Explaining Outcomes of Strategic Information Systems Planning Using a Critical Realist Approach

A thesis submitted in total fulfilment of the requirements for the degree of Doctor of Philosophy

Frank Paul Morton
B.A.; B.App.Sci.; M.Bus.

School of Business IT and Logistics
RMIT University
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Declaration

I certify that except where due acknowledgement has been made, the work is that of the author alone; the work has not been submitted previously, in whole or in part, to qualify for any other academic award; the content of the thesis is the result of work which has been carried out since the official commencement date of the approved research program; any editorial work, paid or unpaid, carried out by a third party is acknowledged; and, ethics procedures and guidelines have been followed.

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Date

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I would also like to thank those persons in the Victorian Public Service who gave of their time freely for interviews and who assisted me in gaining access to important forums for the purpose of gathering data for the four case studies of this thesis.

Dedication

For my parents, Walter and Jean, in gratitude.

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Table Of Abbreviations

Acronym	Description
BM	Branch Manager
BTP	Business Transformation Project
CASE	Computer Aided Software Engineering
CCL	Common Client Layer
CDA	Critical Discourse Analysis
CDSC	Cross Divisional Steering Committee
CEO	Chief Executive Officer
CIO	Chief Information Officer
CIS	Control Information System
CISB	Corporate IS Branch
CJEP	Criminal Justice Enhancement Project
CJS	Client Justice System
CKO	Chief Knowledge Officer
CMMS	Case Mix Management System
CMO	Context Mechanism Outcome
CMS	Client Management System
CoP	Community of Practice
CRM	Customer Relationship Management
CS	Cultural System
CSD	Corporate Services Division
CSPD	Cross Sector Planning Division
CSSP	Corporate Services Systems Plan
DHHCS	Department of Health, Housing and Community Support
DoE	Department of Education
EAI	Enterprise Application Integration
ED	Executive Director
EDMS	Electronic Document Management System
EVF	Enterprise Value Framework
FS	Finance System
FWD	Family Welfare Division
GM TS	General Manager Technology Services
HIS	Hospital Information System
HPD	Handicapped Persons Division
HPDIS	Handicapped Persons Division Information System
HRM	Human Resource Management
IA	Information Analysis

ICMS	Integrated Courts Management System
ICRCPI	Integrated Core Repository of Client and Provider Information
ICT	Information and Communication Technology
ICTCA	ICT Central Agency
ICTSC	ICT Strategy Committee
IF	Individualised Funding
IHAS	In-Home Accommodation Services
IS	Information Systems
ISPU	Information Systems Planning Unit
IT	Information Technology
ITB	Information Technology Branch
ITB	Information Technology Branch
KM	Knowledge Management
KMC	Knowledge Management Committee
KPI	Key Performance Indicators
MBS	Major Business System
MIS	Management Information Systems
NBLP	National Board for Labour Protection
NGO	Non Government Organisation
NHS	National Health Service
NIS	Nurse Information System
NPM	New Public Management
OCIO	Office of the Chief Information Officer
PAE	Program of Aids and Equipment
PAS	Patient Administrative Systems
PCMB	Provider Contracts Management Branch
PCMS	Provider Contracts Management System
PMO	Program Management Office
PPE	Planning and Performance Evaluation
PRINCE2	Project Management Methodology in use in case study departments
ROI	Return on Investment
SEM	Structural Equation Model
SIS	Strategic Information Systems
SISP	Strategic Information Systems Planning
SWOT	Strengths Weaknesses Opportunities Threats
TAM	Technology Acceptance Model
TED	Technical Education Division
TR	Transcendental Realism
WIS	Workplace Information System
WoG	Whole of Government (all government departments)

Summary

The subject area of this thesis is Strategic Information Systems Planning (SISP), which is focussed on the role of information systems and information technology in organisations. SISP is seen as a strategic management activity and continues to be regarded as important. Although SISP originates in the private sector it has also been used in public sector organisations and the research for this thesis was carried out in government organisations. The literature shows both private and public sector organisations that have used SISP have had problematic experiences, which motivates the research question for this thesis: What are the causes of the outcomes of attempts to develop and implement strategic IS plans in organisations?

The philosophical grounding of the thesis is the metatheory of Critical Realism. Critical Realism (CR) is useful for establishing causal explanations of phenomenon where closed system conditions (controlled experiments) are difficult to apply such as in organisational settings where complex interactions occur between people and technology and outcomes are not predictable. Accordingly the purpose of the thesis is explanatory and descriptive and not to test specific propositions or hypotheses about SISP. Specifically it is to generate theory, in the form of causal mechanisms by a process of retroducing the form and constitution of causes that could have produced events at the level of the empirical.

The methodology for thesis is thoroughly informed by CR. Case study research is consistent with CR metatheory so the research for the thesis was carried out using four case studies of SISP projects in government organisations. Two models of SISP are evident in the literature, the comprehensive, formal and systematic model and the incremental, informal and opportunistic model. The lineage of these models can be traced to the strategic management literature. The four cases illustrate the challenges involved in the use of the comprehensive model of SISP. The first two case studies illustrate the top down, centralised approach of the comprehensive model while the third case examines the viability of SISP as an organisational learning exercise and the fourth case examines the important concept of alignment.

From a CR perspective the immanent critique finds significant theory-practice inconsistencies in relation to both the comprehensive and informal models of SISP.

In the former, the adoption of a closed systems ontology, based on a Humean concept of causality, and in the latter either the privileging of agential knowledge or the elision of agency and structure through the use of structuration and discourse theory. The thesis develops a reconceptualisation of SISP that is consistent with CR meta-theory and this is used as the conceptual framework for the analysis of the outcomes of the four case studies. This constitutes an open systems view of SISP and proposes that SISP should be understood as an intervention into the open systems social reality of the organisation with unpredictable outcomes resulting from the contingent interaction of causal mechanisms.

Key Findings

The comparative analysis of the four case studies identifies a set of thirteen causal mechanisms that had a significant impact on the outcomes in each case and nine contingent factors that affected the operation of the mechanisms. Three of these mechanisms occur in all four case studies (Advocacy, Resistance, Fragmentation), five mechanisms occur in three case studies (Engagement, Secretary Intervention, Government Intervention, IS Demand Management, Integration), three mechanisms occur in two case studies (Project Control, Approval, ICT Support Demand) while the remaining two mechanisms occur in one of the case studies (Collaboration, Central Agency Intervention). Hence eleven of the mechanisms were identified in at least two of the case studies providing strong corroboration for their existence. The conceptualisation of several of these mechanisms is also corroborated by reference to supporting literature. The refined explanatory framework explains the varied outcomes of the SISP projects undertaken by the case study organisations by showing how outcomes are the result of the contingent interaction of these causal mechanisms within the constraints and enablements of internal and external social structures.

Contribution to Knowledge

As far as the author is aware, this is the first thesis to apply CR principles specifically to research on the practice of SISP. In summary the thesis makes the following contributions to knowledge:

- Represents a major study of SISP in the public sector adding significantly to the limited number of studies specifically about SISP in this sector compared to those of SISP in the private sector.

- Shows how CR establishes an ontological basis for a different conception of social reality (stratified open systems) from that assumed by traditional philosophies of natural and social science and how this is beneficial for research involving social processes such as those in organisations.

- Shows the relevance of CR to IS research and demonstrates a research methodology informed by CR.

- Provides a new conceptualisation of SISP, which avoids the limitations of positivist and social constructionist SISP research.

- Shows the relevance of CR to the practice of SISP by indicating how SISP outcomes can be anticipated but not predicted as a result of the contingent interaction of causal mechanisms originating in the organisational setting. For practitioners these mechanisms indicate likely causal factors of relevance to any organisational SISP project.

List of Research Outputs

The following research outputs were produced during the course of the research:

Journal Article

Morton, P., (2006) "Using Critical Realism to Explain Strategic Information Systems Planning" Journal of IT Theory and Applications, vol: 8, Issue 1, pp. 1-20.

Peer Reviewed Conference Proceedings

Morton, P., (2005) "A Realist Analysis of Strategic Information Systems Planning", Proceedings *of the International Annual Conference of Critical Realism*, University of Western Sydney.

Morton, P., (2003) "A Realist Analysis of Strategic Information Systems Planning", *Proceedings of* the *Pacific Asia Conference of Information Systems*, Adelaide.

Morton, P. and Martin, B., (2001) "Electronic Government in Australia: The Case of Victoria", *Proceedings of the European Conference on e-Government*, Remenyi, D. and F. Bannister (eds), Trinity College Dublin.

Papers accepted at International Conferences

Morton, P. and Martin, B., (2008) "Organisational Conditions for Knowledge Creation – A Critical Realist Perspective" accepted for the International Annual Conference of Critical Realism, London 2008.

Morton, P. and Martin, B., (2003) "e-Government The Case of Victoria – Report on Government Online Progress" presented at the Second Annual Regional Studies International Conference, Monash University Gippsland.

Invited Seminars

Morton, P., (2003) "A Realist Analysis of Strategic Information Systems Planning", Presentation to postgraduate IS students at Melbourne University.

Chapter One
Introduction

1.1 Overview of Topic

Surveys in the literature (Brancheau, Janz and Wetherbe, 1996) have consistently shown that SISP is regarded by senior managers and IS practitioners as important for ensuring investments in IS resources support business objectives (Premkumar and King, 1991: 41; Lederer and Sethi, 1992a: 69; Earl, 1993: 1; Fink, 1994: 108; King, 1995: 66; Pavri and Ang 1995: 34; Salmela and Spil, 2002: 242; King and Teo, 2000: 667; Byrd, Sambamurthy, and Zmud, 1995: 49; Doherty, Marples and Suhaimi, 1999: 263). SISP is regarded as a strategic management tool (Robson 1997, Kearns 2006) that can be used for:

- Identifying strategic uses of IS and alignment with business needs (Lederer and Sethi, 1996: 35; Earl, 1996: 136; Maier, 1997; Prakesh, 1998; Salmela and Spil, 2002: 443);
- Supporting management and control of IS investments (Flynn and Goleniewska, 1993:292; Sambamurthy, Venkataraman, and DeSanctis, 1993: 23; Hamilton, 1994: 1; Earl, 1996: 136; Cerpa and Verner, 1998: 199);
- Exploiting IT for competitive advantage (Porter and Millar, 1985; Earl, 1996: 136; Flynn and Goleniewska, 1993:292; Wiseman, 1994: xii; King, 1997: 57; Maier, 1997: 47; Min, Suh and Kim, 1999: 374);
- Developing core competencies around IT management (Sambamurthy, Venkataraman, and DeSanctis, 1993: 23); and
- Defining organizational technology policies and architectures (Earl, 1996: 136).

SISP is also important for Governments as they intensify their use of information systems to manage information. Heeks (2001, p.16-17) notes that government is "the single largest collector, user, holder and producer of information" and Muid (1994) calls govermment "the apogee of an information industry". Muid states "Its raw material is primarily information, and its product is also chiefly information.

Furthermore it is well said that information is power; government maintains and exercise power, through the control and discharge of information." (1994, p.116). Government organisations use information for four main purposes: internal management of government organisations; public administration and regulation; provision of public services and for public accountability (Heeks 2001, p.16-17). As a result many public sector organisations and particularly government departments have used SISP to manage their investment in information systems and IS infrastructures (Smith, Campbell, Subramanian, Bird and Nelson, 2001: 140; Wexelblat and Srinivasan, 1999: 265; Tukana and Weber, 1996:737; Bajjaly,1999; Heeks 2001; Ballantine and Cunningham 2001; Dufner, Holley and Reed 2002, 2003). Strategic planning for IS in the public sector has also been focussed on enabling reform agendas such as New Public Management (Bellamy and Taylor 1998) which has seen an emphasis on contracting out of IS capability and the formation of partnerships with IS providers. Most recently the strategic agenda for IS in the public sector has been associated with the ideas of e-Government, virtual government and joined up government. (Snellen 2005; Margetts 2005, Garson 2006).

SISP is also regarded as important by academic researchers. There is a significant body of research that has been compiled over the last twenty years, specifically concerned with SISP theory and practice (Sabeherwal 1999: 137). Two general models of SISP can be discerned in this research. The theory of comprehensive SISP as set out by Lederer and Salmela (1996) endeavours to explain how IS can be managed to achieve organisational benefits. The theory explains organisational benefit in terms of alignment between business priorities and IS plans and projects. Hackney and McBride (2002) and other researchers such as Earl (1993) suggest an alternative incrementalist model of SISP that recognise organisations adopt a variety of approaches to SISP.

1.2 The Research Problem

However the experience of many organisations, which have attempted to use comprehensive forms of SISP, has been problematic in terms of the process of developing strategic IS plans and the actual benefits of implementation. Earl (1993, p. 4) in a two-stage survey of 27 United Kingdom companies reported that only 10% of respondents claimed their SISP experience had been "highly successful". Lederer

and Sethi (1992, p. 33), in their survey of eighty information systems planners, found that "Satisfaction scores for the different dimensions of SISP were also only slightly favourable." Success with SISP is problematic for organisations because hundreds of factors have a bearing on implementation (Larsen (2001) and only a small proportion of what is intended is actually realised (Wang and Tai (2002, p.12). Alignment and organisational benefits do not flow as predicted by Lederer and Salmela's theory of comprehensive SISP. The issues in the research on SISP in the private sector are also exhibited in the public sector SISP examples, for example comprehensive SISP seems to work in some cases but not others but the reasons for this are unclear. These kinds of experiences have led researchers such as Hackney, Dhillon and Burn (1999, p. 123) to conclude that:

> the assumptions underlying the objectives of SISP do not represent the existing research evidence. The central notion of aligning an IS/IT strategy with an organisation's business strategy are fundamentally problematic. The diversity and complexity of organisational strategic processes are clearly not being considered through SISP.

The incremental model of SISP provides some insights into why comprehensive SISP is not always successful. Internal organisational conditions produce unique approaches that reflect the influence of 'deep seated philosophies' (Segars and Grover 1999), different adaptive responses to internal and external conditions and political struggles for influence (Segars and Grover (1998). However despite these insights it is still not clear how particular styles of SISP emerge and predominate within an organisation and why some approaches appear to be more successful in some organisational settings than others. In addition the incremental process of SISP is itself not without implementation difficulties (Salmela and Spil 2002).

1.3 The Research Question

The prevalence of SISP in both private and public organisations together with the somewhat problematic experiences of organisations raise issues about the viability of SISP in organisational settings. In theory and in practice comprehensive SISP does not work well for organisations both private and public. Alignment and organisational benefits do not follow as predicted by the theory of comprehensive

SISP proposed by Lederer and Salmela (1996). Hence the theory fails to explain the phenomenon of SISP but the incremental model does not provide a satisfactory alternative explanation and this implies an absence of adequate theory that can successfully explain the outcomes that organisations experience when they engage in SISP projects. The research question follows from this situation:

> What are the causes of the outcomes of attempts to develop and implement strategic IS plans in organisations?

1.4 Underpinning Research Philosophy

In responding to this research question the thesis offers a different research perspective to that which characterises most research on the SISP phenomenon by using, as a basis for the research methodology, the philosophy and metatheory of Critical Realism (Bhaskar 1998a, 1998b). The justification for this choice will be discussed in the next chapter but, in brief, CR adopts an open systems ontology of social and natural reality in which the focus is on the causal powers of social and natural objects. These powers are understood as causal mechanisms which interact leading to observed outcomes (Sayer 1992, Archer 1995, Bhaskar 1998b, Fleetwood 2001). Causal mechanisms may or may not be activated in an open system and their final effects at the level of the empirical are not predictable. Because CR uses this conception of social reality as an open system it better accounts for the nature of social action and the unpredictable nature of its outcomes resulting from the activities of people within socially structured contexts than purely positivist or interpretivist forms of research.

IS researchers such as Hirschheim have argued that "information systems are, fundamentally, social rather than technical systems" (1985, p. 1335) and Heeks (2001, p. 55) observes that "Information systems are social systems; that is to say, information systems are rooted in a context of people and of social structures and are themselves made up partly of people and social structures." Markus and Robey (1988, p. 585) note: "organizational change emerges from an unpredictable interaction between information technology and its human and organizational users". SISP is centrally concerned with the planning, design, development and implementation of IS in organisations and involves human agents (managers, system developers, technical

experts and consultants) interacting within organisational settings. Furthermore implementation of information systems necessarily includes processes of organisational change. On this basis SISP is a social phenomenon that can be fruitfully researched from the open systems perspective of CR.

1.5 Research Objectives

Given the problematic status of both the theory and practice of SISP the aim of this thesis is to better understand and theorise the causes of the outcomes of attempts to develop and implement strategic IS plans in organisations. More specifically the purpose is to use the CR view of causality to theorise configurations of causal mechanisms that interact to produce the events that shape the SISP process and its eventual outcome in organizational terms (Robson 2002, p.38). Accordingly the thesis will provide a causal explanation of the outcomes of attempts to develop and implement strategic IS plans rather than attempting to conduct controlled and deductive testing of existing theory for predictive validity. This should provide fresh insight into the SISP phenomenon compared with that provided by research conducted solely in the positivist and interpretivist traditions. The result of the research will be a conception or theory of SISP based on CR principles, which will have been applied to actual case studies to confirm its explanatory power. A second objective is to demonstrate a methodology informed by CR. While the philosophy of CR has been thoroughly explicated there is less material in the CR literature on what form a methodology informed by CR can take. This should be of use to IS researchers seeking to undertake research based on CR.

1.6 Importance of the Research

The research will constitute an important contribution to the SISP research and particularly to the relatively limited amount of research on SISP use in the public sector. The NPM reform agenda continues to encourage the adoption of private sector management techniques like SISP in public sector contexts. However the use of SISP in public sector encounters a different organisational context to that in the private sector and while this does not immediately rule out the use of such techniques practitioners operating within the former context cannot as Boyne (2002, p.118) notes draw readily on a straightforwardly transferable body of knowledge from private

sector practice to guide them. This thesis helps to bridge this gap by providing insight on the causes of problems affecting the viability of SISP in such contexts but is also complimentary in a more general sense to the wider body of SISP in the private sector because of commonalities across organisational settings and the common attempt to use information systems strategically.

The research is also important because it offers researchers a new and more fruitful perspective on the nature of the research phenomenon which it is argued will allow a better understanding of how and why outcomes of SISP activity in organisations arise. In particular it shows how the open systems ontology of social reality established by CR better explains the nature of causation in complex social interactions and accounts for the fact that outcomes are not predictable. This is important because it moves the understanding of SISP beyond the limitations of the two main models of SISP in the literature (comprehensive and incremental).

1.7 Research Design and Methodology

A multiple case study design is adopted for the research in this thesis using four cases drawn from government organisations. Case study approaches are specifically suited to research based on a critical realist philosophy because they provide the ability to focus in depth on the particular working out of causal entities and because they allow an examination of the contingent activation of causal powers even as the source of such powers in causal mechanisms may be resident more generally (Tsoukas 1989).

All four case studies involved the use of semi-structured interviews, to collect information from participants in the SISP process, and review of relevant documentation. The first case involved participant observation while the second case study involved non-participant observation. The data were analysed in a two - stage process. First, initial analysis to identify key themes from the observations and interviews and indications of causal factors captured in memos. A narrative of the case study was then compiled. The second stage involved a form of retroduction or counterfactual thinking to theorise causal mechanisms. Support for theorised mechanisms was sought in the literature. Establishing the presence of structures and mechanism beyond the particular setting of a single case study is accomplished used a

CR based approach to comparative case study analysis described by Bergene (2007). This provides a basis for a form of realist generalisation (Sayer 2000, p.145).

1.8 Research Issue – Private versus Public Sector uses of SISP

SISP is a strategic management tool (Robson 1997, Kearns 2006) so originates in the thinking and research about the management of the commercial or private sector firm. Hence SISP is designed for the private sector organisation and most of the research about SISP has been based on the study of private sector organisational use of SISP. Segars and Grover (1999) for example remove public sector responses from their surveys to ensure that only private sector settings are considered on the grounds that the absence of the profit motive in government organisations makes them unsuitable research sources. This raises two issues in relation to this thesis, which uses case studies of public sector organisations, specifically government departments, for its empirical data and findings. First, whether it is valid to research a private sector business management approach using public sector organisation cases and second, whether SISP research based on private sector organisations is applicable to public sector organisations, such as government departments.

In response to the first issue, although SISP does originate in the private sector it has been applied in the public sector including government departments therefore it is appropriate to study the outcomes of the attempts to use SISP in these contexts. In general since the early 1990s reforms to the public sector embodied in the program of New Public Management (NPM) have advocated the use of private sector management techniques in the public sector (Hood 1991; Boyne 2002; Diefenbach 2009). Others such as Bryson, Ackermann and Eden (2007) have specifically advocated the use of strategic management theory such as the Resource Based View of the firm for the strategic management of public sector organisations.

The NPM reforms and the views of authors such as Bryson suggest that the differences between public and private sector organisations can be discounted as a barrier to the use of private management techniques. However in researching SISP in government organisations Dufner, Holley and Reed (p 425, 2002) argue that ‘differences in environment and circumstances’ between public versus private organisations ‘is a variable that should be taken into account in research and practice.’

Notwithstanding this point it is not the objective of this thesis to compare private and public sector uses of SISP. Rather it aims to explain the outcomes of attempts to use SISP projects in a particular organisational setting, which in this thesis happens to be a public sector context (government departments) but consistent with Dufner, Holley and Reed (2002) the private sector origins of SISP are important in this explanation, because this aspect may influence the reasoning and actions of agents involved in the particular projects and it may introduce assumptions that are in conflict with context of the setting. Hence the advice of Dufner, Holley and Reed (2002) will be followed by reviewing the key differences between the public sector organisation, as it is manifest in the government department, and the private sector business firm. But while there are important differences such as the absence of the profit motive from public sector organisations there are similar organisational characteristics to private sector organisations such as stakeholder politics, decision-making processes, senior management team dynamics, hierarchical authority structures and resource management issues that suggest the outcomes of SISP projects are not caused solely by the presence or absence of the profit motive. Hence from a realist perspective both public and private organisations can be considered as open systems of interacting causal mechanisms and identifying these mechanism, their sources and their interaction leading to particular outcomes in a given context is the explanatory objective. These organisational commonalities between the public and private sector settings for SISP projects provide a basis for a response to the second issue in that SISP research based on private sector organisational experience can shed light on public sector organisational experiences of SISP.

1.9 Overview of the Thesis

Figure 1.1 Structure of the Thesis shows the relationships between the chapters of this thesis.

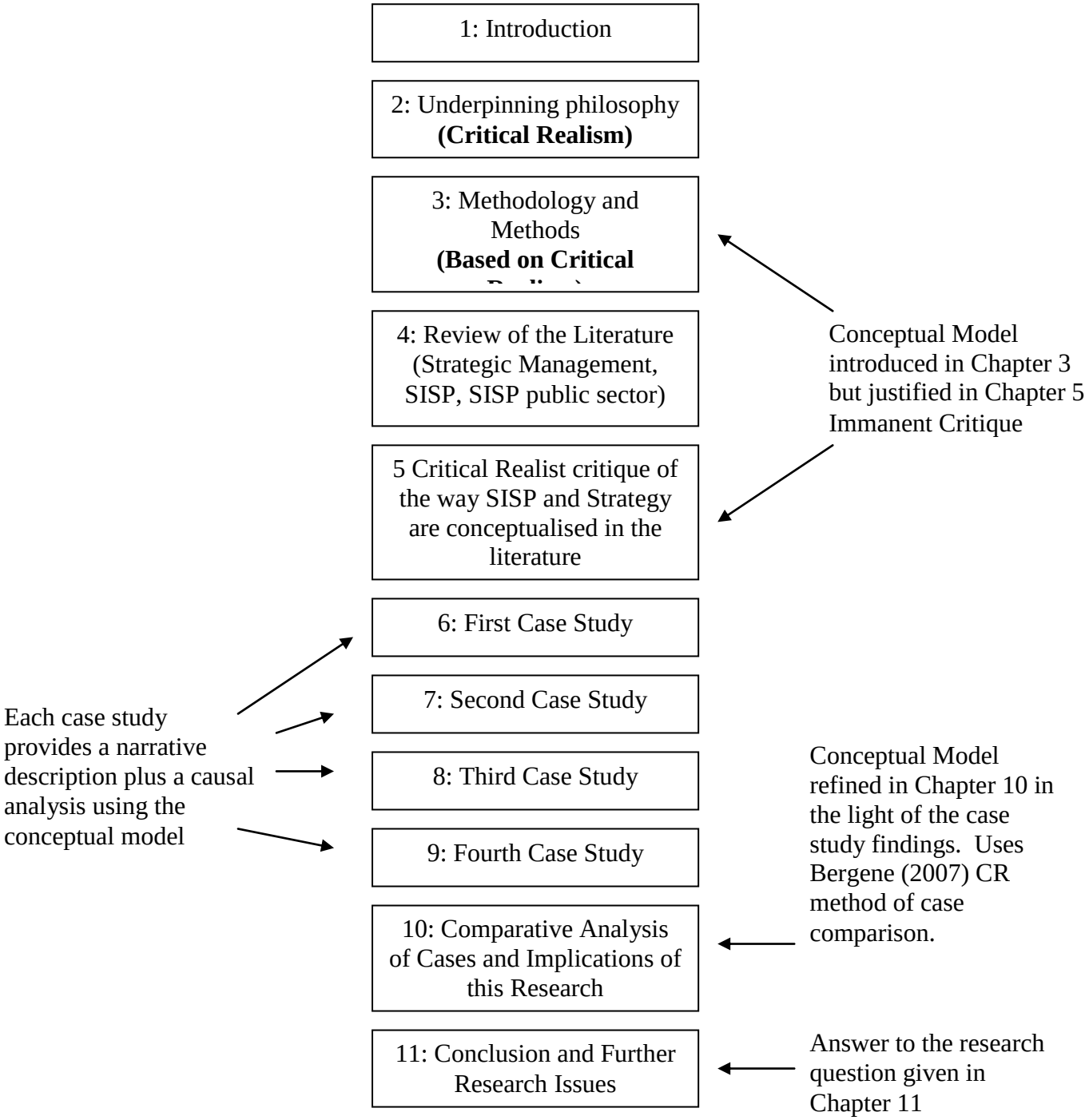


Figure 1.1 Structure of the Thesis

The second chapter of the thesis discusses the underpinning philosophy and metatheory of Critical Realism. It explains the key ontological and epistemological principles of CR and how they relate to methodology in particular the importance of explanation over prediction. It justifies the use of this philosophy in relation to

positivist and interpretivist research philosophies and shows its relevance to the study of Information Systems.

The third chapter describes the methodology for this thesis and justifies in terms of the underpinning research philosophy of CR. There is no prescribed method for conducting CR based research (Mingers and Willcocks 2004, p. 397) but researchers such as Pawson and Tilley (1997), Sayer (1992, 2000) and Danermark et al (2002) have developed an explanatory approach which is consistent with CR meta-theory principles. This chapter sets out an explanatory approach for CR based on the work of these researchers which is then used to guide the research design for the thesis following a suggested structure by Robson (2002) which also draws on the work of Bhaskar (1978), Pawson and Tilley (1997) and Sayer (2000). The final part of this chapter describes the specific methods to be used in the research.

The fourth chapter presents a review of the literature relevant to SISP. It is in three parts because SISP has been seen a form of strategic management (Robson 1997, Kearns 2006) has a specific literature devoted to SISP in the private sector but has also been applied in the public sector. Accordingly the first part of the review discusses four concepts of strategy from the strategic management literature and associated models of decision-making. Part two then focuses on the SISP specific literature beginning with some definitions of SISP followed by a discussion of comprehensive and incremental models of SISP. Part three summarises important characteristics of the public sector organisations, particularly government departments, as well as key differences compared to the private sector setting and then reviews applications of SISP in public sector organisations.

The fifth chapter of the thesis presents an immanent critique of the two main models of SISP in the literature (comprehensive and incremental). An immanent critique in CR is an examination of existing theory about the phenomenon of interest using critical realism as a meta-theory to critique the theory's ontological presuppositions (Hesketh and Fleetwood 2006, p.683). On the basis of the immanent critique a new reconceptualisation of the phenomenon is offered which may identify more appropriate theory that is consistent with a critical realist meta-theory. The new realist conception of SISP forms the basis for a causal analysis of the case study outcomes.

The next four chapters are devoted, one each, to four key case studies of SISP projects in public sector organisations. The first two are participant observer case studies, the third is based on interviews only while the fourth is based is a mixed participant observer and interview case study. These chapters have the same structure: case study narrative followed by a structural analysis, discussion of influential ideas, initial retroduction of causal mechanisms and a conclusion explaining the case study outcomes in terms of the interaction of causal mechanisms.

Bergene (2007, p.15, 22) suggests that in a CR comparative case study analysis cases should be chosen on the basis of their theoretical interest and potential to reveal different aspects of possible structures and mechanisms. The first case is a study of a SISP project conducted by the senior IT management group and confined to one division of a large government department. As the corporate centre of IS management expertise as well as SISP expertise it would be expected that such a project with its manageable scope would have a high chance of a successful outcome. The second case is a study of a SISP project with a much broader scope than the first case as it encompassed all divisions of a large department and occurred during a time of great organisational upheaval. This case is interesting from the point of view of the impact of more stakeholders on the SISP process and outcomes, as a result of its whole of department scope, and the viability of SISP projects in turbulent organizational environments (Salmela, Lederer and Reponen 2000). The third case was different to the other cases because the SISP project was informed by an organisational learning perspective. This case is interesting because organizational learning has been identified as an approach for SISP (Huysman, Fischer and Heng 1994) and it provided a contrast to the traditional comprehensive planning approach to SISP. In the fourth case a business division managed the SISP project rather than the corporate IS group. The case is interesting because the concept of alignment between IS and business needs is the major goal of comprehensive SISP theory. A business driven SISP project should have a greater chance of achieving alignment than one driven by the corporate IS group.

The tenth chapter provides a comparative analysis of the cases informed by CR (Bergene 2007). The first objective of the analysis is to corroborate the structures and mechanisms postulated in each case by a cross comparison of the cases. The presence

of structures and mechanisms in more than one case corroborates or establishes their existence beyond specific settings and provides a form of realist generalisation. The initial retroduction of causal mechanisms put forward in the individual case study accounts is refined and supported by reference to the literature. The comparative analysis also shows how the causal mechanisms manifest themselves contingently in different settings. The set of corroborated structures and causal mechanisms completes the initial realist conception of SISP advanced in chapter 5. Using the set of corroborated mechanisms the second objective is to indicate the implications of the research for the use of SISP in the public sector. Hence the postulated mechanisms are discussed as findings which constitute the new knowledge contribution of this thesis.

The eleventh chapter provides the answer to the research question by reference to the corroborated causal mechanisms as discussed in Chapter 10. It provides an explanation of the outcomes of the case studies in terms of these causal mechanisms originating in the social reality of the organisational setting as conceptualised by CR. The contribution to knowledge of the thesis is then summarised. The thesis concludes with a discussion of the implications for practitioners as well as areas for further research.

1.10 Conclusion

This thesis addresses an important research problem of the SISP field, which is the absence of a satisfactory explanation of the problematic outcomes of SISP practice in public and private sector organisations. It does so in an original way for the SISP field, which has been dominated by positivistic variance theory and to a lesser extent forms of interpretivist research. This is achieved through the use of a methodology informed by a CR research philosophy, which allows fresh insight by adopting the open systems view of social reality as the source of interacting causal mechanisms the outcomes of which are not predictable but can be explained. This provides both researchers and practitioners with an understanding of causal mechanism that may or may not be triggered in a given situation but which can be expected to be present in other organisational settings. This is helpful in understanding the somewhat unpredictable outcomes of SISP projects in organisations. The research methodology provides a realist form of generalisation using the multiple case study design to

establish the reliability and validity of the findings and their generalisation to other organisational settings.

Chapter Two
Critical Realism as the Underpinning Philosophy for the Research

2.1 Introduction

The previous chapter indicated that the research for this thesis would be informed by and based on a particular philosophy of social science known as Critical Realism. The purpose of this chapter is then to explain why this philosophy has been adopted and its key concepts. The chapter starts by discussing the relationship between ontology, epistemology and methodology and then moves on to discuss the characteristics of two key philosophies of science positivism and interpretivism and indicates key problems with these philosophies. It then proceeds to introduce and explain the fundamental concepts of CR as an effective way to address these problems. In the final section of the chapter the relevance of CR to IS research involving a social dimension is shown. Chapter three will draw on this chapter to explicate the methodological implications of CR.

2.2 The Relationship between Ontology, Epistemology and Methodology

Grayling states "questions about the nature of knowledge cannot proceed independently of questions about the objects of knowledge" (Grayling 1995, p.183). Identifying these objects is however "logically subsequent to meta-theoretical decisions about epistemology and ontology, for these are instrumental in categorizing and theorizing the world, and hence objects, as such". (Del Casino, Grimes, Hanna and Jones 2000, p.523). Ontology is a branch of philosophy, falling within the area known as metaphysics, which deals with the nature of being, existence and reality (Johnson and Duberley 2000, p.67). Epistemology is the branch of philosophy concerned with the nature, grounds and limits of experience, belief and knowledge about what is believed to exist. Epistemology describes the criteria for valid knowledge and the reasoning behind the processes by which knowledge should be obtained. Methodology is specifically concerned with the ways in which knowledge can be obtained and is also concerned with the definition and selection of objects for

analysis, the conceptualisation of data, assessments of reliability and validity and the formulation of research questions. (Del Casino, Grimes, Hanna and Jones 2000, p.523)

The social theorist Margaret Archer (1995, p.5) argues that it is necessary to ensure consistency between ontology, epistemology and methodology because "what is held to exist must influence considerations about how it should be explained". Archer gives three reasons for this. First, the activities of description and explanation are closely related because the concepts used in description are the same as those used in explanation. Second, the adopted ontology will "govern those concepts which are deemed admissible in explanation as in description". Thus ontology regulates the type of methodology "appropriate to do the explaining" (Archer 1995, p.27). Third, the findings of research, using a particularly methodology, may have implications for the chosen ontology of what is believed to exist in reality. The relationship between ontology, epistemology and methodology is illustrated in Figure 2.1 Relationship between Ontology, Epistemology and Methodology.

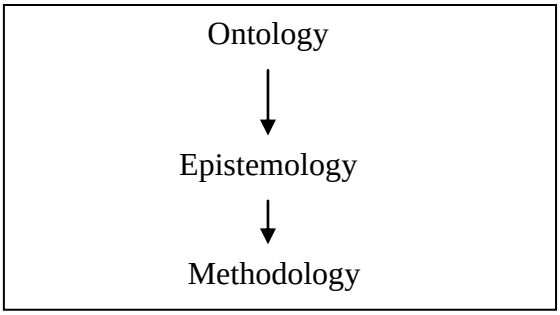


Figure 2.1 Relationship between Ontology, Epistemology and Methodology

Ontological and epistemological positions can be broadly categorised as objective or subjective. An objective ontology posits the existence of a reality independent of human consciousness or knowledge. A subjective ontology assumes the opposite. Reality is a construct of the human mind or an intersubjective phenomenon. An objective epistemology argues that knowledge is a true reflection of reality and that this knowledge is independent of the observer (Johnson and Duberley 2000, p.67). A subjective epistemology argues that knowledge is not independent of human consciousness and is an intersubjective artefact subject to social consensus.

2.3 The Ontology and Epistemology of Positivism and Interpretivism

Positivism

Positivism is the philosophy of science underpinning natural science. The ontology of positivism assumes a separation between the observer and the observed, following Descarte's subject – object distinction, so that the objects of research exist independently of the researcher and remain invariant, that is their internal or essential nature does not change during the research process. The epistemology of positivism is based on the empiricist view that experience of objects, what Fleetwood calls 'the events of sense experience' (Fleetwood 2001, p.205), is the only valid way of knowing about the existence of such objects. Furthermore positivism assumes that the observations of these objects can be made in a neutral or value free way by the researcher and can then be used as a truth test of knowledge claims such as scientific theories (Johnson and Duberley 2000, p.35). In positivism causal relationships are established by controlled experiments on invariant objects based on Hume's concept of causality as constant conjunctions of events. Constant conjunctions of events take the form of whenever an event x is observed an event y always seems to follows and it is assumed that the event x must be the cause of event y. By inductive reasoning, theory and laws with general applicability can be developed and by the principles of deduction these laws can be used to make predictions, which can then be tested empirically. In summary positivism adopts an objective ontology. Natural and social reality is assumed to be independent of humans. Positivism also adopts an objective epistemology. Knowledge can be created without bias and tested directly against a reality that is independent of the observer.

Interpretivism

Interpretivism is the philosophy of science underpinning social science and arose partly in response to what was seen to be the denial, by positivist science, of the importance of human subjectivity and meaning. Interpretivism has taken a variety of forms including phenomenology, symbolic interactionism, hermeneutics and social constructionism as well as at least two different orientations to the study of meaning. First is the objectivism of the early interpretivist thinkers, such as Max Weber (1864 – 1920) and in the early work of Wilhelm Dilthey (1833 – 1911), who believed that

meaning existed independently of the researcher and could be revealed or grasped through the process of verstehen. Although this kind of interpretivism criticised the apparent failure of positivism to recognise the importance of human subjectivity for a social science, it nevertheless shared a common belief with positivism in an objective ontology of things and the possibility of an objective epistemology or knowledge untainted by subjective aspects of the researcher. (Johnson and Duberly 2000, p.35). The second orientation of the interpretivist research tradition, illustrated by social constructionism, does not make this claim of objectivity about the existence of meaning. If reality is a social, intersubjective construction then:

> There are multiple, often conflicting, constructions, and all (at least potentially) are meaningful. … Truth is a matter of the best - informed and most sophisticated construction on which there is consensus at a given time. (Schwandt 1998, 243)

This implies there is no reality external to the social construction of knowledge process and against which such knowledge can be validated. Since the observer or researcher is also a participant in this intersubjective activity knowledge cannot be developed independently of this process. In social constructionism interpretivism adopts a subjective ontology, because social reality is assumed to be a socially and linguistically constructed artefact and there is no reality independent of these constructions. This leads to a subjective epistemology in which knowledge is relative to the groups and individuals who construct it.

Problems with Positivist and Interpretivist Philosophies of Science

A number of problems are apparent in the philosophies of positivism and interpretivism. The empiricist's assumption that the subject can make completely unbiased observations of the object cannot be sustained since, following Kant's insight (Kline 1986, p.16), the mind is not neutral and its interpretive activity intervenes in the process of deciding the meaning and significance of data or even what constitutes the facts. As Tarnas states:

> There are no perspective-independent facts. Every act of perception and cognition is contingent, mediated, situated, contextual, theory-soaked. Human language cannot establish its ground in an independent reality.

> Meaning is rendered by the mind and cannot be assumed to inhere in the object, in the world beyond the mind, for that world can never be contacted without having already been saturated by the mind's own nature. (1991, p.418)

Furthermore Kuhn (1970) showed that scientific practice is socially conditioned and objectivity is in fact more akin to a consensus theory of truth (Johnson and Duberly 2000, p.73), or what is agreed amongst those best informed to decide, rather than something that can be established by an unbiased view of empirically derived data.

Causality in positivism is based on the observation of constant conjunctions of events. This constitutes an inductive basis for reasoning about causation in the external world but the problem of induction is that:

> our experience, which is always of a finite number of past cause-effect instances, is insufficient to guarantee what we need for causal knowledge, namely, knowledge that the cause will be constantly conjoined with the effect, not just in the past, but in the future too. (Papineau in Grayling 1995 p.139)

Even Popper's hypothetico-deductive method or the principle of falsifiability, which sought to address the problem of induction by deducing a prediction from a theory and then comparing this with the empirical data, is itself implicitly inductive "moving from particular instances (of failure)" of a given theory "to the general statement that it will always fail" (Mingers 2000, p.1258).

The perceptual basis of Hume's theory of causation also leaves open the possibility that a given occurrence of constant conjunctions of two events could be coincidental rather than causal "Hume's analysis of causation makes it difficult to distinguish genuine laws of nature which state causal truths from accidental generalizations whose truth is a matter of mere happenstance." (Grayling 1995 p.140) Because of its perceptual basis Hume's theory of causation is also limited in its ability to provide explanations of the actual causes underlying observed phenomena.

Social constructionism has relativist implications because knowledge claims depend for their validity on the agreement of the community from which they arise not from

something independent of this social process. Kuhn (1970) shows that even empirical observations are interpreted in terms of the prevailing consensus of scientists. (Johnson and Duberley 2000, p.75) The relativism intensifies with post structuralist arguments that meaning is not fixed by language:

> Linguistic meaning itself can be shown to be fundamentally unstable, because the contexts that determine meaning are never fixed, and beneath the surface of very apparently coherent text can be found a plurality of incompatible meanings. No interpretation of a text can claim decisive authority because that which is being interpreted inevitably contains hidden contradictions that undermine its coherence. Hence all meaning is ultimately undecidable, and there is no "true" meaning. (Tarnas 1991, p.399)

The indeterminate nature of language means that "'reality' can have an infinite number of attributes, since there are as many realities as there are ways of perceiving and explaining" (Johnson and Duberley 2000, p.99) and "epistemology is collapsed into ontology, resulting in the world becoming whatever we wish to make it." (Johnson and Duberley 2000 p. 110).

In summary positivism's assumption of an objective epistemology is problematic for both natural and social world research. On the other hand interpretivism, while recognising the subjective nature of knowledge claims leads, in the strong forms of social constructionism, to relativism or a subjective ontology in which no knowledge claim can ever be established as an objective truth.

2.4 The Ontology and Epistemology of Critical Realism

Critical Realism (CR) is a philosophy of social science that addresses these problems by combining an objective ontology with a subjective epistemology. CR shares with positivism the belief that there is a reality, both natural and social, which is independent of human knowledge. However, against positivism but with the interpretivist tradition, CR accepts a subjective epistemology or that knowledge is a product of the mind's interpretive activity and is also socially constructed. CR rejects however the assertion, of the strong social constructionist strand of interpretivism, that there is no independent means of establishing the validity of socially constructed

knowledge claims. There can be different explanations about a given phenomenon but the adequacy of these explanations, in terms of explaining the causes of the phenomenon in question, can be assessed by reference to an independent reality. In other words CR accepts epistemic relativity, "all beliefs are socially produced" but not judgemental relativity "all beliefs (statements) are equally valid, in the sense that there can be no (rational) grounds for preferring one to another." (Bhaskar 1998a, p.57) Hence relativism is avoided. The manner in which the adequacy of different explanations of the same phenomena can be assessed will be discussed below. The ontology and epistemology of positivism, interpretivism and critical realism are compared in Table 2.1 The Ontology and Epistemology of the Philosophies of Science.

	Positivism	**Interpretivism**	**Critical Realism**
Ontology	Objective	Subjective	Objective
Epistemology	Objective	Subjective	Subjective

Table 2.1 The Ontology and Epistemology of the Philosophies of Science

2.5 Realism for the Natural World – Transcendental Realism

How does CR establish its philosophical position and what are the implications for scientific research? To answer this question the discussion begins with some key elements of Bhaskar's Transcendental Realism (TR), which focuses on natural science. TR uses the realist principle that "it is the nature of objects that determines their cognitive possibilities for us" (Bhaskar 1998a, p.25). Accordingly Bhaskar's initial analysis sought to establish an ontology of the natural world via the transcendental question "what must the world be like for science to be possible?" (Bhaskar 1998b, p.18)

Bhaskar observed that under empiricism, following Hume, a causal law is a perceived constant conjunction of events. In an experiment a sequence of events is produced,

which enables a scientist to identify a causal law but the causal law itself operates independently of the experimental conditions. In other words there is an ontological distinction between causal laws and sequences of events. Causal laws must endure and continue to operate, outside of experimental conditions, where no constant conjunction of events is forthcoming. (Bhaskar 1998b, p.26)

Bhaskar uses this insight to make three key points. First the intelligibility of experimental activity presupposes that the objects of scientific knowledge exist independently of all human activity. Second these objects must exist in a way such that they are distinct from the patterns of events that actually occur. Third the causal powers of these objects can act without events occurring or without experiences (empirical observations). (Bhaskar 1998b, p.26)

So in answer to the question "what must the world be like for science to be possible?" Bhaskar concludes that reality should be understood as stratified into three domains. (Bhaskar 1998b, p.41) First is the domain of experiences or the empirical. This is the domain on which the Humean notion of causality as the constant conjunctions of events occurs. The second is the wider domain of actually occurring events and 'non-events' or the domain in which causation is actualised but not necessarily experienced or resulting in events. Finally encompassing both these domains is the domain of the real, which contains the objects, which are the source of causation in the world and hence the cause of events. In natural science these objects are the naturally produced structures of the world. On this understanding an object is real if it has causal power capable of producing effects. This stratified conception of reality is illustrated in Figure 2.2 The Stratified Nature of Reality.

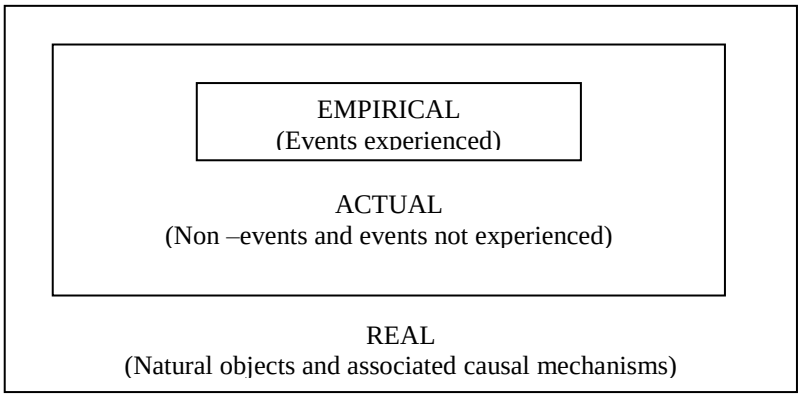


Figure 2.2 The Stratified Nature of Reality (After Mingers 2002)

This defines the ontology of the natural world or reality as an open stratified system of natural objects with causal powers (mechanisms), which under some conditions are actualised to produce events some of which are experienced. Where do the causal powers of objects come from? Transcendental realism makes use of the argument concerning natural necessity to explain the causal powers of things. Harre and Madden (1998) explain this as follows:

> It is physically impossible for a substance to act or react incompatibly with its own nature. It is not impossible for an object or sample to act and react differently at one time rather than another. But in general it *cannot* do so under the same circumambient conditions and be deemed to have remained the same substance. In short, the relation between what a thing is and what it is capable of doing and undergoing is naturally necessary. It is this natural necessity that the conceptual necessity of the ensemble of powers and liabilities ascribed by the use of a term like 'copper' reflects. (Harre and Madden 1998, p.109 italics in original)

Accordingly the powers of a mechanism originate in the structure of the object with which it is associated and these powers may be 'possessed, exercised or actualised' (Fleetwood 2001, p.211). In an open system of many different objects the causal mechanisms of any given object may or may not be triggered. If they are not triggered the object still retains or possesses the potential causal powers or mechanisms. If they are triggered they are exercised but once exercised the mechanism may encounter another triggered mechanism and be altered in some way that changes the kind of effect, if any, it is able to produce. On the other hand if a mechanism is triggered and does not encounter countering mechanisms then it produces its full effects with potentially observable events at the empirical level. In this case it is in effect operating in a closed system and directly generating events. This is the situation in experimental research where extraneous factors are prevented from interfering with the causal mechanisms of interest. The outcome of a mechanism being exercised is not predictable however because of the ever present potential of other mechanisms to counteract it partially or in full. These ideas are depicted in Figure 2.3 Necessary Causal Powers and Liabilities (Mechanisms).

