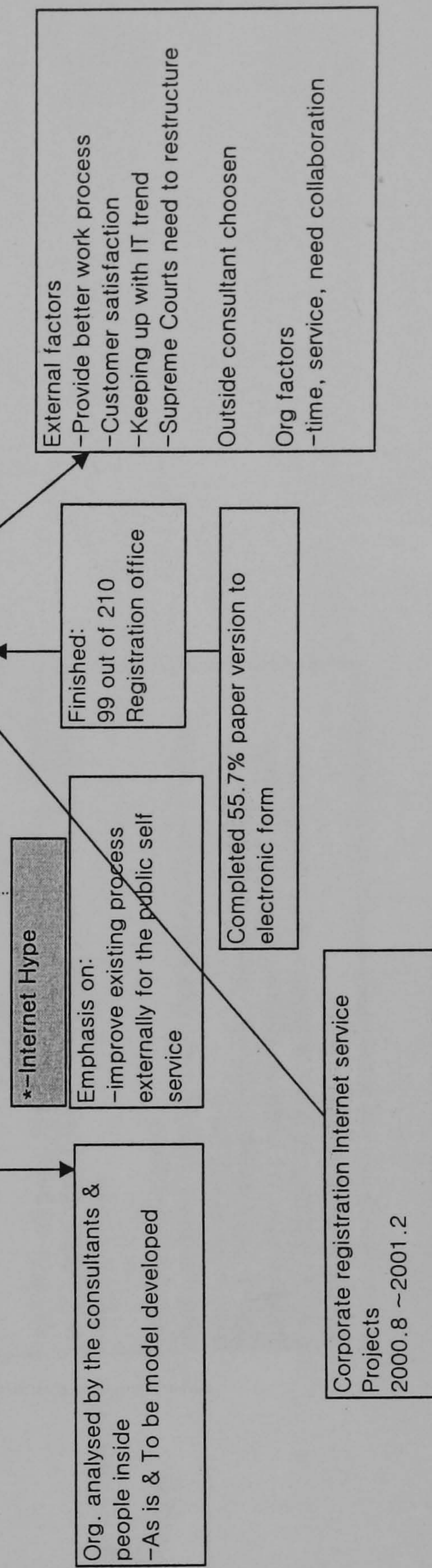
What are the challenges faced now and in the future?

What were the main lessons learnt from your involvement in the project?

APPENDIX B – A work profile of a time event analysis

Registry	Years	Start	Finish	1995	1996	1997	1998	1999	2000	2001	2002
Plan Process	Quarters										
	Decision made on projects										
	Automation Project Management										
	Project Management	95.1.1	02.12.31								
	Property registry information system management	95.1.1	02.12.31								
	Pilot registry office implementation management	95.1.2	96.12.31								
	Up scale Project Management team	96.7.1	02.12.31								
	Master plan amendment 1	95.3.1	95.7.1								
	Master plan amendment 2	95.2.1	95.2.1	95.2.1							
	Property registry information system	96.12.1	96.12.1								
	Preparation of Pilot time Schedule	96.7.1	02.12.31								
	Re schedule according to Pilot	96.7.1	96.12.31								
	Preparation of Initial time schedule for 1998	97.4.1	97.12.31								
	Pilot Operation	97.7.1	97.7.1								
	Nationwide cover of property registry IS	96.7.1	97.12.31								
Update Property registry IS	98.1.1	02.12.31									
Development of detailed work proces	98.1.1	02.12.31									
Training Plan	95.3.1	97.12.31									
Property registry IS Support	95.12.1	02.12.31									
Identify issues on Communciation	96.7.1	02.12.31									
Identify issues on customer changing patterns	95.1.1	02.12.31									
		95.1.2	98.12.31								

Events



- Acquired knowledge what public wants
 - Decision on where to emphasise is dilemma
 - Careful considerations for dangers (where it might be need to re process)
 - Several Issues related to regulations raised
 Knowledge sharing/Learning
 - Differences in projects team interests and perceptions blocked shared understanding
 - Some types of knowledge are centralised & others dispersed
 Burden
 - on expectation during trans projects
 - Coping with regulations
 People Challenges
 - Reduce work load,
 - More training needed
 Structure Change
 New dept (tel centre) opened

Starting Point

2nd Interview

1993: Master plan of the project and special registration legislation announced (1993 – 2002 estimated fund allocated)
 1994: Outsourcing company for the project (LGEDS) decided
 1994 – 1997: BPR and application system analysis, design, developed
 1998: Pilot operation (7 locations) -->October
 1998. 10: service open
 (However, it has been delayed service for 2 times --> reason being is that it has been a very difficult in system development which require high uncertain variables --> that means it needed to re organise routine and legislation) --> consequently it took time to solve the problem and for service delay

Internet Homepage and service time schedule
 2000.08.01 ~ 08.30 : master plan
 2000.09.01 ~ 10.14 : work analysis and design
 2000.10.16 ~ 11.30 : system development
 2000.12.01 ~ 12.23 : Test and Check
 2000.12.26 ~ 2001.01.30 : Pilot test
 2001.2.1: service open

1999. 8 – 2000. 7: Corporate and commercial registration system development
 2000. 7: Corporate and Commercial service open
 2000. 9 – 2001. 1: Corporate registration Internet service system development
 2001. 2: Corporate Internet service open

Future Expectation
 -Increase and widen service (not only corporate but also to aind registration document
 -Apply through Internet --> Cyber Office Planned

Learning and Information use
 -No noticeable changes in the office culture
 -Difficulties are noticed in development part
 -however, new skills and process on new job roles are provided through training and education
 -Lack of time causes trouble in sharing and contributing

Any Changes from original aim during projects
 -On BPR projects: There were not many obstacles, influences and outside environment. Except few system development related aspects
 -On Internet projects:
 Starting period: Some of regulation related aspects caused trouble for master plan
 During: Once above issues were taken into account, compromises are made for short and long term services
 Lsst: Unlike BPR projects, Interent projects did not cause trouble opening services