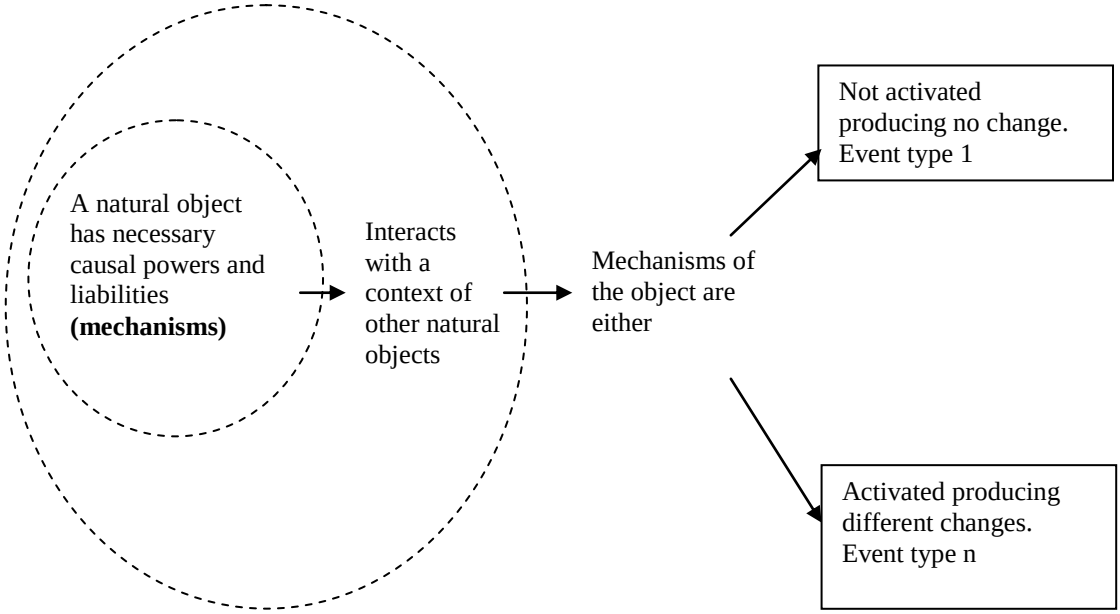


Figure 2.3 Necessary Causal Powers and Liabilities (Mechanisms)
After Sayer (1992, p.109)

Fleetwood (2001: p.212) draws attention to the fact that mechanisms have tendencies to bring about certain events. These tendencies continue to act on the flux of events irrespective of the actual outcome in an open system, which will be the result of the convergence of a number of tendencies associated with particular causal mechanisms. The important research implication, of this open context of interacting objects with causal mechanisms is that the mechanisms may be out of phase with patterns of events and experiences. Figure 2.4 Relationship Between Objects, Causal Mechanisms and Events, represents this non-linear relationship between objects, their causal mechanisms and events.

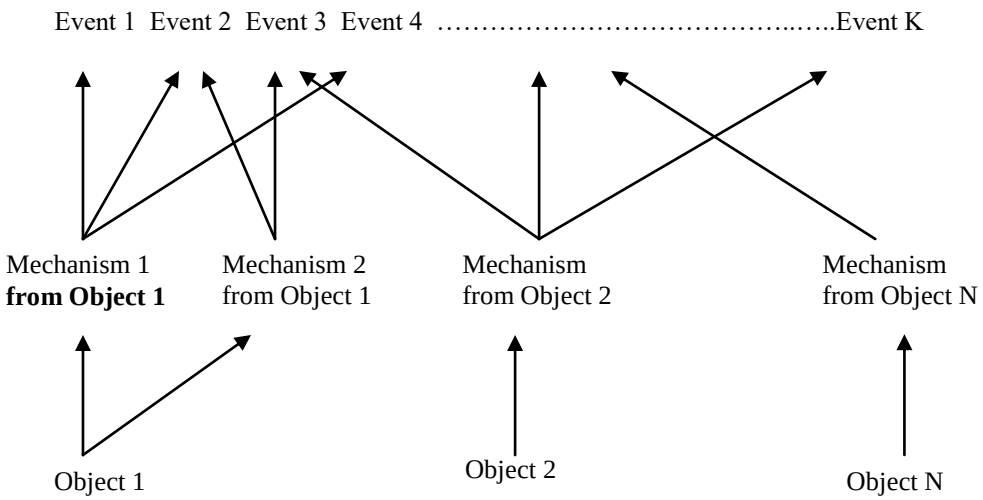


Figure 2.4 Relationship Between Objects, Causal Mechanisms and Events (After Sayer 1992, p.117)

An important consequence of the stratified nature of reality is the concept of emergence (Sayer 1992, p.119). The structures of nature can combine to produce qualitatively new structures or phenomena. Thus both hydrogen and oxygen exist as entities in their own right with unique properties but on combination, in the right proportions, produce water which has its own unique qualities not reducible to those of its constituent elements.

Bhaskar uses the term intransitive to denote the domain of the real in which objects with causal power exist and the term transitive to denote the provisional and changeable nature of human knowledge about them. The point of this distinction is "to sustain a clear concept of the continued independent *reality* of *being* – of the intransitive or ontological dimension – in the face of the *relativity* of our *knowledge* – in the transitive or epistemological dimension." (Bhaskar 1998b, p x italics in original) What Bhaskar calls the epistemic fallacy occurs where knowledge is taken to be ontological rather than epistemic. The strong forms of social constructionism commit the epistemic fallacy by insisting that there is no reality independent of socially constructed knowledge claims about it. The empiricist ontology of positivism commits the epistemic fallacy since it 'is confined to knowledge about what is experienced and is therefore of the events of sense experience' (Fleetwood 2001, p.205). The argument here is not 'that positivists are committed to the claim that

events in sense experience are all that exist.' rather 'that positivists transpose questions of ontology into questions of epistemology so that, in effect, they are committed to the claim that all that exists *vis-à-vis* scientific enquiry are events in sense experience' (Fleetwood 2001, p.205)

2.6 Realism for the Social World – Critical Realism

In his book *The Possibility of Naturalism* Bhaskar (1998a) shows that the key ideas of Transcendental Realism can be applied to the social world and it is this formulation of his philosophy that has come to be known as Critical Realism (CR). Bhaskar approaches this philosophical task through the following transcendental question: "What properties do societies possess which might make them possible objects of knowledge for us?" (Bhaskar 1998a, p.13).

To answer the first part of this question, concerning the properties of society, Bhaskar argues for an ontological distinction between society and people because "all activity presupposes the prior existence of social forms" (Bhaskar 1998a, p.34). For Bhaskar society is the pre-existing social form but is continually reproduced by the intentional activity of humans. Bhaskar characterises this process as the Transformational Model of Social Activity (TMSA) in which:

> People do not create society. For it always pre-exists them and is a necessary condition for their activity. Rather, society must be regarded as an ensemble of structures, practices and conventions which individuals reproduce or transform, but which would not exist unless they did so. Society does not exist independently of human activity (the error of reification). But it is not the product of it (the error of voluntarism). (Bhaskar 1998a, p.36)

The properties of society become evident in the properties of the constituent social structures. Bhaskar proceeds to establish the reality of social structures by appealing to the realist causal criteria, which states that a posited object is real if it has the capacity to bring about changes in material things (Lewis 2000, p.252). The causal efficacy of social structures both constrains and enables human activity (Bhaskar 1998a, p.40). Porpora explains how this occurs:

> The causal effects of the structure on individuals are manifest in certain structured interests, resources, powers, constraints and predicaments that are built into each position by the web of relationships. These comprise the material circumstances in which people must act and which motivate them to act in certain ways. (Porpora 1998, p.344)

How then is structure linked to agency and how are such structures constituted? Bhaskar's answer is the position-practice system:

> Such a point, linking action to structure, must both endure and be immediately occupied by individuals. It is clear that the mediating system we need is that of the *positions* (places, functions, rules, tasks, duties, rights, etc) occupied (filled, assumed, enacted, etc.) by individuals, and on the *practices* (activities, etc.) in which, in virtue of their occupancy of these positions (and vice versa), they engage. (Bhaskar 1998a, p.40 italics in original)

A defining characteristic of social structures is their relational nature (Bhaskar 1998a, p.40). These relationships can be internal (necessary) or external (contingent). A simple example of a social structure is that between the employer and employee as illustrated in Figure 2.5 Relations of the Employer - Employee Social Structure.

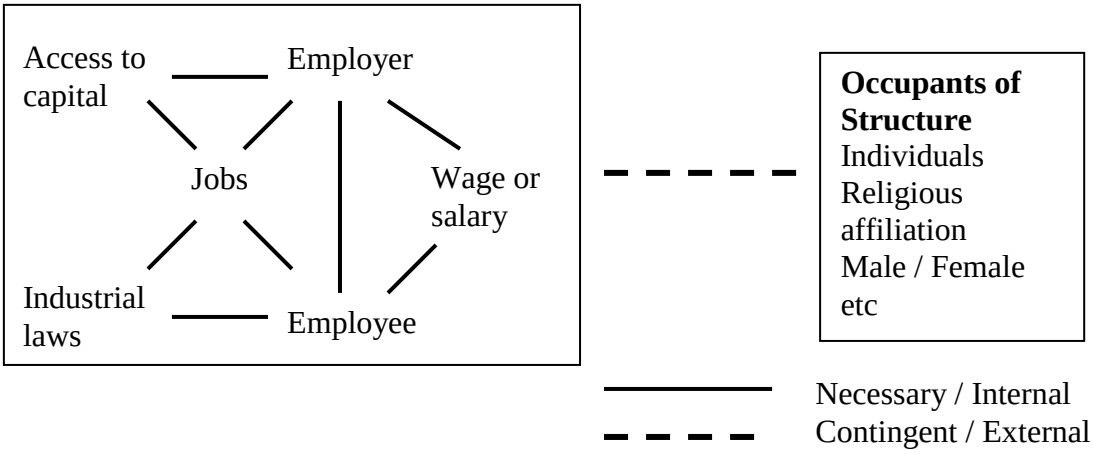


Figure 2.5 Relations of the Employer - Employee Social Structure

(After Sayer 1992, p.93)

The employer and employee are in a necessary relationship by virtue of the obligation on the employer to pay a wage or salary and an obligation on the employee to do work. In order for the employer to fulfil this obligation he or she must have control, usually by ownership, of employment or jobs and this depends in turn on access to the necessary investment or capital. Industrial laws set the conditions on which employment may be provided, which are binding on both employers and employees. This example illustrates how social structures include not only related positions but also resources eg capital and powers such as the legal system, which can be drawn on by the occupants of positions. This allows in the role of technology as a material and conceptual resource associated with social structures available to agents. Corresponding with these necessary relations are contingent or external relations or ones, which are not essential for the social structure of employers and employees to exist. These include the gender or religious affiliation of employers and employees.

Avoiding Reification of Social Structure

Bhaskar's conception of social structure avoids reification because it acknowledges that all social structures depend for their existence on the activities of people. Nevertheless as Manicas (1998, p.319) argues 'Social structures … do pre-exist for some individuals, but never for all' and what CR argues is that this pre-existence constitutes a relative rather than absolute independence of social structure for particular settings. That is social structures only exist as a result of the activities of some agents but not necessarily the agents in question. In this way particular social structures may exist as the result of the activities of one group of agents while having effects on other groups of agents not involved in their reproduction. In this sense social structure has a degree of independence.

Gaining Knowledge of Social Structures

Having established the existence of social structures and the intentional activity of humans in their reproduction, Bhaskar then moves to the question of how social structures of society become possible objects of knowledge. There are three parts to the response to this question. The first point relates to the fact that unlike the objects of the natural world, human beings possess the ability to reflect on experience and alter their behaviour accordingly. This implies that experiments are difficult if not

impossible to conduct in the social world because the invariance of the objects of natural science cannot be achieved. In other words 'invariant empirical regularities do not obtain' (Bhaskar 1998a, p. 45) hence the social world is open (stratified into the domains of the empirical, actual and the real). The research implication is that because of the absence of closed systems 'the criteria for the rational development and replacement of theories in social science must be *explanatory and non-predictive*' (Bhaskar 1998a p.45, italics in original). This implies that although specific outcomes in an open systems context cannot be predicted a realist analysis helps to explain how and why a particular outcome occurred.

The second point is that the causal mechanisms associated with social structures are 'activity dependent' meaning that they 'exist only in virtue of their effects.' A key aim of social science is then to identify 'the particular mechanisms and relations at work in some identified sphere of social life' through their effects in particular social settings (Bhaskar 1998a, p.50).

The third way in which social structures become possible objects of knowledge relates to the way in which social activity, involved in the transformation of social structures, is conceptualised by agents in experience. Hermeneutics plays an important role in this process because the conceptualisations held by agents of their activity, cannot be measured, as in positivism, but must be understood. However these conceptualisations of agents may be wrong because:

> The *conditions* for the phenomena (namely social activities as conceptualized in experience) exist *intransitively* and may therefore exist independently of their appropriate conceptualization, and as such be subject to an unacknowledged possibility of historical transformation. (Bhaskar 1998a, p.51 italics in original)

So a realist approach to social scientific knowledge generation must seek to identify 'real but non-empirical and not necessarily adequately conceptualized conditions' and this requires 'being able to give an account of the reasons why the false or superficial beliefs are held' (Bhaskar 1998a, p.52-53).

In summary the answer to the question "What properties do societies possess which might make them possible objects of knowledge for us?" (Bhaskar 1998a, p.13) is that

society is composed of agents and social structures that have causal effects on people and are therefore real. These social structures are not, contra individualism, reducible to people but their existence means they are possible objects of knowledge through the research processes of social science. The results of these research processes will be explanatory rather than predictive because of the open nature of social reality and will result in the identification of the constitutive necessary relations of social structures and the interaction of particular mechanisms. It will involve hermeneutic processes to understand how actors conceptualise their experiences but this process must take account of the possibility of incorrect conceptualisations of social structures impacting the social setting and the experiences of these actors.

2.7 Explaining Social Change

This section discusses the interaction between structure, agency and the cultural system. The aim of social science is to explain social change (Bhaskar 1998a, p.41) that is how social forms evolve and why particular outcomes occur. CR seeks a causal explanation of this process in terms of underlying causal mechanisms and social structures with the explanatory goal being an understanding of the chain of causation leading to particular outcomes of social interaction. Accordingly, having established the open systems ontology of social reality in which outcomes are not predictable, a model, or theory, of social change consistent with this ontology is required. Bhaskar provided the TMSA in response to this problem and Archer (1995, p.158-159) has further developed the TMSA in her morphogenetic model (section 2.8 below) of the interaction, via social practices, between social structure, culture and agency. Importantly these are ontologically separate entities each with their own unique causal effects. How do they interact? CR sees the interaction as occurring through 'established human practices' (Joseph 2002, p.177) where social practices are defined as "a relatively stabilized form of social activity. Examples would be classroom teaching, television news, family meals, medical consultations, or work situations inside innovation projects" (Chiapello and Fairclough 2002, p.193). The interaction of these key entities of social reality is represented in Figure 2.6 The Relationship between Structure, Agency and Culture. A brief description of each entity follows as preliminary to the discussion of Archer's morphogenetic model of social change.

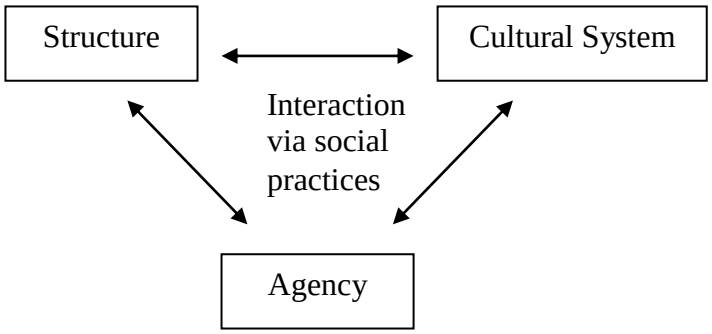


Figure 2.6 The Relationship between Structure, Agency and Cultural System

Social Structures

As discussed in the previous section social structures are the related positions that agents come to occupy. Social structures include not only related positions but also resources and rules, which can be drawn on by the occupants of positions as they pursue their interests. Social structures constrain and enable agents and have a degree of independence from some agents but are not independent of all agents. (Refer section 1.5) This avoids the problem of reification of social structure (Archer 1995, p.148).

The Cultural System

Within the broad concept of culture Archer distinguishes the Cultural System (CS) as:

> that sub-set of items to which the law of contradiction can be applied. These are propositions, for only statements which assert truth or falsity can be deemed to be in contradiction or to be consistent with one another. The justification for defining the CS in this way rests partly on the fact that it meets the criterion of methodological workability, but partly, too, on the self-evident importance of those things held to be true or false in society at any given time or place. (Archer 1996, p.xviii).

The CS contains such things as 'theories, beliefs, values, arguments' and these may exist whether individuals or agents are aware of them or not. Thus in CR terms the CS is 'an emergent entity' with 'an objective existence and autonomous relations amongst its components' (Archer 1996, p. 107). It is '*the ideas which at any given time have holders*' (Archer 1996, p.xxi, italics in original) which become important in

the causal effects of social interaction. Agents can act to realise specific goals in pursuit of broader interests. In doing so they may draw on knowledge, ideas and beliefs to determine, justify and implement a plan of action. This implies an analytical distinction between the contents of the CS and what 'knowing' agents may choose to use it for:

> such as the influence of teachers on pupils, of television on its audience, or of earlier thinkers on later ones. This later is causal *consensus*, that is, the degree of cultural uniformity produced by the imposition of ideas by one set of people on another through the whole gamut of familiar techniques – manipulation, mystification, legitimation, naturalization, persuasion and argument. Causal consensus is thus intimately allied to the use of power and influence (1996, p.xviii)

Agency

Agency refers to the causal powers of people. Archer (1995 p.190) defines agency as a concept that encompasses individual actors, collectivities of people (primary agents) and organised groups (corporate agents). This is helpful for understanding the role of agents in organisations. Ackroyd comments that 'Organisations should be analysed as configurations of different groups (with their own distinct priorities and agendas)' (Ackroyd and Fleetwood 2000, p.101). On this basis studies of organisational behaviour involve studies of groups of agents within organisational settings or as Downward (2002, p.489) states the 'analysis of causal mechanisms should be devoted to exploring and articulating human agency in its institutional context'. The interaction of these agential groups is the source of causal mechanisms that may lead to change in the social structure of the organisation and the Cultural System.

Understanding the actions of agents involves the hermeneutic dimension of social interaction. CR argues that reasons can be causes of agential action but 'reasons are merely one (albeit important) aspect of the causal efficacy of semiosis' (Fairclough, Jessop and Sayer 2002, p.2). Accordingly the way in which semiosis, 'the intersubjective production of meaning' has causal effects is important in understanding the nature of interaction between agency, social structure and the CS. Fairclough (2003) has developed a form of discourse analysis called Critical

Discourse Analysis (CDA), consistent with Critical Realism, which explains the causal effects of semiosis in terms of the role of discourse in social practices and particularly the way in which agents make and deploy texts. In CDA the term ‘text’ is used to refer to the discoursal element of social events. Fairclough uses the term in its most ‘generalised sense (not just written text but also spoken interaction, multi-semiotic televisual text, etc)’ (Fairclough 2005, p.925). Texts are both product, ‘stored, retrieved, bought and sold, cited and summarized’, and process ‘the making of texts, as a specific modality of social action’ (Fairclough 2005, p.926). Social agents create and deploy texts and by so doing generate causal effects within social practices contributing to the occurrence of social events. This may lead to change in social practices and, because of the mediating role of social practices between agency and structure, change in social structures.

Critical Discourse Analysis

Fairclough (2005, p.915) argues that an analysis of discourse is an important element of organization studies because

> social phenomena are socially constructed, i.e. people's concepts of the world they live and act within contribute to its reproduction and transformation; and that social phenomena are socially constructed in discourse.

Fairclough defines discourse to mean “linguistic and other semiotic elements (such as visual images and 'body language') of the social” and discourse analysis to mean “analysis of 'texts' in a broad sense written texts, spoken interaction, the multimedia texts of television and the Internet, etc.” (Fairclough 2005, p.916). But Fairclough’s (2005, p.916) approach to discourse analysis is informed by critical realism

> a critical realist position … is moderately socially constructivist but rejects the tendency for the study of organization to be reduced to the study of discourse, locating the analysis of discourse instead within an analytically dualist epistemology which gives primacy to researching relations between agency … and structure on the basis of a realist social ontology.

A primary goal of organisation studies is to understand the conditions of organizational stability or change but this depends on maintaining a clear analytical distinction between agency and structure:

> Collapsing the distinction between agency and structure … makes the causal powers of agents and their actualization impossible to analyse: the capacity of social agents to radically transform organizational structures, and the conditions under which that capacity can be actualized; differences between agents, according to their positions within the social relations of organizations, to effect changes; and so forth. (Fairclough 2005, p.928).

This implies that to understand the effects of discourse including texts, on the conditions of organizational stability and change requires a similar distinction between discourse and other elements of the setting "one cannot assess the effects of texts on organizations, or indeed whether changes in texts have any wider effects at all, unless one can look at relations between discourse and other social elements and between process (and agency) and structure." (Fairclough 2005, p.928). The realist view of discourse is then that it does have real effects on organizational processes but it should not be seen as the only factor in organizational change:

> while change in discourse is a part of organizational change and organizational change can often be understood partly in terms of the constructive effects of discourse on organizations, organizational change is not simply change in discourse, and relations between change in discourse and change in other elements of organizations are matters for investigation, which entails a clear and consistent analytical distinction between discourse and other social elements. (Fairclough 2005, p.931).

The linking concept between structure and agency in Fairclough's realist version of discourse analysis is the social practice (Fairclough 2005, p.922). Typical examples include "classroom teaching, television news, family meals, medical consultations, or work situations inside innovation projects". Chiapello and Fairclough (2002, p.193). Social practices "constitute social selections and orderings of the allowances of social structures as actualizable allowances in particular areas of social life in a certain time

and place." (Fairclough 2005, p.922) Social practices can also be defined as "an articulation of diverse social elements in a relatively stable configuration, always including discourse." In addition to discourse, social practices also include other kinds of social elements such as "activities, subjects and their social relations, instruments, objects, time and place, forms of consciousness, values". Chiapello and Fairclough (2002, p.193).

Discourse appears in social practices in three ways. First, discourse is a part of the social activity of social practice: "For instance, part of doing a job (e.g. as a shop assistant or a manager) is using language in a particular way; so too is part of governing a country." Chiapello and Fairclough (2002, p.193). In this form discourse is termed a genre, which is defined as " diverse ways of acting, of producing social life, in the semiotic mode. Examples are: everyday conversation, meetings in various types of organization, political and other forms of interview, book reviews, or guides for managing e-firms." Chiapello and Fairclough (2002, p.193). The second way discourse occurs in social practice is as representation: "Social actors within any practice produce representations of other practices, as well as ('reflexive') representations of their own practice, in the course of their activity within the practice." Finally discourse is a way of constituting identity or ways of being such as a political leader or chief executive of the firm. This form of discourse is termed a style "for instance, the styles of business managers, or political leaders." Chiapello and Fairclough (2002, p.194)

Discourses also include imaginaries. Chiappello and Fairclough (2002, p.195). Imaginaries are "representations of how things might or could or should be." Imaginaries may then be realised or enacted "as actual (networks of) practices - imagined activities, subjects, social relations, etc. can become real activities, subjects, social relations, etc. Such enactments include materializations of discourses, in the 'hardware' (plant, machinery, etc.) and the 'software' (management systems, etc.)." For individuals imaginaries may be also inculcated as "new ways of being, new identities." Chiappello and Fairclough (2002, p.195). However although discourses may be enacted in some way they are not necessarily successfully inculcated "For instance, managerial discourses have been quite extensively enacted within British universities (for instance, as procedures of staff appraisal, including a new genre of

'appraisal interview'), yet arguably the extent of inculcation is very limited - most academics do not 'own' these management discourses." Chiappello and Fairclough (2002, p.195). For this reason the analysis of discourses "one needs to take account, case by case, of the circumstances which condition whether and to what degree social entities are resistant to new discourses." Chiappello and Fairclough (2002, p.196)

Fairclough relates realist discourse analysis to the study of organizational stability and change using a power based model of organizational change (Fairclough 2005, p.931). Organizational structures represent "particular power relations between groups of social agents" and such structures periodically experience crisis, which prompts agential groups to develop conflicting strategies to resolve the crisis. These strategies "have a partly discoursal character" and "constitute imaginaries for changes in the networks of social practices of organizations, changes in organizational structure, including changes in the orders of discourse of organizations." (Fairclough 2005, p.932) The success of these strategies depends on the extent of their operationalization in terms of "new representations and imaginaries (new discourses and narratives) in new ways of acting and being and new material arrangements." In this manner organizational structures may be changed. (Fairclough 2005, p.931).

2.8 A Model of Social Change – The Morphogenetic Approach

As outlined in the previous section the dynamic of social change occurs through the interaction between agents, social structures and the cultural system. A key aspect of Archer's (1995, 1996, 2000a) morphogenetic approach to explaining social change is the importance of the temporal dimension. Archer offers an analytical conception of this process as involving three phases: conditioning, interaction and elaboration. In the first phase agents encounter pre-existing structures and a cultural system and this sets the conditions for subsequent interaction. Archer comments 'Conditioning thus operates through associating bonuses and penalties with different courses of action.' (1995, p.253) In the second phase agents interact with these structures and the cultural system leading to the third phase in which, as a result of this interaction, structures and the cultural system may change through emergent processes (morphogenesis). Morphogenesis or change to structure, agency and the cultural system, is not certain however because the causal mechanisms that might cause change may not be actualised or existing causal mechanisms may continue to

maintain the status quo. In this case little or no change results which is referred to as morphostasis. On the other hand the causal mechanisms maintaining stability may begin to lose the ability to do so through a weakening of causal efficacy or the emergence of countering mechanisms. In this case morphogenesis occurs. Finally, because the process is cyclical, the outcome (morphogenesis or morphostasis) constitutes the conditions for the next cycle of interaction. Archer's morphogenetic process is illustrated in Figure 2.7 The Morphogenetic Process of Social Change.

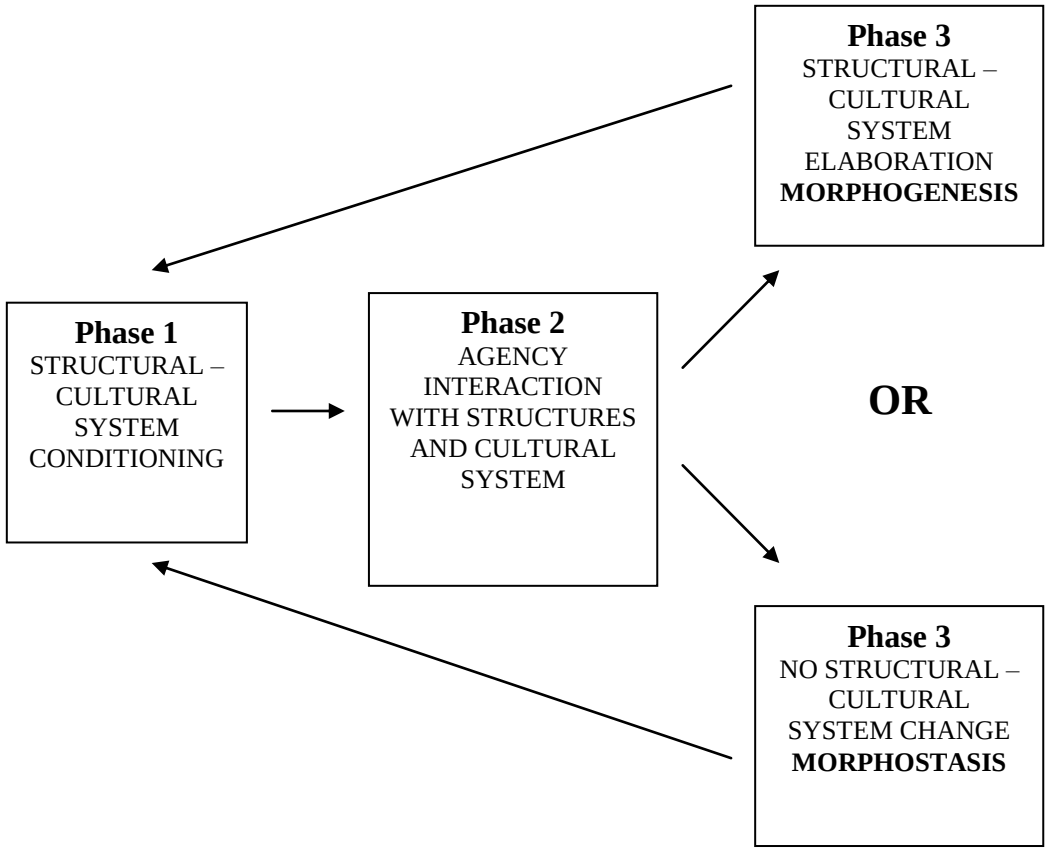


Figure 2.7 The Morphogenetic Process of Social Change (After Archer 1995, p.160)

It should be noted that Archer provides an analytical model of social change, which allows a focus on the conditions before, during and after social interaction. This is helpful methodologically in dealing with the complexity of real social change in which there are many change processes that are continuous and overlapping. The model reflects the continuous nature of change through a three phase linear analytic within a cyclical process in which outcomes constitute the conditions for the next round of the cycle.

2.9 Some Criticisms of Critical Realism

John Mingers (Mingers and Willcocks 2004, pp.388-393) discusses some criticisms of the philosophy of CR. In summary they relate to problematic aspects of the transcendental form of the argument for the claim of an ontologically stratified domain of real structures, the difficulty of selecting amongst competing explanations for a given phenomenon using the retroductive methodological process, that the idea of ontologically real social structures effectively reifies social structure, the practical research difficulty of untangling the 'multiple interlocking structural causes' (Mingers and Willcocks 2004, p.392) of phenomena in the social world, the relatively undeveloped state of CR consistent research methods and the extent to which CR is truly critical in the sense of providing social critique. The debate over these issues continues but there is a growing substantive literature demonstrating successful realist work as shown by Ackroyd and Fleetwood (2000) and Fleetwood and Ackroyd (2004).

2.10 The Relevance of Critical Realism to the Study of Information Systems (IS) in Organisations

IS researchers such as Hirschheim have argued that "information systems are, fundamentally, social rather than technical systems" (1985, p. 1335) and Heeks (2001, p. 55) observes that "Information systems are social systems; that is to say, information systems are rooted in a context of people and of social structures and are themselves made up partly of people and social structures." The planning, design, development and implementation of IS in organisations involves human agents (managers, system developers, technical experts and consultants) as well as information based relationships including the market for information technology products. Implementation of information systems necessarily includes processes of organisational change. As well there is a continuing flow of ideas, beliefs, concepts, issues and other cultural material associated with the purposes and visions put forward about the role of IS in public and private, educational, governmental, profit and not for profit organisations. All of these things occur in many different contexts involving a wide range of interacting causal mechanisms in the open systems ontology of the social world as manifest in organisational settings.

If it is accepted that information systems are a form of social system then IS research falls into the domain of social science and CR provides the necessary philosophical underpinning for such research. Accordingly IS research needs to be based on a recognition of the open systems ontology of social and natural reality. Explanation based on a CR perspective can also accommodate the occurrence of unpredictable outcomes from social interaction. As Markus and Robey (1988, p. 585) note: "organizational change emerges from an unpredictable interaction between information technology and its human and organizational users." A small but growing number of researchers have argued that the critical realist perspective can and should be used for research in the IS field (Mingers 2002; Mutch 2002; Dobson 2001a, 2001b; Carlsson 2005; Smith 2006).

2.11 Conclusion

In summary the key element of the Critical Realist philosophy for social science is the open systems ontology of the social world that is stratified into the domains of the empirical, the actual and the real. The objects of the domain of the real (social structures, agents and the CS) are seen as intransitive that is independent of agential knowledge about them, which is seen as transitive. (Bhaskar 1998a, p.47, p. 51) Causation in the social world originates in human agency and the relations between agents in the form of social structures (the position - practice system), which have a degree of independence from agency and may constrain and enable it. A realist explanation will therefore show how agents are able to draw on structural power and when they are constrained by it. Nevertheless social structures are only relatively enduring (Bhaskar 1998a, p.38) so they are susceptible to change through interaction with agents. Archer's theory of social change, through the interaction between structure, agency and the CS or the ideational dimension of social life, provides a way of analysing what causes change in social settings and how this transforms or does not transform, as the case may be, the three ontologically separate entities of social reality. CR provides then a baais for developing explanations in social settings where outcomes are not predictable because of the contingent interaction of causal mechanisms arising from the ontology of the setting.

Chapter Three

Methodology, Research Design and Methods

3.1 Introduction

The methodology for this thesis is informed by the underpinning philosophy of CR as discussed in the previous chapter. CR is a metatheory, which "provides guidelines about the necessary form of theory" (Fleetwood and Ackroyd 2004, p. 21). This means that CR can be used as the basis for the development of new theory or the critical analysis of other theories from a realist perspective. The adoption of a realist ontology and epistemology does not preclude the use of research techniques from the natural science and social constructivist perspectives, providing their status in relation to the ontological and epistemological principles of CR is understood and accounted for (Sayer in Fleetwood and Ackroyd 2004, p. 17). Although there is no prescribed method for conducting CR based research (Mingers and Willcocks 2004, p. 397) researchers such as Pawson and Tilley (1997), Sayer (1992, 2000) and Danermark et al (2002) have developed an explanatory approach, which incorporates CR meta-theory principles. This thesis uses a slightly modified version of this approach and implements it using a research design suggested by Robson (2002) who adopts a CR perspective.

Since this thesis uses a case study research design the methodology also draws on the advice of experienced case study researcher's such as Yin (1994). Yin (1994) is regarded by some realist authors (Easton 2000, p.211) as an authority on case study research design so his recommendations inform the methodology of this thesis. However Yin (1994) adopts a positivist rather than critical realist perspective on research so there are some areas where his approach reflects a closed rather than open systems view of social reality. Hence the methodology for this chapter assesses Yin's recommendations for case study research in the light of critical realism and adopts those aspects, which are relevant to the thesis and consistent with critical realism.

3.2 A Critical Realist Methodology

For critical realists the nature of explanation is concerned with underlying causality rather than the perceptual conjunctions of events as in empiricism (Fleetwood 2001, p.217). The open systems ontology of the social world in CR implies that explaining the cause of phenomena will be in terms of the interaction of causal mechanisms originating in human agents, social structures and associated cultural elements since reasons, like beliefs, can be causes (Archer 1996, p.xxi; Bhaskar 1997, p.143). Hence the goal is to identify practically adequate explanations of given phenomena (Sayer 1992, p.71), observed empirically, but explained in terms of plausibly real causal mechanisms emerging from this ontology of social reality that produce the events at the level of the empirical. The components of a realist explanatory framework are indicated by Sayer (1992, p.109) and Danermark et al (2002, p.111) and illustrated in Figure 3.1 Realist Explanatory Framework.

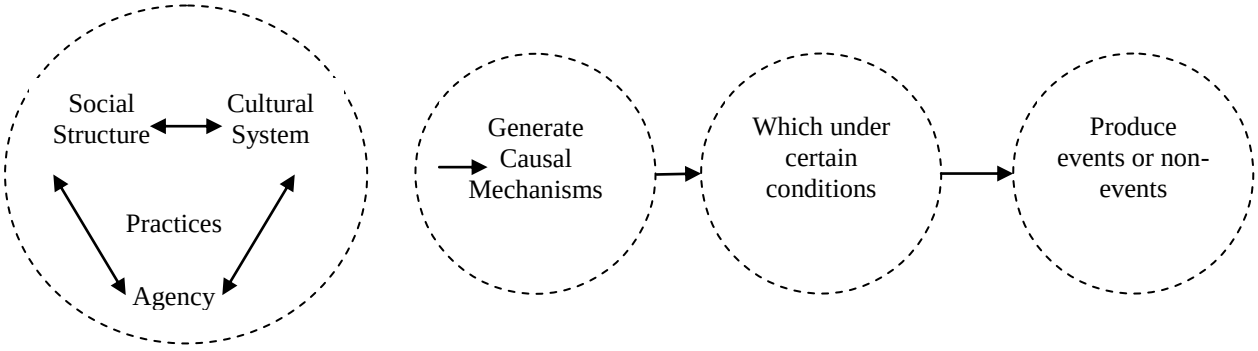


Figure 3.1 Realist Explanatory Framework
(After Sayer (1992, p. 109) and Danermark et al (2002, p.111))

The mode of inference in which these mechanisms and structures are put forward as theoretical possibilities that potentially explain the observed phenomena in a given context is referred to as retroduction (Sayer 1992, p.107). Sayer suggests that retroduced mechanisms may be recognisable from other situations and even directly observable (Sayer 1992, p.107). The same mechanisms and structures may be present in different contexts but with different manifestations. Corroboration of the theoretically proposed structures and mechanisms can then be sought by examining other contexts for their effects. Sayer (1992 p.237) calls this research process, of working down from the empirical manifestation of effects, through identifiable causal

mechanisms to their origin in social structures and agents, intensive research, in contrast to extensive research that focuses more on events at the empirical level. Sayer's distinction between extensive and intensive research is illustrated in Figure 3.2 Intensive versus Extensive Research.

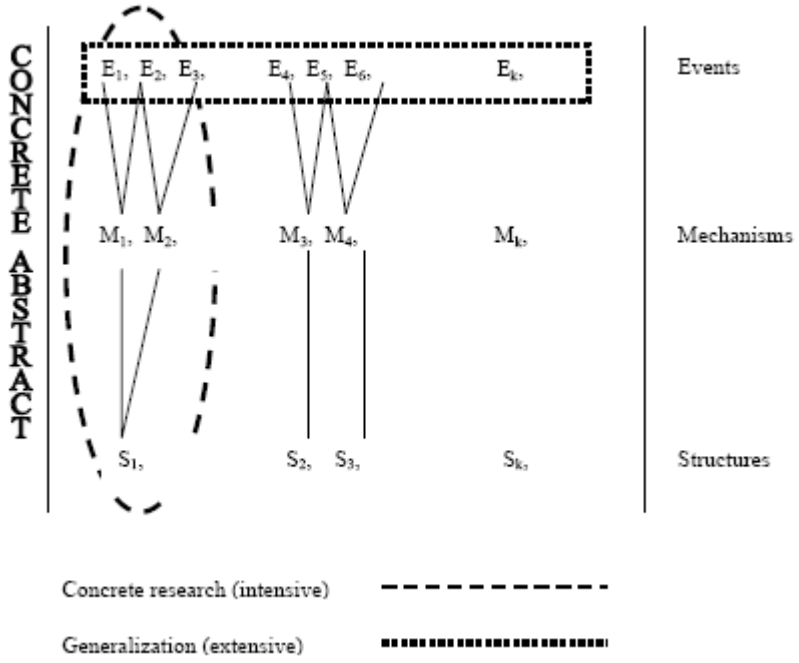


Figure 3.2 Intensive and Extensive Research (Sayer 1992, p.237)

The first important aspect of intensive research is its focus "on groups whose members may be either similar or different but which actually relate to each other structurally or causally. Specific, identifiable individuals are of interest in terms of their properties and their mode of connection to others" (Sayer 1992, p.244). The second important aspect is the relationship between the groups and their context "exploration of how the context is structured and how the agents under study fit into it - interact with it and constitute it - is vital for explanation." (Sayer 1992, p.248).

In relation to agency, or action by individuals and groups in the setting, the researcher needs to understand what actions are being taken, by whom, for what reasons and what the effects of these actions are. Parker, Mars, Ransome and Stanworth (2003, p. 110) point out that it is also important to find out where agent's reasons for acting come from such as "cultural mechanisms and economic and political interests." This reflects the importance of a hermeneutic perspective in critical realist research which

helps to reveal what things mean for people and the discourses about things that shape their thinking and influence their actions (Hesketh and Fleetwood 2006, p.690). Interpretive techniques can be used for this purpose to identify the relevant beliefs, theories and ideas that motivate behaviour of agents. Duberley and Johnson (2000, p.165) suggest this can take the form of "micro-level ethnographic descriptions of members activities within the explanatory context of the complex interplay of macro-level structures which constrain and enable members activities".

The thesis cases studies are centrally concerned with the actions of groups and individuals in relation to the ideas of SISP and who are structurally related within the context of a government bureaucracy. Accordingly the intensive mode of research as described by Sayer (1992), which is consistent with CR is adopted in this thesis for the analysis of the case studies. Based on Sayer's work Danermark, Ekstrom, Liselott and Karlsson (2002, p.109-110) have proposed an explanatory approach for such research. This thesis uses a slightly modified version of this approach by rearranging the sequence of steps and drawing on the work of other CR researchers such as Lawson (1997) and Elder-Vass (2007a). The six steps are summarised in Table 3.1 Six - Step CR Methodology, which also indicates the corresponding chapter in the thesis. The details of the six steps are discussed further in the following section on research design.

Step	Description	Chapter
1	Literature review to identify the way the phenomenon is conceptualised followed by a metatheoretic or immanent critique of these conceptualisations. On the basis of the immanent critique a new conceptualisation of the phenomenon consistent with CR metatheory is postulated.	4, 5
2	Description of the phenomenon as empirically observed using case studies.	6-9
3 (i)	Use of abstraction to determine necessary or structural relations as described by Sayer (1992, 1998, 2000).	6-9
3(ii)	Identification of key discourses and influential ideas	6-9
3(iii)	Retroduction of causal mechanisms	6-9
5	Corroboration of proposed causal mechanisms by a cross case comparison.	10
6	Completion of explanatory framework and explanation of case study outcomes.	11

Table 3.1 Six-Step CR Methodology

3.3 Research Design

3.3.1 Research Design Framework

Yin (1994, p.20) indicates the purpose of a research design as "to avoid the situation in which the evidence does not address the initial research questions. In this sense, a research design deals with a logical problem and not a logistical problem." The logic is the " sequence that connects the empirical data to a study's initial research questions and, ultimately, to its conclusions." (1994, p.19). Robson (2002, p.42) starting from a realist perspective on social research offers framework for a research design which is consistent with Yin's point about ensuring the research is focussed on answering the research question. There are five components in the framework: purpose(s), theory, research question, methods and sampling strategy. The framework is illustrated in Figure 3.3 Research Design Framework while the key questions associated with each component are summarised in Table 3.2 Research Design Components.

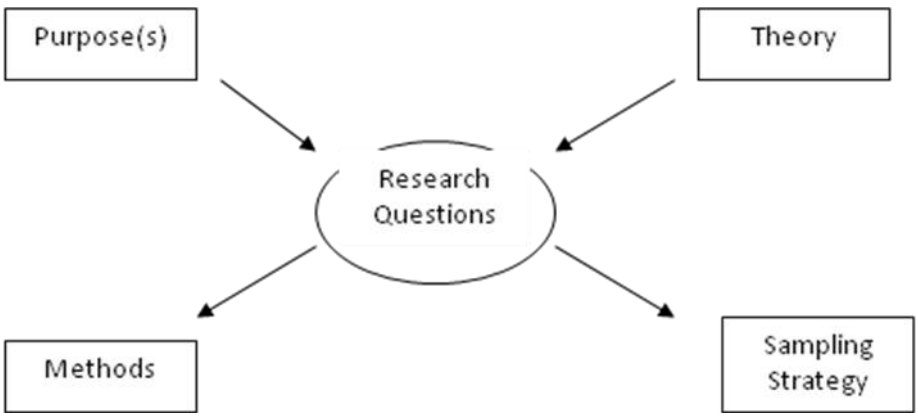


Figure 3.3 Research Design Framework (Robson 2002, p.82)

Component	Key Questions
Purpose(s)	What is the study trying to achieve? Are you seeking to describe something, or to explain or understand something?
Theory	What theory will guide or inform your study? How will you understand the findings? What conceptual framework links the phenomena you are studying?
Research Question	To what questions is the research geared to providing answers? What do you need to know to achieve the purpose(s) of the study?
Methods	What specific techniques (e.g. semi-structured interviews, participant observation) will you use to collect data? How will the data be analysed? How do you show that the data are trustworthy?
Sampling	From whom will you seek data? Where and when?

Table 3.2 Research Design Components (After Robson 2002, p.81)

3.3.2 Purpose

The purpose of the research is to explain the outcomes of SISP projects in the four case studies and to develop a realist theory of SISP. In CR the purpose of social scientific research is explanatory, descriptive and non-predictive (Bhaskar 1998a p.45). Such research seeks to "portray an accurate profile of persons, events or situations" and it seeks "explanation of a situation or problem" (Robson 2002, p.59). In CR, explanation means identifying the causal mechanisms that produce the phenomenon of interest (Parker, Mars, Ransom and Stanworth 2003, p.187). Robson (2002, p.38) states:

> The desirable end-state of this process for realists is that you come up with one or more postulated mechanisms which are capable of explaining the phenomena; that, from the research, you have good reason to believe in their existence; and that you can specify the contexts in which these mechanisms operate.

Furthermore in relation to specific cases, "The outcomes can be used to support the existence of particular mechanisms in the context studied, even if they could not be predicted." (Robson 2002, p.65). However the effects of a given causal mechanism

are contingent on the context of other causal mechanisms in the setting that may be active and which are responsible for events in the empirical domain (Easton 2000, p.210). Robson (2002, p.40) notes that "because we are dealing with open systems, we have to accept that we are dealing with tendencies and probabilities. Causal processes may sometimes, even usually, lead to particular outcomes. But on some occasions, and in some circumstances, they may not." Hence causal mechanisms may counteract or block each other in the process of producing final outcomes in a particular case (Robson 2002, p.38) . Thus to be sufficient, explanation must describe the interaction between causal mechanisms (Parker, Mars, Ransom and Stanworth 2003, p.10) that produces final outcomes.

Accordingly the purpose of the research for this thesis is not to test specific propositions or hypotheses about SISP drawn for example from existing theory. Rather the purpose is to provide an explanatory account of the outcome of SISP projects in the case study organisations in terms of retroduced causal mechanisms that interact. The set of causal mechanism is then used as a basis for a realist theory of SISP, which better explains outcomes of SISP projects than the theory of comprehensive SISP or the incremental model of SISP.

3.3.3 Theory

As discussed in chapter two and section 3.1 of this chapter the metatheory that will guide and inform the study is Critical Realism (Baskhar 1998, Archer et al 1998). Archer's (1995) realist theory of social change, morphogenesis, which is consistent with the CR metatheory will be used to understand the dynamics of social structure and agency within organizations. A realist form of discourse theory (Fairclough 2003, 2005; Chiapello and Fairclough 2002) is also referenced to assist in the understanding of discourses relevant to SISP. In chapter four, literature review, four concepts of strategy (Mintzberg 1987) are examined for their influence on SISP theory. The theory of comprehensive SISP (Lederer and Salmela, 1996) and the incremental model of SISP (Salmela and Spil, 2002) are subject to immanent critique in chapter five.

The conceptual framework that will link theory and the phenomena is a realist conception of SISP as an intervention by one or more organizational groups into the

pre-existing set of social structures, influential ideas and discourses and the agents (other individuals and groups) of the organization. Outcomes can be explained as the result of the interaction of causal mechanisms in this setting so that the research will seek to theorise these causal mechanisms to provide a realist theory of SISP. The conceptual framework is developed in Chapter 5 Immanent Critique where existing theories of SISP and strategy are critiqued however Figure 5.3 A Realist Conceptualisation of SISP is reproduced as Figure 3.4 to illustrate the framework for the purposes of methodology considerations. This conceptual framework draws on the work of Pawson and Tilley (1997), which is realist in orientation but focussed on program evaluation. Pawson and Tilley (1997, p.58) develop a context, mechanism and outcome (CMO) model to understand how specific social program interventions aim to produce certain kinds of outcomes in social settings. A SISP project can be understood similarly as an intervention into an existing social setting namely the organisation.

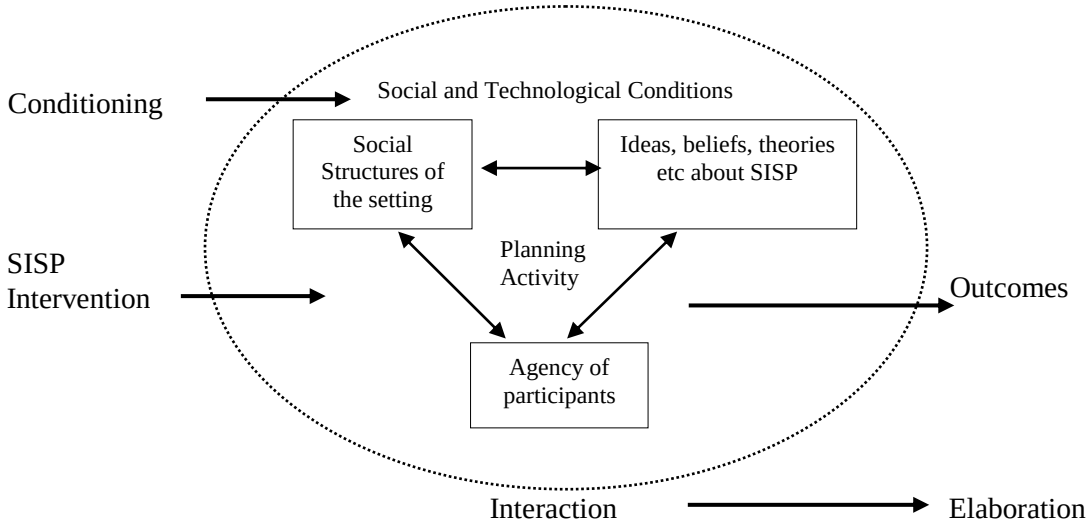


Figure 3.4 A Realist Conceptualisation of SISP

3.3.4 Research Question

The research question is "What are the causes of the outcomes of attempts to develop and implement strategic IS plans in organisations?" The question directs attention to a causal analysis of the way in which SISP projects generate particular outcomes. Answering the research question involves a number of research tasks which have been indicated in section 3.1 and 3.2.1 but are briefly restated here. First a study of the

SISP process over time. Easton (2000, p.211) who uses a realist approach comments "Case studies need to be concerned with dynamics and time if they are to be explanatory in either Yin's or a realist sense. A realist can only identify casual mechanisms if they operate to cause events to happen, a time-based phenomenon." A close study of the process will also reveal the range of possible outcomes. The second requirement will be to understand the agency of individuals and groups in relation to the projects to develop strategic IT plans. Tsoukas (1989, p.558) identifies one aspect of doing this as "asking for the actors' accounts as to why the actions under investigation have taken place." Related to the second requirement is the need to understand the influential ideas and discourses that condition the actions of agents or as Parker, Mars, Ransom and Stanworth (2003, p.186) put it there is a need to recognise "that culture and subjective meaning condition action and that therefore actors' own understandings of what they are doing must play a part in explanation." These last two requirements involve hermeneutic analysis. Finally, it will be necessary to identify the relevant social structures in the setting that constrain and enable the agency of actors. This will involve the use of abductive and retroductive reasoning. On the basis of the findings in relation to each of these requirements it is anticipated that it will be possible to theorise plausible causal mechanisms. Their contingent interaction in each case will provide the material for a realist explanation of outcomes to answer the research question and corroboration of the proposed mechanisms and structures will be sought by a cross comparison of the findings from each of the four case studies.

3.3.5 Sampling

A multiple case study design is adopted using four cases drawn from three government organisations. The author conducted two case studies in the first organization and one each in the other two organisations. The case studies varied in length from twelve months to two years during the period 2002 to 2006. The author was an employee of the first organization.

Appropriateness of Case Studies for Realist Research

Case studies are particularly appropriate for intensive research based on CR (Tsoukas 1989; Tsang & Kwan 1999; Dobson 2001b) because they provide an opportunity to

focus in depth on the mechanisms and their interaction that lead, in a causal way, to observed outcomes. Tsoukas (1989) states ""within the realist paradigm, explanatory idiographic studies are epistemologically valid because they are concerned with the clarification of structures and their associated generative mechanisms" Tsoukas (1989, p.556). Furthermore case studies allow an examination of the contingent activation of causal powers which is important in understanding the unpredictability of outcomes from the interaction of causal mechanisms (Tsoukas 1989, p.559). Ackroyd (2004, p.157) notes the importance of using the case study approach in realist research to capture contextual aspects and Harrison and Easton (2004, p.195) note the important ability of case studies to capture the temporal dimension of the play of causal powers. Case studies can also be used for generalisation in critical realist studies because as Ackroyd (2004, p.157) points out the objective is to generalise about the presence of causal mechanisms in other settings even as their activation is contingent on contextual aspects.

Unit of Analysis

Yin (1994, p.21) recommends clear identification of the unit of analysis in a case study research design. The unit of analysis in this theis is the SISP project and those organizational groups responsible for the strategic management of IT in the case study organizations including consultants hired by these groups to develop IT strategic plans and business owners of existing computer systems. Three of the cases were of SISP projects while one case was focussed on the implementation of an initiative originating from a recently completed SISP project. The data for the case studies was sought from these individuals and groups responsible for the strategic management of IT in the case study organizations.

Selection of Cases

Bergene (2007, p.15, 22) who discusses a CR based comparative analysis approach, suggests cases should be chosen for their theoretical interest in relation to the theory or phenomenon of interest so that there is the potential to reveal different aspects of possible structures and mechanisms. The first case was theoretically interesting because the SISP project was conducted by the group usually associated with SISP, the senior IT management group, and it was confined to their own division (Corporate

Services). As the corporate centre of IS management expertise as well as SISP expertise it would be expected that such a project with its manageable scope would have a high chance of a successful outcome.

Unlike case one the scope of the SISP project in case two was the entire department including the service delivery entities (schools) and the Government intervened during the project to reduce administrative staff numbers by 25% and made two changes of Secretary. Hence case two is theoretically interesting from the point of view of the impact of more stakeholders on the SISP process and outcomes, as a result of its whole of department scope, and the viability of SISP projects in turbulent organizational environments (Salmela, Lederer and Reponen 2000).

Case three was different to the other cases because the approach to SISP in the department had been informed by a Knowledge Management (KM) philosophy and orientation. This case was theoretically interesting because organizational learning has been identified as an approach for SISP (Huysman, Fischer and Heng 1994) and it provided a contrast to the traditional rational planning approach to SISP.

Case four was different to the other cases because a business division managed the SISP project rather than the corporate IS group. The case is theoretically interesting because the concept of alignment between IS and business needs is arguably the major goal of rational SISP theory. A business driven SISP project should have a greater chance of achieving alignment than one driven by the corporate IS group.

Reliability of Case Studies

For Yin (1994, p.36) reliability refers to the extent to which a study could be repeated in such a way that if the original research procedures were followed a different researcher would arrive at the same findings and conclusions. Yin recommends three ways of for increasing the reliability of the research, the use of a case study protocol, establishing a case study database and using chains of evidence. The case study protocol is effectively the overall operating plan for the conduct of the case study (Yin 1994, p.64-65). The purpose of the case study database is to increase the reliability of the entire case study. (Yin 1994, p.95). There are four components of a case study database: notes, documents, tabular materials and narratives. The objective of the chain of evidence is to allow the reader to follow the application of the case study

protocol, indicate the actual evidence used to derive conclusions and make clear references to the relevant documentary evidence. Since these recommendations of Yin are not inconsistent with a critical realist perspective this thesis adopted all three approaches of Yin (1994) for increasing the reliability of the study.

Validity of Case Study Research

Robson (2002, p.171-172) suggests that validity of research can be enhanced by consideration of alternative explanations of the phenomenon. In a realist analysis other extant theory relevant to the phenomenon is considered in the course of providing an immanent critique. From a theoretical point of view the thesis considers the two main alternative theories in the SISP literature: comprehensive and incremental SISP (Salmela and Spil 2002). These theories constitute 'rival explanations' which will be evaluated for their consistency with a realist conception of the object of research during the immanent critique stage.

Robson (2002, pp.172-173) cites the work of Padgett (1998, p.95) who recommends six strategies to address the problems of reactivity (effect on the setting), respondent and researcher bias. The strategies and their effects are summarised in Table 3.3 Strategies to reduce Reactivity, Respondent and Researcher Bias. The table also shows whether the strategy was adopted or not.

Strategy	Adopted	Reactivity	Researcher Bias	Respondent Bias
Prolonged Involvement	Yes. In case study one, two and four.	Reduces threat	Increases threat	Reduces threat
Triangulation	Yes. Used data triangulation and theory triangulation.	Reduces threat	Reduces threat	Reduces threat
Peer debriefing	Yes. Presentations at conferences, to PhD students and academic supervisors	No effect	Reduces threat	No effect
Member checking	Not used.	Reduces threat	Reduces threat	Reduces threat
Negative case analysis	Not used.	No effect	Reduces threat	No effect
Audit Trail	Yes.	No effect	Reduces threat	No effect

Table 3.3 Strategies to reduce Reactivity, Respondent and Researcher Bias (Robson 2002, p. 174)

The first, second and fourth case studies all involved prolonged involvement in the setting. (This is also discussed in the method section). Three methods of data collection were used for the first, second and fourth case studies constituting a form of data collection triangulation. The third case study was based on key informant interviews. Two other theories of SISP (coimprehensive and incremental) are assessed as rival explanations for the outcomes of the case studies so this can be seen as a form of theory triangulation. Peer debriefing presentations were made to conferences, academic supervisory staff and other PhD students. Member checking and negative case analysis were not used but an audit trail in the form of a case study database was kept. In summary a sufficient number of the strategies were used to provide some protection against all three types of bias.

Finally Robson refers to researcher reflexivity to counter bias arising from the researcher's background and social values (2002, pp.172 – 173). Robson cites the work of Ahern (1999) who offers ten suggestions on how to use reflexivity to counter researcher bias. These cover areas such as personal value conflicts, potential role

conflicts with interviewees, over-representation of particular viewpoints in the case study report, lack of neutrality in responding to case study observations and interviews, selective use of evidence that supports a preferred rather than balanced interpretation and the possibility of taking sides in participant issues. Ahern's recommendation implies that the researcher first reflects on possible sources of self bias and then makes a conscious effort at all times to counter the bias. The author regularly reflected on these potential sources of bias during the data collection and the writing of the final thesis report.

3.3.6 Methods

The study used four methods of data collection: participant observation (case 1), non participant observation (case 2), interviewing (all cases) and document review (all cases). The application of each of these methods is summarised in Table 3.4 Case Study Data Collection Methods. The advantages, disadvantages and remediation for these data collection methods are discussed in the fullowing subsections. The issues with and measures to ensure the trustworthiness of the data are discussed in the Reliability and Validity sections.

The data were analysed in a two - stage process. First, an initial analysis to identify key themes from the observations and interviews and indications of causal factors captured in memos. A narrative of the case study was then compiled. The second stage involved analysis of influential ideas and retroduction or counterfactual thinking to theorise causal mechanisms. The advantages, disadvantages and remediation for these data analysis methods are described in more detail in the Data Analysis section. The extent to which the findings are generalisable to other settings is discussed under the Generalisation section.

Method	Case 1	Case 2	Case 3	Case 4
Observation	Practitioner - Participant	Non-participant	Not used	Stage 1 Initial practitioner participants. Not used in subsequent stages.
Interviewing	Consultants and departmental participants.	Consultants and departmental participants. Key informant interviewed regularly.	Key informant interviewed regularly.	Consultants and departmental participants. Retrospective account based on interviews with participants.
Document Review	Consultancy documentation Departmental records, meeting minutes, previous IT plans	Consultancy documentation Departmental records, meeting minutes, previous IT plans	Departmental IT plan	Consultancy documentation Departmental records, meeting minutes, previous IT plans

Table 3.4 Case Study Data Collection Methods

3.3.6.1 Participant and non-participant observation

Robson (2002, p.319) notes that observational data collection techniques and particularly participant observation are associated with questions about how things happen such as "How does a committee come to decisions?" Yin (1994, p.88) notes that observation as a data collection method allows the researcher to "gain access to events or groups that are otherwise inaccessible to scientific investigation" and "perceive reality from the viewpoint of someone "inside" the case study rather than external to it." Accordingly the author's objective in using observational techniques was to:

- Gather evidence of the process of strategic decision making
- Note key turning points or events in this process
- Gather evidence of the interaction of agents and the consequences of this interaction

The author is an experienced SISP practitioner who was closely involved in the project to develop a strategic IT plan for case study one. In this respect the author fits what Robson (2002, p.534) calls the practitioner – researcher role. Robson (2002, p.318) comments on the advantages and disadvantages of such a role:

> Your knowledge of the group's ways may well be extensive, but there is a corresponding problem in achieving anything approaching objectivity if you are already a native. Similarly, existing relationships with individuals can short-circuit a lengthy process of development of trust; but it may prove difficult for others to see you in your new role as observer, and there may be an artificiality and hesitancy in seeking to get shared understandings explicit and out into the open.

The level of involvement in the SISP project, which formed the first case study was very high. The author participated in approximately thirty of the consultant interviews with key stakeholders, contributed personally to the formation of the IT strategy and the project briefs for its implementation. The author was present in all project steering committee meetings and responsible for preparing minutes of these meetings which were reviewed by members of these committees. The author was also present at the departmental board meeting which approved the strategy and allocated a multi-million dollar funding package. In case study two the research role of the author was more akin to a non-participant observer. Robson (2002, p.317) describes this mode of observation as 'participant as observer' and where it is important to secure the trust of the members of the group under observation.

Yin (1994, p.80) and Robson (2002, p.311) both note that a major issue with observation as a data collection technique is "the extent to which an observer affects the situation under observation" so that the behaviour of the observed for example no longer reflects what they would otherwise do in the absence of the researcher. There are also potential problems of observational bias "All perceptual processes involving the taking in of information by observation and its subsequent internal processing are subject to bias. … Our *interests, experience and expectations* all affect what we attend to." (Robson 2002, p.324). This can lead to a tendency for selective attention to aspects of the setting, selective coding of what is taken to be significant and selective memory when preparing written accounts of the observations.

Response to Disadvantages

Robson (2002, p.324) suggests three measures to deal with researcher bias. In relation to the problem of selective attention "The basic message is to make a conscious effort to distribute your attention widely and evenly," in relation to the problem of selective encoding "start with an open mind - and keep it open," in relation to the problem of selective memory "The moral is clear. Write up field notes into a narrative account promptly" and in relation to the issue of selective contacts "the general strategy is to *seek to recognize and discount all biases*" (2002, p.325, italics in original). Robson (2002, p.328) notes two strategies for minimizing the effect of the observer on the setting, "*minimal interaction* with the group, and *habituation* of the group to the observer's presence". Robson (2002, p.328) also argues that although it is not possible to be totally sure that the researcher's presence has no effect some indicators that the impact is minimal are:

- The pattern of interaction stabilizes over sessions
- Members of the group appear to accept your presence to the extent that they do not seek interaction
- Group members say that your presence doesn't affect what is going on.

The author followed all of Robson's suggestions to minimize the effect of the author's presence in the two case studies where observation was involved and to minimize bias in the actual observations. In the first case the author made it clear that the project was to form a case study for the thesis the author's management role in the project meant that the research role was not strongly evident and group members tended to relate to the author more in his management rather than his research role. In the second case study which was more of a non-participant observer research role a high degree of trust was established because the author had previously been an employee of the department and in the organizational unit responsible for the case study project so was well known to a number of key participants.

Ethical Requirements

For the fuller participant role, which was more akin to the role played by the author in case study one, Robson (2002, p. 317) cites Kirby and McKenna (1989, p.78) "It is

essential that as a participant who is also a data gatherer, the researcher recognize the obligation to inform those in the setting about the research (i.e. what sort of research it is, for what purposes, and who is involved)." In case study two, which involved a 'participant as observer' role, Robson (2002, p.317) indicates the requirement that "The fact that the observer is an observer is made clear to the group from the start." This ethical requirement to advise all groups of the author's research and data gathering activity was fulfilled in all four case studies. The author obtained official permission from the Director of the branch in each case and this authorised discussions with senior members of staff. This was done by a formal process of written permission and by reconfirming informally on several occasions especially when group members were interviewed.

3.3.6.2 Interviewing

In relation to the hermeneutic requirement to understand participant's meanings and their interpretation of the case, the data collection approach used semi-structured interview formats to allow the participants opportunity to express themselves fully on their role and understanding of the SISP process. The author of this thesis sought a clear understanding of the motivations and understandings of the individuals involved in the SISP process as a basis for understanding the role of agency in the causal mechanisms shaping this process. A realist research approach assumes that agents are a key element of any causal explanation in a social setting so the unique contribution of each participant to the case study outcomes was sought.

Yin (1994, p.85) argues that interviews "are an essential source of case study evidence" because "well informed respondents can provide important insights into a situation." (1994, p.85). These insights can provide "perceived causal inferences" (Yin 1994, p.80) which is particularly relevant to a realist analysis. Robson (2002, p.271 citing King 1994, pp. 16-17) indicates where interviews are appropriate:

- Where individual perceptions of processes within a social unit – such as a work – group, department or whole organization – are to be studied prospectively,
- Where individual historical accounts are required of how a particular phenomenon developed – for instance, a new shift system.

In considering the effective use of interviews in research Kvale (1996, p.20) argues for "a methodological awareness of question forms, a focus on the dynamics of interaction between interviewer and interviewee, and a critical attention to what is said."

Types of Interviews

There are at least three types of interviews, fully structured, semi – structured and unstructured and these reflect decreasing levels of control by the interviewee. (Robson 2002, p.270). In fully structured interviews the interviewer follows a set of predetermined questions much like a questionnaire. In semi-structured interviews there are predetermined questions but the format is more flexible so that not only the order of questioning can be changed but questions may be omitted or new ones introduced during the course of the interview in response to the interviewee's comments. This format allows for unexpected themes to be explored. The unstructured interview is more like an informal conversation about "a general area of interest and concern" (Robson 2002, p.270). The research for this thesis used semi-structured and unstructured interviews.

Key Informants

Robson (2002, p.271) and Yin (1994) identify a particular type of interviewee known as the key informant. Yin argues that the more an interviewee goes beyond being a "respondent" by providing the researcher not only "with insights into a matter but also can suggest sources of corroboratory evidence – and initiate access to such sources" the more they become an informant. However Yin warns against becoming over reliant on a key informant "because of the interpersonal influence – frequently undefinable – that the informant may have over you." (1994, p.84). Key informants were used in the second and third case studies.

Key informants were used in the second and third case studies. In the second case study the key informant was the project manager. Meetings were held every two weeks with this person for about one hour at which progress on the SISP project was reviewed. This provided very detailed and current insight into the progress and issues arising. Specific interviews were then held with individual decision makers as well as the key consultants leading the project team. Finally the author was a non-participant

observer at several key meetings at which key decisions were or were not made. In the third case, a senior manager from the first case study setting introduced the key informant to the author. The key informant then introduced the author to the two senior managers responsible for the development and implementation of the departments strategic IT plan although the author had previously met one of these senior managers at other forums.

Selection of Interviewees

As noted in the discussion of sampling in the Research Design section, interviewees were chosen on the basis of their involvement in the SISP process and their familiarity with the ideational aspects as suggested by Spradley (1979). However, not all relevant actors were interviewed. Access to the departmental Secretary in all cases was not possible so this represents one limitation of the study's empirical data. The total number of interviews conducted for each case study including those with key informants is given in Table 3.5 Case Study Interview Totals.

Case	Title	Number
1	A Corporate Services IT Plan	30
2	A Departmental IT Plan	21
3	Implementing an IT Plan	15
4	Corporate v Business Unit IT Plan	15
Total		

Table 3.5 Case Study Interview Totals

Questioning

Questioning is an important aspect of interviewing (Kvale 1996, pp. 131-135; Robson 2002, p.272). Robson (2002, p.272) distinguishes between questions, which seek to find out what the interviewees "know, what they do, and what they think or feel." The associated questions are, respectively, "concerned with *facts*, with *behaviour*, and with *beliefs* or *attitudes*." (Robson 2002, p.272, italics in original). Robson (2002, p.275) advises interviewers to avoid long, jargon-filled, double-barralled and biased questions. For Kvale the characteristics of a good interview question are that it contributes "thematically to knowledge production and dynamically to promoting a

good interview interaction". (Kvale 1996, p.129). Both Robson (2002, p.275) and Yin (1994, p.85) warn against the use of leading questions because this potentially undermines "the corroboratory purpose of the interview" but Kvale (1996, pp. 158-159) defends their appropriate use: "the qualitative research interview is particularly well suited for employing leading questions to check repeatedly the reliability of the interviewees answers, as well as to verify the interviewer's interpretations." (Kvale 1996, p.158).

All interviewees were provided with a copy of the questions before the interview and advised that the interview would take between forty five to sixty minutes. The questions were primarily concerned with all three types of information: facts, behaviour and beliefs. This corresponded to the focus on understanding the agency of interviewees, their motivating reasons and beliefs and what they saw as causally relevant in terms of enabling and constraining the process of SISP. Hence the questions did seek to understand what actors perceived to be the important retarding and supporting factors in the achievement of particular objectives. A copy of the questions used throughout the interviews is given in Figure 3.5 Questions to Interviewees.

Thanks for agreeing to meet me next week. I appreciate the time you are making available.

I'd like to make the discussion semi-structured, around some prepared questions, which attempt to understand how the process of planning interacts with the organisational context to produce expected and unexpected outcomes. The aim is to understand the causal factors that lead to certain outcomes:

1. What aspects of the context supported the process of planning and what aspects were not supportive?

2. What approach did you adopt to keep the process moving/on track?

3. What unanticipated events occurred and what actions did you take in response?

4. What factors were important in the final outcome?

5. How did your initial vision of the outcomes compare with the actual outcomes?

6. What were the key concepts in the strategy that influenced stakeholders?

7. Were there any key decisions or events that shifted the direction of the development project?

Figure 3.5 Questions to Interviewees

Recording the Interview

Robson (2002, p. 274) advises "It is … essential that you take a full record of the interview. This can be from notes made at the time and /or from a recording of the interview." Kvale (1996, p.161-162) suggests that note taking during the interview rather than tape recording is an acceptable method for recording interview information. However, when tapes are not used Robson (2002, p.171) comments, "the quality of your notes is very important". Tape recording was not used during the interviews. Many of the issues discussed were confidential and affecting other actors so that the political sensitivity of the subject matter was such that interviewees would not have been as forthcoming had their comments been taped.

Interviewee comments were transcribed by hand during the interview and written up fully on the same day to minimise information loss due to memory recall problems. Robson (2002, p. 324) advises "A good basic rule is that you should always prepare the detailed notes of the full report within twenty-four hours of the field session, and

certainly never embark on a second observation session until you are sure that you have sorted out your notes for the first one." This advice was followed by the author.

Interviews varied in location. Some were held in the interviewee's formal office but most were held in semi-official locations such as meeting rooms or outside of the building in local cafes or over lunch. Alvesson and Deetz (2000, p.195) refer to the work of Easterby-Smith, Thorpe and Lowe. (1991) which showed "several examples of how managers seem to respond more openly and freely when interviewed outside their offices on more neutral ground, for example in a restaurant or in a first-class compartment on a train." The thesis also draws on a number of informal conversations, including some which were held on trains, with staff in the department who had some interaction with the SISP project for the first case study.

Ethical Considerations in Interviewing

The confidentiality of interview information is important to interviewees and especially where sensitive or confidential material may be discussed. Robson (2002, p.502) recommends taking "reasonable precautions to ensure anonymity" of interviewees. This involves disguising the identity of interviewees or other aspects of the interview information "without making major changes of meaning" (Kvale 1996, p.260). There must also be informed consent on the part of interviewees so that they are aware about the use of the information they provide during the interview (Kvale 1996, p.112). All interviewees were informed of the purposes of the research and ensured of their anonymity prior to the interviews taking place.

Reliability of Interview Information

Yin (1994, p.80) indicates three potential reliability problems of interviews. Information produced in interviews can be biased as a result of the poor formulation of interview question, interviewees responding to questions in a biased or insincere way and inaccurate transcription and analysis of interview notes. Yin's suggestion for countering these problems "is to corroborate interview data with information from other sources" (Yin 1994, p.85). Robson (2002, p.273) notes that bias can arise from the lack of a standardised approach to the interview. One way of improving standardisation of the interview process is to use an interview guide, which sets out the topics to be covered and the associated questions (Kvale 1996, p.88). Kvale

(1996, p.235) sees reliability in terms of the consistency of research findings and being important at the interviewing, transcription and analysis stages. As discussed above a standard set of questions was used for all semi-structured interviews and the data form the interviews was compared with observations and in conjunction with the review of relevant documents.

3.3.6.3 Documentation

Yin (1994, p.81) comments, "documentary information is likely to be relevant to every case study topic." This includes such documents as letters, organizational files and records, agendas and minutes of meetings, memoranda, reports, project proposals, newspaper reports, magazine articles, speeches, books and formal studies (Robson 2002, p.351; Yin 1994, p.81). More recently emails can be a documentary source of important information. The types of documentation for each case study in the thesis is summarised in Table 3.6 Documentation in the Case Studies.

Case 1	**Case 2**	**Case 3**	**Case 4**
Consultancy documentation Departmental files, meeting minutes, previous IT plans, emails.	Consultancy documentation Departmental records, meeting minutes, previous IT plans	Departmental IT plan	Consultancy documentation Departmental files, meeting minutes, previous IT plans, emails

Table 3.6 Documentation in the Case Studies

Like Robson (2002, p. 349), Yin (1994, p.81) says the most important role of documents is to "corroborate and augment evidence from other sources." Where documentary evidence contradicts other sources this indicates the need for further investigation. An important disadvantage of documentation for the researcher is the fact that documents may be biased, incomplete or inaccurate in relation to the subject of the research. Yin (1994, p.82) warns of the problem of misinterpreting the status of the document and its significance in terms of the original purpose of the document, for whom it was written and the historical context. Documentary evidence "reflects a communication among other parties attempting to achieve some other objectives" (Yin 1994, p.82). Accordingly in order to minimise the risk of misinterpretation Yin suggests researchers should maintain a critical stance to the document and always try to appreciate the conditions of its production. (Yin 1994, p.82).

Alvesson and Skoldberg (2000, p.70-74) discuss the historiographic method of source criticism from objective hermeneutics as a way of evaluating the reliability and validity of documentary evidence. In source criticism the objective is to assess the extent to which the source of information about past events has been distorted between the reality that produced the source and the researcher. Source criticism involves a distinction being drawn between remnants and narrating sources. Remnants are regarded as of greater worth than narrating sources because remnants are less likely to be have been exposed to subjective distortion. The author followed the advice of Yin (1994), Alvesson and Skoldberg (2000) and Robson (2002) above to establish the validity and reliability of the documentary sources during the research for this thesis.

3.3.6.4 Data Analysis

In this thesis the data analysis is in two stages. First, a preliminary analysis at the empirical level, the reconstruction of the sequence of events that lead to outcomes and second, at the structural level in terms of hypothesised but plausible mechanisms, which in interaction produced the events at the empirical level. The preliminary analysis involves:

(i) An initial identification of important elements within the case such as key events and what led to them, key actors, contextual conditions, issues, processes of interaction, intermediate and eventual outcomes.

(ii) On the basis of (i) compilation of the case study narrative as a description of the empirical manifestation of the phenomenon.

(iii) Abstraction of necessary relations to identify social structures

Step (ii) provides the case study narrative, which is the empirical account of what happened in the organisational setting when one set of actors attempts the development and implementation of strategic information systems plan. However by itself a narrative account, as in purely interpretive case studies of the phenomenon, is insufficient in realist terms to explain properly the causes of the phenomenon (Sayer 2000, p.142). The thesis uses five further steps in the second analytic stage:

(iv) Use of a hermeneutic perspective to identify key ideas and discourses held or influential on agents and their constraining and enabling effects

(v) Use of Archer's morphogenetic theory of social change to understand the necessary compatibilities and incompatibilities of agential situations

(vi) Retroduction of causal mechanisms using counterfactual questions and abductive reasoning

(vii) Compilation of the realist explanation of outcomes in terms of social structures and causal mechanisms

In step (iii) of the analysis structural relationships are identified through a process of thinking referred to as abstraction because a given phenomenon may be brought into existence as a result of many 'forces and processes' (Sayer 1998, p.123). This means it is necessary to abstract (Sayer 1992, 2000) the contingent from the essential in order to properly understand the way it is constituted particularly in terms of structural relationships between component social objects. Counterfactual thinking can be used in which questions are asked about whether observed or empirical associations of things are necessary or contingent. (Sayer 2000b). Step (iv) involves a focus on the key ideas, concepts, beliefs, theories, arguments etc that constitute reasons for agential behaviour and actions.

Drawing on the structural analysis of step (iii), step (v) draws on Archer's (1995) morphogenetic theory to understand the way structural circumstances of the agents constrain and enable their activity. The two elements in Archer's theory applicable to the case study are the social structural concepts of first and second order emergents. These relate to the emergent properties of people, structure and the cultural system. In the process of social interaction these properties result in the second two concepts of complementarities and incompatibilities. First order emergents refer to "current situations. They account for what there is (materially and culturally) to be distributed and also for the shape of such distributions; for the nature of the extant role array; the proportions of positions available at any time and the advantages/disadvantages associated with them." (Archer 1995, p.201). First order emergents refer to situations people find themselves in but these are subject to the effects of second order

emergents so that situations "change involuntaristically as other structural influences impinge upon them" (1995, p.202). Typical effects include

> A mismatch of values, inflation, over-production, shortages of skills … These effects result from second-order emergent properties, that is relations between institutions or organizations, whose powers are exercised through re-shaping the situations which different sections of the population have to face (by virtue of their association with the respective institutional operation or identification with organizational projects and with which they then have to deal strategically.

These conditions create one of two basic situations for people in the social structure of a given setting: incompatibilities or complementarities. At the second order emergent level where incompatibilities form "strains are experienced as … operational obstructions which translate into practical problems, frustrating those upon whose day – to – day situations they impinge … which hinder the achievement or satisfaction of their vested institutional interests." (1995, p.215). On the other hand complementarities result in a "series of rewarding experiences. The goals which agents pursue and the tasks they undertake by virtue of their roles can be accomplished in a problem – free manner." (1995, p.215).

These conditions lead to a 'situational logic' for people "predisposing different sections of the population to see their interest served by defensive, concessionary, competitive, or opportunist modes of interaction." (1995, p.217). Archer argues that the presence of incompatibilities and complementarities helps identify the 'potential loci' of social change or stasis (1992, p.215) however she emphasises the importance of the relative power of interacting groups which influences whether there will be social change or stasis: "Power itself is profoundly influenced by the relations between first and second order emergents: that is between the shape of distributions (first order) which determine the bargaining power of those groups involved in compatibilities or complementatirites (second order) and their negotiating strength vis-à-vis each other." (1995, p.217). Horrocks (2009) summarises these ideas in a diagram, which incorporates the three stages of a morphogenetic analysis: conditioning (time = T1), interaction (time = T2 – T3) and elaboration or stasis (time

= T4) (Archer 1995, p.160). Horrock's diagram is reproduced in Figure 3.6 Relationship Between First and Second Order Emergents, Interactions and Outcomes.

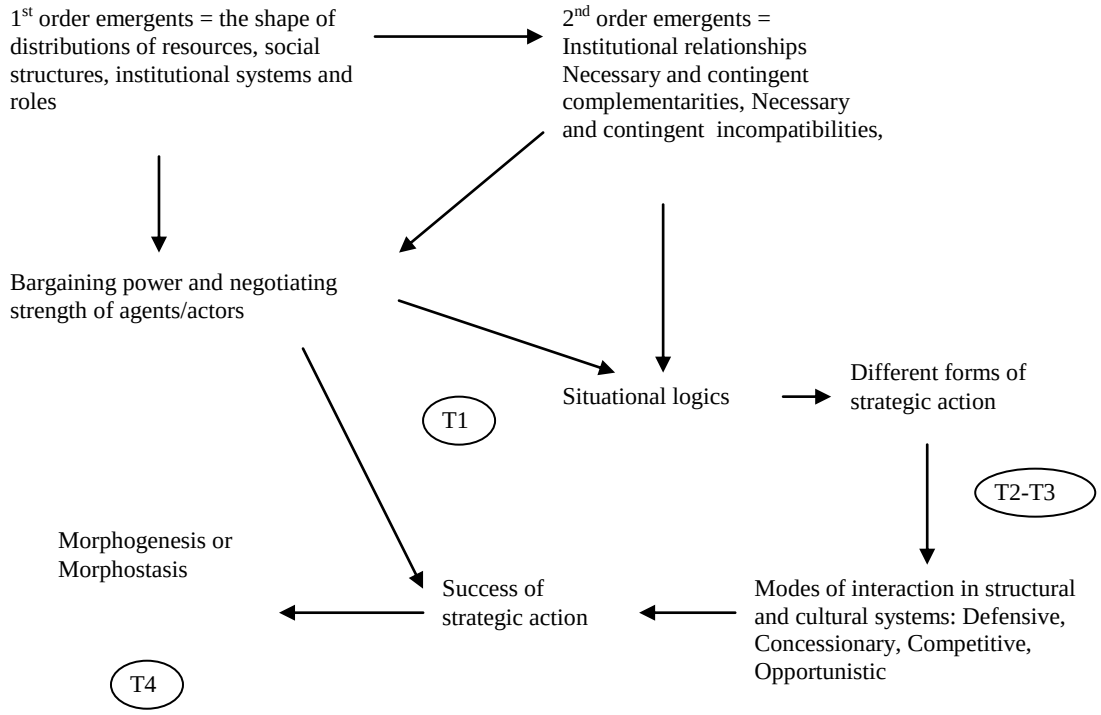


Figure 3.6 Relationship Between First and Second Order Emergents, Interactions and Outcomes (Horrocks 2009, p.43)

In step (vi) retroduction is used to identify causal mechanisms. Bhaskar (1998, p.129) describes retroductive reasoning as a process that proceeds from the observed events and effects of the phenomenon to the causal mechanisms which emerge from the structural, agential and ideational context. Retroduction is a process of reasoning similar to abduction (Danermark 2002, et al) which moves from effects to possible causes not unlike the process of medical diagnosis of illness by doctors. Danermark, Ekstron, Jakobsen and Karlsson (2002, p.90-91) comment that "abduction becomes a manner of acquiring knowledge of how various phenomena can be part of and explained in relation to structures, internal relations and contexts which are not directly observable. Such structures cannot be derived either inductively or deductively." Lawson (1997, p.212) says that in using retroduction "The goal is to posit a mechanism (typically at a different level to the phenomenon being explained) which, if it existed and acted in the postulated manner, could account for the phenomenon singled out for explanation." Pawson and Tilley (1997, p.68) note that the identification of causal mechanisms is in effect a postulation of new theory

because they are not variables "but an account of the make-up, behaviour and interrelationships" responsible for observed events." They can also been seen as "propositions about how mechanisms are fired in contexts to produce outcomes" (Pawson and Tilley 1997, p.85). Following Lawson (1997), Pawson and Tilley (1997) and Elder – Vass (2007a p.231; 2005, p.6) argue that to theorise a mechanism means to:

- Identify the object which has the causal power(s)
- Indicate the nature of the causal power(s), how these arise from the structure of the object and how it operates
- The conditions for the mechanism's triggering
- The effects the mechanism can produce in open systems

However Sayer notes, "In many cases the mechanism so retroduced will already be familiar from other situations and some will actually be observable. In others, hitherto unidentified mechanisms may be hypothesized." (Sayer 1992, p.107). Sayer (2000) gives some examples of the types of counterfactual questions that researchers can use to retroduce causal mechanisms:

> What does the existence of this object/practice presuppose? What are its preconditions, e.g. what does the use of money presuppose (trust, a state, etc.)? Can/could object A, e.g. capitalism, exist without B, e.g. patriarchy? … What is it about this object which enables it to do certain things: e.g. what is it about professional associations that makes them able to bid up the salaries of their members? Is it their specialized knowledge, their restrictions on entry into the profession or their domination by men? (Sayer 2000, p.16)

Step (vii) completes the analysis. The complete retroduction of causal mechanisms, their contexts, means of activation and the consequence of their interaction constitutes the explanation of the events of the setting and the theory of causality about it. At this stage Robson (2002, p.476) advises researchers to ask themselves whether the explanation is plausible and whether evidence can be found to confirm it. The

approach taken in this thesis was to seek evidence in the relevant literature in the form of other findings or theory that support the posited mechanisms.

3.4 Validity in Realist Research

Establishing the validity of posited causal mechanisms is important in order to support their plausibility. A posited causal mechanism is valid if it meets certain tests. For example it must be plausible that is it could, if it exists, produce the empirical effects. Other tests could include that it is clearly related to the entities constituting the phenomenon, for example a relevant social structure and that its conditions of activation (triggering conditions) are clear (Lawson 1997, p.217). Another test might be evidence in the literature for similar causal entities. In short validity of posited causal mechanisms is enhanced when a thorough and comprehensive explanation of the generation of causality with actual and/or empirical effects is given.

Emergence is a foundational concept in critical realism used to refer to the generation of causal mechanisms. Elder-Vass (2007a, 2007b) has argued that for a full explanation of causal mechanisms in a critical realist analysis, it is necessary to understand how causal powers are an emergent phenomenon of the structure of the entities that constitute the object of research. Hence "Emergent properties, also known as the causal powers of an entity, arise from the organisation of the entity's parts." (Elder-Vass 2007b, p.28). Elder-Vass (2007a, p.231) discusses what is required to establish the ontological validity of social theory which endeavours to provide causal explanation of social phenomenon. He calls this an emergentist ontology:

> To summarise, an emergentist ontology identifies a number of *structural elements* that we would expect to find in any object of scientific enquiry: *entities*, made up of *parts* (which are themselves entities), organised by particular *relations* between the parts, and possessing *emergent properties* in virtue of these relations. In order to explain these entities, relations and properties, we need to identify the *mechanisms* by which the parts and relations lead to the properties.

The structural elements and their meaning are described in Table 3.7 Structural Elements of an Emergentist Ontology. The thesis uses the categorisation of structural

elements provided by Elder-Vass to strengthen the validity claims for posited causal mechanisms particularly in the comparative analysis of the cases in chapter ten.

Structural Element	Description
Object	The research object or phenomenon of interest comprised of one or more entities.
Entity parts	The parts that make up the entity and the relationship between them that necessarily result in this type of entity
Properties	Emergent properties of the entity that result from the relationships between the parts.

Table 3.7 Structural Elements of an Emergentist Ontology

3.5 Generalisation in Realist Research

Sayer (2000, p.132) notes that critical realism "disassociates causality from regularity" and the study of causality is concerned with "the identification of necessity, regardless of whether it was instanciated repeatedly or just once." Corresponding to the focus on necessity in open systems is a focus on theories about structures and associated causal mechanisms. Sayer (2000, p.145) notes that realist studies have as the "basic objects of interest … not events (simple or complex) but structures". In particular it is interested in those structures "which are widely replicated and more context-independent. It seeks general explanatory theories … and is more concerned with the conditions of existence of particular structures than their specific contingent origins." The conditions for particular structures are transfactual conditions, which allow for both the manifestation of causality where conditions are conducive as well as where causality is not empirically manifest. Hence a transfactual is operative "'across' both closed and open situations" even when there are no actual outcomes. (Hartwig 2007, p.85). Sayer (2000, p.136) identifies a characteristic of realist generality as depending on "how common instances of the object are, and upon the circumstances or conditions in which objects exist, these determining whether the causal powers and liabilities of objects are activated, and with what effect.". Following Sayer and in line with the realist orientation of this thesis, generalisation will be sought by examining the extent to which structures identified in one case study are evident in the other case studies.

This will be approached using a realist form of case comparison based on Bergene (2007).

Comparative Analysis

Establishing the presence of structures and mechanism beyond the particular setting of a single case study can be approached through a multiple case study design using a comparative analysis. The comparison will show similarities and differences that can be explained by the contingent effects of causal mechanisms in each setting. As Tsoukas (1989, p.555) explains:

> Similarities between the units of analysis are explained by the generative mechanisms and the similar type of contingencies that have been responsible for the mechanism's' activation. Differences may be due either to the operation of different generative mechanisms or to the dissimilar contingencies within which the operation of a similar set of mechanisms has taken place. A different set of contingencies either "lines up" the postulated mechanisms in a different way or brings into operation a hitherto inactive set of countervailing mechanisms, thus generating a different set of phenomena.

Bergene (2007) has described a CR based approach to comparative case study analysis, which has two overall objectives. First, consistent with Tsoukas (1989, p.555) above, to show the contingent manifestation of the interaction of causal mechanisms in different case study contexts with a view to "discerning, in the end, the general as distinct from the contingent" (2007, p.22) and second, to refine and develop theory by "comparing the explanatory power of different theories on the same empirical data, or applying theories across several empirical fields" (2007, p.20). On this basis the steps in the comparative analysis are as follows:

1. A preliminary external comparison of similarities and dissimilarities between cases (2007, p.22)

2. An internal analysis of each case in its own context "engaging the particular unfolding of events" (2007, p.21), which may involve the use of extant theory

specific to the case to identify structures and mechanisms (2007, p.22). This is done in chapters six to nine of the thesis.

3. A combination of the internal analysis with the external analysis of (dis)similarities to explain the contingent operation of causal mechanisms and structures in different contexts (2007, p.23) and to refine the explanatory framework. This is done in chapter ten of the thesis.

3.6 Reliability in Realist Research

How then is reliable knowledge possible given the open system ontology of the social world? Two points are made briefly in response to this question. First explanations have to pass the test of practical adequacy. For Sayer this means theories:

> which work in other contexts, which are consistent with other knowledge and practices; our theories should explain the situation under study by giving an account of what produced it and not merely a way of 'deriving' or calculating the results (1992, p.71)

Postulated mechanisms, for example, explaining change in a given setting need to be plausible that is if they did exist they could account for the observed effects in the setting. A second approach is to test the practical adequacy of an explanation through a corroborative approach by examining other relevant but different cases to assess whether or not the posited social structures could be producing causal effects in these cases. This also constitutes a form of realist generalisation. In this thesis this is sought through the use of a realist comparative approach (Bergene 2007) described in the previous section and used in chapter ten.

A third test is explanatory power. The difficulty of the retroductive process is that more than one plausible explanation may result so the challenge is to determine which one is the best explanation. Lawson (1997) argues that the chosen explanation will be the one with the greatest explanatory power or the one that explains more about the given phenomenon than competing explanations: "that theory whose consequences appear mostly born out and which illuminates the widest range of empirical phenomena including any intersection upon which all competing theories have some possible bearing." (1997, p.213) Lawson suggests three approaches to testing a

retroduced theory's explanatory power. First, deduction "from any retroduced hypotheses those consequences or effects which would follow if the hypothesis were true and the mechanism operative." Second "checking out the various deduced consequences empirically." The third approach is to identify "the conditions of any explanatory mechanism and checking they are or were operative." (1997, p.213). The approach to establishing the reliability of findings from open systems research is illustrated in Figure 3.7 Reliability in Open Systems Research Methodology and indicates the iterative movement between the research at the empirical level, retroduction of mechanisms and structures and application of tentative explanations to other settings to achieve corroboration.

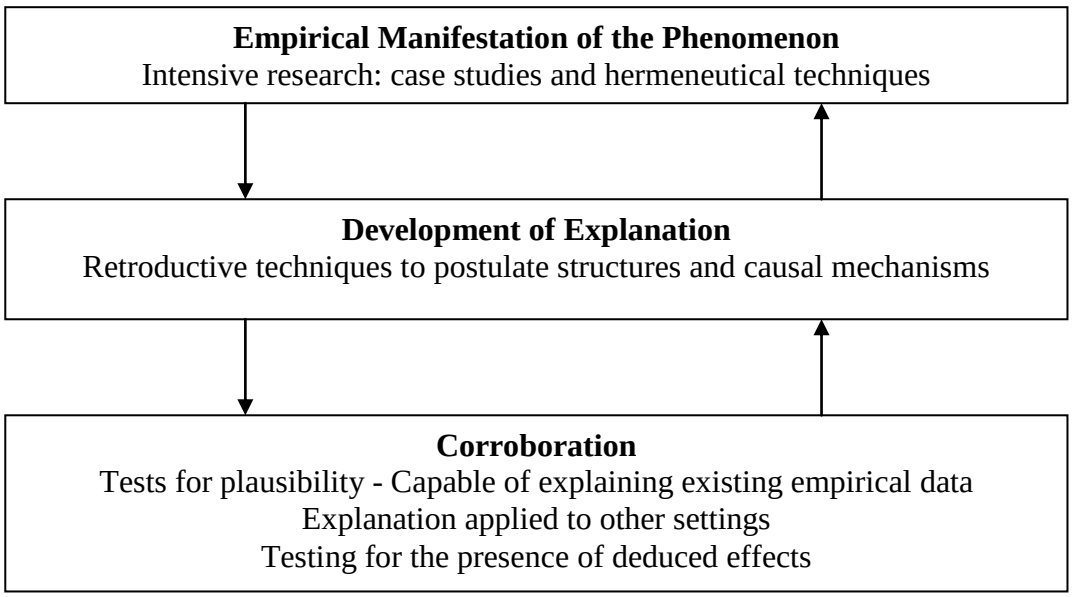


Figure 3.7 Reliability in Open Systems Research Methodology

3.7 Conclusion

This chapter has set out a critical realist methodology for the thesis. The overall objective of the methodology is to provide a strong basis for proposing and validating causal mechanisms that explain the case study outcomes and thus to provide a realist theory of SISP. The methodology has been informed by the recommendations and insights of leading critical realist researchers (Lawson 1997; Sayer 1992, 2000; Danermark et.al. 2002; Elder – Vass 2005, 2007a, 2007b; Fairclough 2003; Horrocks 2009). The methodology also draws on Archer's (1995) realist social theory of morphogenesis and uses a criterion suggested by Elder – Vass (2007a) to validate

posited causal mechanisms. The case studies will be analysed via the abstraction of necessary relations and the use of counterfactual questions to retroduce causal mechanisms. The use of a multi-case study approach allows for a realist comparative analysis following Bergene (2007) to corroborate the existence of mechanisms and structures proposed from one case study through examination of the other case studies.

The methodology also makes use of those approaches found to contribute to greater levels of reliability and validity from case study researchers from the positivist case study tradition such as Yin (1994) which are consistent with the realist orientation of this thesis. The validity, reliability and generalisation criteria have been set out and the approach has indicated where issues of validity and reliability will be met. The principal data collection methods are observation (both participant and non-participant), interviews and documentary review. Validity and reliability issues were considered and addressed in each case. Accordingly on the basis of the material in this chapter it is felt that the methodology provides a sound basis for the conduct of the research for this thesis as well as strengthening the reliability and validity of the findings consistent with the commitment to the underpinning philosophy of critical realism.

Chapter Four

Literature Review

4.1 Introduction

The objective of the literature review is to understand the state of knowledge about the phenomenon of Strategic Information Systems Planning (SISP). Salmela and Spil (2002) identify two general models of SISP in the literature: comprehensive and incremental. In the comprehensive model of SISP the planning activity is systematic, formal, thorough and organisationally comprehensive. In the incremental model the planning activity is a mixture of the informal and formal and tends to be opportunistic rather than systematic. Earl (1993) coined the term 'approach' to describe SISP as a mixture of formal and informal elements and showed there are different styles or process types of SISP in organisations. SISP has also been seen as a form of strategic management (Robson 1997). Kearns states "Strategic IS planning is a fundamental tool of strategic IS management" (Kearns 2006, p.236) and Salmela and Spil (2002) note the influence of strategic management literature on both general models of SISP. For example this literature has traditionally drawn a distinction between the formulation of a plan and its implementation and this is reflected in Lederer and Salmela's (1996) comprehensive theory of SISP. This literature also sees decision making as at the heart of the strategy process. Finally SISP has been applied to the public sector (Dufner, Holley and Reed 2002) and the associated research is particularly relevant for this thesis because the case studies are situated within public sector organizations. The first part of the review (section 4.2) discusses four concepts of strategy from the strategic management literature and associated models of decision making. Part two (section 4.3) then focuses on the SISP specific literature beginning with some definitions of SISP followed by a discussion of comprehensive and incremental models of SISP. Part three (section 4.4) discusses SISP in the public sector.

4.2 The Strategic Management Literature

4.2.1 Defining Strategic Management

Nag, Hambrick and Chen (2007, p.942) define strategic management as: "the major intended and emergent initiatives taken by general managers on behalf of owners, involving utilization of resources to enhance the performance of firms in their external environments". Deciding and implementing an appropriate strategy for the firm or the "comprehensive concept of the firm's direction and internal design" (Hambrick and Chen 2008, p.40) to achieve successful economic performance in the market place, is arguably the defining task of managers responsible for the strategic management of the firm (Robson 1997, p.6). Accordingly strategy is the central concept of this literature (Hambrick and Chen 2008, p.38) and making decisions, such as which markets to compete in and the allocation of firm resources for competitive activity, the defining characteristic of the process of developing and implementing strategy (Eisenhardt and Zbaracki (1992, p.17).

Strategic management research has developed into two main branches, content and process, with content research being the earlier and main branch (Sminia 2009, p.97). Content research seeks to "answer the question of *what* underpins firms' competitive advantage" while process research focuses on "*how* firms' strategies emerge over time" (Mellahi and Sminia, 2009, p.1, italics in original). In other words "content research is concerned with the strategy part of strategic management, while process research is more concerned with the management part" (Mellahi and Sminia, 2009, p.1). In short the strategy process produces the strategy content, which is the strategy. In addition to the distinction between process and content St.John (2005, p.214) notes that context, both within and outside of the firm, is a "moderator of the strategy-performance relationship". Consistent with these views DeWit and Meyer (2005, p.5) provide a succinct summary of how they see the difference between strategy process, strategy content and context, which is provided in Table 4.1 Key Dimensions of Strategy.

Dimension	Description
Process	Concerned with the *how, who* and *when* of strategy: how is, and should, strategy be made, analysed, dreamt-up, formulated, implemented, changed and controlled; who is involved; and when do the necessary activities take place?
Content	Concerned with the *what* of strategy; what is, and should be, the strategy for the company and each of its constituent units?
Context	Concerned with the where of strategy: *where* (that is in which form and which environment) are the strategy process and strategy content embedded.

Table 4.1 Key Dimensions of Strategy

(DeWit and Meyer 2005, p.5. italics in original)

The content of strategy is thus a result of the strategy process, which takes place within an organizational context. The attempt to implement the content of strategy is effected both by the organization's internal context and the external context of the organization and this mediates the intended improvement in organizational performance.

4.2.2 Decision Making Models

Miller, Wilson and Hickson, state that organizational strategy is in fact "a handful of decisions" (2004, p.212) thus indicating the importance of decision making as a process constitutive of strategy making (Eisenhardt and Zbaracki 1992; Panagiotou 2008, p.553). Eisenhardt and Zbaracki (1992, p.17) state "Central among strategic process issues is strategic decision making" and this is because "it involves those fundamental decisions which shape the course of a firm". They define a strategic decision, following the work of Mintzberg, Raisinghani, and Theoret (1976, p.246) as "important, in terms of the actions taken, the resources committed, or the precedents set". These are the "infrequent decisions made by the top leaders of an organization that critically affect organizational health and survival" (Eisenhardt and Zbaracki, 1992, p.17). The traditional models of decision making in the strategic management literature include the rational, bounded rational, muddling through, logical incrementalism, political and garbage can (Eisenhardt and Zbaracki, 1992, p.17). In addition an alternative model of strategic decision making based on discourse theory put forward by Hendry (2000) is reviewed.

4.2.3 Four Concepts of Strategy

Strategy has been described as the fulcrum concept of strategic management (Hambrick and Chen 2008) but there is no agreed definition of strategy in fact one source indicates 43 different extant definitions (Chaharbaghi and Willis 1998 cited by Adcroft, Willis and Hurst 2008, p.40). However Mintzberg (1987) and Mintzberg, Ahlstrad and Lampel (1998) usefully distinguish between three different concepts of strategy: as plan, as emergent pattern and as a meaningful perspective. A fourth perspective which is a development of the third perspective is also discussed. These are reviewed below with the associated model of decision making because they have been influential in the SISP literature as will be shown in part 2 of this literature review.

4.2.3.1 Strategy as Plan

In the first type, strategy as plan, strategy is a statement of consciously intended actions, which is formulated prior to those actions being taken. Donaldson (2003, p.46) defines strategy as "an intention that is, an idea, in the mind of managers, particularly the senior managers of an organization is therefore an ideationalist phenomenon." This is also what Alvesson and Willmott call the conventional definition of strategy as "a plan followed by implementation" (1995, p.98). This is illustrated in Figure 4.1 Strategy as Plan.

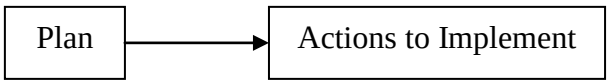


Figure 4.1 Strategy as Plan

Decision making in Strategy as Plan

The strategy as plan concept is associated with the rational model of decision making.

Eisenhardt and Zbaracki (1992, p.18) credit March and Simon (1958) with the founding work on the rational model of decision - making. In this model of decision making "actors enter decision situations with known objectives. These objectives determine the value of the possible consequences of an action. The actors gather appropriate information, and develop a set of alternative actions. They then select the

optimal alternative." Tarter and Hoy (1998) refer to this idealised model of rationality as an optimizing strategy "based on classical economic theory that assumes clear goals, complete information, and the cognitive capacity to analyse the problem" (1998, p.213). It uses a means – ends logic looking for the most efficient set of actions to achieve the desired objectives.

The Design and Planning Schools of Strategy as Plan

Mintzberg, Ahlstrand and Lampel's (1998) identify two schools, which represent rational and intentional approach to strategy formation. These are the design and planning schools. In the Design School, the content of strategy is about the match or fit between the firm's abilities and its environment. Selznick (1957), Chandler (1962) and Andrews in Learned et al (1965) are founding authors in this school's development. Andrews, consistent with the ideas of Selznick, saw strategy formulation in terms of an intellectual process to determine the actions to achieve an equilibrium between company ability and environmental opportunity:

> The intellectual processes of ascertaining what a company might do in terms of environmental opportunity, of deciding what it can do in terms of ability and power, and of bringing these two considerations together in optimal equilibrium. (cited by Mintzberg 1990, p.173)

The process for designing strategy uses the Strengths, Weaknesses, Opportunities, Threats (SWOT) assessment model which involves an internal assessment of the firm's economic abilities and limitations together with an external assessment of opportunities and possible dangers to the firm from its environment in terms of technological, social, economic and political factors. The process is intended to deliver a number of strategic options leading to the need for a strategic choice. Finally the optimal choice is implemented. The model is illustrated in Figure 4.2 The Strengths, Weaknesses, Opportunities and Threats (SWOT) model.

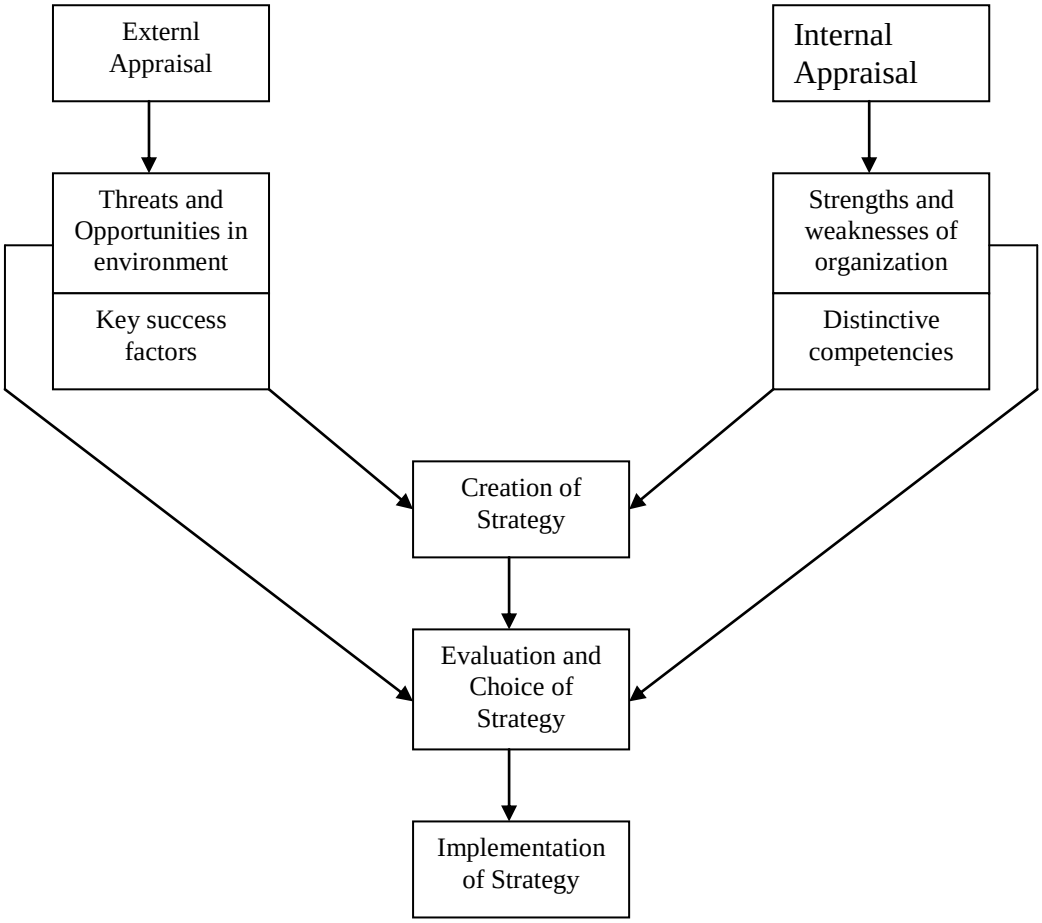


Figure 4.2 The Strengths, Weaknesses, Opportunities and Threats (SWOT) model (After Mintzberg 1990, p.174)

Mintzberg, Ahlstrand and Lampel (1998) identify the key premises of the design school. These are that strategy creation is a "tightly controlled process of human thinking" (1998, p.29) by the top manager of the firm acting as chief strategist. The formation process should be kept relatively simple and straightforward leading to a tailored made design which encompasses everything that needs to be known by the firm yet is in itself fairly simple. Only when the strategy emerges fully formed can implementation begin (Mintzberg, Ahlstrand and Lampel 1998, p.29-32).

In the planning school, strategy is a hierarchy of interrelated plans that detail everything the firm needs to do to achieve a set of predefined objectives. The planning school is strongly influenced by the design school through its adoption of the SWOT model with the main difference being the degree to which the planning school formulated the stages of the model. The SWOT model now involved a number of

stages. First objective setting in which organizational goals are defined often in quantified terms, then an external audit of the organization's environmental conditions often involving forecasts as a basis for predictions in relation to various external factors, followed by an internal audit of distinctive firm competencies, then evaluation of strategy options according to elaborate criteria, then detailed operationalisation as a preliminary to implementation. (Mintzberg, Ahlstrand and Lampel 1998, 49-53). Operationalisation involves decomposition into various sub-levels:

> Long-term (usually five years) comprehensive, "strategic" plans sit on top, followed by medium-term plans, which in turn give rise to short-term operating plans for the next year. Paralleling this is a hierarchy of objectives, a hierarchy of budgets, and a hierarchy of substrategies (corporate, business, and functional) (Mintzberg, Ahlstrand and Lampel (1998, p.53)

Following the strategic choice comes implementation, which in the design school is seen as "a series of subactivities which are primarily administrative". (Andrews (1967, p.6 –7 cited in Mintzberg (1990, p.173). Ansoff (1967: 6-7) cited by Mintzberg (1994, p.67) describes implementation in terms of 'action programs' that focus on project management activity. Following the formulation of the strategic plan:

> The next step is to convert the planned levels into coordinated action programs for various units of the firm. These programs specify the schedules of actions, goals and quotas, the checkpoints, and the milestones. The action programs are then translated into resource budgets in terms of men, materials, money, and space needed to support the programs. The action programs and the resource budgets form the basis for profit budgets – measures of the net cost – accomplishment effectiveness of the proposed performance levels.

Hence implementation becomes focussed on "performance measures, incentive systems, various other control procedures" (Mintzberg 1990, p.192). Implementation may involve detailed plans of "activities to be undertaken, assigning responsibilities to managers and holding them accountable for achieving results" (deWit and Meyer

2004, p.117). Farjoun comments that "In this model strategy implementation has been viewed as administrative rather than analytic activity involving choice" (Farjoun 2002, p.566).

One other difference from the design school is that the planning school is associated with the rise of a new staff group within the firm known as strategic planners. While accountable to senior management for the final decisions on strategic choices, strategic planners are responsible for managing the planning system and process and as, strategies are decomposed into "detailed objectives, budgets, programs and operating plans" (Mintzberg, Ahlstrand and Lampel 1998, p.58) for implementation by strict adherence to the plans.

4.2.3.2 Strategy as Emergent Pattern

The concept of emergent strategy refers to consistency of actual behaviour by the organization (Mintzberg 1987). This will be revealed as a characteristic pattern of actions when viewed retrospectively. This view of strategy enabled Mintzberg to examine whether or not the intentions of strategy as plan where in fact realised. Some firms realised their strategy intentions as planned and others didn't however his research showed that although a firm might not fully realise it's intended strategy, during implementation, nevertheless its behaviour might still be consistent and lead to a different kind outcome which he called emergent strategy. Emergent strategy will to varying degrees be different from the intended actions and behaviours of a strategy as plan. Mintzberg comments: "Organizations develop plans for the future and they also evolve patterns out of their past. We can call one intended strategy and the other realized strategy … the third case … we call emergent strategy – where a realized pattern was not expressly intended." (Mintzberg 1994, p.23-25). There are then three possible outcomes associated with intended strategy. When intended strategy is realized Mintzberg terms this deliberate strategy. On the other hand it may be unrealized or the third possibility is when the strategy may be emergent. This is illustrated in Figure 4.3 Deliberate and Emergent Strategies.

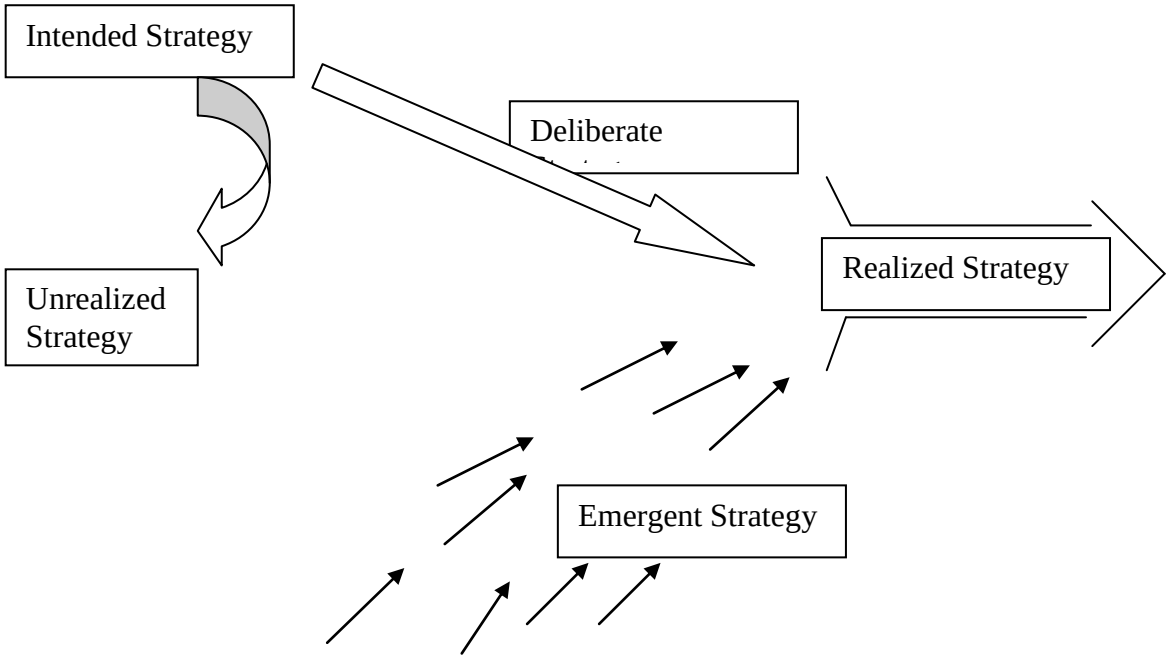


Figure 4.3 Strategy as Pattern - Deliberate and Emergent Strategies

Mintzberg (1987, p.14)

The concept of emergent strategy represents a fundamental critique of the conventional view of strategy as plan followed by implementation. This is because the conventional view is based on the idea of intention or that actions can be planned in advance and implementation will ensure completely that the intentions in the plan are achieved. However Mintzberg comments: "plans may go unrealized, while patterns may appear without preconception. To paraphrase Hume, strategies may results from human actions but not human designs" (1987, p.13). But how does an emergent strategy, unintended, arise? The important insight is that organizations adjust their behaviour through experience or learning about the consequences of prior actions. Mintzberg et al comment:

> The concept of emergent strategy, however, opens the door to strategic learning, because it acknowledges the organization's capacity to experiment. A single action can be taken, feedback can be received, and the process can continue until the organization converges on the pattern that becomes its strategy. … Emergent strategy can … result from the efforts of an individual leader or a small executive team, … a clandestine player … the collectivity … Various people can interact and so develop a

> pattern, even inadvertently, that becomes a strategy. (Mintzberg et. al. 1998, p.189 –190)

According to Ramos-Rodriguez and Ruiz-Navarro (2004, p.994) the emergent view of strategy "proposes strategy as a mode of action, more process than content oriented and concerned with distinguishing deliberate action from spontaneous action and learning." Unlike the strategy as plan concept, strategy is seen as "not so much a meticulous exercise of strategy formulation and implementation that determined how a firm established the way in which it wanted to compete, but that it was a process in which internal politics, organizational culture and/or management cognition had the upper hand." (Mellahi and Sminia 2009, p.3). Also, again unlike the focus on clear decisions of the rational perspective, Sminia (2009, p.102) notes that the emergent concept of strategy implies a "conceptualization of the process of strategy formation as a change process rather than a choice process." Strategy emerges from a mix of intended and unintended outcomes (Mintzberg 1987) and this represents a pragmatic recognition of the unpredictability of the environment, the limitations of strategists such as cognitive limitations and the constraints of the pre-existing internal arrangements of the firm (Whittington 2001). In this context strategy will emerge as "a pragmatic process of bodging, learning and compromise" (Whittington 2001, p.4) as well as adaptation. Because of the diversity of factors involved in organizational activity such as strategy making there will also be a diverse range of outcomes, such as the pursuit of career enhancement, rather than a single minded preoccupation with profit maximisation (Whittington 2001, p.4, p.34).

Decision making in Strategy as Emergent Pattern

The strategy as emergent pattern concept is associated with a number of decision making models including bounded rationality, muddling through, logical incrementalism, political and garbage can. March and Simon (1958) recognised that the degree of rationality of the decision – makers was limited by organisational circumstances and the psychology of human cognition. These cognitive limitations lead to a limited or bounded form of rationality so that "rather than searching for optimal alternatives from all that are possible, the administrator instead "satisfices" by searching for an alternative that is satisfactory in terms of both conditions that prevail

and the organization's purposes as he understands them" (Harmon and Mayer 1986, p.148).

Charles Lindblom (1959) first described an incremental model of decision making as the "science of muddling through". (Tarter and Hoy 1998, p.215). Lindblom's work focused on policy develop work in government organizations. The key characteristic of this model is that the alternatives considered are only those "whose known and expected consequences differ incrementally from the status quo" (Lindblom 1959, p.85 cited in Harmon and Mayer 1986, p. 266 italics in original). In this model of decision – making objectives are not set beforehand as in the rational model of decision – making rather decisions are made by proceeding from existing positions with small, viable and low risk changes that are well understood.

Building on Linblom's (1959) work Quinn developed the concept of logical incrementalism, which differs from the muddling through approach by incorporating a degree of purposefulness. Quinn's purposefulness in decision - making is achieved by reference to overall organizational mission and policies so that "managers are always prepared to reverse their decisions if the results are not consistent with broad policy" (Tarter and Hoy 1998, p.217). Quinn argues "Such incrementalism is not muddling. It is a purposeful, effective, proactive management technique for improving and integrating both the analytical and behavioural aspects of strategy formulation". (Quinn cited in deWit and Meyer 2004, p.132). This is similar to Etzioni's (1986) mixed-scanning approach that strategy be formed and implemented incrementally but within an overall policy framework that indicates key priorities and objectives.

Eisenhardt and Zbaracki, (1992, p.27) summarise the key characteristics of the political model of decision – making as:

> That (1) organizations are comprised of people with partially conflicting preferences, (2) strategic decision making is ultimately political in the sense that powerful people get what they want, and (3) people engage in political tactics such as cooptation, coalition formation, and use of information to enhance their power.

These conflicting preferences or interests have their source in personal ambitions, bias, and different perceptions of what the future may hold for the firm or local

business unit. Relative levels of power of individuals and groups in the organisation is an important aspect of the political model of decision – making "Simply put, decisions follow the desires and subsequent choices of the most powerful people" (Eisenhardt and Zbaracki (1992, p.23). Power imbalances can trigger political action such as when a person or group perceives an immanent loss of organizational influence or defeat of a cherished initiative. (Eisenhardt and Zbaracki, 1992, p.26).

The essential feature of the garbage – can model is the randomness or chance connection between problems and solutions and that both are present in the organizational setting but do not necessarily occur at the same time. In the garbage can model then decisions are "not the result of analysis by boundedly rational individuals or the power of a coalition, but rather are a random confluence of events." (Eisenhardt and Zbaracki, 1992, p.28). Eisenhardt and Zbaracki (1992, p.31) argue that there is only modest empirical support for the garbage can model of decision – making.

4.2.3.3 Strategy as Meaningful Perspective

In the third concept, strategy as meaningful perspective, strategy is the organizational members shared view or concept of the organization or the shared organizational culture (Mintzberg 1987, p.16, 17). The strategy as perspective view implies that strategy is strongly associated with the construction of meaning. Smircich and Stubbart (1985) state "The task of strategic management in this view is organization making – to create and maintain systems of shared meaning that facilitate organized action." (1985, p.724) This concept of strategy indicates a greater focus on the cultural orientation of the organisation that sustains its internal capabilities. The construction of strategy as the relationship between actions and meanings within the organizational context is illustrated in Figure 4.4 Strategy as Meaningful Perspective.

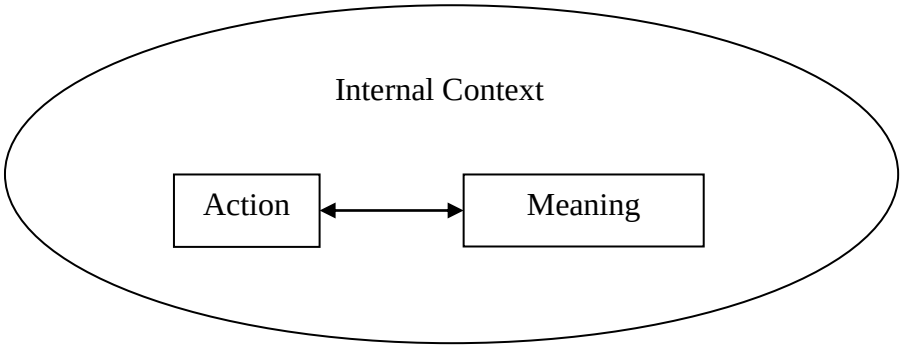


Figure 4.4 Strategy as Meaningful Perspective

The strategy as meaning perspective draws on social constructionist theory about the way in which individuals and groups within organizations create common beliefs, which become significant motivators of behaviour. Smircich and Stubbart (1985) argue that managers social construct organizational reality, as strategy, and enact rather than being controlled by their environments (Smircich and Stubbart 1985). Mintzberg, Ahlstrand and Lampel (1998) identify this concept of strategy with the cultural school of strategy research. The cultural school sees strategy as strongly influenced by the shared beliefs of organizational members. In the context of the firm Mintzberg, Ahlstrand and Lampel define organisational culture as "interpretations of a world and the activities and artefacts that reflect these". The important characteristic is that "these interpretations are shared collectively, in a social process" and they include "traditions and habits as well as more tangible manifestations – stories, symbols, even buildings and products" (Mintzberg, Ahlstrand and Lampel 1998, p.265). Because culture has an effect on the thinking of organizational members it effects the strategy formation process and specifically the way the environment is interpreted and the way decisions are made. Culture can be an impediment to change because the shared beliefs become embedded in the minds of organizational members and reinforced by routines that have proved successful in the past (Mintzberg, Ahlstrand and Lampel 1998, p.269-270). The premises of the cultural school are then that strategy formation is a process of social interaction informed by the shared beliefs of the organizational members, these beliefs are acquired through a process of acculturation or socialization, strategy is rooted in collective intentions which tend to perpetuate or hold in place existing strategy (Mintzberg, Ahlstrand and Lampel 1998, p.267-268).

4.2.3.3 Decision Making in Strategy as Meaningful Perspective

Decision making in this concept of strategy can be understood from the interpretive perspective. As was discussed in chapter two, interpretivism emphasises the importance of human subjectivity and meaning. Hendry (2000) argues that in contrast to the rational process of the strategy as plan view, strategic decisions can be seen as

> forming part of a process of retrospective rationalization, legitimation or sense-making. From this perspective the phenomenon of decision making is concerned not with the rational choice between alternatives, but with the imposition of a rational order upon a previously enacted world. (2000, p.956)

Thus the interpretive perspective adds to the rationality of the concepts of strategy as plan and as emergent process by showing

> how strategic decision may be created not only retrospectively ... but also in advance of any commitment to action. Thus decisions are not only a way of making sense of an emergent pattern of activity. They are also a way of creating sense in the absence of any such patterns, a response to the anxieties of the human condition. (Hendry 2000, p.962)

4.2.3.4 Strategy as an Institutional Process

A more recent development within the strategy as meaningful perspective concept is the view of strategic decision making as an institutional process (Hendry 2000; Heikkila and Isett (2004). In institutional theory institutions "are comprised of regulative, normative and cultural-cognitive elements that, together with associated activities and resources, provide stability and meaning to social life." They are also "multifaceted, durable social structures made up of symbolic elements, social activities, and material resources." (Scott 2008, p.48). Organisations can be thought of as institutions (Scott 2008, p.150) and institutional theory highlights the coercive, mimetic and normative pressures (Dimaggio and Powell 1983) for conformity, originating in the organisation's culture and its external context, to achieve internal and external organisational legitimacy (Scott 2008, p.152).

A prominent institutional theory is Giddens structuration theory. Giddens structuration theory argues that the agency of organisational members helps to reproduce the structural conditions of their situation via certain modalities of meaning, norms and facilities. There are structural and agential perspectives to each of these modalities. For agents interpretive schemes refers to the way in which meaning and knowledge is communicated, while for structures they refer to that which is significant and particularly the rules that inform the process of interaction. In relation to facilities of power, agents are seen to have capabilities to act and achieve things, which may involve drawing on resources made available by structural features of the setting or be constraining. The theory is represented in Figure 4.5 Giddens Structuration Theory.

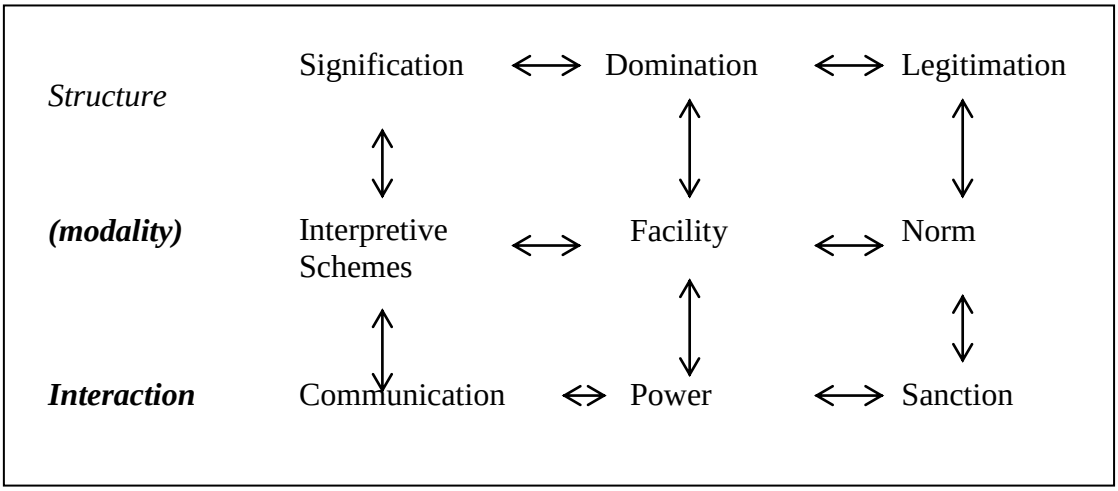


Figure 4.5 Giddens Structuration Theory

(Giddens 1984, p.122)

Hendry (2000) sees strategy and its decision making as a structuration process of organisational change involving a continual readjustment between perception and decisions:

> an incremental and unintended consequence of the processes of social reproduction (Giddens, 1979). As perceptions or events get routinely rationalized in the form of decisions the reproduction of these decisions leads to a continual readjustment of perceptions of organizational reality and of the patterns of action that constitute an organizational strategy. (Hendry 2000, p.968)

Decision Making in an Institutional Context

Heikkila and Isett (2004, p.5) argue that institutionalised rules and norms of organisations guide the process of choosing between alternative courses of action even when other forms of decision making behaviour are present. For example in a study of public sector organizations they showed how decision making was influenced by both norms of the institutional context as well as the goal seeking rational choice behaviour of decision makers in the strategy as plan concept.

Hendry argues for an "integrating conceptualization of strategic decisions that allows us to relate the elements of choice, action and interpretation" (p.957) or the concepts of the strategy process as plan, emergence and meaning. The integrating concept is the discourse of strategic decisions (Hendry 2000 p.957) in which a decision becomes "anything identified as a decision in an organizational discourse, whether or not it corresponds to what would be classically recognizable as a decision event." (p.964). As a result, following Giddens structuration theory,

> the natural concomitant of a conceptualization of strategic decisions as discourse is a conceptualization of strategy … in which strategic discourse (including the discourse eof strategic decisions) provides the loose coupling (Orton and Weick, 1990) that mediates between cognition and action in the structuring of change processes. (2000, p.968)

For Hendry the view of decisions within a structurational process better explains "the emergent patterning that is characteristic of Mintzberg's description of strategy". (2000, p.966).

4.2.4 Conclusion

This review of the strategic management literature shows a development in thinking about the process of strategy development from a rational and analytic activity, which assumes the primacy of intentionality, through the critique of strategic planning and the development of the idea of emergent strategy, to the more recent institutional view that strategy is the result of a dynamic interaction between the intentionality of rational choice and a context of internal and external institutional pressures for organisational legitimacy.

A basic assumption of the strategy as plan concept is "the ability to foresee future events and the possibility of separating strategy formation from its implementation" (Johanson 2009, p.886). The view of strategy as an emergent phenomenon questions this assumption and implies the outcomes of strategy implementation are not wholly predictable. It argues that the intentionality implicit within the strategy as plan concept is constrained by cognitive limitations on human decision making, organisational complexity and a context of organisational power relations. This leads Eisenhardt and Zbaracki (1992, p.31) to conclude that strategic decision making is essentially a combination of the "boundedly rational and political insights. Bounded rationality shapes the cognitive limits and the looping of strategic decision processes, and the political perspective shapes the social context."

The emergent view of strategy recognises the incremental nature of strategy and organisational learning however, Johanson (2009, p.886) notes that it is "difficult to change the basic frame of reference" which is necessary for innovation or an ability to respond effectively to new circumstances. This difficulty can be related to the third concept of strategy since the basic frames of reference of organisational members are implicit within shared meanings about the organisational purpose and ways of acting. An important aspect of the shared culture is captured by the fourth concept of the strategy process, in which institutionalised norms and rules of behaviour shape the decision making process even in the presence of other forms of decision making. Hence the process of strategy development and the attempts to implement it will be varied and imperfect as a result of the effects of different interests, prevailing discourses and different interpretations of what actions should be taken in the light of internal and external constraints and opportunities.

4.3 The SISP Specific Literature

4.3.1 Definitions of SISP

Strategic Information Systems Planning occurs in both private and public sector organisations. The terms 'strategic', 'information systems' and 'planning' indicate its three broad characteristics. First, its focus on information systems in organisations, second, the strategic nature of this focus or what is strategically important to an organisation in terms of its information systems and third, its manifestation as organisational planning activities involving people in the development of plans and

strategies. These characteristics or elements are related as illustrated in Figure 4.6 The Elements of SISP.

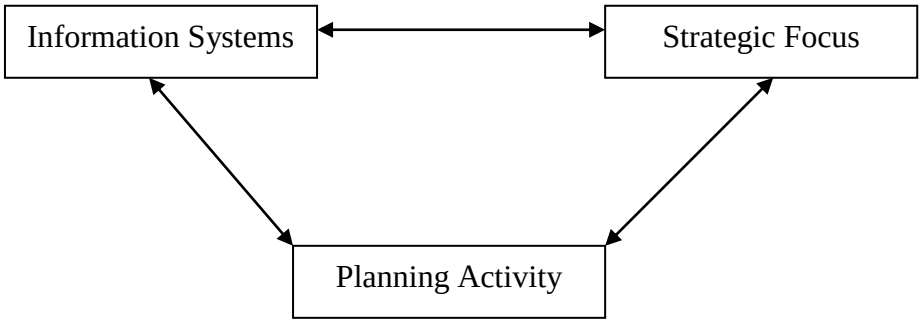


Figure 4.6 The Elements of SISP

In 1988 Lederer and Sethi gave what has become one of the most cited definitions of SISP:

> SISP refers to the process of identifying a portfolio of computer-based applications that will assist an organization in executing its business plans and consequently realizing its business goals. … SISP can also entail searching for applications with a high impact and the ability to create an advantage over competitors (Lederer and Sethi 1988, p.446).

In this definition SISP is characterised as an organisational process with the objective of identifying two kinds of computer applications, those that are important for supporting pre-defined business plans and those that are specifically important for achieving competitive advantage in the market place. SISP is therefore concerned with a two - way relationship between the creation of new applications and the organisation's business strategy. New applications need to be supportive of the organisation's defined business plans but at the same time they may introduce new competitive opportunities so altering existing business strategy. This implies SISP is associated with the strategic management of the organisation (Robson 1997, Kearns 2006) since for private sector organisations "competitive well-being depends upon IS delivering those systems that enable the business to function effectively, the strategic management information systems." (1997, p.93, italics in original). In keeping with

this strategic focus the nature of the planning in SISP is broader in scope, has a longer time frame, is at a higher level of abstraction than other forms of IS planning and is from the perspective of the highest levels of management of the organisation (Segars, Grover and Teng 1998, p.305-306; Robson 1997, p.94-95).

Implicit within the focus on the strategically important information systems is the strategic importance of the information these systems make available for decision-making by various individuals and groups within the organisation. Ward and Peppard (2003) emphasise this distinction seeing the SISP process as being primarily about the organisational role of information "thinking strategically and planning for the effective long-term management and optimal impact of information in all its forms" (Ward and Peppard 2003, p.118). Other definitions of SISP continue to highlight the competitive advantage objective but more explicitly recognise the importance of managing the organisation's IT resources and their implementation. From this perspective SISP is "a proactive search for competitive and value-adding opportunities, as well as the development of broad policies and procedures for integrating, coordinating, controlling and implementing the IT resource" (Grover and Segars 2005, p.762). Warr also emphasises the technology focus of SISP:

> the process of deciding upon the direction, development and policies for an organisation's use and management of information and networking technologies. It includes identifying applications for IS/IT, developments to IT infrastructures, and improvements to the management and sourcing of IS/IT resources. (Warr 2005)

Integration across organisational boundaries is also a characteristic of the strategic focus of SISP (Wainwright and Waring 2004, p.335). With these characteristics in mind a broader definition of SISP is:

> Any or all of the following agenda: (1) supporting and influencing the strategic direction of the firm through identification of value adding computerized information systems, (2) integrating and coordinating various organizational technologies through development of holistic information architectures, and (3) developing general strategies for

> successful systems implementation. (Segars, Grover and Teng 1998, p.306)

In this process "the purpose of strategy planning for IS is to identify the most appropriate targets for technological support and to schedule that technology adoption" (Robson 1997, p.94, italics in original). The breadth of this agenda implies SISP is a comprehensive planning process (Salmela and Spil 2002) and it can be understood as a planning system:

> that is, it takes inputs, performs some transformation, in order to generate some outputs. We can view the inputs as being the available understanding of the organisation, its environment and its management; the process of strategic planning to be the transformation; and the output to be the defined strategy (Robson 1997, p.18).

In contrast to the systems view or comprehensive model of the SISP process is the incremental model (Salmela and Spil 2002). Segars and Grover note that the planning process is more than just the use of a method "SISP is a complex set of organizational activity that reflects a philosophy rather than a narrow set of steps prescribed by a planning method (Segars and Grover 1999, p.224). Earl, while acknowledging the earlier definition of Lederer and Sethi, sees SISP as an approach which is "a mix of procedures, techniques, user-IS interactions, special analyses, and random discoveries" (Earl 1993, p.7) and Huysman, Fischer and Heng argue that "formulating a plan for information systems applications and implementing the plan is … a process of learning for the organization" (Huysman, Fischer and Heng 1994, p.165). The planning activity of SISP is also seen by some researchers to be inherently political in nature. Knights and Murray (1994) argue that "far from representing a higher rationality, corporate and IT strategies are part and parcel of continuous political conflict in organisations" (1994, p.71) because in a "conflictual model of organizations … actors may be in conflict, whether engaging in formal or informal planning processes" (Falconer, Castleman, Mackay and Altmann 2000, p.1221). Powerful individuals may drive the development and implementation of IS strategy against resistance from others in the organisation (Walsham 1993). Ruohonen identifies some key stakeholder groups of SISP as "top management, user management and IS/IT management" (Ruohonen 1991, p.15). These stakeholders are

responsible for making decisions about strategic applications (Sabherwal and King 1995, p.177; Salmela and Spil 2002, p.455; Ward and Pepper 2003, p.373) to achieve alignment with corporate business strategy and gain competitive advantage.

In summary SISP is centrally concerned with the strategic role of information systems in the organisation and seeks to determine those applications which will support the strategic management of the organisation and, in the private sector, its competitive success. However the definitions also reveal a broad range of associated aspects of the organisational use of computer systems such as exploiting information for decision making, supporting or influencing the business strategy, supporting the integration of organisational functions, developing implementation plans and managing the IT capability in terms of IT resources and infrastructure. In terms of the process of SISP the system view of SISP sees it as a rational and comprehensive planning activity but the incremental view of SISP draws attention to the fact that SISP also involves stakeholder interaction, which may produce organisational learning but is likely to have a political dimension. The different definitions of SISP are summarised in Table 4.2 Definitions of SISP.

Definition of SISP	**Support in the Literature**
A tool of strategic management including identifying IS applications for competitive advantage, aligning IS strategy with business strategy and supporting integration of functions across organisational boundaries.	Kearns (2006); Robson (1997); Lederer and Sethi (1988); Doherty, Marples and Suhaimi (1999); Doherty, Marples and Suhaimi (1999); Lederer and Salmela (1996); Ward and Peppard (2003); Wainwright and Waring (2004).
The management of information to enable organisational decision - making.	Ward and Peppard (2003)
The approach to managing the organisational IT resources and IT infrastructures	Grover and Segars (2005); Warr (2005)
A planning system that produces IS strategy and plans as the output.	Lederer and Salmela (1996), Robson (1997)
An organisational process or approach rather than just a method so involves stakeholders in decision-making that produces strategies and plans.	Sabherwal and King (1995); Salmela and Spil (2002); Ward and Pepper (2003); Earl (1993); Segars and Grover (1999).
An organizational learning process	Huysman, Fischer and Heng (1994); Reponen (1998)
An inherently political process.	Ruohonen (1991); Walsham (1993); Knights and Murray (1994); Falconer, Castleman, Mackay and Altmann (2000).

Table 4.2 Definitions of SISP

4.3.2 Two Models of SISP

Having set out key definitions of SISP the review now turns to the two broad models of SISP in the literature and identified by Salmela and Spil (2002). These are the comprehensive and incremental models and they reflect the concepts of strategy as plan and as emergent pattern respectively. The characteristics of the two models are summarised in Table 4.3 Comprehensive and incremental views about the IS planning process.

Planning Characteristic	Comprehensive Practice	Incremental
Plan comprehensiveness	Plans are complicated and highly integrated with overall strategy	Plans are simple and loosely integrated with overall strategy
Approach to analysis	Formal, multiple analyses are used to derive plans	Personal experiences and judgement are used to derive plans
Planning organisation	Planning is based on formal representation from many different organisational groups	Planning is based on an informal network of a few key individuals
Basis for decisions	Formal methods and criteria are the basis for decisions	Shared group understanding of a few key individuals is the basis for decisions
Plan control	IS Plans are periodically reviewed to adapt to changed circumstances	IS plans are continuously reviewed to adapt to changed circumstances

Table 4.3 Comprehensive and incremental views about the IS planning process (Salmela and Spil 2002, p.444)

Both these models reflect the influence of the strategic management literature. Salmela and Spil (2002, p.444) comment that the "comprehensive approach is grounded in the comprehensive approach to strategy formulation and in the traditional strategic management theory (Ansoff, 1965; Steiner, 1972; Ansoff & Sullivan, 1993; Rowe, Mason, Dickel, Mann and Mockler, 1996)." In contrast "Incremental planning is based on the theory that organisation learn and benefit by adapting based on their learning (Argyris and Schon, 1978). It draws many of its principles from the behavioural theories of business strategy making (Quinn, 1980; Mintzberg, 1994)."

The next section reviews in detail the comprehensive model of SISP using a theory published by Lederer and Salmela (1996) in association with a review of this theory by Brown (2004). Following this discussion the findings of the literature in relation to

the constructs of the theory are independently reviewed. The review then turns to a review of the literature in connection with the incremental model of SISP.

4.3.2.1 Comprehensive SISP

Process comprehensiveness is defined by Fredrickson and Mitchell (1984, p.402) as the "extent to which an organization attempts to be exhaustive or inclusive in making and integrating strategic decisions". The comprehensive model of SISP adopts a systems view of the planning process in which there are the three stages of inputs, process and outputs. King (1988) proposed such a model seeing inputs as informational inputs and planning resources, process as an IS planning system and outputs as IS planning outputs that aim to "favourably influence business performance" (King 1988, p.105). Fry and Smith (1987, p.123) state "The systems approach emphasizes the search for contingencies among multiple dimension of organizational context, structure, and performance" and Dawson notes that this has the objective of "regaining internal fit with the external environment" (Dawson 1996, p.60-61). These are the characteristics of the design school of strategy from the strategic management literature which argues that the content of strategy is about the match or fit between the firm's abilities and its environment. More recently Lee and Bai (2003, p.34) argue that congruence or the Fit Mode is the paradigm for understanding the evolution of SISP approaches.

A theory of comprehensive was published by Lederer and Salmela (1996) and they acknowledge the influence of King (1988). The theory is a based on a wide-ranging analysis of the SISP literature to 1996 that supplied the constructs of the theory and the hypothesised relationships between them. The relationships between constructs are believed to affect the extent to which SISP activities achieve the goal of alignment between information systems choices and business objectives. The theory consists of seven constructs or variables with six hypothesised relationships illustrated in Figure 4.7 A Theory of Strategic Information Systems Planning. The theory predicts the degree of alignment, the dependent variable, based on the states or measures of the other six independent variables. A summary definition of each construct is given in Table 4.4 High Level Construct Definitions and the hypothesised relationships between constructs are given in Table 4.5 Hypothesised Relations between Constructs.

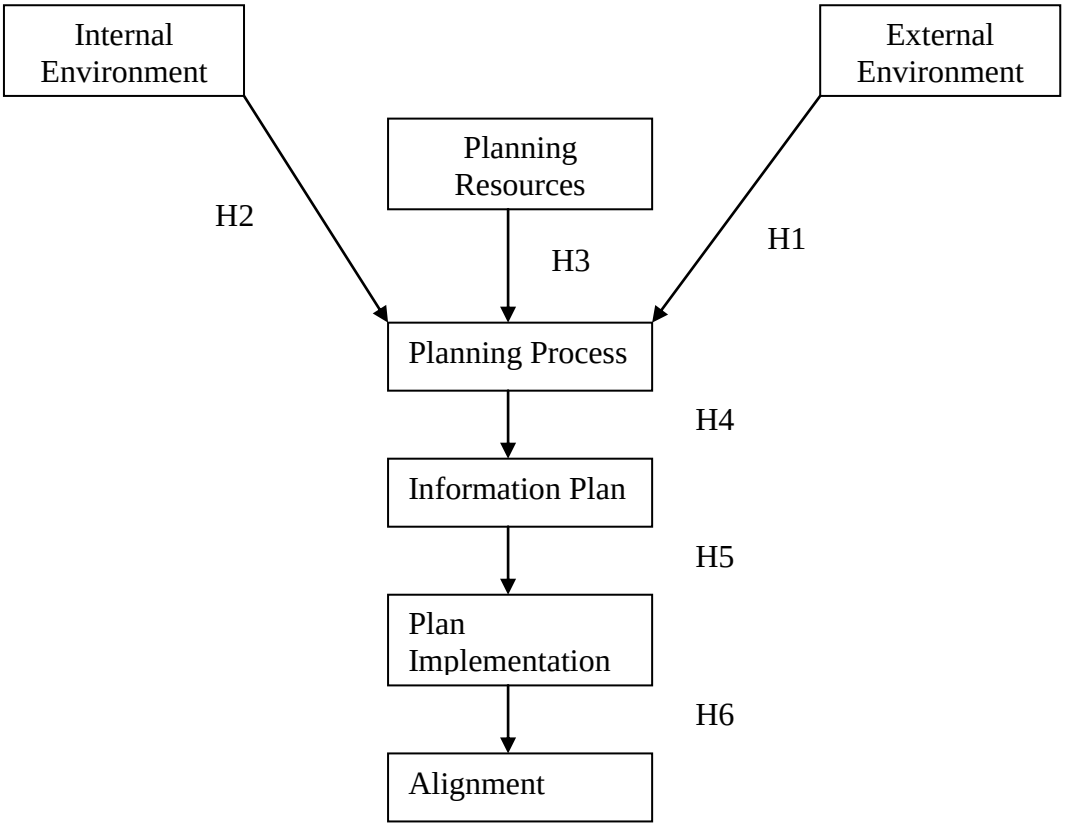


Figure 4.7 A Theory of Strategic Information Systems Planning

(Lederer and Salmela 1996, p.240)

Construct	**Definition**
External Environment	The broader economic, industry, social and governmental conditions and factors outside of the organisation's direct control.
Internal Environment	The existing organisational conditions and characteristics such as dependency on technology, industry type, strategies, policies and organisational culture.
Planning Resources	The organisational inputs to the planning process including the financial and human resources, tools as well as current and proposed business plans and strategies.
Planning Process	The way in which SISP is conducted by the organisation.
Information Plan	The output of the planning process which documents the specific strategies and plans, including implementation plans for projects, that will be followed to achieve specified organisational objectives in relation to its use of IS and IT.
Plan Implementation	The organisational activities, largely projects, undertaken to give effect to the information plan.
Alignment	The organisational condition reached after implementation of the information plan in which significant benefits, in terms of the achievement of organisational business objectives and competitive advantage, are realised.

Table 4.4 High Level Construct Definitions

Hypothesis	Description
H1	A more stable external environment produces a more effective and efficient planning process.
H2	A simpler internal environment produces a more effective and efficient planning process.
H3	More extensive and higher quality planning resources produce a more effective and efficient planning process.
H4	A more comprehensive planning process produces a more useful information plan.
H5	A more useful information plan produces greater plan implementation.
H6	Greater plan implementation produces better alignment.

Table 4.5 Hypothesised Relations between Constructs

Brown (2004) used a meta-analysis of the SISP literature from 1991 to 2002 plus one article from 2003 to assess the degree of support for and the extent to which SISP research had addressed the constructs and hypothesised relationships in Lederer and Salmela's theory. Brown's findings show that some components and relationships have received more research attention than others and the degree of support for the original hypothesised relations was varied. Table 4.6 Theory Constructs and Percentage of Articles shows the percentage of articles devoted to each of the SISP components. Some of the articles in Brown's review addressed more than one of the constructs so were sometimes counted more than once (Brown 2004, p.28).

Construct	Percentage of Articles
Planning Process	84
Planning Resources	52
Alignment	48
Internal Environment	45
Information Plan	26
External environment	19
Plan Implementation	7

Table 4.6 Theory Constructs and Percentage of Sample Articles

Brown (2004, p.42) found some puzzling results from his meta-analysis of the research into SISP. In particular where there should be strong support for relationships such as between plan usefulness to plan implementation (H5) the empirical research shows only modest support. The same is true of the relationship between internal environment and the components of the planning process (H1). Brown also found weak support for the relationship between the external environment and the planning process (H2). In all of these cases a much stronger relationship would be expected. Table 4.7 Strength of Support for Hypothesised Relationships indicates the strength of support based on an aggregate of effect strength across multiple studies for a given relationship (Brown 2004, p.38-39).

Hypothesis	Description	Strength
H1	A more stable external environment produces a more effective and efficient planning process.	Weak
H2	A simpler internal environment produces a more effective and efficient planning process.	Supported by qualitative evidence
H3	More extensive and higher quality planning resources produce a more effective and efficient planning process.	Some
H4	A more comprehensive planning process produces a more useful information plan.	Strong
H5	A more useful information plan produces greater plan implementation.	Medium
H6	Greater plan implementation produces better alignment.	Medium

Table 4.7 Strength of Support for Hypothesised Relationships

Brown also argues that Lederer and Salmela's theory leaves out some important relationships. There is for example no relationship shown between plan implementation and the internal and external environment constructs. Brown (2004, p.43) comments "The direct effect of the planning process on outcomes, for example, is a glaring omission, as many of the benefits of SISP are intangible, and achieved through carrying out the process, rather than producing the tangible plan output."

Brown (2004, p.22) states that Lederer and Salmela's theory "provides a parsimonious way of viewing SISP" and "It therefore serves as a useful basis for examining the literature in SISP, as it allows for simple classification of studies. It also embraces all

the other conceptualisations encapsulating them into one or more planning components or relationships." (Brown 2004, p. 22). This review now independently examines a selection of the SISP literature in relation to the comprehensive model of SISP from 1988 including literature (2003-2006) published after Brown's research in terms of the seven constructs of Lederer and Salmela (1996).

4.3.2.1.1 Internal Context Construct

Internal context refers to the internal organisational conditions within which SISP takes place. Lederer and Salmela (1996) describe several categories of such factors that have been researched and these are summarised in Table 4.8 Internal Organisational factors impacting SISP.

Factor	**Impact on SISP Process**
Organisation Culture	Congruence of corporate culture facilitates SISP process. (Applegate, McFarlan and McKenney 1996). Influences SISP approach style (Earl 1993). Conservative cultures likely to be risk averse in their planning.
Organisation Size and Structure	Large size increases need for formal SISP (Premkumar and King 1994) but may lead to inflexibility of planning. Structure and managerial style influence the process (Doukidis et al 1994; Wang and Tai 2002, p.3)
Role of IS in the organisation	Importance of IS to the organisation in terms of for example McFarlan's (1984) strategic classifications (turnaround, strategic, support, factory) influences resources devoted to SISP (Raghunathan and Raghunathan 1990; Premkumar and King 1992).
Sophistication of business planning	Correlates with sophistication in SISP (Lederer and Sethi 1988).
IS maturity	Degree of IS management experience positively impacts SISP (Earl 1993). As technological maturity of organisation increases approach to SISP evolves (Galliers and Sutherland 1991). Moves from intuitive to formal (McFarlan, McKenney and Pyburn 1983).
Architectures	SISP has to consider hardware and software architectures (Lederer and Gardiner 1992).
Control of IS resources	Degree of centralisation of IS resource acquisition influences allocation of IS resources to users and through this the SISP process (Guimares and McKeen 1989). Diversity of IT resources, uses and acquisition channels makes SISP complex (Boynton and Zmud 1987). As a result centralised SISP may be ineffective (Lederer and Salmela 1996, p.243). End users becoming more sophisticated means SISP must respond to their preferences (Lederer and Mendelow 1990; Raghunathan and Raghunathan 1990).
Strategic management	SISP goals are part of the strategic management goals of the organisation for example gaining competitive advantage (Galliers 1987, 1988), identifying strategic applications (Sullivan 1985), and increasing top management commitment (Earl 1993).
Level of Consensus	SISP effectiveness influenced by level of consensus amongst SISP practitioners in the organisation (Sambamurthy, Zmud and Byrd 1994).

Table 4.8 Internal Organisational factors impacting SISP

(Lederer and Salmela 1996, pp.243-244)

Premkumar and King (1992) investigated the effect of the role of IS in an organisation on the characteristics of the organisation's IS planning system using a survey of 249 firms in the US. In broad terms the key finding is that the more strategic the role of IS in the organisation the better for the IS planning system.

In a subsequent study using the same survey data, Premkumar and King (1994) found that four organisational characteristics (planning resources, intended strategic impact of IS on future business operations, quality of facilitation mechanisms, quality of implementation mechanism) are significantly associated with the means (quality of the planning process) and the ends (effectiveness of the IS planning process). Facilitation mechanisms refer to the quality and extent of integration between business planning and SISP, while implementation mechanisms refer to "management control system for review and feedback, resource mobilization for the implementation of plans, and top management and user involvement in the monitoring of implementation."

Segars and Grover (1998) found that SISP success is a multidimensional construct and together the dimensions determine the degree of success. Three of these dimensions refer to internal characteristics of the organisation: alignment, analysis and cooperation. Alignment refers to the linkage between business and IS strategy and the need for IS strategy to be "congruent with the organization's competitive needs rather than existing patterns of usage" (1998, p.143). The analysis dimension refers to the effort made by SISP practitioners to understand the "processes, power bases, and existing technologies" (1998, p.144) used by the organisation. The cooperation dimension refers to the degree of "agreement concerning development priorities, implementation schedules, and managerial responsibilities" amongst the important "coalitions and bases of power within the organization" (1998, p.144).

Sabherwal (1999) found that the more the organisation made use of advanced IS technologies the more likely IS planning sophistication will be high (Sabherwal 1999, p.156) and he also found that the extent of organisational integration, or the degree of collaboration between IS planning and business planning, facilitated IS planning sophistication (1999, p.157). Alignment between business and IS planning is affected by the degree of top management support for SISP. Kearns (2006, p.236) notes however that top management support for SISP "is often weak or absent" and but

argues it is a key determinant of SISP success. In an earlier study Teo and Ang (2001) used a survey of 138 firms practising IS planning to identify problems in the three phases of initiation, development and implementation and found that in all three phases "failing to secure top management support for the IS planning effort is the most serious problem" (Teo and Ang 2001, p.457).

Wang and Tai (2002) found that centralisation has a negative effect on organisational coalignment and on improving planning system capability (2002, p.12). In regard to the planning system dimensions they found that the future role of IS enhanced organisational coalignment which itself enables a successful environmental analysis or comprehensive planning. A successful environmental assessment is an important factor in IS planning system effectiveness.

Bai and Lee (2003) found that the better the level of the relationship between the CEO and CIO, task coordination and maturity of the IS function then the better the quality of the SISP process. However four of the hypotheses were not supported so that the quality of the SISP process does not appear to depend upon the effectiveness of stakeholder interaction, extent of stakeholder involvement, use of computer supported planning systems or the degree of organisational centralisation.

Lee and Bai (2003) advocate four organizational mechanisms for successful SISP: group interaction (of stakeholders), knowledge management, organisational learning and change management. In this regard Pai's (2006) found that the degree of knowledge sharing behaviour is positively related to the SISP process and the alignment of IS and business strategy. Support was also found for the hypotheses that top management support significantly and positively affects both the knowledge sharing behaviour of participants and the quality of the SISP process. (Pai 2006, p.115).

4.3.2.1.2 External Context Construct

External context refers to such things as "changes in supplier trends, customer preferences, emerging technology, government legislation, and competitor's actions" (Lederer and Salmela 1996, p.241). Organisations with many external stakeholders and multinational firms operating in geographically dispersed locations face greater complexity in terms of planning for information systems. Brown finds that only 19%

of the articles he surveyed examined the external environment as a factor impacting SISP and he suggests this is because the impacts "are primarily indirect through the internal environment" (Brown 2004, p.30).

Because strategic planners may not be able to anticipate changes in these areas Lederer and Salmela (1996) hypothesise that "a more stable external environment produces a more effective and efficient planning process." (p.242). This hypothesis has received attention in the literature. Salmela, Lederer and Reponen (2000) found that 'in a turbulent environment, comprehensive IS planning may be more successful than incremental planning' (2000, p.3). More recently Newkirk and Lederer (2006) examined the effectiveness of comprehensive SISP under environmental uncertainty finding that "planning is no more effective in either a more or less uncertain environment. … the results suggest that some planning phases are more effective in different environmental dimensions" (2006, p.9) implying a contingency based view of planning. Teo and King (1997, p.206) also found that external environment did not appear to affect the degree of integration achieved by the SISP process between business planning and information systems planning. More recently Warr (2005), consistent with Brown's (2004) suggestion, found that the organisation's external environment had neither a direct or indirect (via SISP approach) on perceived level of SISP success. Warr speculates, like Brown's (2004, p.30) suggestion, that this may be because "SISP is largely shielded from the external environment" (Warr 2005, p.8). These findings contradict those of Salmela, Lederer and Reponen (2000) and the first hypothesis of Lederer and Salmela's (1996) theory.

4.3.2.1.3 Planning Resources Construct

Planning resources includes the SISP personnel and the materials they draw on and generate in the formulation of SIS plans. Sambamurthy, Venkataraman and DeSanctis (1993, p.25) that the skill, knowledge and experience of SISP practitioners is important for the SISP process. Lederer and Salmela (1996,p.244) identify the participation of a range of organisational personnel as important in enabling an effective and successful SISP process. These include top management, business unit managers, IS managers, end users of computer systems (Brown 2004, p.28). Another stakeholder group are SISP consultants (Bloomfield and Danieli 1995; Sturdy 1997; Ballantine and Cunningham 2001). Sturdy (1997, p.391) notes the highly political

nature of IT strategy and the use of consultants in this context. Bloomfield and Danieli (1995) note that consultants are used by management to define in apparently objective terms the nature of the problem and the important issues in order to create justifications for change to remain competitive with other businesses. However, they become caught up in ongoing political struggles and conflicts of the organisation and knowledgeable users with different views of the issues may challenge their recommendations (Sturdy 1997, p.397). Ruohonen (1991) examined the stakeholder groups involved in SISP and provided a table of the characteristics of such groups in the SISP process, which is reproduced below as Table 4.9 Characteristics of Stakeholder Groups in the SISP Process.

Group	**Expertise**	**Power**	**Previous IS experience**	**Typical IS awareness**	**Contribution to SISP**
Top Management	Corporate strategy view, external insights	Guarantee financial resources, decide strategic IS investments	Usually none but may have end user experience	IS cost awareness, some strategic IS views, executive information systems needs	Organisational and strategy analysis, higher level control, Information Management strategy formulation
User Management	Business unit strategy view, implementation competency	Business unit responsibility, field experience, implementation and control of IS	None or in a systems requirements phase but may have end user experience	IS service awareness, also cost awareness depending on IS services accounting practices	Strategy analysis, in-business views of field, bottom-up needs, IS strategy formulation
IS Management	IT/IS opportunities technical expertise	Co-operation and technical support, IT architecture development and maintenance	Usually in all traditional IS development phases	Up-to-date technology awareness	Feasibility of IS requirements, IT architecture proposals, IT strategy formulation

Table 4.9 Characteristics of Stakeholder Groups in the SISP Process

(Ruohonen 1991, p.19)

Lederer and Salmela (1996) also argue that an important resource for SISP is the organisation's business plans. Byrd, Sambamurthy and Zmud (1995, p.66) found a correlation between firms with lower quality business planning and lower quality SIS plans and Earl (1993, p.8) and Fink (1994, p.110) found that a problem for SISP practitioners is the lack in organisations of business plans that are detailed enough to

indicate what the IS needs are. Fink (1994, p.110) argues that this presents a challenge for SISP practitioners to infer what the IS needs are from an inadequate base of knowledge about the organisation's purposes and strategic capabilities. Levy, Powell and Galliers (1999, p.254) in a study of four firms in the UK found evidence of the absence of business strategy.

Lederer and Salmela (1996, p.244) also suggest that certain forms of computer software can help in managing the SISP process however Bai and Lee (2003) found no support for their hypothesis that the use of computer supported planning systems enhanced the quality of the SISP process.

Bai and Lee also found in their study that the quality of the SISP process does not appear to depend upon the effectiveness of stakeholder interaction or extent of stakeholder involvement. Kearns (2006) sought to demonstrate that top management support for SISP would be more important for firms moving to a more competitive environment compared to other industries. Kearns argues that such firms will adopt strategic management tools such as SISP as they are forced to adapt to a more competitive environment. However mean scores of his survey of 161 US based firms did not demonstrate a significant difference between the two groups (Kearns 2006, p.243) and a key hypothesis that top management's perception of the IS function would be stronger in such firms was not supported (Kearns 2006, p.246).

4.3.2.1.4 Process Construct

The planning process is the set of activities an organisation undertakes to define and produce the strategies and plans for its information systems. In comprehensive SISP the process is likely to be methodological in nature or "a series of well defined steps" (Lederer and Salmela 1996, p.245). SISP methodologies often originate from consulting firms who practise SISP (Lederer and Salmela 1996, p.245) or may have been developed within the organisation. Methodologies set out the steps involved in moving from the initiation of the SISP project to the final deliverable the Strategic Information Systems Plan. They provide a structure and predetermined way of conducting the planning activity.

A typical methodological approach is outlined by Mentzas (1997, p.88) who sees the SISP process as following, in broadly sequential fashion, five key phases: strategic

awareness, situation analysis, strategy conception, strategy formulation and strategy implementation planning. Each of the five phases is then broken down into nineteen stages and each stage consists of many modules of activities. The objective of Mentzas's model is to 'satisfy the need for a consistent linkage of IS strategy with corporate strategy by adopting elements of the corporate strategic planning literature' (Mentzas 1997, p.84). Mentzas's phased process represents the tradition of comprehensive SISP involving and exhaustive analysis of capabilities and a search for opportunities. It also advocates a carefully structured organisation of participants (managers, technical teams, domain experts) to undertake the task.

Despite the general view that following a methodology was widely regarded as sound practice (Lederer and Gardiner 1992) and although this allowed for some variety of approach across organisations (Lederer and Salmela 1996, p.245) researchers have found (Lederer and Sethi 1988, Goodhue, Kirsch, Quillard and Wybo 1992; Lederer and Sethi 1992) the prevalence of problems with the methodological approach. In their 1992 survey of eighty IS planners Lederer and Sethi found the following problems with SISP methodologies (1992, p.33):

- Failure to take into account organizational goals and strategies
- Failure to assess the current applications portfolio
- Insufficient involvement of users
- Inappropriate assumptions about organizational size
- Failure to take into account issues related to plan implementation
- Requires too much top management involvement

Flynn and Arce (1995) note that methodologies differed somewhat on their focus for example whether they emphasised alignment with the business objectives or competitive advantage through impact. The focus might be non-strategic that is focussed on problem solving while the analysis of the business might be based on Porter's Value Chain Analysis or strategic thrust opportunities (1995, p.66). They point out that very little guidance was available to practitioners on how to choose between the different methodologies. Brumec, Dusak and Vreek (2001) note that

there is an absence of a unified methodology for SISP because methodologies differ in their entities and concepts. This means it is difficult to formalise the transfer of these items across different methodologies and explains why there is no CASE tool for SISP. A further criticism of the methodological view of SISP is that it ignores the question of how these methodologies are actually initiated and used in organisations which are a function of "managerial values, beliefs, and experiences regarding strategic planning" (Segars, Grover and Teng 1998, p.304).

4.3.2.1.5 Information Plan Construct

In the Lederer and Salmela (1996) theory the information plan or SIS Plan is the outcome of the planning process construct and is an input to the implementation phase. A typical SIS Plan includes a range of items focussed on the information systems, information technologies and organisational arrangements that an organisation needs to support its business activities and business strategy. An example of the contents of one type of SIS plan based on Andersen Consulting's Method/1 Approach (Lederer and Gardiner 1992), is summarised in Table 4.10 A Typical SIS Plan.

The SIS Plan needs to relevant to the needs of the organisation and be feasible from an implementation perspective (Lederer and Salmela 1996, p.247). In a survey of eight SISP practitioners Lederer and Sethi (1992) identified a number of problems with the SIS Plan typically produced by a SISP project. These problems were grouped into four groups: organisation, implementation, database and hardware. The failure to link the plan to business objectives and the business strategy also evidence by the lack of a clear link between the objectives for the IS function and the organisational objectives. Not making clear the link between the plan and business goals limits the usefulness of the plan.

- Summary of organization's information technology strategy.
- **A data and application plan including initial data entities and high-level specifications for applications; requirements for data management, security, and training; tools for system development and maintenance; and the costs, benefits, risks, and resource requirements resulting from the plan.**
- **A change management plan describing actions that will facilitate the adoption of the strategic information plan.**
- **A human resources plan identifying newly required IS skills and the new roles and responsibilities of those who will use the skills.**
- **A technical architecture of specific computer and communications hardware plus supporting databases and systems software and a plan for implementing the architecture.**
- **A migration plan including an overall approach, key projects, and their order of implementation with the costs, benefits, and risks of each project.**
- **A migration plan including an overall approach, key projects, and their order of implementation with the costs, benefits, and risks of each project.**
- **A description of the process for annually updating the strategic information plan.**
- **An appendix of reference materials on which the strategic information plan is based including detailed analyses, diagrams, and charts.**

Table 4.10 A Typcial SIS Plan (Lederer and Salmela 1996, p.246)

Inadequate specification of key data requirements and database development needs of the organisations also limits the plan's usefulness. Not being useful in these terms or failing to connect the plan's content with top management's expectations impairs commitment to implementation. The lack of a hardware plan may contribute to system incompatibilities.

SIS plans may also go out of date because of changing technologies and business priorities. This may occur because of inadequate links between business planning and IS planning activities or inadequate resourcing for ongoing planning activities. There is also the problem that business opportunities may exist for relatively short periods of time which are insufficient for updating the SIS plan (Atkinson 1992, 68-69). Byrd, Sambamurthy and Zmud (1995) used multiple case studies to examine the factors affecting the quality of an organisation's IT plan. They found that organisation's with sophisticated and innovative IT infrastructures tended to have higher quality IS plans. Other factors of importance were related to the SISP process and included top management support, consensus amongst IS planning staff, a strategic outlook in the

business planning process and a technology base that is balanced and focussed on business priorities.

Mocker and Tuebner (2005) identify four types of SIS Plans: functional strategy, application portfolio, enumerative list and system of plans. Mocker and Tuebner's (2005) research indicates the problematic nature of these current forms of the SIS plan and their lack of a firm theoretical justification for their contents. In the functional strategy form IS is considered as a business function such as finance, HR, marketing or production. Such a view assumes that strategic decisions can be delegated to the IS function or branch. Although attempts have been made to align IS across these functional areas (Boddy, Boonstra and Kennedy 2005, p.91) this introduces complexity and does not provide a strategic view. The most common form of the SIS plan is the application portfolio (Lederer and Sethi 1988). Here the key strategic decision is which system should be developed to provide the greatest strategic benefit, which is associated with the organisational need to generate competitive advantage. Mocker and Tuebner (2005, p.4) argue that the focus on applications may be at the expense of other potentially important issues such as user skill deficiencies or implementation challenges.

Without a property criteria for deciding what should be covered by a SIS Plan, Mocker and Tuebner (2005, p.4) find that many practitioners resort to compiling an enumerative list of key decisions areas that the organisation should address. Mocker and Tuebner (2005, p.4) review three such lists including the one from Lederer and Salmela (1996, p.246) shown in Table 4.XX A Typical SIS Plan. Mocker and Tuebner (2005, p.5) note the wide variations in the kinds of things listed, in particular the tendency to include both high level abstract elements such as mission, objectives and strategies as well as more operational elements such as tools for systems development and detailed project costs and benefits. With such lists it is difficult to know if the list is comprehensive and the absence of structure indicates a lack of a coherent rationale for the inclusion of some items and not others.

In the system of plans category the contents of the IS plan are determined by an underlying relationship between key domains of the organisation's use of information systems however Mocker and Tuebner (2005, p.6) find similar problems to the enumerative list form of SIS plan. The selection of the key domains is itself not

justified being based on common sense judgements so that "the relevance of the planning domains and the reasons for their distinction remain unproven." (Mocker and Tuebner 2005, p.6).

To address the problems with the four types of IS plans Mocker and Tuebner propose a new model comprised of two domains, the Information Infrastructure Strategy (IIS) and the Information Function Strategy (IF). The IIS combines domains of IS and IT strategy while the IF domain focuses on information management. A key advantage of this approach is that it recognises that each of the component strategies (IT, IS, IR) are "different in nature requiring the application of different decision logics and different competencies of the planner."

4.3.2.1.6 Implementation Construct

In Lederer and Salmela's theory of SISP the information plan construct has a causal effect on plan implementation. The information plan contains a series of recommended IS related projects so Gottschalk (1999) who has researched this link in a number of articles, defines its implementation as "the process of completing the projects for application of information technology to assist an organisation in realising its goals" (1999, p.81, italics in original). However Brown's findings from his review of the 137 SISP specific articles published between 1992 and 2002 shows that only 7% were concerned with the extent of plan implementation (Brown 2004, p.31), which points to a surprising gap in the literature because "without plan implementation, the whole planning exercise may be thrown into question" (Brown 2004, p.24).

Despite the limited SISP specific literature on the link between the information plan construct and the plan implementation construct of Lederer and Salmela's (1996) theory, there is an extensive literature concerned with IS implementation generally. This literature shows that the successful completion of IS projects will be affected by a wide range of factors associated with the internal and external organisational setting. It also shows that organisations have experienced significant problems during the implementation of IS. Lederer and Sethi (1992a) conducted a survey of eighty IS planners which revealed that nearly half of the planners found their IS plans did not contain sufficiently detailed specifications for design of the systems to begin, an

absence of implementation plans "to bring the plan to fruition" and an absence of strategies to respond to "resistance of those managers who oppose the plan" (1992a, p.74). Premkumar and King (1992, p.101) report inadequate resourcing as an obstacle to effective implementation. Earl (1993, p.5) notes, in addition to resourcing issues and resistance, the problem of "technological constraints" which slows down the development of new systems and saps the commitments to new systems made in the IS plan. Knights and Morgan (1995, p.206) note the vulnerability of IS plan commitments to the effects of changing business conditions and internal organisational struggles between different groups over organisational priorities: "Strategic commitments will be sacrificed in order to meet short-term sales targets of the demands of politically influential managers or functions in the organization" (1995, p.206).

Despite the different research approaches and perspectives the literature shows some convergence on key aspects of implementation. For example Davidson (2002) and Knights and Murray (1994) represent consistent positions on the role of power in the systems development process, which shows the changing interests of powerful stakeholders continually challenge it. These views are also consistent with the findings of Lapointe and Rivard (2005) on the role of power in the formation of resistance to the use of a new IS.

Successful adoption of technology in the workplace depends on the degree of compatibility between the task at hand and the particular technology in use (Cooper and Zmud's 1990, p.132; Goodhue and Thompson, 1999). Klein and Sorra (1996) argue that a supportive organisational climate for innovation implementation is also a necessary antecedent for effective implementation. Successful diffusion of a technology is thus not just a function of adoption by individuals but has to be actively facilitated and promoted by management because of resistance factors (Yetton, Sharma and Southon 1999, p.55). However the way management does this has to take account of findings such as those of Lapointe and Rivard (2005), which show that the form and object of resistance to implementation can change during the process and that management action needs to be based on an understanding of the causes of resistance behaviour. In their study of resistance Lapointe and Rivard (2005) review

four extant models that explain resistance to new IS. These models are summarised in Table 11 Extant Models of Resistance.

Model	Description	Author
Political variant of interaction theory	Resistance is an outcome of interaction between aspects of the system and the existing organisational power status of different groups. Groups will resist the system if it is perceived to reduce their power status	Markus (1983)
Equity theory to	Resistance as an outcome of perceived inequity by individuals in relation to the effects on them in comparison others and the organisation of the introduction of a new system.	Joshi (1991)
Passive resistance	Resistance as a "passive-aggressive responses to threats or stresses that an individual will, rightly or wrongly, associate with a new system" (2005, p. 463)	Marakas and Hornik (1996)
Attributional	Resistance as an outcome of the interaction between an individual's previous experience with information technology and a range of other internal and external variables. Positive or negative prior experiences lead the individual to make causal attributions as to the likely outcomes of future attempts to use the technology. These attributions shape behaviour, which in turn result in outcomes that generate new attributions in a kind of cyclical process. (2005, p.462)	Martinko et al. (1996)

Table 4.11 Extant Models of Resistance

Lapointe and Rivard acknowledge the contribution of these models to understanding the nature of resistance especially that it is not always negatively motivated and resistance is a complex process involving several factor, however, they propose their own model to more adequately explain the resistance phenomenon as an interactive process that evolves over time. The model is comprised of five key components, resistance behaviours, object(s) of resistance, perceived threats, initial conditions and subject of resistance" (2005, p.464). The object of resistance refers to the innovation or the new IS that is introduced into a social setting. Its content, such as the features of the system, will be important. The concept of perceived threats is an important because resistance is seen as a behavioural response to some perceived threat. The subject of resistance is the individual or group that displays resistance behaviours. The subject can be a group or individual. The perspective tends to be psychological in the case of individuals and political in the case of groups (2005, p.467). Finally,

initial conditions refers to such things as the existing distribution of power and established routines in the setting, which may have an effect on perceptions of threat (2005, p.467). The model is illustrated in Figure 4.8 An Episode for period T1 from a Process Model of Resistance.

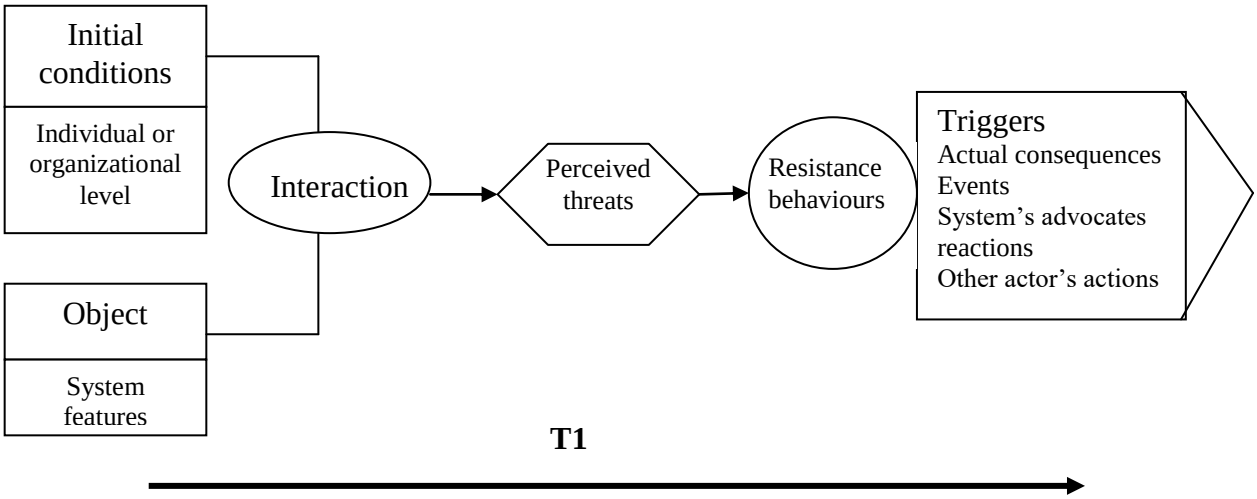


Figure 4.8 An Episode for period T1 from a Process Model of Resistance (Lapointe and Rivard 2005, p.480)

An important implication of this research is that the nature of resistance changes during the implementation period. This is because there are mixed determinants of resistance behaviour in the form of antecedents, which potentially have multiple instantiations and are subject to a wide range of triggers, which can activate their effects (2005, p.483). In the early stages it tends to be associated with individual and hence independent behaviours whereas in later stages individual behaviours begin to converge. In the case studies the object of resistance also changed from "the system itself and its features" to "the significance of the system or the system advocates" (2005, p.484). By this later stage "resistance has become politicized. As a result, managing resistance becomes a more difficult undertaking" (2005, p.484).

There is recognition that implementation success is no guarantee of innovation success or beneficial outcomes (Klein and Sorra 1996; Pare and Elam 1997; Delone and McLean 1992; Orlikowski and Robey 1991). Uncertainly arises from the multiplicity of factors involved in implementation and the impossibility of complete control over them. Larsen's (2001) implementation research framework for example provides a taxonomy of seven categories of 69 focal variables for a total of 359

related sub variables found to be significant in the factor stream of implementation research (2001, p.3). Part of this uncertainty is also related to contradictory goals of stakeholders in large projects (Gutierrez and Friedman 2005).

4.3.2.1.7 Alignment Construct

Segars and Grover (1998) argue that alignment is a key dimension of SISP success. Alignment refers to the linkage between business and IS strategy and the need for IS strategy to be "congruent with the organization's competitive needs rather than existing patterns of usage" (1998, p.143).

Chan (2002) identifies two types of IS alignment: strategic and structural. Strategic alignment refers to the relationship between IS strategy and business strategy or the "the fit between the priorities and activities of the IS function and the business unit" and its goal "is for IS priorities, capabilities, decisions, and actions to support those of the entire business" (2002, p.100). This contrasts with structural alignment, which refers to

> organizational structure and includes such areas as the location of IS decision-making rights, reporting relationships, (de)centralization of IS services and infrastructure, and deployment of IS personnel. The goal of structural fit is for these IS and business structures to support organizational objectives, and not work at counter purposes to them. (Chan 2002, p.100).

The factors identified as important in the alignment process and outcome are summarised in Table 4.12 Key Factors Affecting Alignment. There is general agreement that the degree of alignment between the business strategy and IS strategy affects organisational performance and Chan, Sabherwal and Thatcher (2006) show that this applies across both profit and not for profit types of organisations and for different kinds of business strategies. Amongst the other areas of agreement is that, because of change both within and outside of the organisation, achieving alignment is a process of continuous adjustment rather than a static condition (Henderson and Venkatraman 1993; Luftman, Lewis and Oldach 1993; Hirschheim and Sabherwal 2001).

Author	Focus	Findings
Lederer and Mendelow (1989)	Linkage between business and IS planning	Key factors are content, timing and personnel involved
Teo and King (1997a, 1997b, 2000)	Integration of business planning and IS planning	Firms move through different levels or degrees of integration. Most are at level 2 and 3. Business knowledge of the IS executive is the most important factor.
Teo andAng (1999)	Critical success factors	Top four factors do not include timing and personnel.
Luftman (2000)	Enablers and inhibitors of alignment	Six enabling factors but only two are CSFs in Teo and Ang (1999). Most organisations at a moderate level of alignment only. Many factors involved in achieving alignment.
Reich and Benbasat (2000)	Social dimension of alignment.	Shared domain knowledge is an antecedent of both short and long term alignment.
Campbell, Kay, and Avison (2005)	Social dimension of alignment	Communication and mutual trust are antecendents of shared domain knowledge not the reverse as in Reich and Benbasat (2000)
Chan, Saberherwal and Thatcher (2006)	Antecedents of alignment	Planning sophistication which includes communication is a clear antecedent of shared domain knowledge across for profit and not for profit orgnisations and across different types of strategies. Shared domain knowledge is a clear predictor of alignment.

Table 4.12 Key Factors Affecting Alignment

At the level of social interaction shared domain knowledge between business and IS executives is important in the process of achieving alignment because it promotes mutual understanding of business and IS problems and capabilities between executives from each domain (Reich and Benbasat 2000). In this regard Teo and King (1997a) found that business knowledge of the IS executive was the only significant contingency variable affecting IS to business planning integration.

Campbell, Kay and Avison (2005) and Nelson and Cooprider (1996) demonstrate that prolonged communication is an antecedent to mutual trust, which are both antecedents to shared domain knowledge. Further support for the prior importance of communication comes from Chan, Sabherwal and Thatcher (2006) who found strong evidence to show that planning sophistication, which requires good communication, was an antecedent of shared domain knowledge and not a direct predictor of alignment. Chan (2002) affirms the importance of the informal communication relationships that cut across formal relationships. Few organisations achieve high levels of alignment however (Teo and King 1997a; Luftman 2000). In regard to environment effects on the achievement of alignment by organisations Teo and King (1997a) found that environmental factors are not significant. Campbell, Kay and Avision (2005) argue that there is a web of cause and effect relations underpinning alignment. In the area of structural alignment organisational characteristics shape the locus of decision-making for the IS function but most organisations face situations of multiple conflicting contingencies (Brown and Magill 1994, 1998) that lead to unpredictable forms of IS governance (Sambamurthy and Zmud 1999).

4.3.2.2 The Incremental Model of SISP

The systems view of SISP suggests first that SISP is a logical sequence of activities with a clearly defined structure (input, transformation process, output) and second that it is the same for all organisations. Fry and Smith (1987, p.123) also state "The systems approach emphasizes the search for contingencies among multiple dimension of organizational context, structure, and performance". Dawson points out however that contingency approaches to the analysis of organisational change neglect the perceptions of agents in shaping the way the organisation responds to its environment as well as suggesting there is one single strategy that will suit the organisation for "the entire process of regaining internal fit with the external environment" (Dawson 1996, p.60-61). This contrasts with the incremental model of SISP, which reveals that SISP does not necessarily follow a logical or systematic structure and that organisations display different approaches to SISP. There is clear evidence of different SISP responses to organisational conditions.

Earl (1993) put forward the concept of the planning process as an approach, which is contingent on "the interaction of method, process, and implementation" and the

behaviours of those involved (Earl 1993, p.6). Method refers to the "SISP technique, procedure, or methodology employed", process refers to the activities of planning and the behaviours of participants while implementation refers to the activities of project initiation and management. This is illustrated in Figure 4.9 Necessary Conditions for Successful SISP.

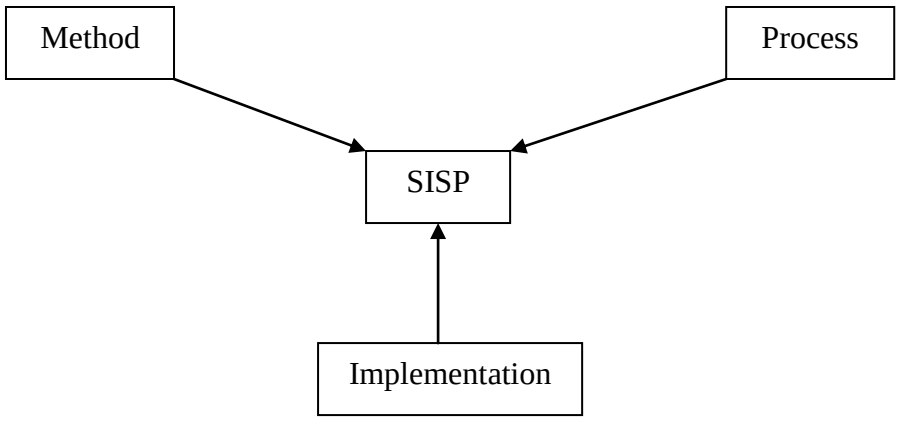


Figure 4.9 Necessary Conditions for Successful SISP (Earl 1993, p.6)

In his case studies of 27 UK companies Earl identified five styles of SISP, which he called approaches. These are summarised in Table 4.13 SISP Approaches.

	Business Led	**Method Driven**	**Administrative**	**Technological**	**Organizational**
Underpinning Assumption	Business plans and needs should drive IS plans	IS strategies will be enhanced by use of formal SISP method	SISP should follow and conform with the firm's management planning and control procedures	SISP is an exercise in business and information modelling	SISP is a continuous decision-making activity shared by the business and IS

Table 4.13 SISP Approaches (Earl 1993, p.12)

To capture the nature of these responses Earl's concept of an approach introduces some new elements to the contingency based system theory of SISP. SISP is not just planning for applications but also planning for the implementation phase and it may be unstructured, possess an element of the unpredictable and be dependent on the behaviour of the participants:

> An approach is not a technique per se. Nor is it necessarily an explicit study or formal, codified routine so often implied in past accounts and

> studies of SISP. As in most forms of business planning it cannot often be captured by one event, a single procedure, or a particular technique. An approach may comprise a mix of procedures, techniques, user-IS interactions, special analyses, and random discoveries. There is likely to be some formal activities and some informal behaviour. (Earl 1993, p. 7)

Earl assessed the five approaches on three dimensions of perceived success, number of concerns and competitive advantage potential and found that "both qualitative and quantitative evidence suggest that the Organizational Approach is likely to be the best SISP approach to use" (Earl 1993, p.16). This approach to SISP reflects the idea of emergent strategy where 'plans' may form without formal planning in a continuous process of interaction that responds to organisational needs:

> The reality may be a continuous interaction of formal methods and informal behaviour and of intended and unintended strategies. If so, SISP in practice should be eclectic, selecting and trying methods and process initiatives to fit the needs of the time. One consequence of this view might be recognition and acceptance that planning need not always generate plans and that plans may arise without a formal planning process. (Earl 1993, p.18)

Rather than formality, rationality and comprehensiveness IS strategy "develops in discontinuous, contested and contingent ways as a result of conflicting interpretations, political machinations and short-term demands for business success." (Knights and Morgan 1995, p. 192) and it is influenced by the social, political and historical context of technology is important in the SISP process and the development of information systems (Hackney and Little 1999, pp. 120-121; Knights and Murray 1994, p.71). Stone and Brush (1996, p.648) comment that the context of planning is often ambiguous because there are 'multiple conflicting constituencies and a lack of direct control over resources'. This generates a managerial dilemma: 'the need to use informality and vagueness to gain commitment from diverse interests, and the need to demonstrate formalization of managerial practices to acquire legitimacy from critical resource suppliers.'

Segars and Grover (1998) argue that SISP success is a multi-dimensional construct one of which they define as the cooperation dimension which refers to the degree of "agreement concerning development priorities, implementation schedules, and managerial responsibilities" amongst the important "coalitions and bases of power within the organization" (1998, p.144).

Sabherwal and King (1995) examined the way in which managers involved in SISP make decisions about which IS applications will be developed and especially those believed to be strategically important. Their research model posited that the attributes of the strategic decision making process depend on the topic of the decision (potential development of a strategic IS application) and the organisational context (internal and external including role of IS function) in which the decision is made (Sabherwal and King 1995, p.183). They find evidence of the political dimension of IS strategy referred to by Hackney and Little (1999) and Knights and Murray (1994).

Using cluster analysis on eighty-one responses to a survey of IS executives of US firms Sabherwal and King found five types of decision making processes. The five types and the topic and context factors that lead to their adoption are summarised in Table 4.14 Five Strategic IS Decision-Making Processes.

Sabherwal and King 1995, p.195) found the incremental process was associated with the least successful IS applications while the fluid process was associated with the most successful but they caution practitioners that "in deciding on potentially strategic systems … no one process should be considered universally applicable. Instead, any of five processes … may be used, depending on the specific circumstances" (Sabherwal and King 1995, p.200).

Segars, Grover and Teng (1998) specifically address the question of what characteristics are associated with successful SISP. Drawing on the strategic management literature and prior SISP research including Earl (1993) and Sabherwal and King (1995), they argued that successful SISP depends not on one factor alone but coalignment between six constituent process dimensions of the overall system. These dimensions are summarised in Table 4.15 SISP Process Dimensions.

	Planned	Provincial	Incremental	Fluid	Political
Description	Use of formal planning methodologies, top management influence	IS function and top management influence	Short-term consideration, little or no use of formal methodologies, internal conflicts and politics, low role for top management, slow process marked by delays	Used for competitive advantage applications, little or no use of methodologies, quick, does not encounter internal resistance, decisions are novel but not contentious, IS function has little influence	Involves internal resistance and politics between stakeholders, uses formal planning methodologies, top management influence but not the IS function
When Used	Formalized organizations in heterogeneous environments.	Low formalized organization and homogeneous environment	Homogenous environment, low IS maturity, formalized organization	High need for competitive response or customer need, depends on the nature of the IS application	External environment is hostile causing resource constraints, and also heterogeneous, requiring inputs from several departments, small and less formalized organization

Table 4.14 Five Strategic IS Decision-Making Processes

Dimension	Description
Comprehensiveness	Extent to which an organization attempts to be exhaustive or inclusive in making and integrating strategic decisions
Formalization	Existence of structures, techniques, written procedures, and policies which guide the planning process (formal v informal)
Focus	Balance between creativity and control orientations inherent within the planning system (creative v control oriented)
Flow	Locus of authority or devolution of responsibilities for the planning process (top-down vs. bottom-up)
Participation	Breadth of involvement in planning process (broad v narrow)
Consistency	Frequency of planning activities or cycles

Table 4.15 SISP Process Dimensions (Grover and Segars 2005, p.763)

The concept of coalignment refers to the extent to which the individual dimensions act collectively such that "the effectiveness of the collective dimensions are greater than each individual dimension" (Segars, Grover and Teng 1998, p.310). On this basis

their research proposition is that if the dimensions "favourably align, the planning system as a structure should be more successful than its individual dimensions" (Segars, Grover and Teng 1998, p.313). The process of coalignment amongst the dimensions of the system is called rational adaptation which means "A system of planning which is structured and formalized; yet 'learns' through adaptive behaviours of participation and reconciliation" (Segars, Grover and Teng 1998, p.313). Hence the proposition becomes the more rationally adaptive the planning system the greater its effectiveness and Segars, Grover and Teng find empirical support for this proposition. Their planning system is illustrated in Figure 4.10 A Rational Adaptive Planning System.

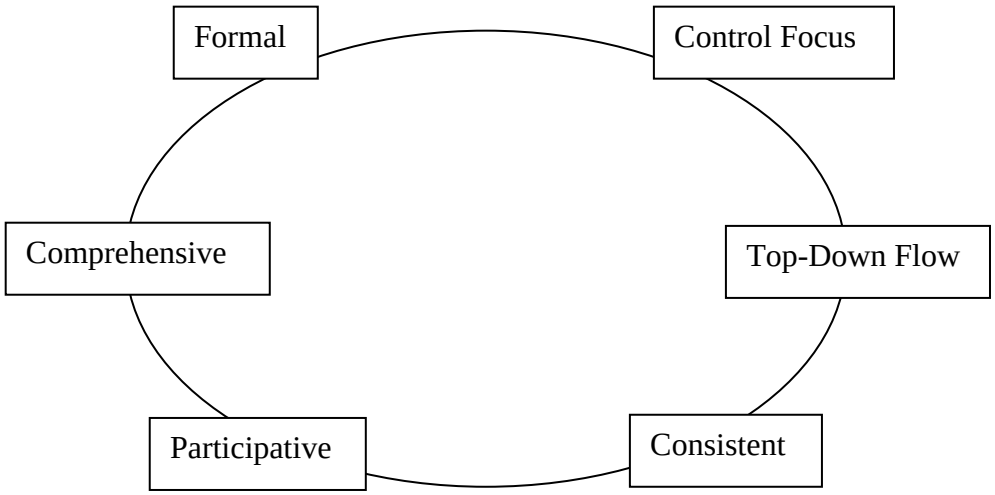


Figure 4.10 A Rational Adaptive Planning System

The findings of their research suggest effective systems of SISP are ones which are rational, that is exhibit high levels of comprehensiveness and formalization, a top-down planning flow and a focus on control and adaptability, that is high levels of participation and consistency (Segars, Grover and Teng 1998, p.199). Segars, Grover and Teng's planning system is based on contingency theory because "It is the combination or coalignment of both rational and adaptive planning dimensions that gives the planning system a structure and, most important, determines the fit of the system to context" (Segars, Grover and Teng 1998, p.333) and the "presence of environmental and organizational contingencies may certainly alter the 'ideal' pattern of strategic planning coalignment" (Segars, Grover and Teng 1998, p.335). This contingent aspect means that "normative systems of planning are not designed; instead, they "emerge" through constant iteration and feedback" (Segars, Grover and

Teng 1998, p.331) however some "situational design" may help the organisation reach the ideal coalignment state more rapidly.

Using multi-variate cluster analysis on data from 253 US organisations Segars and Grover (1999) identified five distinct profiles of SISP using the schools of strategic management identified by Mintzberg, Ahlstrand and Lampel (1998). These are summarised as schools of thought about the SISP process in Table 4.16 SISP Schools of Thought. Segars and Grover (1999, p.217) relate these schools to Earl's (1993) five approaches showing that the 'learning school' equated with Earl's 'organisational' approach as the most effective form of planning with the least effective being the political school which they equate to Earl's 'administrative' approach. As to the causes of the particular planning schools of thought Segars and Grover suggest that "prevailing planning profiles can at least be partially defined and explained by the experiences, beliefs, and attitudes of senior planners. … A direct implication of these phenomena is that prevailing process structures and associated approaches may be closely linked to deep-seated philosophies about the task and role of SISP. Therefore, along with process structure, beliefs, attitudes, and past experiences can provide a useful definitional context for understanding SISP " (Segars and Grover 1999, p.225). Nevertheless this particular study does not address the question of "how and why organizations migrate from one planning philosophy to another" (Segars and Grover 1999, p.225).

In a further study (Segars and Grover 2005) this question is addressed in terms of how organisations improve their position on the coalignment dimensions of SISP. They argue this is an evolutionary process as a result of adaptation and learning in response to changes in the environment and the technology base (Segars and Grover 2005, p.765). Using the same survey as the previous study Segars and Grover found that firms pass through three stages in their SISP development: preliminary, evolving and mature. However the dimensions of focus (creativity versus control) and flow (locus of authority for SISP responsibility) did not show the expected degree of change between adjacent stages (Segars and Grover 2005, p. 770). The explanation for this is that "the degree of rational versus adaptive elements in planning systems might vary with the organization and environmental context" (Segars and Grover 2005, p.773).

In other words situational factors will determine the extent of evolution towards the mature form of SISP.

	Design	Planning	Positioning	Learning	Political
Description	Strategic visionary analyses and then reconciles organizational capabilities with competitive opportunity (p.216). Top down flow of executive strategy making (p.218).	Planning is an outcome and function of structured organizational study. Innovation can be institutionalized rather than conceptualized (p.219). Strategy as detailed strategic plans using methodologies.	Top IS executives control the planning process. Use of formal analytical tools (value chian analysis, critical success factors, balanced score card) to identify strategic positions (p.219). Focus on positioning the IS organization within the competitive context (p.220).	Strategy emerges as a result of formal and continuous reconciliation of ongoing initiatives throughout the organization and associated opportunities (p.220). Priority given to sharing of knowledge. Strategy through the initiation of strategic actions and resultant feedback (p.221).	SISP is a process involving power and political means to achieve desired outcomes (p.222). Role of the planner is negotiator or broker between organizational interests. Parochial interests over organisational (p.223).
Comprehensiveness	M	H	M	H	Low
Formalization	M	H	M	H	Low
Focus	Mixed	Mixed	Control	Control	Mixed
Flow	Top Down	Mixed	Mixed	Top down	Bottom-Up
Participation	M	M	H	H	Low
Consistency	M	M	H	H	Low
Earl's approach	Business-Led	Technological	Mehtod-Driven	Organizational	Administrative

Table 4.16 Planning Schools of Thought (Segars and Grover 1999, p.215 - 224)

In a survey of 267 IT Directors in the UK Doherty, Marples and Suhaimi (1999) used cluster analysis to identify four distinct approaches to SISP using ten process dimension including the six used by Segars, Grover and Teng (1998). Three of these clusters map directly onto Earl's 'organisational', 'business-led' and 'administrative' approaches. The fourth, which they term 'systematic' shows similarities with both of Earl's 'method driven' and 'technological'. Using seven success variables for SISP they confirm that the 'organisational' approach is associated with the most successful form of SISP and the 'administrative' approach with the least successful. These results "confirm, using a highly rigorous statistical approach, the primary conclusions of Earl's (1993) qualitative work" (Doherty, Marples and Suhaimi 1999, p.280). The reason why the 'organisational' approach is the most successful is because it embodies the key prescriptions for successful SISP in the literature including user participation, strong competitive focus, strong implementation focus and senior management involvement (Doherty, Marples and Suhaimi 1999, p.280). They go onto claim that the work of Earl (1993), Segars, Grover and Teng (1998) and their own work "using very different research instruments, different analytical approaches and different target audiences, have all identified a single distinct SISP approach which shares many common characteristics and is shown to be more effective than alternative approaches" (Doherty, Marples and Suhaimi 1999, p.280).

Earl's concept of the SISP approach continues to be used in recent research. Using cluster analysis Warr (2005, p.8) found general support for four of Earl's five approaches based on a survey of 70 UK organisations. Warr's research objective was to investigate the contingency of the different approaches and their relative levels of success by testing a Structural Equation Model (SEM) relating three constructs to SISP success: SISP approach, SISP objectives and SISP context. He also investigated the mediation of SISP objectives on SISP approach and SISP context on SISP approach. Based on prior literature Warr's model incorporates three dimensions for SISP approach and five dimensions for SISP context. These are shown in Figure 4.11 Structural Equation Model of SISP.

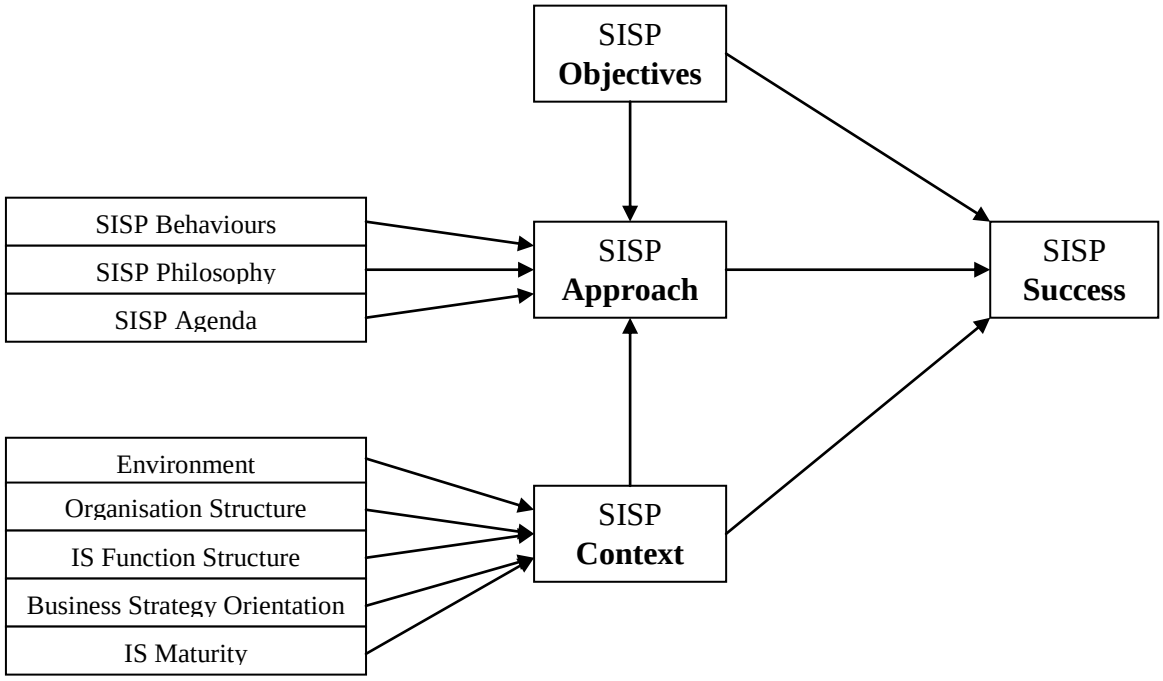


Figure 4.11 Structural Equation Model of SISP (Warr 2005, p.3)

All three dimensions of SISP approach were found to be significant – philosophy, behaviour and agendas. In relation to SISP philosophy, Warr found that only two basic orientations were significant the planning orientation, representing the formal style of SISP and the incremental orientation, representing the continuous emergent process of SISP. In relation to SISP behaviours Warr found five types: technology-orientated organisational, technological, IS executive driven, administrative and business-orientated organisational. In relation to SISP agendas Warr found four aspects that were significant, managing resources and risks, strategic opportunities, power issues and future preparation. Warr found no sub dimensions of the SISP objectives construct (Warr 2005, p.8).

Warr found that the organisation's external environment and the organisation's structure had neither a direct or indirect (via SISP approach) on perceived level of SISP success and the influence of the IS function was weak. Warr speculates that this may be because "SISP is largely shielded from the external environment" (Warr 2005, p.8). Teo and King (1997, p.206) also found that external environment did not appear to affect the degree of integration achieved by the SISP process between business planning and information systems planning. The sub dimensions of business strategy orientation (analysis, futurity and proactiveness) did have a significant influence on

perceived level of SISP success both directly and via the SISP approach. Finally Warr notes that by far the strongest influence from the SISP context, both directly and via SISP approach, was IS maturity.

Warr's key findings are that organisations continue to experience varying levels of success with SISP (Warr 2005, p.7) but the ones that adopt Warr's comprehensive approach seem to experience the most success. Comprehensive approaches "combine formal planning with incremental activities; that employ sophisticated planning processes that provide a broad, balanced focus for SISP; and pursue the widest possible agendas within SISP" (Warr 2005, p.11). This is the same prescription as Segars, Grover and Teng's (1998) coalignment process model of SISP. High success is also associated with proactive business strategies and mature use of IT and IS. Importantly success does not seem to depend strongly on external environment, organisation structure or IS function structure (Warr 2005, p.11).

4.3.3 Conclusion

4.3.3.1 The Comprehensive Model of SISP

The review of the SISP specific literature finds that the research falls into two broad perspectives. The first and most prevalent perspective adopts a systems view of SISP informed by contingency theory which seeks the goal of fit with environment. This perspective is illustrated by Lederer and Salmela's (1996) theory of comprehensive SISP, which has the theoretical goal of predicting SISP success (alignment) in terms of the variance between dependent (alignment) and independent variables and reflect the system state. A characteristic of this perspective on SISP is the extent to which the SISP process or the planning activity of SISP is formal, rational and comprehensive. The comprehensive view of SISP is influenced by the strategy as plan concept and the associated design and planning schools of the strategic management literature. There is for example a striking resemblance between the SWOT model depicted in Figure 4.2 The Strengths, Weaknesses, Opportunities and Threats model and Lederer and Salmela's theory of comprehensive SISP on Figure 4.6 A Theory of Strategic Information Systems Planning. Both models show separate elements for internal and external contexts, an element for the process of strategy or

plan creation and an element for implementation and both incorporate an exhaustive search for optimal solutions during the planning process.

The review finds support for some aspects of the comprehensive model of SISP. Wang and Tai (2002) and Bai and Lee (2003) agree with Premkumar and King (1992) that the future role for IS and the degree of formalization contribute to IS planning system effectiveness. Bai and Lee's (2003) finding that the better the level of the relationship between the CEO and CIO, the better the quality of the SISP process is consistent with earlier work by Hann and Webb (1996), which used an agency theory perspective and a survey of 101 Australian firms, to support the hypothesis that higher levels of senior management control over the SISP process is associated with the SIS plan being a bonding mechanism with the IS manager. There is also agreement that top management support is essential (Teo and Ang 2001; Kearns 2006) and that IS maturity has a positive effect on the SISP process (Cerpa and Verner 1998; Bai and Lee 2003) and that the role of IS in the organisation is important in SISP success.

However there are some conflicting findings in relation to the relationships of Lederer and Salmela's theory of SISP. In relation to the effects of the external organisational environment Lederer and Salmela (1996) argue that a stable context is conducive to comprehensive planning approaches but Salmela, Lederer and Reponen (2000) found comprehensive planning worked better in a turbulent environment than an incrementalist approach, Newkirk and Lederer (2006) found that comprehensive planning yielded no significant advantages, in either stable or unstable contexts, Teo and King (1997, p.206) found that external environment did not appear to affect the degree of integration achieved by the SISP process between business planning and information systems planning and, in terms of perceived SISP success Warr (2005) found that the organisation's external environment had neither a direct or indirect effect.

There is some conflict in the findings in relation to the factors affecting the effectiveness of the SISP process. Bai and Lee (2003) find support for task coordination but not stakeholder interaction and involvement. This is in conflict with the findings of other researchers supporting the importance of these constructs in SISP effectiveness (Ruohonen 1991; Segars and Grover 1999; Premkumar and King 1994). Lederer and Salmela (1996, pp.243-244) argue that organisational structure is relevant

to the effectiveness of SISP but Warr (2005, p.8) finds that organisational structure is not a significant factor in SISP success. Wang and Tai (2002, p.12) found that centralisation has a negative effect on organisational coalignment and on improving planning system capability but Bai and Lee (2003) found that the quality of the SISP process does not appear to depend upon the degree of organisational centralisation. Sabherwal (1999, p.157) found that the extent of organisational integration, or the degree of collaboration between IS planning and business planning, facilitated IS planning sophistication but Premkumar and King (1994, p.98) find that quality of business planning has little impact on the quality and effectiveness of the SISP process. More recently Grover and Segars (2005, p.763) admit that the link between SISP and business performance is problematic "the link between performance and planning has been fund to be inconsistent across organizations and studies. Even in the SISP literature, the results at best suggest a contingent relationship between them."

4.3.3.2 The Incremental Model of SISP

The alternative research perspective sees SISP as an incremental process, which seeks out only a few possible strategic options rather than exhaustively trying to delineate all possible options (Johanson 2009, p.878). It is a mixture of the formal and informal practices, which lead to intended and unintended outcomes. This model of SISP reflects the influence of the strategy as emergent pattern and strategy as meaningful perspective concepts.

The review finds support for the incremental model of SISP. There is strong support for Earl's (1993) findings that organisations adopt different approaches to SISP so that in practice there is no single correct approach to SISP. This is shown in the work of Sabherwal and King (1995), Segars, Grover and Teng (1998), Segars and Grover (1999), Doherty, Marples and Suhaimai (1999) and Warr (2005). Furthermore Doherty, Marples and Suhaimai (1999) argue that this research provides strong support for the thesis that the organizational approach to SISP is the most successful. Earl's (1993) organisational approach, which recommends a mix of informal and formal techniques in SISP as well as the learning school of planning identified by Segars, Grover and Teng (1999), indicate a move away from the rigidity of more method and technology driven styles of SISP to models more aligned with

organisational learning ideas (Pai 2006). Hartono, Lederer, Sethi and Zhuang (2003, p.50) also observe that "SISP is evolving into a knowledge management activity" and Pai (2006) argues that knowledge sharing is important for a successful SISP process.

However Salmela and Spil (2002, p.457) point out that the incremental approach can suffer from problems of "poor definition of infrastructures, high proportion of incomplete projects or discontinuity in planning due to changes in the management team." Hence the incremental approach may be somewhat wasteful of resources as a result of an implicit trial and error process.

4.3.3.3 Comprehensive versus Incremental Models of SISP

The fact that there are a variety of approaches to SISP in organisations suggests that the dominance of the first research perspective is problematic. To some extent advocates of comprehensive SISP have attempted to recognise the implied critique of their model of SISP from the incremental model's perspective by the development of models, which explicitly incorporate a degree of rational adaptability and allow for greater participation by stakeholders in order to respond more effectively to environmental change and the diversity of stakeholder perspectives (Segars, Grover and Teng 1998; Salmela and Spil 2002). Grover and Segars (2005, p.765) note the many debates about the relative merits of the comprehensive versus logical-incrementalism styles of SISP and argue for a combination of the two styles.

But this move is problematic because the two models of SISP are based on fundamentally different concepts of strategy, as plan versus as emergent pattern, in which the latter implicitly asserts the opposite of the former, namely that the outcomes of SISP are unpredictable. In Lederer and Salmela's (1996) theory the outcomes of the process construct are seen to be unproblematic and that implementation and alignment might be major sources of problems for the effectiveness of SISP is not acknowledged. However hundreds of factors have a bearing on implementation success (Larsen (2001) and Wang and Tai (2002, p.12) state "a planning system's capability plays a pivotal role in achieving planning objectives. However, most intended strategies are not realized due to application difficulties and environmental changes that are not under the control of the organization: thus, only a small portion of planned strategies are realized."

Advocates of the incremental model of SISP speculate that the incremental process is manifest differently in organisations because of a number of factors including the influence of 'deep seated philosophies' (Segars and Grover 1999), different adaptive responses to internal and external conditions and political struggles for influence (Segars and Grover (1998). Despite these insights it is still not clear how particular styles of SISP emerge and predominate within an organisation and why some approaches appear to be more successful in some settings and than others.

Despite the work of Segars and Grover (1998) on the concept of SISP success there is still no agreed concept for what constitutes SISP success (Warr 2005, p.2) and while they indicate that alignment is a key dimension of SISP success, Campbell, Kay and Avision (2005) argue that there is a web of cause and effect relations underpinning alignment. A theory of SISP needs to be cognizant of the complexity and possibility of failure in the latter stages of implementation and alignment if it is to grasp the nature of the phenomenon fully. Hence the conclusion of this review of the SISP specific literature is that neither model of SISP adequately explains the problematic outcomes of attempts to use comprehensive SISP or why there is no common approach to SISP in organisations.

4.4 The Public Sector SISP Literature

SISP is an organisational phenomenon and is influenced by the organisational setting within which it occurs. The cases for this thesis are of a particular type of public sector organisation, the government department therefore it is important to understand the characteristics of such organisations. This section is in four parts, first a review of defining characteristics of public sector organisations especially as it relates to government departments, second a summary of the New Public Management reforms, third a review of key issues in relation to the management of information systems in the public sector and finally a review of research specifically focussed on the application of SISP in public sector organisations.

4.4.1 Defining Characteristics of the Public Sector Organisation

Bureaucracy

Bureaucracy is a defining feature of government organisations (Meier and Hill 2005). The characteristics of bureaucracy are summarised in Table 4.17 Defining Characteristics of the Bureaucratic Form of Organising.

1. Fixed and official jurisdictional areas ordered by rules, laws, or regulations.
2. The principle of hierarchy whereby structures are established with superior and subordinate relationships.
3. Management of the office relies on written files now in electronic form.
4. Occupation of offices based on expertise and training.
5. Full time employment of personnel who are compensated and who can expect employment to be a career.
6. Administration of the office follows general rules that are stable and can be learned.

Table 4.17 Defining Characteristics of the Bureaucratic Form of Organising (Meier and Hill 2005, p.52)

There are a number of reasons for the persistence of the bureaucratic organisational form in government departments. First the bureaucratic form is effective for the large-scale tasks of government such as national defense, a social welfare system, political monitoring and the management of the economy (Meier and Hill 2005, p.51). Second the bureaucratic form of organising is deeply ingrained in public sector organisations and there are no realistic alternatives to the "Fixed and official jurisdictional areas ordered by rules, laws, or regulations" (Meier and Hill 2005, p.65). Third hierarchy persists as a basic principle of government departments because it facilitates accountability of one entity, A, to another entity, B, for the performance of task C (Meier and Hill 2005, p.65). Finally the use of office files to maintain a permanent record, now in electronic form, helps to establish an organisational memory of clearly defined processes, procedures and plans and helps to ensure similar cases are treated in a similar way (Meier and Hill 2005, p.65).

Strategic Management in the Public Sector

While bureaucracy is effective for the large-scale tasks of government it constrains the autonomy of people in positions within the hierarchy. Writing from an Australian

perspective Stewart (1995, 2004) argues that in the Westminster system of parliamentary government on which the Australian governmental system is modelled, the scope for strategic management by senior public servants "is constrained by the processes, procedures and routines of Ministerial and Cabinet government (Davis 1995), and more generally, by the conventions of Westminster-based Ministerial responsibility, which allow only a very restricted public role to senior officials." (Stewart 2004, p.17). For this reason "it is clearly Cabinet … which "manages" the vast organisation of government in any society" (Stewart 1995, p.2) and while public servants advise and implement the decisions of government they have more of an administrative rather than strategic management role.

Centralisation versus Decentralisation

The bureaucratic form of organising is subject to pressures for decentralization, which is an important concept in the public management literature (Pollitt 2005). In the centralisation versus decentralisation contingency theory is relevant because of the argument that "fit" or the degree to which an organisation's structure is compatible with various organisational and environmental factors is important for its effective functioning. The process of decentralization is then the result of the need for better fit for example an increase in organisational size results in a growth in hierarchy, which may impair the effectiveness of centralised decision-making so management then institutes forms of decentralisation of authority.

Differences from the private sector

Ring and Perry (1985) argue that there are distinctive contexts (societal, environmental and technological) and constraints (structural and procedural) that effect managerial behaviour and the processes of strategic management in public sector organisations compared to those in private sector organisations. Public sector managers experience a greater accountability to the general public and susceptibility to political reforms and they face high levels of policy ambiguity in order to cope with competing objectives and values of a varied and changing sets of interest groups. Success involves assembling coalitions of support for policy proposals that are difficult to maintain for sustained time periods and requires the use of influence rather than direct coercive authority. Public sector managers must also operate within

artificial timeframes resulting from legislative obligations as well as political and budgetary timetables. These constraints result in a tendency toward incremental decision making in order to maintain a high level of policy flexibility in the face of changing public priorities and issues. (Ring & Perry 1985, p.277-278)

Heeks (2001, p.67-68) notes that public sector organisations must address a broader range of objectives (social, political and economic) than private sector organisations (financial) and a broader range of accountabilities (political and legal) than private sector organisations (shareholders, employees, customers). While private sector organisations focus on the customer and their buying preferences public sector organisations are interested in virtually all life aspects of citizens (health, education, finances, criminal record, children, business activities). Boyne (2002, p.98) indicates three defining characteristics of public organisations that mark them as different from their private sector counterparts: ownership, funding and control. Public organisations are owned by political communities, not entrepreneurs or shareholders, they are funded by taxation rather than payments made by customers of private organisations and they are controlled by political forces, rather than market forces. Rainey and Chun (2005) in a review of articles from 1962 to 2004 identify similar areas of difference and similarity to Boyne (2002). A selection of their key findings are summarised in Table 4.18 Distinctive Characteristics of Public Management.

Distinctive Environmental Factors
• Absence of economic markets for outputs; reliance on governmental appropriations for financial resources. • External control by politically constituted authority: Presence of more elaborate and intensive formal, legal constraints on public managers as a result of oversight by legislative branch, executive branch hierarchy and oversight agencies, and courts. • Presence of more intensive external political influences.
Organization Environment Transactions
• Government activities are often coercive, monopolistic, or unavoidable. Government has unique sanctioning and coercive power and often acts as sole provider of certain services and functions. • Government activities often have a broader impact and greater symbolic significance. There is a broader scope of concern, such as for general public interest criteria. • Public managers often operate under greater public scrutiny than do private sector managers, and they face stronger expectations for fairness, responsiveness, honesty, openness, and public accountability than do private sector managers.
Greater goal ambiguity, multiplicity, and conflict.
• Greater vagueness, intangibility, or difficulty in measuring goals and performance criteria; the goals are more debatable and value-laden (for example, defence readiness, public safety, a clean environment, better living standards for the poor and unemployed). • Greater multiplicity of goals and criteria (efficiency, public accountability and openness, political responsiveness, fairness and due process, social equity and distributional criteria, moral correctness of behaviour). • Greater tendency of the goals to be conflicting, to involve more trade-offs (efficiency versus openness to public scrutiny, efficiency versus due process and social equity, conflicting demands of diverse constituencies and political authorities).
Distinctive aspects of administrative authority and leadership practices.
• Public managers have less decision-making autonomy and flexibility because of elaborate institutional constraints and external political influences. • Public managers have weaker authority over subordinates and lower levels as a result of institutional constraints. • More frequent turnover of top leaders due to elections and political appointments causes more difficulty in implementing plans and innovations.
Strategic decision-making processes
• Several studies indicate that strategic decision-making processes in public organizations can be generally similar to those in other settings but are more likely to be subject to interventions, interruptions, and greater involvement of external authorities and interest groups.

Table 4.18 Distinctive Characteristics of Public Management

(Selection from Rainey and Chun 2005, pp. 92-95)

4.4.2 New Public Management Reforms

The public sector reform agenda of the 1990s argued that the cost of the public sector as a whole was unsustainable and public sector organisations were unresponsive to the real needs of the public (Heeks 2001, p.10). To address these issues new forms of public sector management were introduced including "quasi-market competition, contracting out of professional services and performance orientation in performance-related pay and short term contracts" (Barrett 2004, p.258). The new commercial concepts meant that "Planning and policy-making became imbued with concepts of strategic management, and concerns about the process of implementation were superseded by an emphasis on change management and performance targets." (Barrett 2004, p.258) The role of the state was now seen as "an enabler rather than a provider" and government was depoliticized and "re-cast as business and neo-management" while service delivery was separated from political control resulting in the "proliferation of 'agencies' as one of the structures through which to deliver public services." (Barrett 2004, p.259). Martin (2005, p.676) also notes the influence of public choice theory in the New Public Management (NPM) reforms which have been underway for some two decades (Hood 2001, Lapsley 2008) in European countries, particularly the UK, the US, Australia and New Zealand.

Martin (2005, p.676) also notes the role of consultants in the promulgation of NPM reforms. Governments have adopted "outsourcing consultancy" where entire business functions such as the management of IT functions and supply of related products and services has been assigned to large consulting firms. Consulting firms have also promoted visions of desirable organisational futures and one prominent example has been the e-Government agenda "promoting the use of IT as a tool to transcend organizational boundaries and make government more "joined up" (Martin 2005, p.679). Hood (1991) refers to NPM as a "set of broadly similar administrative doctrines" (Hood 1991, p.3) and Diefenbach describes as NPM as:

> set of assumptions and value statements about how public sector organizations should be designed, organized, managed and how, in a quasi-business manner, they should function. The basic idea of NPM is to make public sector organizations - and the people working in them! -

much more, ‘business-like’, and, ‘market-oriented’, that is, performance-, cost-, efficiency- and audit-oriented.

The core elements are summarised in Table 4.19 Basic Assumptions and Core Elements Of New Public Management.

Element
1. Business environment and strategic objectives
• market-orientation: commodification of services under the slogan of 'value for money' • stakeholder-orientation: meeting the objectives and policies of strong and influential external stakeholders • customer-orientation: service delivery from a customer's perspective • increased organizational efficiency, effectiveness, and productivity defined and measured m technological terms • cost-reduction, downsizing, competitive tendering, outsourcing, privatization of services
2. Organizational structures and processes
• decentralization and re-organization of organizational units, more flexible structures, less hierarchy • concentration on processes, that is, intensification of internal cross boundary collaboration, faster decision-making processes and putting things into action • standardization and formalization of strategic and operational management through widely accepted management concepts
3. Performance management and measurement systems
• systematic, regular and comprehensive capturing, measurement, monitoring and assessment of crucial aspects of organizational and individual performance through explicit targets standards, performance indicators, measurement and control systems
4. Management and managers
• establishment of a 'management culture': management is defined as a separate and distinct organizational function, creation of (new types of) managerial posts and positions emphasizing the primacy of management compared to all other activities and competencies
5. Employees and corporate culture
• empowerment and subsidiarity, staff are expected to develop 'businesslike', if not entrepreneurial attitudes idea of leadership and a new corporate culture

Table 4.19 Basic assumptions and core elements of New Public Management (Diefenbach 2009, p.894)

The importance of achieving clear results in NPM leads to a preoccupation with performance measurement (Hood 1991, Lapsley 2008) as Noordegraaf and Abma (2003) observe "the world of public management has become, first and foremost, a world of measurement" where strong efforts are made to establish "tight, objectified links between objectives, means, outputs and outcomes" (2003, p.853) and where "objectivity, rationality, productivity, effectiveness, efficiency and transparency have become dominant values (2003, p.856). This has led to the development of a range of performance measures and indicators and the use of techniques such as benchmarking (Lapsley 2008, p. 85). However establishing causal links between managerial actions and desired goals has proved problematic. Pollitt argues that the complexity of public sector settings mean that "often the links between programme activities and final outcomes are tentative or obscure" (2000, p.193). He gives three reasons for this. First, referring to Wildavsky (1979), poorly defined and potentially conflicting objectives, second, the long time frames involved in the realisation of programme outcomes and third, the problem of confounding factors such that attributing final results to particular management initiatives is difficult (2000, p. 193). These latter factors may be manifest as societal constraints that lie outside of the direct control of public managers.

4.4.3 Managing Information Systems in the Public Sector

The broader range of objectives of the public sector implies the need for a wider range of information sets than private sector organisations. (Heeks 2001, p.67). However, the fact that public sector organisations do not compete lessens the requirement for the kind of strategic information private sector organisations need for competitive advantage. (Heeks 2001, p.68). In private sector organisations the concept of the output (unit production measures) provides unambiguous indicators of performance that support decision making. These indicators of performance are problematic for public sector organisations where output indicators are more difficult to identify and decision making has to be based on more qualitative assessment of service effectiveness. Willcocks (1994, p. 16) reports also that senior management in public sector organisations are relatively limited in their awareness of the role and capabilities of IS, tend to be more responsive to shorter term political horizons and have viewed IS mainly as a 'bottom-line' efficiency saving mechanism.

Willcocks (1994) notes an emerging structural contradiction between organisation and technology forms: "Fragmentation can lead to contradictions between organizational and technological forms. While the public sector is being broken up into non-integrated units in some sectors managers of these units are being provided with centralized standardized systems over which they have no control." (1994, p.20). Consistent with this point Bellamy and Taylor (1998) argue that pre-exiting bureaucratic structures have limited the ability of technology to liberate the free flow of information. This leads to the following problem:

> technologically supported elaboration of governmental structures has become a source of enormous expense and inconvenience. Organizational complexity keeps internal administrative costs unacceptably high and restricts the financial returns from new technology investment, as vast amounts of paper continue to flow between information systems which are fragmented by the functional segmentation of government. (Bellamy and Taylor 1998, p.7).

The second problem is that new informational dependencies are emerging as a result of the structural changes to the organisation of government in line with the NPM reforms but these are not supported by a correspondingly strategic approach to the role of IS in these organisations. Bellamy and Taylor (1998, p.7) referring to Muid (1994) comment:

> The disaggregation of departments into agencies, and the more extensive contracting-out of IS under the market testing programme, are creating new informational dependencies along with new managerial relationships. The increasing fragmentation of government is making the strategic development of government more difficult, whilst at the same time it highlights the new relationships and informational flows on which new management processes and organizational structures critically depend.

The centralisation versus decentralisation debate is relevant to the strategic management of information systems (Ward and Peppard 2002, p.345; Heeks 2000). Heeks (2000, p.127) discusses centralised and decentralised forms of decision making in relation to information systems. In the centralised approach decisions are taken at

the most senior or central level while in decentralised approaches decisions are taken at levels lower than the most senior such as by sub-units of the organisation or individual staff. Both forms of decision making have advantages and disadvantages but they are also subject to a number of organisational constraints. He identifies seven constraints on centralised styles of decision - making, which are summarised in Table 4.20 Constraints of Centralised Approach to IS Management.

Heeks notes three of the constraints applicable to centralised approaches to IS management also apply to decentralised approaches. There may be technical constraints on decentralised systems because of the dominance of pre-existing centralised systems and decentralised systems may suffer because of a lack of appropriate resources such as necessary technical skills and there may be political constraints such as the unwillingness of central system owners to change existing information flows and system arrangements (2001, p.133).

Heeks argues that public sector organisations face a dilemma between the advantages and disadvantages of centralised versus decentralised approaches to IS management. Heeks proposes a core – periphery approach as a way of at least partially resolving the dilemma. Essentially this approach acknowledges that both centralised and decentralised approaches will be found in organisations but draws both approaches into an integrated model which provides "the control necessary to share key resources (including data), to avoid duplication, and to achieve economies of scale; and the freedom necessary to meet user needs, and to overcome blocks to IT usage and IS development." (Heeks 2001, p.135). The key decision of this approach is deciding what is core or common to all areas of the organisation and what can be more local or unique to the periphery of the organisation.

Constraint	Description
Technical	Technical incompatibilities between existing systems in the organisation including differences in software and data definitions but interconnection between different business unit systems is essential for the creation of a centrally controlled network.
Resources	Centralised approaches require intensive planning and coordination requiring skills, resources, funding and expertise that the organisation may not possess.
Perceptual	Senior management may have difficulty understanding the value and nature of information for example that it is an organisation – wide resource, it is costly to produce, that it must be managed if it is to be reliable but it can provide value to the organisation. The costs of decentralised approaches to IS management are less obvious but the benefits to the local business unit are more direct and tangible whereas centralised approaches force an "up-front" commitment and the benefits may be intangible.
Political	Information is power and attempts to alter the ownership and flows of information interfere with local business unit autonomy and power. There is resistance to the idea that local business unit information is in fact organisational information, which leads to resistance to the sharing of information. The same resistance may be manifest in relation to centralised control of IT resources such as software, equipment and staff.
Cultural	Decentralised and autonomous business units may resist centralised approaches because of tribalistic attitudes, myopic focus with local issues and priorities or lack of trust of other business units including central coordinating units all of which work against cooperation.
Structural	This refers to a number of factors including not only the actual structure of responsibility for an organisation's IS resources but also the prevailing attitudes and understandings of IT amongst management and staff. Senior managers may not understand the potential of IT to benefit the organisation and be fearful of a loss of power and control through supporting it. Staff in the IT area may be preoccupied with technology and lack a sound knowledge of the public sector organisation's actual work and business which may lead to technology driven rather than business led approaches and initiatives. Such IT led centralisation may become disconnected from the strategic priorities of top management. Mainstream staff will fall on a continuum between very low IT awareness to very knowledgeable leading to a range of behaviours from risk averse to highly political behaviour over IT policy and projects especially in relation to centralised approaches.

Table 4.20 Constraints of Centralised Approach to IS Management

(After Heeks 2000, pp.129 - 131)

4.4.4 The Application of SISP in Public Sector Organisations

This section review six articles about the application of SISP in public sector organisations:

4. Factors affecting the quality of the IT plan in US state governments
5. Extent to which US state governments use private sector version of SISP
6. Case study of social shaping factors in IS decision making
7. Case study of SISP implementation problems in a UK hospital
8. Case study of successful comprehensive SISP in an unstable environment
9. Case study of unsuccessful comprehensive SISP in a US city municipality

4.4.4.1 Factors affecting the quality of the IT plans in US state governments

Byrd, Sambamurthy and Zmud (1995) conducted a multiple case study of eight agencies of a US state government to examine how organisational context and the actions and behaviours of management in the planning process affects the quality of IT plans. The study found that large agencies with substantial or mature IT infrastructures tended to produce better quality IT plans. Such agencies have developed a substantial technical knowledge and experience in IT infrastructure management which helps inform their planning activity. However small agencies can compensate for the absence of large IT infrastructures by engaging expert IT consultants to help develop their plans. A further finding was that high functional differentiation in the organisation tended to lead to problems around gaining consensus on IT planning issues so that the support of senior management was important in the process of developing and achieving a high quality plan. Finally IT planning processes that are oriented around good business plans with a strategic focus was also found to contribute to a higher quality IT plan.

4.4.4.2 Extent to which US state governments use private sector version of SISP

Bajjaly (1999) notes that SISP has been promoted as a critical success factor for private sector organisations (1999, p.46) but the same benefit should be achievable for public organisations because they "have essentially the same information management

needs and the same potential to apply IS strategically" (1999, p.46). Bajjaly used a model of comprehensive SISP developed by Synnott and Gruber (1981) to assess the extent to which US state government's were using SISP. In his survey of 237 state government IS managers Bajjaly found that "Only one quarter of the agencies perform strategic IS planning in the manner prescribed in the literature: developing the IS plan from the agency's overall strategic plan." (Bajjaly 1999, p.46). While respondents identified important IS objectives far fewer actually had performance measures in place for measuring progress and Bajjaly also found that achieving operational or tactical rather than strategic objectives received the greatest attention.

Dufner, Holley and Reed (2002) used a survey of forty-eight state Chief Information Officers to examine the extent of SISP use in US state governments and how far it differed from private sector SISP prescriptions. They did not use the Synnott and Gruber (1981) model of comprehensive SISP used by Bajjaly, instead they defined SISP in terms of three dimensions: setting organization objectives, planning horizon and stakeholder involvement. In private sector SISP the setting of objectives is carried out by the highest levels of management, the planning horizon is long (defined as five years or more) and the key stakeholders in the process tend to be the higher levels of management who provide leadership but involve lower levels in the process of providing input to the SISP process. SISP also assumes a top down management model (Dufner, Holley and Reed 2003, p.221) and a high degree of formalization (Dufner, Holley and Reed 2002, p.420).

In relation to the setting of objectives they found that the highest levels of government officials or those who are elected and responsible for government policy show a significantly lower level of involvement in the setting of strategic objectives in the SISP process than do non-elected management levels of the Governor's Office such as the CIO and associated staff. These non - elected management levels are the ones who set the strategic objectives in the SISP process but they do this alongside being responsible for non - strategic or tactical activities. (Dufner, Holley and Reed 2002, p.422). The absence of the involvement of elected officials limits the ability to achieve integrated state wide objectives for SISP. Hence SISP is conducted but is carried out at levels below those in the private sector model of SISP so does not benefit from the strategic guidance of the policy setting role of elected officials. In

relation to the planning horizon only one third of the surveyed group of states had a planning horizon greater than five years. This reflects the short budget and election timeframes of state governments but contrasts with the longer time frames expected for private sector SISP (Segars, Grover and Teng 1998, p.305). In relation to stakeholder involvement Dufner, Holley and Reed (2002, p.423) find that the most important stakeholders, the highest level of state government or elected officials such as the Governor, are not involved in SISP whereas in the private sector the highest levels of management is involved.

In a further study at the US County Government level Dufner, Holley and Reed (2003) found the same pattern as at the state level of government. In the county situation the Chief Administrative Officer is involved in SISP activity but is not an elected official. It is at the level of non-elected managerial executives that SISP occurs in counties but because of the limited involvement of elected officials who set the "ordinances and mandates constituting the goals and objectives of county government" (2003, p.236) it is likely to be "tactical rather than strategic." (2003, p.236). This finding is consistent with Bajjaly's (1993) finding about the operational focus of SISP in his survey of US state governments.

Bajjaly does not provide reasons why his respondent organisations do not use SISP in the same way as the private sector but Dufner, Holley and Reed (2002) argue this is due to sectoral differences between public and private organisations Dufner, Holley and Reed (2002) draw on the work of Guy (2000) to indicate the nature of these differences and the implication for SISP in public sector organisations. These are summarised in Table 4.21 Sectoral Differences between Public and Private Sector Organisations.

In a related paper based on the same survey data (Holley, Dufner and Reed, 2002a, p.408) argue these differences constitute impediments within the public sector environment to the use of private sector SISP. The main characteristics of SISP in the private sector of top-down, formalised, comprehensive and commitment to longer term objectives where business effectiveness is the primary guiding objective "may conflict with government's need for democratic accountability" and where there are "checks and balances" on the powers of both elected and non-elected members of the state administrative system and where state structures are only loosely integrated.

These differences have an effect on the SISP process in the public sector environment. They conclude:

> The public sector relies on career managers in the middle of the hierarchy to do strategic planning whereas the private sector relies on executives at the top to provide direction for strategic planning, even though input is gathered from those lower in the hierarchy. Results of this study support the idea that differences in environment and circumstances between the sectors change the nature of SISP in the public sector. The implications are that sector (public vs private) is a variable that should be taken into account in research and practice. (Dufner, Holley and Reed 2002, p.423)

Private Sector	Public Sector
Context	
Managerial context is primarily economic and SISP is used with a view to competitive advantage	Managerial context is primarily political and competitive advantage is not relevant.
Role of Information	
Information is a proprietary asset and managers are rewarded for using it to gain competitive advantage.	Information is public property and government managers are encouraged to share information.
Setting Organizational Objectives	
Objective setting, resource allocation and implementation considerations are tightly integrated	Objective setting (policy making) is independent of the entities which implement it.
Objectives chosen to secure the most valuable strategic outcome for the organisation.	Objectives chosen through a process of political compromise between diverse stakeholder groups.
Planning Horizon	
SISP should be a continuous planning process with a long - term focus.	Timeframes driven by election and budget cycles
Stakeholder Involvement	
SISP is driven by top management and engages functional and operational heads	Elected officials take the major strategic policy decisions. Heads of agencies tend to have limited budget and appointment authority but are not the ones who initiate and manage SISP. Functional and operational heads are distanced from the strategic decision makers but tend to be the ones responsible for SISP.
Stakeholders are mainly internal to the organisation. Likely higher levels of stakeholders sharing greater commonality of views about objectives. Essentially a less democratic process.	Potentially many internal and external stakeholders (public and private stakeholders). Likely lower levels of stakeholders sharing greater commonality of views hence conflicting goals and objectives. Essentially a more democratic process.

Table 4.21 Sectoral Differences between Public and Private Sector Organisations (Dufner, Holley and Reed 2002, pp. 413-416)

4.4.4.3 Case study of social shaping factors in IS decision making

Horton (2003) argues that IS strategy can best be understood as a form of the social shaping of technology. In the social shaping of technology approach the material

form of technologies tends to reflect the "structural and political circumstances of their development" (Howcraft, Mitev and Wilson in Mingers and Willcocks 2004, p.337). Horton's view of strategy reflects the strategy as meaningful perspective concept drawing specifically on symbolic interactionism to explain the way in which IS strategy is formed. In symbolic interactionism the actions of individuals and groups is based upon meanings inherent with a given situation, meanings arise through the interaction of people and these meanings are subject to reinterpretation or reconstruction. In symbolic interactionism particular outcomes are not inevitable but arise as a result of the way a particular phenomenon changes over time in response to the interactions surrounding it (Horton 2003, p.2). Horton rejects the dichotomy between planned and emergent forms of SISP and particularly the view that more bureaucratic organisations will tend to use more formal approaches to SISP. Rather he argues IS strategy will be the outcome of the interaction between information, technology, organisational context and people.

Horton applies the concepts of symbolic interactionism to two case studies of the UK police force (case A and case B). Both cases occur in what would be regarded as strongly hierarchical and bureaucratic organisations and trace the prior interactions up to an including the purchase of various software applications. In case A the organisation did not produce an IS strategy prior to purchase but in case B an IS strategy was produced and reviewed by external consultants before the purchase of applications occurred. Horton shows that in both cases a history of major IS problems or 'disasters' formed a motivational basis for a more strategic approach but in case A the eventual approach adopted was informal and not written down. The significance of the prior IS disasters was variously interpreted by key actors. However in both cases external pressures for formal IS strategies were experienced so that "meanings derived from activities of external bodies seemed influential, and reinforced the view that interaction cannot be isolated from the wider sphere of public sector activity." (Horton 2003, p.7) Eventually in case A a more formal approach was adopted. Horton acknowledges that "power relations and political practices being inseparable from institutional life" (Horton 2003, p.7). In case A he describes how a small minority of key actors dominated the decision process surrounding the acquisition of new applications by excluding other actors unlike case B, where there was more formality to the decision process. For Horton the formation of IS strategy is only part

of the process of "configuring technical artefacts with social processes, work related structures, and requirements" (Horton 2003, p.7). Hence IS strategy formation is a "configuring process, during the course of which people shape, and are shaped by technologies that they endeavour to fit with their context" (2003, p.8).

4.4.4.4 Case study of SISP implementation problems in a UK hospital

Hackney and McBride (2002) provide a longitudinal case study, over ten years, of what they describe as the "non-implementation" of an IT strategy in a UK hospital (St. Mary's) because the strategy the IT strategy was not implemented as intended. The explanation for this is a number of factors originating within the hospital and its external context and particularly its location within the UK National Health Service (NHS).

In 1991 the hospital produced an IT strategy which set a goal to develop an integrated Hospital Information System (HIS) by March 1993 including a Patient Administrative Systems (PAS) together with a Case Mix Management System (CMMS) and a Nurse Information System (NIS). The IT strategy also contained a supporting network strategy. In order to begin the implementation a business case had to be submitted to the local regional health authority which controlled funding for the hospital. By the end of 1992 the hospital had in principle approval from the regional authority for the network strategy but progress was delayed by disputes over technical responsibilities. In April 1993 as part of the introduction of competitive reforms to the public sector, the hospital became a trust or a provider of hospital services under a new management authority called Trust Outposts of the NHS. Funding for the network strategy previously approved by the regional authority was now withdrawn. The new Trust Outpost required a new and more detailed business case for St. Mary's IT strategy. The new business case was completed by October 1993 with a goal of April 1994 for the new PAS. A new PAS was purchased and implemented by October 1994 but the network was not installed until August 1995. However the PAS remained a centralised system, which was not available over the network.

The CMMS was not purchased because the hospital had no capital funds, negative experiences of other hospitals with Case Mix were circulating and St. Mary's had local, shadow systems for manually extracting data from the PAS for manipulation in

spreadsheet systems. The NIS was not purchased because existing manual (card based systems) were seen as sufficient and a computerised system as too large for the requirement. A further reason was a change to a new model of nursing care as process based and multi-disciplinary in nature rather than as a separate function with its own unique system. In 1998 a new national health information strategy focussed attention on "developing an electronic patient record, providing better information for clinicians and promoting links with GPs and other services" (2002, p.136). This displaced attention from the hospitals own IT and information strategies and stimulated action on the development of a network infrastructure to link GPs desktop PCs to the hospital network and the construction of a Trust intranet. In 1997 the hospital merged with another hospital trust and then in 2001 merged again with another trust. These mergers led to the merging of the hospital's IT strategies so that St. Mary's own strategy ceased to exist as an independent strategy.

In summary the original vision for a hospital-wide, integrated system was never achieved. Hackney and McBride (2002, p.138) conclude from the case that as a public sector organisation the hospital was subject to more external influences than a private sector organisation and these external changes were unpredictable. These included political and managerial changes in the wider UK health sector which entailed changing forms of financial control and within the hospital there were changes in the "focus and philosophy" of certain hospital functions and practices, which altered the nature of the IT and information requirement. The value of an IT strategy is then questionable if its implementation is so problematic but Hackney and McBride argue that there are organisational learning benefits from the process of developing and attempting to implement the strategy. In particular the exercise had brought together different professional and managerial groups, which contributed to a shared understanding of the role of information and the potential benefits of IT in the hospital. As a result failure to implement may not be the sole criterion by which success is judged because "It may be that the process of IT strategy development was as important as the content of the IT strategy." (2002, p.138).

4.4.4.5 Case study of successful comprehensive SISP in an unstable environment

Continuing the focus on the implementation of strategy but somewhat in conflict with the findings of Hackney and McBride is a study by Salmela, Lederer and Reponen

(2000), which shows that a strategy commitment by a public sector organisation can be maintained during a period of organisational upheaval. Another aspect of this study is that in contrast to the traditional definition of a strategic IS plan as a portfolio of applications SISP can be manifest through a single information system, which is strategically important to an organisation. Salmela, Lederer and Reponen (2000) describe a case study of a large Finnish public sector organisation called the National Board for Labour Protection (NBLP) responsible for regulating occupational health and safety in Finnish organizations and workplaces. Inspectors in fourteen regional offices carried out inspection work while the NBLP coordinated inspection work at the national level. The study focuses on a strategically important but controversial information system called the Workplace Information System (WIS) and the efforts made to improve its usefulness to inspectors in regions and the central coordinating office of the NBLP. While the central NBLP office wanted performance evaluation and reporting information regional inspectors needed a more practical tool for recording inspection information and some regions wanted to develop their own independent systems. Underlying the different informational needs of the regions and the central office were organisational political tensions around the role of each group within the NBLP.

The WIS had been identified in a SISP document in 1989, then again in 1990 and in 1991 as one of the most important projects for the organisation. An important feature of the planning effort around WIS was the use of a planning committee chaired by representatives of the central NBLP but with extensive regional representation. During the period 1991 to 1993 there was a great deal of environmental turbulence, which made planning for information systems difficult. There was a government budget crisis, caused by a drop in tax revenue and the cost of unemployment benefits, which led to budget cuts in government agencies including the NBLP. At the same time the political rationale for the NBLP was challenged and in March 1993 it was merged with the Ministry of Labour so losing its status as an independent national board and giving greater autonomy to the regional inspectorates. Despite the controversy and political interventions an enhanced version of WIS was implemented as a temporary solution in December 1991 pending the development and implementation of a Control Information System (CIS), which was to be integrated with regional information systems. The WIS was eventually replaced with the

integrated CIS in 1995 and by 1997 the fourth version of CIS had been implemented. Hence the organisational turbulence did not stop the development and implementation of the strategically important CIS.

Salmela, Lederer and Reponen maintain that the fact that the CIS was implemented as planned shows that comprehensive SISP can work effectively in a turbulent organisational environment in contrast to the view that comprehensive planning can only work in stable organisational conditions. Keeping the commitment to a major system requiring high levels of investment in a period of declining budgets and major organisational change was a significant achievement, which was perhaps attributable to keeping all stakeholders informed and committed to the evolving design of the CIS. The characteristics of comprehensive SISP may well have contributed to this:

> Comprehensive planning ensured that it reflected the views of all groups, not just a single, small influential one. They used several committees and careful deliberation to involve many diverse groups from different organizational levels in planning, despite their conflicting interests. The resulting plan was a compromise and each group had its own reason to support it. The wide support for the plan made it possible to preserve sufficient resources for the analysis, design and implementation of the system despite external pressures to cut costs and major changes in organization's power structures. (2000, p.12).

4.4.4.6 Case study of unsuccessful comprehensive SISP in a US city municipality

In contrast to the single system focus of Salmela, Lederer and Reponen's (2000) study of public sector SISP in Finland is Smith, Campbell, Subramanian, Bird and Nelson (2001) who provide an account and analysis of a major SISP initiative for the City of St.Louis in the US covering many systems and many municipal departments. The municipal information systems of St.Louis provide information services for over 150 subdivisions or branches of the city government organisation, several utilities and many external constituencies. The city had a "hodgepodge" of information systems including older legacy mainframe systems with more recent client server and geographic information systems. Because of their independent development these systems could not easily share information and newer systems were being developed

without an overarching strategy. But as well as technology issues there were also organisational issues in particular how municipal data was maintained and its integrity in a setting where managerial responsibilities were unclear. These responsibilities were dispersed amongst both elected officials and non-elected public servants.

Against this background the Office of the Comptroller initiated a comprehensive SISP project, which was to cover all of the City's departments. The objective was the development of "a multiyear strategic plan for municipal information systems that would be a practical, cost-effective solution to meeting the diverse needs of the city as a whole". (2001, p.141). The approach to the planning initiative followed a similar style to that described by Salmela, Lederer and Reponen (2000) that is a comprehensive style of SISP but differed in that it was led from the top of the managerial hierarchy but with ways of eliciting the needs and suggestions of people lower in the hierarchy. The SISP project had a 22 person team led by a university based research centre and also included private sector consultants, members of the City's internal audit function and other members with expertise in mainframe and network technologies.

The strategic IS plan argued for a major reorganisation of the IS functions supporting mainframe and network technologies under a CIO, creation of an MIS executive board and city wide representation for the resource management of municipal information systems, creation of taskforces for the nineteen meta projects, adoption of a data warehousing strategy, an initiative to improve data integrity and training of both IS staff in new technology platforms and the training of system users. A formal evaluation of the SISP project showed that representatives of the different business functions appreciated the opportunity for staff at different levels to express their views and there was general agreement that the project had been a valuable organisational learning experience.

Unexpected events such as the resignation of the senior sponsor for the project disrupted the implementation process but the primary technical recommendations were accepted, and steps were taken to implement them almost immediately. One year after the delivery of the plan, however, the recommended organizational changes and committee structures had yet to be implemented and task forces for most of the nineteen metaprojects had yet to be established. Eighteen months later the task

groups had still not be formed and the need for cross - functional 'boundary spanning' had emerged as the biggest challenge to implementation. Three years after the plan was delivered the Mayor's Office appointed an IT taskforce to examine ways of improving information flows between business functions. The task force found many of the problems identified in the original planning effort such as barriers to sharing data across functional boundaries had not been resolved. Nine months later the task force made its recommendations many of which were the same as those made in the 1995 plan. The task force placed a special emphasis on the development of information systems that could overcome functional boundaries. Five years after the plan was developed the organisational issues were still not resolved and bogged down in discussions over "organisational structure, lines of authority and spheres of responsibility" (2001, p.154) and concern about the impact on the power structures of city government. In confirming that comprehensive SISP is more difficult in the public sector because of the range of stakeholders involved the author's final recommendation to other municipalities contemplating undertaking a similar exercise is that they "must concentrate on finding effective methods for spanning formal organizational boundaries when developing … information systems." (2001, p.154).

4.4.5 Conclusion

Byrd, Sambamurthy and Zmud (1995) findings are consistent with the SISP specific literature that IS maturity, top management support and alignment with business plans are important in achieving high quality IT plans. They also note that high functional differentiation will create challenges in achieving consensus on IT related issues. This finding is consistent with Smith, Campbell, Subramanian, Bird and Nelson's (2001) case in which the many sub entities within the city municipality led to difficult organisational boundary issues that made implementation of the SISP recommendations difficult.

Bajjaly (1999) sees no reason why SISP practice cannot be the same in both public and private sector organisations but his survey reveals that in fact, most US state government agencies do not implement the full version of SISP and tend to focus on the operational rather than the strategic. Duffner, Holley and Reed' (2002) also find a tendency for government organisations using SISP to focus on tactical rather than strategic issues and they also find that these organisations do not implement SISP as it

is prescribed for private sector organisations. Unlike Bajjaly however they argue that this is due to significant differences between public and private sector organisations, which cause SISP to be different in the two sectors. They argue that there are differences in relation to context, the role of information (in disagreement with Bajjaly), objective setting, planning horizon and stakeholder involvement. In particular they find middle management carries out SISP or non-elected public servants, but the elected leaders of government are not involved so that SISP lacks top-level strategic guidance. The planning horizons are also shorter driven by budget and election timeframes.

The studies of Dufner, Holley and Reed (2002, 2003), Hackney and McBride (2002) and Smith, Campbell, Subramanian, Bird and Nelson (2001) show that the use of comprehensive SISP is challenging in the public sector setting because of the wide range of stakeholders, many functional boundaries and an external context that may be the source of significant interventions that limit the autonomy of a public sector organisation to implement their IT strategies. Nevertheless there is also agreement between Hackney and McBride (2002) and Smith, Campbell, Subramanian, Bird and Nelson (2001) that the attempt to undertake comprehensive SISP can be a beneficial organisational learning experience.

In contrast one study shows that comprehensive SISP can work providing there is a strong commitment to full representation of diverse stakeholders. Salmela, Lederer and Reponen (2000) argue that comprehensive SISP was of benefit in their Finnish organisation in that it brought the stakeholders together and built a consensus around one major system despite deteriorating external conditions. Horton (2003) argues that the formation of IS strategy is a process of symbolic interaction between people in context and technologies hence the result is shaped rather than planned out and implemented as in rational, comprehensive approaches to SISP. His first case shows that strategic decisions, to purchase IS were made without formal planning while his second case did use a formal approach. These findings suggest that it is unclear why formal, comprehensive approaches work in some settings but not others.

While a comprehensive planning approach may allow for wide ranging involvement of influential stakeholders it may result in a plan that cant be implemented. The problem with comprehensive plans is that they "are liable to be filed away, unused,

due to lack of resources and overambitious goals" Garson (2006, p.319). Garson argues "true strategic plans are motivating because they are credible and doable, attracting support and building a planning culture within the organization." Even so Garson acknowledges that such 'doable' plans still have to address a diverse range of management policies "including not just technology policies but also human resource, data stewardship, privacy, and security policies as well." (2006, p.319).

In summary these studies show that gaining the necessary consensus on the issues raised by SISP projects is more difficult for public sector organisations than for private sector organisations because of the diversity of internal and external organisational stakeholders. Although some government organisations display only a tactical focus in relation to SISP others endeavour to plan for and implement strategic IS projects effecting the entire organisation or in some cases multiple related sub organisations. Therefore the scale and form of SISP activity in government organisations varies. The challenges for public sector organisations does not mean that formal, comprehensive SISP is always inappropriate because it facilitates organisational learning and in at least one case a strategically important IS was implemented. However Horton's argument that SISP is shaped by its organisational context and stakeholder interests seems closer to the evidence than SISP as a purely rational planning and implementation exercise as suggested by Lederer and Salmela's theory of comprehensive SISP.

4.5 Overall Conclusion Leading to Research Question

There is clear evidence of the influence of the strategic management literature on the two main models of SISP. The comprehensive model of SISP reflects the strategy as plan concept while the incremental model reflects the strategy as emergent pattern concept.

The theory of comprehensive SISP as set out by Lederer and Salmela (1996) endeavours to explain how IS can be managed to achieve organisational benefits. The theory explains organisational benefit in terms of alignment between business priorities and IS plans and projects. Alignment is the dependent variable and the extent of alignment is determined by the extent of successful implementation which itself is dependent on the extent to which the SIS plan is useful.

The actual experience of organisations who have followed this theory in its prescriptive forms is however problematic. Outcomes vary markedly form the predicted benefits of alignment. Problems are encountered by organisations in the planning process, the usefulness of the SIS plan and the implementation process. Success with SISP is problematic for organisations because hundreds of factors have a bearing on implementation (Larsen 2001) and only a small proportion of what is intended is actually realised (Wang and Tai 2002, p.12). Alignment and organisational benefits do not flow as predicted by the theory.

These problematic outcomes within the private sector research are also evident in the public sector uses of SISP but indicate additional causes by virtue of the nature of the public sector context. In this context SISP tends to be tactical rather than strategic, is carried out by middle rather than top management and involves many more organisational stakeholders than in typical private sector applications of SISP. The issues in the research on SISP in the private sector are also exhibited in the public sector SISP examples, for example comprehensive SISP seems to work in some cases but not others but the reasons for this are unclear.

This evidence of the failure of comprehensive SISP theory has led Hackney, Dhillon and Burn (1999, p.123) to comment that the underlying assumptions of this kind of SISP theory are problematic. Hackney and McBride (2002) and other researchers such as Earl (1993) suggest an incrementalist model of SISP influenced by the strategy as emergent pattern as a better explanation of SISP outcomes. The incremental model of SISP provides some insights into why comprehensive SISP is not always successful. Internal organisational conditions produce unique approaches that reflect the influence of 'deep seated philosophies' (Segars and Grover 1999), different adaptive responses to internal and external conditions and political struggles for influence (Segars and Grover (1998). However despite these insights it is still not clear how particular styles of SISP emerge and predominate within an organisation and why some approaches appear to be more successful in some organisational settings than others. In addition the incremental process of SISP is itself not without implementation difficulties (Salmela and Spil 2002).

In theory and in practice comprehensive SISP does not work well for organisations both private and public. Alignment and organisational benefits do not follow as

predicted by the theory of comprehensive SISP proposed by Lederer and Salmela (1996). Hence the theory fails to explain the phenomenon of SISP but the incremental model does not provide a satisfactory alternative explanation and this implies an absence of adequate theory that can successfully explain the outcomes that organisations experience when they engage in SISP projects. The research question follows from this situation:

> What are the causes of the outcomes of attempts to develop and implement strategic IS plans in organisations?

Chapter Five

Immanent Critique of SISP Theory

5.1 Introduction

An immanent critique is an examination of existing theory about the phenomenon of interest using critical realism as a meta-theory to critique the theory's ontological presuppositions (Hesketh and Fleetwood 2006, p.683). The critique is motivated by theory – practice inconsistencies (Hartwig 2007, p.106). These inconsistencies can be in relation to the practices of scientific research or the use of theory to inform professional practice in some field. The cause of these inconsistencies is shown in terms of the theory's own explanatory logic and assumptions (Smith 2006, p.192) and in relation to the ontology of critical realism. On the basis of the immanent critique a new reconceptualisation of the phenomenon is offered which may identify more appropriate theory that is consistent with a critical realist meta-theory.

5.2 Theory Practice Inconsistencies with Comprehensive SISP

In the literature review two broad approaches to SISP were identified, comprehensive and incremental. The comprehensive approach to SISP is most recommended to practitioners but the literature review showed conflicting research findings and a problematic record in practice (Salmela and Spil 2002). Lederer and Sethi found that practitioners experienced numerous problems with SISP methodologies (1992, p.33) and Earl (1993, p. 4) in a two-stage survey of 27 United Kingdom companies reported that only 10% of respondents claimed their SISP experience had been "highly successful". In the public sector examples of SISP (Smith, Campbell, Subramanian, Bird and Nelson 2001; Hackney and McBride 2002), the use of comprehensive SISP didn't necessarily lead to successful implementation or realisation of the vision of integrated IS. SISP theory proposes that stakeholders need to achieve agreement on strategic IS objectives but these examples show that gaining consensus to such strategic objectives was in fact very difficult. The work of Earl (1993) and Segars, Grover and Teng (1999), shows that organisations adopt a variety of different approaches or styles to their SISP activities. Hence in general organisations do not

find that the comprehensive rational style of SISP is always suitable or leads to successful outcomes even though it is still recommended (Grover and Segars 2005).

Theory-practice inconsistencies in the SISP research are evident in the study of the environmental effects on the SISP process. Salmela, Lederer and Reponen (2000) tested the efficacy of incremental versus comprehensive planning in a turbulent organisational environment using an interpretive research approach. They found, contrary to the assumptions of prior research indicating stability of environment was necessary for success with comprehensive planning (Lederer and Salmela 1996, p.242), that "in a turbulent environment, comprehensive IS planning may be more successful than incremental planning" (2000, p.3). Later research however by Newkirk and Lederer (2006) using regression analysis found that "More extensive planning is … not uniformly successful in either environment but depends on the nature of the uncertainty" (2006, p.21). These two findings appear to contradict each other so that it is not clear what it is about the combination of environment uncertainty and planning approach that is salient in producing the different outcomes. The second account being based on statistical correlations can only note the surprising lack of correlation between the effectiveness of extensive planning and degrees of environment uncertainty and speculate on possible causes. Its conclusion begs the question of how environmental uncertainty affects planning activity.

A further example of a theory-practice inconsistency in the SISP research are the findings of a survey-based test conducted by Gottschalk (1999) of the hypothesis that a more useful information plan produces greater plan implementation. This hypothesis was drawn from Lederer and Salmela's (1996) theory of SISP. Gottschalk used ten predictors (content characteristics) about the construct 'information plan' such that "the greater the extent of description of the content characteristic, the greater the extent of plan implementation." (Gottschalk 1999, p. 82) The content predictors are shown in Figure 5.1 Conceptual Research Model.

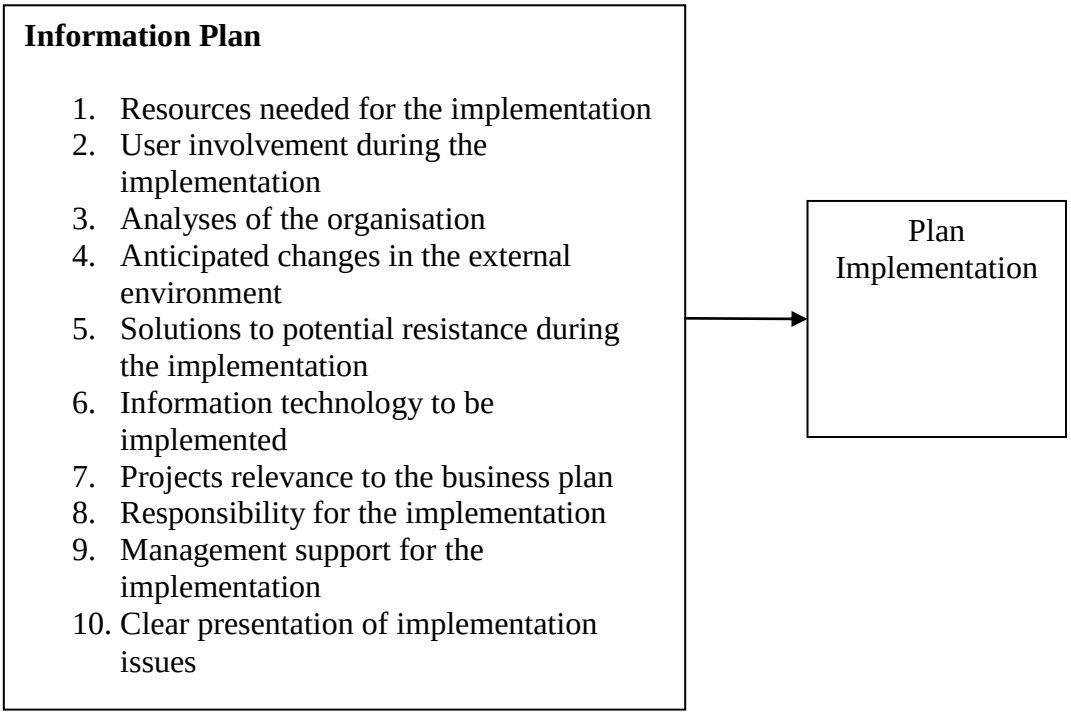


Figure 5.1 Conceptual Research Model (Gottschalk 1999, p. 83)

Gottschalk found that "the full multiple regression equation with all ten independent variables explains 19% of the variation in implementation" (1999, p. 85) hence "81 percent of the variation in the implementation is unexplained by the theory" (Gottschalk 1999, p. 89) and while "there is a significant overall relationship between content characteristics and IT strategy implementation … none of the content characteristics are individually significant implementation predictors" (1999, p. 85). A perplexing result of Gottschalk's findings is that resourcing, management support and solutions to potential resistance during implementation were not found to be significant as an explanation of the variation in implementation. This finding seems untenable given that implementation of computer systems could hardly be expected to succeed without these factors being addressed. Gottschalk (1999, p. 89) suggests that "much more complicated causal relationships might exist" and "the importance of various implementation predictors may vary depending on contingency issues". An earlier article by Premkumar and King (1994) suggests one factor that might explain why the hypothesis could not be confirmed "research in IS planning and models of IS planning have predominantly subscribed to the rational approach to planning" (1994, p. 81) but such approaches do "not consider other organizational models such as

political, system resources, and strategic constituencies" (1994, p. 80). A similar comment is made by Salmela, Lederer and Reponnen (2000, p.6) in relation to environmental effects on the SISP process:

> survey studies using multiple item instruments have not been able to establish a statistically significant relationship between environmental conditions and IS planning effectiveness. Perhaps organizational variables have stronger influence on IS planning than environmental conditions (Teo & King, 1997). Perhaps the problem is more complex than assumed and there is no linear relationship between the two variables.

Ballantine and Cunningham (2001) critique the use of comprehensive SISP in the public sector arguing that SISP is essentially a private sector method of strategic management and makes assumptions that reflect its private sector view of the organisation. They identify four of these assumptions. First SISP frameworks and methodologies make the assumption that all organisations are essentially the same, hence they tend to ignore the unique history and characteristics of an organisation which may constrain the ability of the organisation to adopt their recommendations as well as denying the usefulness of local solutions. A second assumption is the importance of competitive advantage in private sector management thinking. A competitive business orientation may not be appropriate to public sector organisations. This is for a number of reasons that were discussed earlier in this review including the presence of multiple and conflicting objectives that are not financial in nature and structural constraints, or the constitution of public sector organisations that make the introduction of competitive arrangements difficult to implement.

A third assumption is that the development of strategy is a rational and objective process which depends upon the belief that "information systems support the shared intention or vision of top management, which is to achieve a range of clear business objectives and critical success factors within a structured entity" (2001, p.299). Ballantine and Cunningham identify six reasons why this particular assumption is problematic. First the existence of clear organisational objectives cannot be assumed. Senior management does not necessarily articulate clear overarching objectives and

even if this is done they are still subject to shifting interpretations by organisational members. Second related to the first reason is that SISP also assumes that the management framework for the organisation is unambiguous, with clear, unitary goals and success factors that are shared and understood by all stakeholders but different groups in the organisation have different perspectives and argue over priorities for information systems. Some groups see IS as a cost minimisation instrument while others see it as a critical enabler of the business vision. In the public sector professional groups see IS as a support for professional ethics and goals such as clinicians and health care which may not be the same as the goals of management such as cost effectiveness. The third reason is that SISP involves decision making which the rational conception of SISP sees as apolitical but in practice organisational politics is an important factor. The decision making process exposes issues of power and control including the defence of existing legacy information systems which support the entrenched interests of some groups. A fourth reason is that the rational perspective assumes the SISP practitioner is without subjective bias and above organisational politics. Contrary to this view is the evidence that shows SISP consultants bring their own values and perspectives and are used by different organisational groups to promote some goals at the expense of others. A fifth reason is the simplification of organisational reality to various kinds of models and two - dimensional grids. This can block out important aspects of the organisational setting and the reduction of organisational performance criteria to a few success factors ignores the interaction between the many factors bearing on organisational performance. The sixth and final reason is that SISP frameworks assume that the organisation does in fact control its destiny via a business plan or objectives which in turn influence the shape of the IS strategy. Evidence shows that this assumption of a one - way alignment process is problematic. The process is two - way that is organisations are influenced by the SISP process as well as factors beyond the activities of this process and the organisation itself.

The fourth and final assumption of SISP frameworks is that implementation will follow straightforwardly after the planning process. Having assumed a common understanding by all key stakeholder groups of the strategic direction for IS this assumption also relies on the existence of the required expertise and organisational capabilities to build new systems and to evaluate their effectiveness in meeting

organisational goals. There are many examples of where implementation in the public sector shows this assumption to be false. These theory-practice problems have led researchers such as Hackney, Dhillon and Burn (1999, p. 123) to conclude that

> the assumptions underlying the objectives of SISP do not represent the existing research evidence. The central notion of aligning an IS/IT strategy with an organisation's business strategy are fundamentally problematic. The diversity and complexity of organisational strategic processes are clearly not being considered through SISP.

Critique

Much of the SISP research like Gottschalk's (1999) is based on regression analysis of survey data. Brown (2004) reviewed of 137 articles from 33 different research journals between 1991 and 2002 and found that the use of survey instruments predominated (43%) while case study research, both single and multiple, accounted for only 19% of the articles. Typically regression analysis of survey data examines whether or not a statistically significant relation, between factors thought responsible for a phenomenon, is evident from a population sample. Following the requirements of statistical theory, to ensure the representativeness of the sample, generalisations are made to the wider population from which the sample is drawn. The statistically significant correlations found in the sample are used to justify an inference that causal relations posited in the model exist in the population. The statistically supported model can then be used to make predictions about the population as a whole.

In regression analysis explanation is couched in terms of the amount of variation in the dependent variable caused by the independent variables. Fleetwood and Hesketh (2006, p.681) are critical of the use of regression equations to explain organisational phenomena in this way because statistical variations in the proxy measurements for organisational aspects of SISP cannot explain variations in organisational outcomes: "However useful it might be to know that X1, X2, and X3 'explain' 75% of the variance in Y, neither the equation itself, nor the empirical data that constitute the variables, give us any idea why this is the case." (2006, p.681). However, as Sayer (1992, p.193) comments

> the use of statistical analysis is often intended to suggest that the quantitative relations so discovered are causal. Regression equation, for example, say nothing in themselves about causal or conditional relations, yet there is widespread assumption that 'causal analysis' and regression analysis are virtually synonymous (1992, p.193)

From the perspective of CR, the practice of statistical inference as in regression analysis is an example of the causal reasoning based on closed systems reasoning because the aim of the inference process is to be able to predict the behaviour of the larger population, based on a random sample, using some functional relation between a dependent variable and one or more independent variables possibly conjoined under some well-behaved probabilistic function (Fleetwood 2001, p.208). Closed systems reasoning arises in the use of regression analysis because of its basis in the Humean concept of causality as the constant conjunctions of events. Causality is assumed when there is a constant conjunction of event x followed by event y ie the constant conjunction implies event x causes event y. As discussed in chapter two this concept relies on a perceptual hence empirical association as the basis for inferring causality as well as an inductive assumption that the association will always prevail. Hume went so far as to say "We have no other notion of cause and effect, but that of certain objects, which have been always conjoin'ed together. … We cannot penetrate into the reason for the conjunction (Hume, 1739-40, p.93, cited by Fleetwood 2001, p.217). Sabherwal (1999, p.158) advocates a Humean concept of causality in SISP research. He focuses on the relationship between IS planning sophistication and IS success. He identifies three conditions necessary to establish causality "First, the two variables should be mutually correlated. … The second condition for causality is that there should be no other plausible alternative explanations. … The third condition for establishing causality is temporal antecedence – the cause should precede the effect."

Such a view of causality denies the possibility of understanding the underlying causes of events and the Humean concept of causality is inconsistent with a concept of an open systems ontology of objects with causal powers:

> If one's ontology includes powers, then causality cannot be conceived of as event regularity because these powers give rise to transfactually acting

> tendencies which do not, typically, manifest themselves as event regularities. (Fleetwood 2001, p.218)

In the ontology of CR it is necessary to understand the difference between the tendency of a causal power or force to produce effects and the effects as event regularities when the force is activated.

> tendencies and event regularities are metaphysically different phenomena: event regularity refers to the *outcome* or *result* of some acting force, whereas a tendency refers to the *force* itself. Moreover, as a force, a tendency is transfactual. It can be acting yet generate no events at all, or it can be acting yet generate no event regularities.

What the Humean concept of causality of constant conjuctions of events does is to identify causality with the effects of causal mechanisms rather than the mechanisms themselves. In doing so it reduces the concept of causality to only those causal powers that are activated and producing events. As a result "statistical analysis cannot deal with tendencies because it can only deal with phenomena that are actually manifesting their generative powers, whence they can be observed in action." (Hesketh and Fleetwood 2006, p.689). Thus the Humean concept of causality provides an impoverished or inadequate understanding of causality . This explains the theory-practice inconsistencies associated with regression based analysis of survey data in SISP research because important causal mechanisms may be active but not registering effects at the level of the empirical or not registering a regularity of effects.

Notwithstanding these criticisms it is important to note that the open systems ontology of CR allows for the possibility that patterns at the level of the empirical may be indicative of causal structures at the level of the real. Lawson (1997) calls these demi-regularities so that survey research may give a clue to the real causal objects at play but this is by no means certain given the complex interaction of multiple causal mechanisms in the open system of the social world. (Olsen and Morgan 2005, p.268). The distinction between Humean constant conjunctions of events reasoning and the critical realist causally based explanation is illustrated in Figure 5.2 Ontological Roots of Two Modes of Theorising (Fleetwood 2001, p.217).

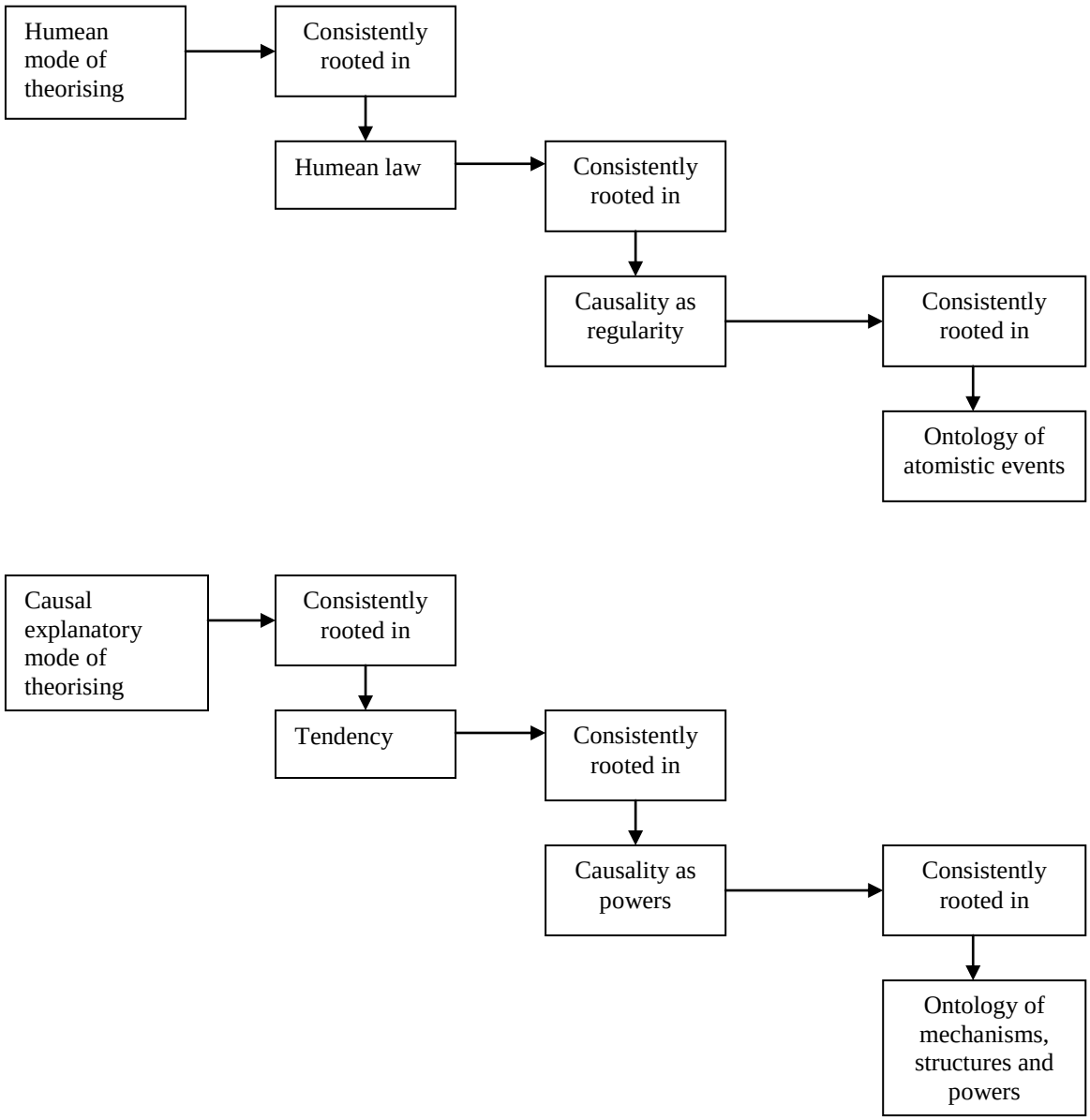


Figure 5.2 Ontological Roots of Two Modes of Theorising

(Fleetwood 2001, p.217)

5.3 Theory – Practice Inconsistencies with Interpretivist Research on Incremental SISP

The second, incremental model of SISP is in many ways the opposite of the comprehensive model being less systematic, informal, opportunistic and ongoing rather than periodical. Salmela and Spil (2002, p.445) comment that the incremental approach to planning "draws many of its principles from the behavioural theories of

business strategy making (Quinn, 1980; Mintzberg, 1994). Segars, Grover and Teng (1999) for example describe the different styles of SISP largely in terms of the different schools of strategic planning identified by Mintzberg (1990). For Mintzberg (1987) strategy emerges from a mix of intended and unintended outcomes. The process is also affected by subjectivity, organizational politics and the social construction of meaning. Whittington (2001) argues that this view of strategy recognises the unpredictability of the environment, the cognitive limitations of strategists and the constraints of the pre-existing internal arrangements of the firm. In this context strategy will be emergent as "a pragmatic process of bodging, learning and compromise" (Whittington 2001, p.4).

Theory – practice inconsistencies arise in the incremental view of SISP from the interpretivist philosophy that underpins the research. The interpretivist research philosophy was discussed in Chapter 2. Walsham (1993) and Jones (1994) provide examples of research on the development of IS strategy using an interpretivist research approach. Walsham describes the interpretivist orientation as follows:

> Interpretive methods of research start from the position that our knowledge of reality, including the domain of human action, is a social construction by human actors and that this applies equally to researchers. Thus there is no objective reality which can be discovered by researchers and replicated by others, in contrast to the assumptions of positivist science. Our theories concerning reality are ways of making sense of the world and shared meanings are a form of intersubjectivity rather than objectivity. (Walsham 1993, p.5)

Walsham's sees organisations as political and cultural systems. Within an organisation are sub-cultures with their own complexes of meanings. Organisational politics includes the role of power and the tension between control and autonomy. Walsham acknowledges Mintzberg's (1994) view that strategy making is an emergent process and he uses contextualism (Pettigrew 1990) to examine IS strategy development. Contextualist theory sees organisational change as a continuous interaction between processes of 'creation and recreation' and their organisational context and which occur at different levels within the setting. The linkage between context and process is provided by Giddens structuration theory (Walsham 1993,

p.69). Structuration theory posits a duality of structure and agency via modalities of interpretive schemes, facilities of power and norms of behaviour. For Walsham information systems embody the structurational components of organisational change "A theoretical view of computer-based information systems in contemporary organizations which arises from structuration theory is that they embody interpretative schemes, provide co-ordination and control facilities, and encapsulate norms." (1993, p.64). Walsham's conclusion is that the process and the practice of strategy manifests itself as:

> a process of continuous discourse. This discourse on IS strategy is a way of communicating meaning, centred on norms and values, and linked to power in relation to others. The communication of meaning can be thought of as an enactment process in which individuals select and communicate ideas, concepts and plans; these embody particular normative views of the way the world is or should be. (Walsham 1993, p.157)

Jones (1994) extends the discourse view of strategy in his case study of IS strategy formation in the UK National Health Service. For Jones discourse is an instrument of power, there are multiple discourses current at any one time and discourses shape behaviour by being learnt in the manner consistent with the learning school of strategy making (Mintzberg 1987). Jones argues that the strategy process is not "independent of … managerial and societal discourses" (Jones 1994, p.146). In analysing information systems strategies a multi-level perspective is therefore required:

> At the first of these, we may consider the resources that are seen as being deployed; at the next, the process by which strategy is formed; at the third the effects of strategic discourse; and at the last, the relationship between the strategy process within the organisation and broader social discourses. (Jones 1994, p.121)

Critique

CR meta-theory argues that there is a distinction between the ontological reality of being (intransitive domain) and the epistemological relativity of human knowledge (transitive). Strong social constructionism commits the epistemic fallacy by eliding

the difference between an independent reality in the intransitive domain and the knowledge, which is constructed in particular settings by individuals and groups, in the transitive domain. The general critical realist criticism of interpretivist approaches is that they commit the epistemic fallacy of confusing the distinction between knowledge and reality that is epistemological questions are confused with ontological questions. Archer (2000, p.470) observes that interpretivists

> talk about networks of meaning but not what they are about; definitions of the situation, but not whether the situation conforms to them; the 'taken-for-granted', but not whether it validly can be. This is true solipsism where people are epistemologically licensed to make what they will of the world: the only interpretivist caveat is 'providing they can negotiate this understanding with other people', but the world itself is disallowed any role as an ontological regulator in what warranted assertions can be made about it.

In this respect discourse theory is helpful in expanding and elucidating the cultural system elements particularly ideational mechanisms. Walsham (1993) and Jones (1994) both argue that IS strategy development should be understood as a form of discourse. Discourse is recognised as an important causal factor in CR (Fairclough 2003, 2005). Reed (2000, p.528-529) adopts a CR perspective on discourse and notes discourses such as financial audit, quality control and risk management are "generative mechanisms" with "performative potential". SISP is legitimately seen as another form of management discourse. Where the use of discourse theory is less than helpful in interpretivist research is where it is used to provide either the total explanation without reference to the other causal elements (agency, social structure) or where it veers towards a strong social constructionist position in which discourse constitutes the only reality available to agents (Alvesson and Deetz, 2000, p.95-96). Reed criticises this form of discourse analysis because it:

> asserts that there is nothing outside discourse but more discourse; all reality, reality, natural and social alike, is discursively contingent and fabricated. As a result, it tends to idealize meaning and to marginalize the non-semantic aspects of economic and political reality in that it is

> ontologically insensitive to material structuring and its constraining influence on social action. (2000, p.525)

This results in an inadequate understanding of the role of agency in social processes and in which "discourse is treated as largely autonomous and independent of human agency." (2000, p.525) There is also a "virtual exclusion of institutionalized power" where there is a "tactical and localized view of power … which seriously underestimates the structural reality of more permanent and hierarchical power relations" (2000, p.526). An example of this may be seen in the way Jones discusses the nature of resources in the IS strategy literature. For him the problem is that

> From the perspective of strategic discourse, … what constitutes a strategic resource, and even the concept that organisations possess such resources, may be seen as socially negotiated, a product of particular power relationships. (Jones 1994, p.141)

A realist perspective would not deny the importance of power but the possession of power derives from non-discursive elements and it would also argue that organisational resources have an independent existence, whether people have a discourse about them or not or whether agents are aware of them. It is important for agents to be aware of their ability to access relevant resources since access to resources is an enabler for agency and conversely limited access or the absence of resources is a real constraint. An analysis of social phenomenon that fails to draw the distinction between the effects of discursive elements and the effects of non-discursive elements risks providing an emaciated explanation (Fleetwood 2005, p.214).

Structuration theory was briefly reviewed in chapter four of this thesis (refer Figure 4.5 Giddens Structuration Theory) and falls within the interpretivist tradition of research. Walsham (1993) uses Giddens structuration theory as the basis for his explanation of IS strategy. Hendry (2000) also draws on structuration theory and discourse theory for his understanding of strategic decision making as was also noted in chapter four. Discourse theory is compatible with structuration theory because discourse is a key medium through which agents interact during the structuration process. Structuration theory is a theory of social change which predates Bhaskar's

Transformational Model of Social Activity (TMSA) (discussed in chapter two) but shares some commonalities particularly that social change occurs through an interaction between social structure and agency. The key difference, between Giddens theory and CR, is that critical realists argue structure and agency are ontologically separate entities with their own unique causal powers (Archer 1995), while in structuration theory structure and agency are seen as effectively two sides of the same coin. For Giddens structure is a virtual phenomenon, it exists as memory traces in the minds of agents and only comes to have its effects at the moment agents engage with structure when it is instantiated. This means social structures have no independent existence from agents.

Critical realists argue that social structures are produced by human activity but have causal powers distinct from human agency and the causal efficacy of social structures both constrains and enables human activity (Bhaskar 1998a, p.40; Archer 1995). As Whittington (1989, p.115) comments, "the fact that human activities happen – or does not happen – also presupposes the existence of certain structural conditions." Theorists adopting the philosophy of CR have critiqued structuration theory extensively (Porpora 1998; Archer 1995, 1996; Vaughan 2001; Thompson 1989). From the CR perspective the main criticism is that structuration theory tends to conflate structure and agency because structure is given no existence that is independent of agency or the conceptions of structure that agents construct for themselves. This is another manifestation of the epistemic fallacy and denies the possibility of identifying structures as unique causal entities with their own properties and that may be active in different social contexts albeit with different effects. It is also not clear what motivates agents to act in the interaction process, because structure is supposedly not separate from them, and it is difficult to determine the differing causal capabilities of agents in the interaction between structure and agency. The phenomenon of the emergence of new structures is also not well accounted for in structuration theory.

Conclusion

In general both the positivist and interpretivist rely on an empiricist ontology. Positivist based SISP research, using regression analysis, relies on the empirical manifestation of constant conjunctions of events leading to a closed system view of

SISP where outcomes are assumed to be predictable, when in an open system this is extremely rare. The interpretive approach to understanding strategy and SISP recognises the importance of the hermeneutical element in accounts of actors behaviour. Unfortunately this leads to either or both of an over reliance on actor's accounts, leading to the epistemic fallacy where what is known and recounted by actors constitutes social reality, and an under theorised concept of social structure. In structuration theory these two perspectives are conflated such that social structure has no objective effects independent of agential awareness. Finally non-realist uses of discourse theory conflate the discursive and non-discursive elements of social reality providing another example of the epistemic fallacy where the discursive comes to constitute the totality of social reality.

5.4 Organisations as Open Systems

Organisations have an open not closed ontology

These consideration indicate that the rational view of SISP assumes a closed rather than open systems ontology of the organisation and its environment. Following Fleetwood and Hesketh (2006, pp.236-237) an open systems view of organisations better recognises four key facts that undermine a closed systems view of the SISP process, which takes place within the organisational context. The first of these is the presence of human agency. Human agents within the organisational system possess free will so their behaviour is not entirely predictable. Hence they have the ability to change their minds about prior commitments to strategic IS plans and SISP activities. Second, following the stratified concept of social reality events in organisations have multiple causes. There are many factors involved in the development and implementation of strategic IS plans. Larsen (2001) finds over 300 variables involved in implementation for example. The effect of these factors can be direct or indirect because of interaction effects. The third fact is that the organisational system is complex which means there can be internal changes within an organisational system, which have feedback effects in turn directly or indirectly affecting organisational performance. The key point is that the organisational system is subject to change, which cannot be captured by reducing the effects to variables in the kinds of regression based formulas of much SISP research. Finally, the organisational system evolves in response to its external environment and these changes have an effect on

planning and implementation activity with consequences for organisational performance. Again the process of evolution is not captured adequately by trying to capture or reduce its effects to a variable. Danermark et al. (2002,p.68) makes the critical realist point about the openness of organisations:

> any type of social organization, such as the judicial system, the organization of working life, families, the education system or the health care system, are examples of … pseudo closed systems - they are the result of a conscious striving to make society (and nature – nature's mechanisms are inevitably involved) more controllable in relation to people's different aims. The closure achieved, however, is always of a spurious kind, and far from the natural science experiment's artificial closure – change and renewal are part of human society's constituent characteristics.

Following Brown's (2009) critical realist discussion of learning environments, organisations are open (2009, p.19) "in the strong sense of responding to both internal and external factors, and morphogenetically changing over time as a result." However implicit in rational SISP is that plans are to be implemented in a closed system or approximations to a closed system. Attempts to implement rational SISP in organisations can be seen as attempts to control events within the organisation with the objective of producing not only agreement to recommendations but their reliable implementation. Brown (2009, p.20) argues that learning environments are open systems but his point applies equally well to organisations in which SISP activity occurs. Taking organisations "to be more or less open systems with multiple causes operating, draws attention to the variability, not the uniformity", of organisational members and the ways they engage with and respond to planning and implementation activity and other aspects of the organisational setting.

Stratification of the world: real, actual empirical.

Because they are open systems organisations exhibit the stratification of social reality into the domains of the real, actual and empirical. The beliefs and prior conceptions about the role of information systems, strategy, public service organisations and organisational objectives exist in the minds of organisational members and may or

may not motivate action leading to events. Agency is a causal entity in the domain of the real and these actions may be manifest during the phases of the SISP planning process and they may or may not be noticed by members of the SISP project team. Thus the organisational planning environment is more than the minds of planners, the Executive, the consultant's workshop and the IT managers meeting for example. It is the total set of circumstances that enable and constrain planning activity or "the totality of the causal powers, ways of acting, tendencies and susceptibilities whether or not they are exercised as events, and events whether or not they are experienced by actors or agents in the organisational environment. " (Brown 2009, p.20)

Transitive/Intransitive distinction

The objects of knowledge exist in the natural and social worlds whether or not actors have knowledge of them. Hence organisational conditions may limit efficacy of planning activity but not be properly acknowledged by participants or understood. The effects of these conditions vary and actors may or may not be able to negotiate them with different levels of success. Theories that deny the distinction between the transitive and intransitive are misleading.

Planning activity is emergent from the ontology of the organisation

Bhaskar and Danermark (2006) draw attention to the multi-level or laminated nature of social reality including the physical or material level of social interaction, biological, psychological, socio-economic, cultural and normative. Causal mechanisms can form or emerge at any of these levels. The mechanisms operating at these multiple levels interactively determine the outcomes of planning activity, but planning activity and its outcomes, which is emergent from them, cannot be reduced to any particular element or level.

Agency and Social Structure

Bhaskar (1998, pp.36-37) also provides a transformation model of society in which

> Society … provides necessary conditions for intentional human action, and intentional human action is a necessary condition for it. Society is only present in human action, but human action always expresses and

> utilizes some or other social form. Neither can, however, be identified with, reduced to, explained in terms of, or reconstructed from the other.

From this comment it is clear that the organisational members involved in the SISP process and the organisational setting provide the conditions for their individual agency. As individuals and groups they possess a reflexive capability, which leads to a morphogenetic process (Archer 1995) between their agency and the social structure of the organisational setting. SISP practitioners are also purposeful or goal driven but this agency must contend with the goals of others and the constraints of the social structure within which they act.

Emergence

The formal strategic IS plan is a socially constructed artefact that emerges from the process of SISP. It is also highly meaningful for certain organisational members so it embodies reasons for further action, which can be causal (Bhaskar 1997). Following Brown (2009, p.26) it can be said that the strategic IS plan reflects decision about what should be done in the organisation in respect of its information systems even if the consequences are unintended. The plan is therefore normative. This can be seen as a mechanism operating at the normative level and it has effects in terms of the decisions made by individuals with power in the organisational structure.

Causal Effect of Absence

Brown (2009, p.29) draws attention to Bhaskar's (1993) dialectical critical realism in which he argues that absences can have causal effects. If the resources in an organisation are insufficient to purchase the necessary technology to implement the SISP recommendations then the strategic plan's intentions will be unrealised as are the expected benefits for the organisation. There are several possible absences that have causal effects in relation to information systems in organisations one of which is the absence of an adequate information technology infrastructure that provides the ability to interconnect systems across geographically dispersed sites.

5.5 Realist Conceptualisation of SISP

Rather than the rational design model of SISP from the positivist literature or a structurally limited analysis of SISP from the interpretive perspective (Walsham

1993) a preliminary realist reconceptualisation is that SISP should be seen as a social intervention into the open system of the organisational setting in which the interaction between social structures, technological conditions, key agents and influential cultural or ideational aspects occurs through the social action of planning activity. Conceptually this is similar to the context, mechanism and outcome (CMO) realist model, of social intervention, put forward by Pawson and Tilley (1997) but endeavours to improve on this model by addressing the deeper level of social structures and the sources of mechanisms (Sayer 2000, p. 23). Charles Lawson (2004, p. 17) argues that it is the dual presence of technology and the social structures of the organisation that form the structural conditions for human action and its outcomes. The outcomes of this interaction represent the elaboration of the organisational setting in social, cultural, technological (Mutch 2002, p. 488) and agential terms. As such the SISP initiative is itself a mechanism that triggers various kinds of responses from existing social structures and agents. Some are supportive and some resistant and the outcome is unpredictable but an analysis of the setting may allow tendencies and possible outcomes to be identified. The open systems view of SISP is shown in

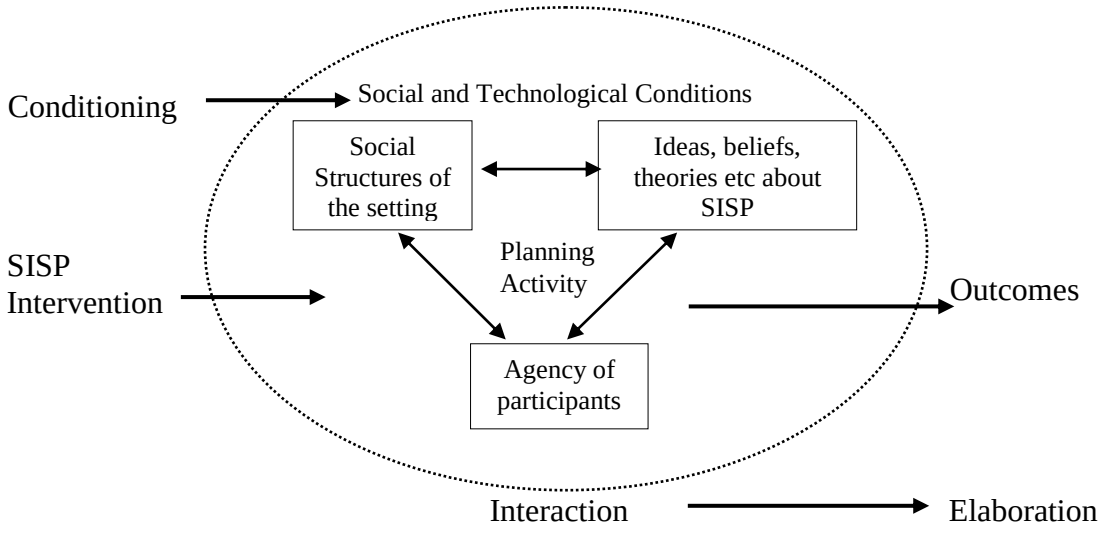


Figure 5.3 A Realist Conceptualisation of SISP.

Figure 5.3 A Realist Conceptualisation of SISP

This forms the conceptual framework for the realist analysis of the phenomenon of interest. The analysis itself requires the postulation of the particular mechanisms that

are present within the setting, how they operate, whether they are activated and what causal effects they tend to have. Observable outcomes are the empirical manifestation of the interaction of these mechanisms.

Social Structures

SISP takes place within organisations that exhibit hierarchical structures of formally related positions. These positions, with associated resources and rules, provide the occupants with structural powers that can be drawn upon as they carry out their assigned roles and fulfil their responsibilities. Informal structures may also be present or develop that have the ability to influence events within the setting and counter or reinforce formal structures.

Agency

At least four significant sets of agents are evident in organisations that engage in SISP. First, managerial groups who initiate and sustain the SISP process until a strategic IS plan is formulated and implemented. Second, the owners of pre-existing information systems including major corporate systems meeting a wide range of organisational information needs as well as smaller local business unit systems. Third, consultants with expertise in SISP who are hired to develop the strategic IS plan and fourth, senior executive managers who make the final decisions about the acceptability or otherwise of consultant proposals.

The Cultural System – SISP and Management Imperatives

SISP engages with technological, organisational and managerial aspects of the setting in which it occurs and through this with the associated beliefs, concepts, methodologies and ideas. Tillquist (2000, p. 146) proposes that "models of technological and organizational change carried in the broad managerial discourse shape the organizational planning process by defining the way participants can talk about computerization and work, and by predefining the taken-for-granted assumptions of IT and work organization." Managers are also encouraged to see information technology as a way of improving organisational efficiency and in this concepts and ideas associated with information systems become entwined with concepts of management. There are also the beliefs and ideas promulgated by the

market and consultants about the role and benefits of information technology in organisations.

Planning Activity as Social Practice

Interaction takes place via planning activity which is clearly a social practice involving stakeholders with various levels of power and interests. For Forester (1993, p. 24) "planning and policy analysis can be understood as forms of social action". This action is communicative, which is "always interaction between persons, thus political in a very broad sense, reproducing, whether maintaining or altering, social and political relations." (Forester 1993, p. 24) Those involved in forming the IS strategic plan have a role in shaping the practice of planning and their ability to do this comes from being in a position to set the agenda of attention, manage client uncertainty, provide meaningful images of the future, facilitate the development of communities of action, through the control of information access and finally by coopting potential sources of resistance. (Forester 1981, pp. 175-176)

Outcomes

The outcomes of SISP activities will include the identification of strategic decisions which are either taken or not taken (eg commission or decommission of IS), changes in the ideational aspects associated with IS, changes in the beliefs or attitudes of agents involved in SISP and changes in social structures. A particularly important set of outcomes will be those resulting from the attempt to implement the strategic IS plan such as new information systems and work arrangements in the organisation. Outcomes can then be compared to the initial conditions and the intentions of the initiating managerial group to decide what changes have occurred and a causal explanation offered.

Institutional Theory as a Source of Causal Mechanisms

Some forms of institutional theory (Nielsen 2001) are seen as compatible with CR metatheory (Hesketh and Fleetwood 2006, p.683-684). Gosain (2004, p.159) examines the implementation of Enterprise Information Systems (EIS) in terms of institutional theory using DiMaggio and Powell's (1983) concept of an institutional logic and institutional mechanisms. An institutional logic allows and enables some

activities while preventing, by denying legitimacy, others. Institutional logics define the shared norms, values and beliefs that influence the cognition of individuals in organisation. Three institutional mechanisms, coercive, normative and mimetic, which tend to produce organisational isomorphism are potential causal mechanisms of relevance to any organisational SISP project. The form that these mechanisms take will vary across organisational settings but their origin and ways of working is usefully approached from the perspective of institutional theory.

Coercive mechanisms exist when organisations operate in regulated environments or are dependent on other organisations and are manifest through dominant interests and structural constraints. These mechanisms influence the shared understandings of organisational members about the organisation's social reality. Normative mechanism arise from the influence of relevant professions such as IS profession, consultants or other entities seen to be authoritative within the interorganisational network that legitimise ways of thinking, organising and operating. Mimetic mechanisms arise from the need for organisational decisions to be seen as legitimate. Imitating the decisions of large, apparently successful organisations is one way of achieving legitimacy. When contingent conditions are uncertain or there is "symbolic uncertainty and goal ambiguity" (Gosain 2004, p. 165) acquiescence to mimetic forces is likely. None of these mechanisms deny the agency of individuals and groups to challenge such institutional pressures so that in relation to normative forces there may be "private challenges" and "variations across organisations in their receptiveness of the "vision" upheld by IS professionals" (Gosain 2004, p.164). The effects of these institutional mechanisms are depicted in Figure 5.4 Causal Mechanisms of Institutional Theory and SISP.

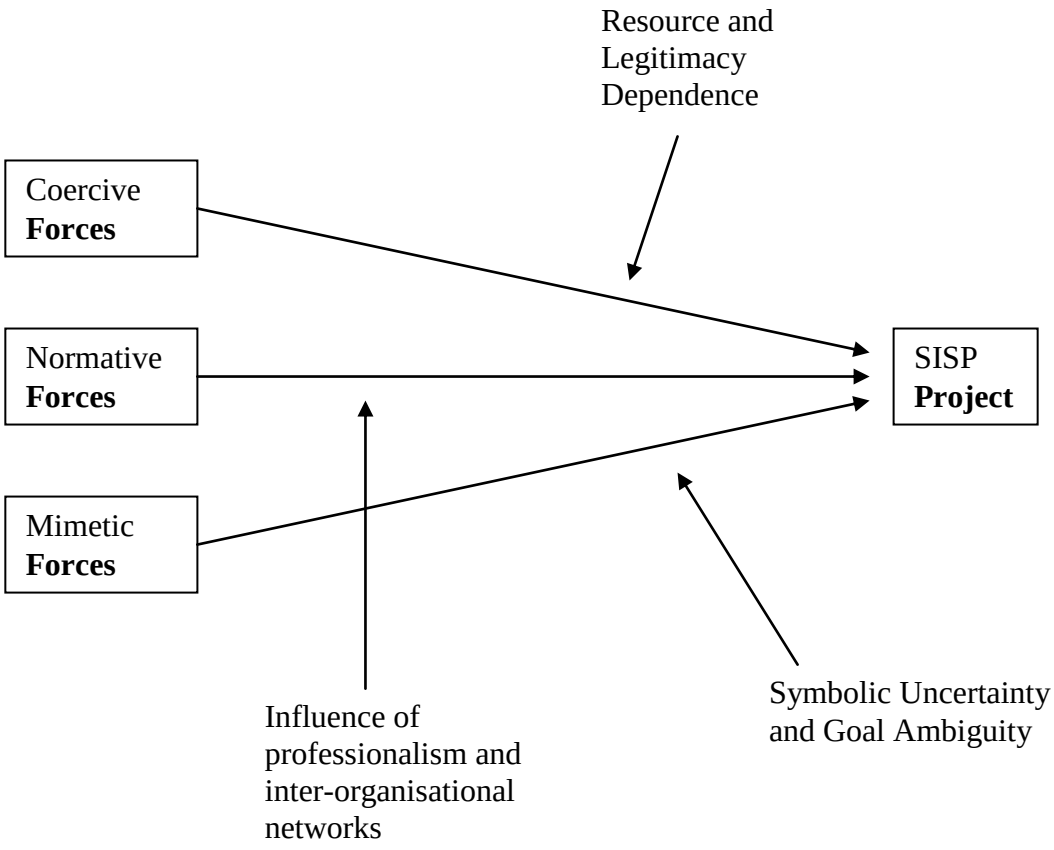


Figure 5.4 Causal Mechanisms of Institutional Theory and SISP

(After Gosain 2004, p.160)

Gosain argues that EIS are subject to the effects of the institutional logic of the organisation, are carriers of their own institutional logic that acts on the organisation and, in the process of implementation, can create institutional misalignments of institutional logics with the organisational institutional logic that may generate unexpected outcomes. Gosain (2004, p.155) referring to EIS argues "institutional forces impinge on decision related to the development and deployment of these systems." Since SISP is centrally concerned with decisions related to strategic systems such as EIS a similar view can be taken of the SISP project. The SISP project is likely to be the object of institutional pressures yet at the same time brings its own institutional logic that reinforces or misaligns with the organisation's institutional logic generating unpredictable organisational outcomes. The results of

institutional misalignment are depicted in Figure 5.5 Institutional Misalignments and SISP.

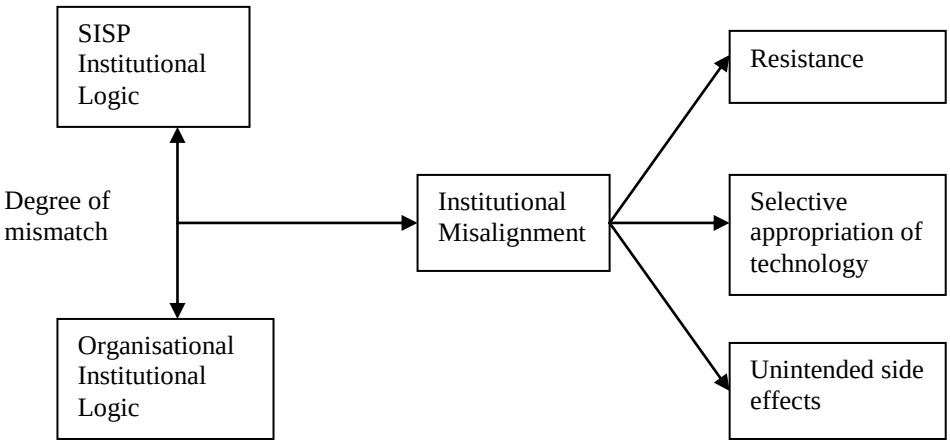


Figure 5.5 Institutional Misalignments and SISP

(After Gosain 2004, p.166)

5.6 Conclusion

SISP has been conceptualised as a comprehensive, formal and rational process, which has been studied using research techniques like regression analysis grounded in a philosophy of positivism. SISP has also been conceptualised as an informal and incremental process dependent on the actions of individuals and groups and the effects of discourse in a process of structuration. Research from this perspective is grounded in various forms of social constructionist philosophy. This chapter has provided a realist meta-critique of these ways of conceptualising the SISP phenomenon. In relation to the comprehensive view of SISP, the research has been shown to assume a closed systems view based on an Humean concept of causality which is at odds with the open systems nature of organisational social reality and does not finally properly explain causality. In relation to the alternative view of SISP, as an informal and incremental process, the research has been shown to commit the epistemic fallacy by either privileging the agential perspective over the need to understand structural aspects possibly beyond agential awareness or, by collapsing the distinction between agency and structure as in structuration and discourse theory. For

these reason these views are theoretically inconsistent or at best incomplete and fail to provide a reliable basis for explaining the unpredictable outcomes of SISP projects. The argument of this thesis is that SISP should be reconceptualised from the perspective of CR meta-theory as a phenomenon that occurs within the social reality of organisations, which is an open system of contingently activated causal mechanism. These causal mechanisms may or not be within agential awareness but their contingent interaction can better explain the unpredictable nature of the outcomes of SISP projects. Some forms of institutional theory are consistent with CR meta-theory and provide a theoretical support for the postulation of causal mechanisms.

Chapter Six

Case Study One: Corporate IT SISP Project

6.1 Introduction

This chapter describes a SISP project that was initiated and managed by the corporate IT function of a large Australian government department with primary responsibility for government policy implementation in relation to handicapped persons (physical and intellectual), support for socially vulnerable families, public hospitals, primary health care system, care for the elderly, public housing and public health regulation (Department of Health, Housing and Community). The project produced an IS Strategic Plan that aimed to integrate a number of distinct central systems and reduce the number of 'shadow' systems in divisions and regional offices of the department. However when attempts were made to implement the Plan these goals could not be achieved.

6.2 Context – Social and Technological Conditions

The department employed some 10,000 people directly but also operated through approximately 2000 semi-autonomous agencies that were either partially or fully funded by the department. The department was structured around nine divisions, each managed by an Executive Director (ED), as well as nine regional offices with regional managers assigned a semi-formal reporting relationship to particular Executive Directors. The Secretary was the department's most senior executive management position and reported to three Ministers with different portfolio responsibilities in relation to the activities of the department. The departmental structure is illustrated below in Figure 6.1 Organisation Structure of the Department of Health, Housing and Community Support (DHHCS) and Funded Sector Agencies. The Corporate Services Division (CSD) is responsible for the corporate service functions including Human Resource Management, Financial Management, Computer Services and Provider Contracts Management. Each of these functions is performed by a branch of the CSD, headed by a branch manager and supported by an associated information system. All divisions and district offices of the department access these systems via the departmental network, which is the responsibility of the Information Technology

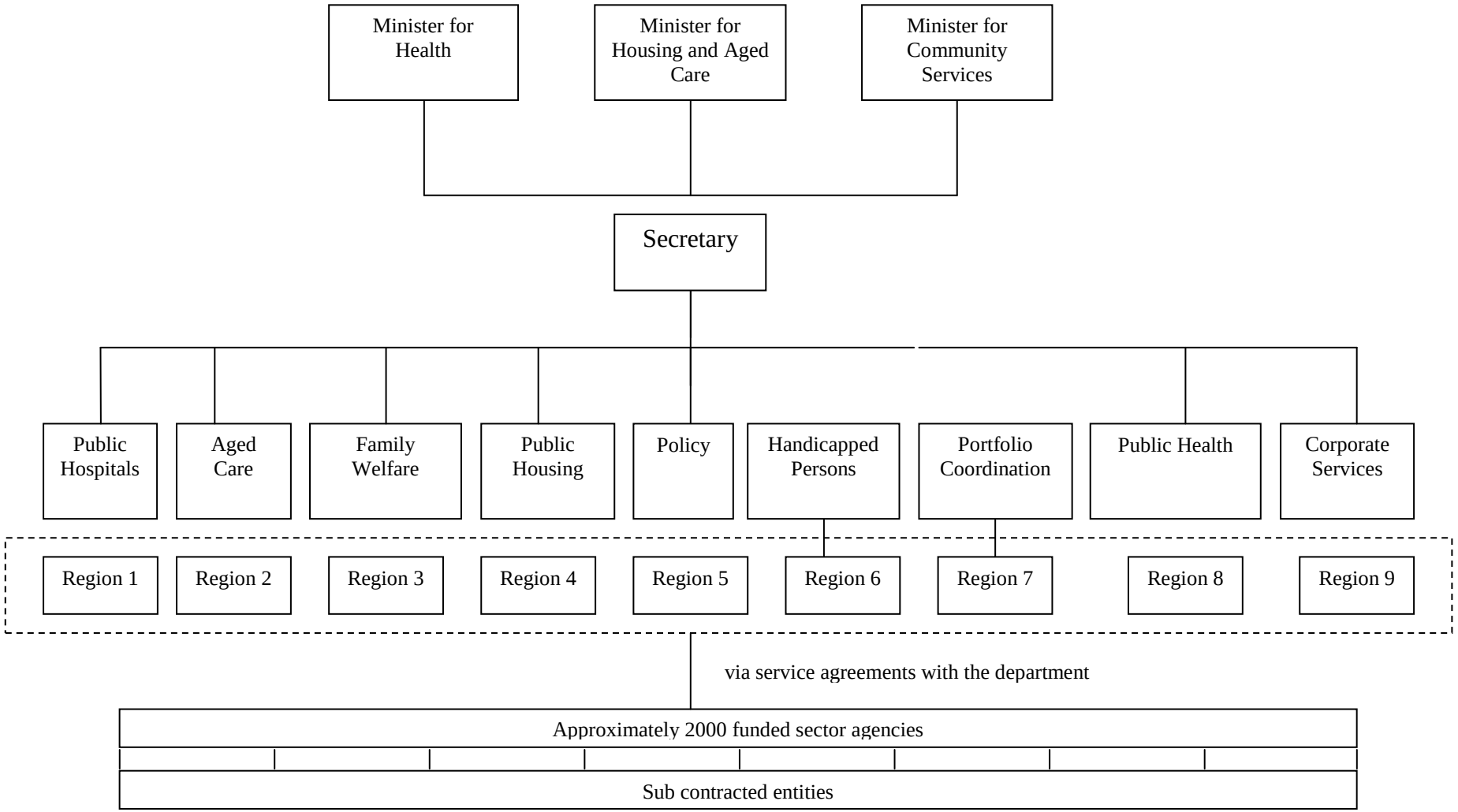


Figure 6.1 Organisation Structure of the Department of Health, Housing and Community Support and Funded Sector Agencies

Branch (ITB). The CSD is illustrated in Figure 6.2 Corporate Services Division Structure.

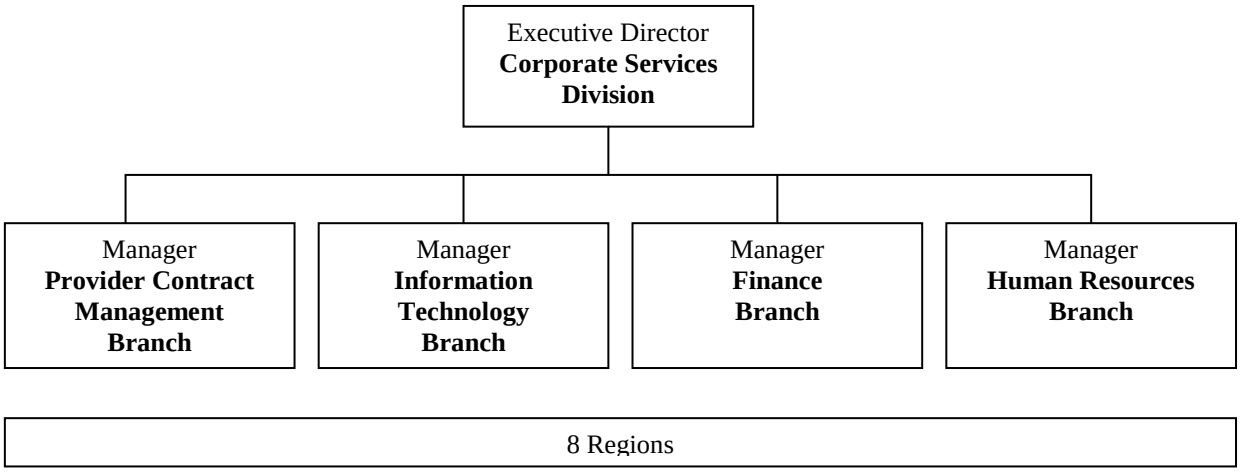


Figure 6.2 Corporate Services Division Structure

Key Agents in the Case Study

The key agents in this case study who were influential in the events and outcomes of the attempt to develop and implement the CSD IS Plan are given in Table 6.1 Roles of Key Agents.

Position	**Organisational Role**
Departmental Executive or Departmental Executive	Departmental Executive is comprised of the Secretary plus all divisional Executive Directors and is the highest decision making forum of the department.
Executive Director, Corporate Services	Senior executive responsible for the management of corporate service functions.
Branch Manager, Information Technology	Responsible for the departmental IT network.
Manager, IS Planning Unit	Responsible for managing the SISP project to develop the CSD IS Strategic Plan. Reports to the BM ITB.
Branch Manager, Provider Contracts Management	Responsible for management of the department's contracts with funded sector agencies and the Provider Contracts Management System (PCMS).
Branch Manager, Human Resources	Responsible for Human Resource management and the Human Resources Management System (HRMS).
Branch Manager, Financial Management	Responsible for the departments' financial management policies, purchasing processes, Provider Finance Management System (PFMS) and the Finance System (FS).
IS Planning Consultants	A team of consultants for the development of the CSD IS Strategic Plan. Reported to the Manager, IS Planning.

Table 6.1 Roles of Key Agents

6.3 Case Study Description

Initiating the SISP Consultancy

The Divisional Manager of CSD initiated the SISP consultancy project. He gave his reasons for this in a facilitated workshop with his branch managers in early 2002. The purpose of the workshop was to discuss a draft tender for the proposed IS planning consultancy, which had been prepared by the Manager of IS Planning within ITB and seek agreement to its objectives. First there was anecdotal evidence of duplication between CSD systems and those systems in the service delivery divisions second, there was no strategic plan identifying priority areas of need to focus limited IT resources and finally there was a perception at the Departmental Executive level that the ITB represented a large overhead, so there was a need to raise awareness of the corporate IS contribution to the overall departmental achievement. There was general agreement from the branch managers at the workshop that a consultancy to develop an IS strategic plan for CSD systems was justified. The scope of the consultancy was confined to those systems, which were the responsibility of CSD as distinct from the service delivery information systems controlled by the other divisions.

The Consultant's Analysis

After a lengthy tender evaluation process local consultants were selected. During the initial phase of the consultancy the consultants interviewed and surveyed users of CSD systems within CSD, in the other divisions of the organisation and in district offices. A key finding by the consultants was that dissatisfaction with the central corporate systems was lowest amongst CSD users, increased amongst users in the other divisions and reached its highest level with district users. This was accompanied by a corresponding development of shadow systems, which increased in number according to the distance, organisationally speaking, from the centre. Shadow systems (Boudreau and Robey 2005, p. 11) were locally built desktop systems, developed by end users outside of the corporate computer network and tailored to local needs but without the benefit of corporate system development standards and security measures.

The consultants set up a workshop between CSD system owners and district and divisional users of these systems to confirm their diagnosis. The workshop was tense

and surfaced strong disagreements between CSD systems owners and the users. Three systems in particular came in for strong criticism, the Finance system, the Provider Contract Management system (PCMS) and the HRM system. Central systems were not designed for the operational level work of these staff so that when using these systems it was necessary to disaggregate the corporate data on service provider, funding and HR related information to reconcile it with the detail held by the districts on contracted service providers. Users had to manually reconcile information between systems, formats were inconsistent from system to system and centrally maintained data was inconsistent with local records. The CSD system owners from head office rejected these criticisms. While the Branch Manager PCMB acknowledged there were issues with the PCMS both the Finance and HRM system owners refused to accept there were any significant problems with their systems and argued that users were not using them properly. They claimed training had been provided to staff in decentralised locations but they were unwilling to follow central procedures.

The second issue the consultants identified was related to management information. A key issue for the Departmental Executive of the department was the difficulty of obtaining reliable whole of department management information. The consultants found that CSD systems each possessed a limited degree of reporting functionality but it was not possible to obtain reports that incorporated all the relevant information from each system. Compounding this problem was the presence of shadow systems each with their own local stores of data relating to district and provider HR and financial performance. This information was not integrated with that held in the CSD system and constituted a separate source of information about the department's activity. Shadow systems tended to generate different versions of the same reporting information and reconciling the different versions to get a reliable whole of department picture involved substantial overhead effort by the central office.

The Recommended Solution

The consultant's solution to these problems was to propose an integrated application architecture. The lack of consistency of information between the CSD systems and the limited ability to exchange information would be addressed with Enterprise Application Integration (EAI) technology. The EAI technology would reduce the need for point-to-point interconnections between different applications and allow the

automatic transfer of information between applications. Problems of reporting would be solved through a Corporate Reporting Portal that would enable a range of comprehensive reports to be available at call from anywhere within the department using information drawn from the CSD systems that would now be integrated via EAI technology. Functional inadequacies in the FS, HRMS and PCMS would be addressed through the development of additional system modules, redevelopment or, as in the case of provider finance management, development of a new system. With these improvements the need for shadow systems should diminish. The consultant's recommended architecture is illustrated in Figure 6.3 Integrated Application Architecture.

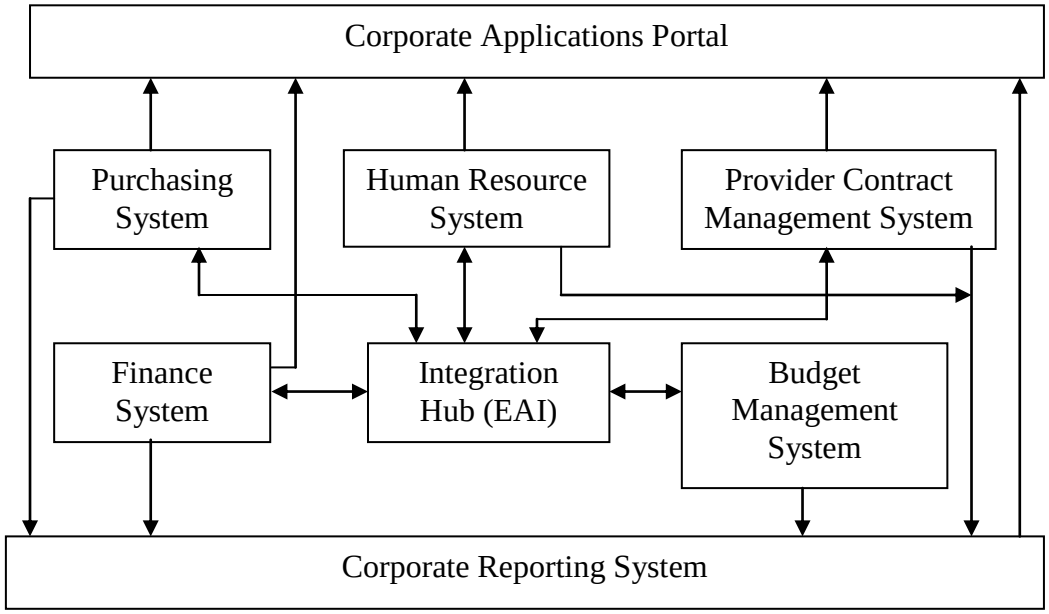


Figure 6.3 Integrated Application Architecture

Establishing the Business Case

The Divisional Manager of CSD was particularly concerned that the recommendations to the Departmental Executive highlight the potential for significant cost savings in the department thus demonstrating the cost effectiveness of an investment in corporate systems. Cost savings could be achieved through staff savings as a result of better central systems, which would remove the need for manual reconciliation of information from different systems and the need for shadow systems in districts and service delivery divisions. There would also be savings staff time

through quicker more accurate management reporting that would be available to all areas of the department.

Establishing a convincing business case for the integrated application strategy intensified towards the end of the consultancy with the Departmental Executive's approval of a new Major Business Systems (MBS) project. This systems project, which was unrelated to the CSD consultancy, provided direct support for two service delivery divisions. These divisions were required to contribute most of the funding but there was a significant shortfall that had to be made up from the CSD corporate IT budget. The key issue was that MBS was likely to be viewed by the Departmental Executive as more important than the CSD consultancy proposals, which were now referred to as the Corporate Services Systems Plan (CSSP). Without clear savings for the latter it was unlikely to be adequately funded.

The Divisional Manager CSD decided to approach the Departmental Executive for combined funding, for a three-year period, for both his contribution to the MBS project and the CSSP initiative. He argued that the costs of the current fragmentation of systems between CSD and districts were much greater than the costs to rectify the problem and the integrated application architecture, when implemented, would give the Departmental Executive reliable whole of department management information. The replacement of shadow systems by the implementation of better central systems was also an objective of the strategy. The savings would not be solely in terms of staff reductions, of which there would be some over time on an attrition basis, but also in removing the deficiencies in central systems and improving the performance of the IT infrastructure.

The possibility of better management information across the whole department and an improvement in the effectiveness of corporate systems for divisions and districts was well received by the Departmental Executive. The Departmental Executive accepted the arguments put forward by the Divisional Manager CSD and approved a multi-million dollar budget for implementation of the ten initiatives in the CSSP. In the Departmental Executive approval for the CSSP the ITB was given an overall implementation coordination responsibility. Specific project responsibility was divided between ITB, for IT infrastructure projects such as the introduction of EAI

technology, and the other branches of CSD for the business systems projects such as the new Provider Financial Management System (PFMS) for districts.

This outcome was seen as an outstanding win for the Divisional Manager CSD, the ITB and the consultancy as a whole. The remaining tasks were to complete the project briefs for the ten initiatives. Unfortunately by this time the consultancy had run over the allotted time period and the consultants had used up their budgets so the project briefs were not fully completed.

Implementation

Buoyed up by the 'win' at the Departmental Executive meeting the Planning Manager ITB began the process of implementation by establishing a Program Management Office (PMO) within the IS planning unit and took on responsibility for the management of the implementation budget. The approach to implementation was project based and a new project management methodology was introduced because, in the opinion of the ITB Planning Manager, CSD branches lacked project management expertise especially in relation to IT projects. He then decided to allocate funds to the branch managers when they had completed the project brief documentation, which had been left unfinished by the consultants, and he hired business analysts to help them complete this work and obtain agreement to this documentation from all stakeholders.

From the outset these arrangements required continual intervention by the Branch Manager ITB and his Planning Manager to protect what they saw as the integrity of the strategic direction set out by the consultants. The process to develop the project briefs revealed deep disagreements between the Planning Manager ITB and CSD branch managers about the appropriate conceptualisation of the recommended initiatives. There was also opposition to the new project management methodology as it was onerous and unfamiliar to most of the branch managers and their system owners. They resented the Planning Manager's control of the budget and insisted on funding being provided as an initial step rather than after project briefs had been prepared.

Replacing shadow systems with better CSD systems was a key argument of the consultants to the Departmental Executive but as the PFMS project investigated the

district level business requirements for provider finance management functionality it became clearer that these were much more complicated than originally understood to be. The complexity arose from the need to apportion provider funding across a complicated business output funding structure for the many programs of the department that had made the management of funding for providers more complex at the district level. For this reason the PFMS project manager argued that his project couldn't be expected to pick up all functionality currently provided by shadow systems in districts. While this debate was occurring at the central office of the department some districts were unwilling to accept another central system. At a Project Steering Committee meeting for the PFMS a district manager rejected the suggestion that her district would have to adopt central standard processes and that district staff roles would have to change to accommodate them: "we all know about being driven by (or having our local practices driven by) systems and what a problem this is for us". The issue was raised at the highest levels in the department. District managers asked the General Manager of the department why money was being spent on a project for a system that might provide less functionality than they already had with their shadow systems.

As these issues intensified a new problem emerged for the ITB. ITB was responsible for the creation of the integrated application architecture for the CSSP using EAI technology but this technology was also critical for the MBS. This work involved the development of numerous application interfaces to allow the MBS to interface with other service delivery systems in the department. Within the ITB only one person possessed the technical expertise to do this work and this person was subsequently assigned full time to the MBS requirement. The inability of ITB to build the integrated architecture for the CSSP as scheduled had an impact on the PFMS because it needed to use EAI technology to effect integration with the central Finance System as recommended by the consultants. The expectation was that ITB would have sufficient resources to meet the demand for EAI expertise but EAI expertise was also in short supply in the private market for IT contractors who could command higher contract rates than the ITB, as a government entity, could afford to pay.

The budget for the CSSP was also shown to be vulnerable to unexpected demands for funds for upgrades to existing CSD systems. The department's payroll system faced

an unavoidable requirement to upgrade the system software and this was significantly more expensive than anticipated. The ITB Planning Manager had to find the funds from within the CSSP funding but to do so he had to defer several of the CSSP projects for commencement in the following financial year. In relation to the Corporate Reporting Portal progress was stalled by the impasse between the Planning Manager ITB and the Branch Manager PCMB over project management arrangements particularly funding and disagreements about the focus of the project, the nature of the reporting problem and how best to address it. Subsequently, the Branch Manager PCMB was able to convince the Divisional Manager CSD that the reporting problem for the Departmental Executive could not be solved in the way proposed in the CSSP and further consultancy should be undertaken. The scheduled delivery of the PFMS was postponed to the following financial year pending the resolution of the EAI requirement and resource problems with the contracted developer. The overall position eighteen months after the end of the consultancy was that the delivery of new corporate systems, as intended by the CSSP, had not occurred and no shadow systems had been closed down.

6.4 Causal Analysis

This section uses the open systems conceptualisation of SISP developed in chapter five to explain the causes of the outcomes observed in this case study. The illustration of this conceptualisation is shown below in Figure 6.4 Open Systems Conceptualisation of SISP.

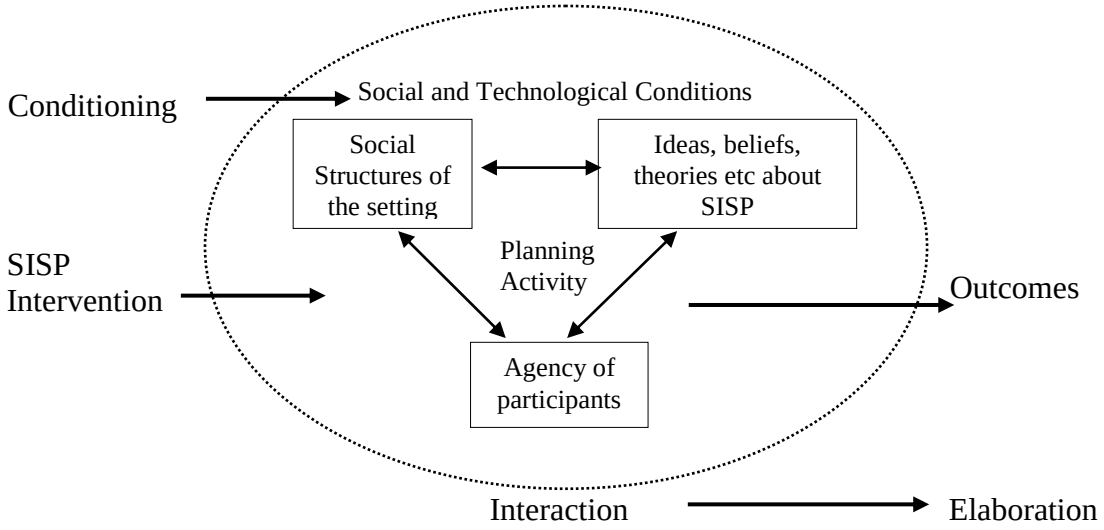


Figure 6.4 Open Systems Conceptualisation of SISP

The explanation proceeds by discussing the structural aspects of the setting and then the influential ideas used by agents. The key causal mechanisms are then identified in terms of whether they are supportive or unsupportive that is whether they retard or advance the SISP intervention. The conclusion answers the research question by showing how outcomes eventuate through the contingent interaction of these mechanisms.

6.4.1 Structural Analysis

The structural analysis identifies the social structures or structural relationships that are with agency the source of the causal mechanisms and their powers to affect the course of events. The analysis focuses on internal or necessary relations between individuals and groups and the associated powers. Eight structural relationships are evident in the case study:

Government and Community

Governments and the community are structurally related as the powers of Government are legitimated through the constitution and elections, which enables control of resources for the administration of the state. On the other hand communities are dependent on the actions and resources of government for a public goods and public services.

Government to Department

Government power is legitimated through the constitution and elections and enables control of resources for the administration of the state and departments are important organisational entities that governments use to implement government policy. This is both constraining and enabling for departments since the government can authorise departmental programs and provide resources to enact them but can intervene to change policy. The availability of resources is a key structural source of causal power but resource constraints were an important condition in the case study department.

Department to Clients

Under the relevant legislation the department is obliged to meet the needs of the community in relation to physical and intellectual disability, socially vulnerable families, public hospitals, primary health care, care for the elderly, public housing and public health regulation. The reciprocal aspect of this relationship is that community members or clients in need of the associated services are dependent on the department and its service providers for them.

Department to Service Providers

The department is responsible for ensuring the service system of semi-autonomous service providers functions effectively and to required standards of service provision quality and availability. Service providers are dependent on the department for all or part of their annual budgets but the funding is conditional on service providers agreeing to a contractual agreement, which stipulates the services they must provide. Services are 'purchased' under the agreements. These arrangements create a structural 'purchaser – provider' relationship between service providers and the department.

Centralised Management (Departmental Executive) versus Decentralised Service Delivery (Regions and Service Providers)

The next structural factor relates to the opposing tendencies of centralised versus decentralised management in the department. The Departmental Executive's requirement for overall management information reflected the central management nature of its organisational role and this resulted in a centralising tendency in terms of

organisational information management. This tendency ran counter to the more differentiated information generated away from the centre and most clearly demonstrated in the service delivery points (districts) or organisational periphery of the department. This created the conditions for a structurally generated centre versus periphery information management problem, which helped to produce the opposing integration and fragmentation mechanisms. Heeks (2000) discusses the tension between centralised and decentralised approaches to IS management in public sector organisations and suggests a 'core-periphery' approach that 'attempts to reconcile the push of the centralized approach with the pull of the decentralized approach.' (Heeks 2000, p.134).

Structural position of the corporate ITB function

The Director ITB had control over the departmental ICT infrastructure and his business unit was the department's main internal source of ICT expertise. This organisational position made ITB a corporate resource with an obligation to support all divisions but with a significant degree of influence and autonomy in relation to departmental ICT standards and policies especially in relation to the department ICT infrastructure. However service delivery performance by the department was tied to government policy commitments hence enabling service delivery was more important to the Departmental Executive than enhancing corporate services. The role of CSD was to support the internal management and operation of the department and hence was seen to make only an indirect contribution to the department's service delivery priorities and capability. For these reasons justifying investments in corporate services initiatives, particularly IT related projects, at the Departmental Executive level was more difficult than for service delivery projects. The Divisional Manager CSD said at a planning workshop "it is really hard to get the Departmental Executive to invest in IT projects". This structural factor constrained the agency of the Divisional Manager CSD in pursuing corporate service initiatives and also explains the priority given to the MBS project over the CSSP initiatives for resources to develop and implement EAI technology.

Business Unit Autonomy

The second structural factor originates in the organisational autonomy of the branches within CSD, which stemmed from the fact that they had equal status within the division. This meant that without the Divisional Manager's support ITB had no organisational authority to compel the other branches to comply with the implementation arrangements for the CSSP. In addition since each branch manager was responsible for one or more of the CSD systems, collectively, they could control the overall agenda for these systems independently of the one set out in the CSSP.

Market Based Dependency on IT Products and Services

The dependency of the department on market based resources was evident in the dependency of the ITB on the private market for IT contractors with technical, in this case EAI, expertise who could command higher contract rates than the ITB, as a government entity, could afford to pay. These market conditions constrained the ability of the Branch Manager ITB and his Planning Manager to obtain the resources they needed for creation of the integrated application architecture. Figure 6.5 Structural Factors of the Case Study shows the relationship between these structural factors. The arrows are intended to suggest the direction of causal power and the bi-directional arrows that this causal power may be in opposition.

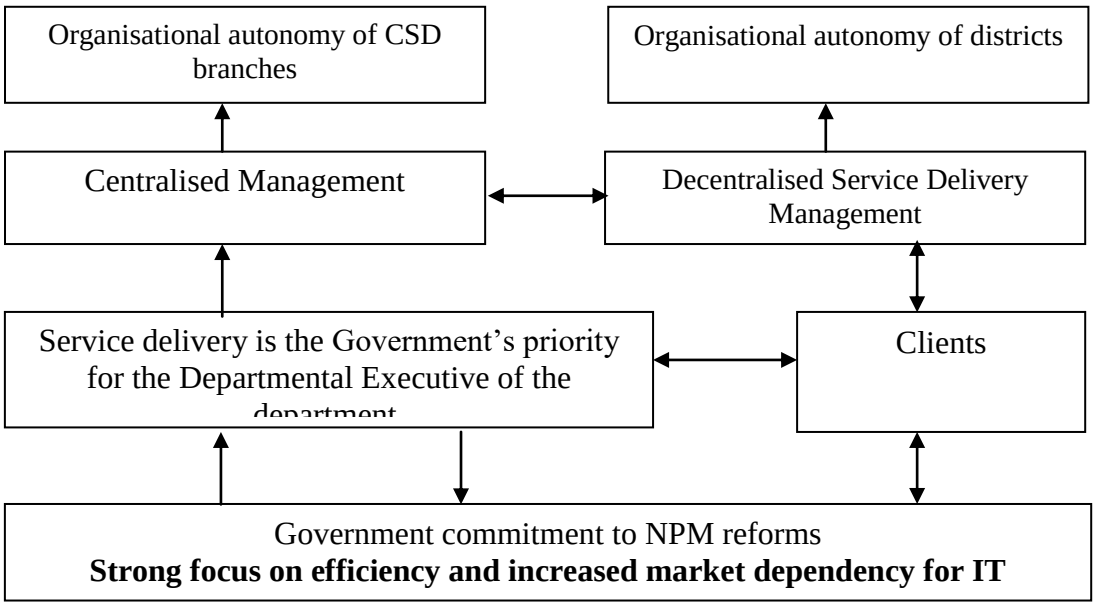


Figure 6.5 Structural Factors of the Case Study

6.4.2 Influential Ideas

This section proceeds by identifying the influential ideas in the case study and who held them. It then discusses how these ideas supported the actions of particular agents or why they held these ideas. In reviewing this case study two key ideas are evident:

- Integration of applications
- New Public Management

Integration of Applications

Two key ideas or cultural system elements were important during the development of the CSSP. The first was the concept of an integrated applications system architecture, which the consultants devised to address, at the conceptual level, the problems of inconsistent formats and the difficulty of sharing information between the CSD systems. It provided an answer to the question of how to overcome the problem of reconciling different computer system sources of management information. The senior consultant said in an interview after the consultancy that consultancy projects "have to have their big idea". This shows the causal efficacy of an ideational mechanism that influences powerful stakeholders in the decision making process. Margetts (1999, p. 45) notes the prominence of the idea of integrated computer

systems through networking in the UK and US government sectors. Heeks argues (Heeks 2001, p.31) that an integrated approach to IS management is crucial for the success of IT based reform of public sector organisations but there are many 'barriers' including structural and cultural ones (Heeks 2001, p.38).

New Public Management

Diefenbach (2009, p.893) summarises the basic thrust of NPM ideas as being to "make public sector organizations – and the people working in them! – much more 'business-like' and 'market-oriented', that is, performance-, cost-, efficiency- and audit-oriented." He identifies a number of outward and inward strategic organisational orientations of NPM (Diefenbach 2009, p.894). The outward orientations include

- Market-orientation: commodification of services under the slogan of 'value for money'
- Customer-orientation: service delivery from a customer's perspective

And inward orientations "mentioned time and again within NPM discourses" (Diefenbach 2009, p.894) include:

- Increased organizational efficiency, effectiveness, and productivity defined and measured in technological terms.
- Cost-reduction, downsizing, competitive tendering, outsourcing, privatization of services

Another inward orientation is the "Systematic, regular and comprehensive capturing, measurement, monitoring and assessment of crucial aspects of organizational and individual performance through explicit targets, standards, performance indicators, measurement and control systems. (Diefenbach 2009, p.894).

NPM ideas were influential in this case study for example in the form of the purchaser – provider model of government service provision that utilised approximately 2000 semi autonomous services providers. This can be seen as a manifestation of the market orientation described by Diefenbach. The influence of the two inward orientations mentioned by Diefenbach (2009), particularly efficiency and cost savings,

was also evident in the case. The Divisional Manager of CSD initiated the SISP project largely as a response to the perception of inefficient uses of departmental IS resources as a result of the duplication of systems across the department and the large overhead cost of his corporate IT function. The possibility of cost savings was also evident through the suggestion from the consultants that implementation of the integrated application architecture would result in some staff savings. This was used by the Divisional Manager CSD to convince his peers on the Departmental Executive that the investment in the CSSP would produce a 'return' in terms of a lower requirement for staff positions. This was also consistent with the idea of a lower corporate overhead allowing more of the departmental resource allocation to be devoted to service delivery projects.

Tsoukas (Fleetwood and Ackroyd 2000, p. 39) identify management's "drive towards efficiency and effectiveness … in a context of … scarce resources". While the efficient use of public funds has always been a principle of public administration (Harmon and Mayer 1986, p. 37) NPM reforms and the reduction of public funding for government entities has intensified the focus on the efficient use of departmental resources and management's preoccupation with budgetary issues. Internal departmental demands on corporate IT funds were such that the Divisional Manager CSD could not quarantine the budget for the CSSP from other IS related demands for funding such as the need to support critical legacy systems in the HRM branch and the new MBS project. Finally the third of Diefenbach's inward orientations of NPM was evident in the desire of the Departmental Executive for comprehensive and integrated information on the performance of the organisation including the dispersed service provider sector.

6.4.3 Causal Mechanisms

In this case study six supportive and two unsupportive mechanisms are proposed as the basis of a causal explanation of the eventual outcomes of the SISP consultancy. This is similar to Pawson and Tilley's (1997, p. 75) distinction between mechanisms that generate a problem in a social setting and those that are introduced to neutralise or block the problem mechanism. The supporting mechanisms are described here as advocacy, consultant engagement, integration, approval, project control while the unsupportive mechanisms are described as fragmenting and resistance. How these

mechanisms work is now briefly described and summarised in Table 6.2 Causal Mechanisms in the Case Study.

Advocacy Mechanism

The case study demonstrates the agency of the Executive Director of Corporate Services Division and his Director ITB and the ITB Planning Manager who were the main advocates of the SISP consultancy strongly supported by the team of SISP consultants. Advocacy mechanisms originate in the agency of individuals and groups located within the social structure of the organisation. Hence the Director ITB's ability to advocate the SISP consultancy project arose from the powers of his position as the department's senior ICT manager in association with his Executive Director of Corporate Services Division supported by a team of private consultants.

Agents and groups acting as advocates, have powers to initiate, pursue and promote projects, ideas and other proposals within the organizational setting as a result of their personal initiative, their access to structural resources and powers and their ability to determine the most propitious circumstances and timing for their initiatives. Advocates work by taking the initiative, gaining legitimacy, framing of issues in particular ways, influencing and aligning with prevailing ideas about organizational purposes and building coalitions of support (Moore 1995; Giroux and Taylor 2002; Sundin and Tillmar 2008).

IS Demand Management

The IS Demand Management mechanism emerges from the agency of individuals and groups located within the corporate IS management function of departments and particularly the agency of the responsible Director. A stated reason for the initiation of the SISP project was the need to better manage the overhead cost of the department's corporate systems. The business case for the integrated system architecture proposal argued that the costs of maintaining numerous shadow systems in regional offices could be reduced, by greater integration of central systems and making them more responsive to regional needs thus reducing the need for shadows systems and the associated staff. This can be seen as evidence of a IS Demand Management mechanism was a contributing factor in both the initiation and final output of the SISP project.

Consultant Engagement Mechanism

The consultants interaction with stakeholders in the setting can be described as an engagement mechanism which has at least two different elements, the ability to question, critique or challenge existing arrangements and the ability to generate consensus to alternatives which are proposed as improvements. Hence the consultancy can be seen as an intervention into the social setting of the organisation that acts as what Moren and Blom (2003, p. 56) call a 'challenge' mechanism. This results from the diagnostic aspect of the SISP process, which proposes a critical assessment of the organisation's existing information systems policies, arrangements and quality. This mechanism results in the case for change and therefore challenges existing arrangements. The consultants challenged corporate system owners to make their systems more responsive to regional needs but at the same time argued that this would justify a reduction in shadow systems in regions.

Integration Mechanism

The implementation of the integrated application architecture required the interconnection of the CSD systems using EAI technology. This had the effect of forcing the CSD branch managers and their system owners to consider the informational relationships and technical interfaces between their own system and the other systems of CSD. A second change was the modification of systems to better meet the information needs of districts and the Departmental Executive. This meant the diversity inherent in both the independently developed CSD systems and the locally focussed district shadow systems had to be reduced. To achieve these changes a more interdependent and standardised approach to systems development had to be adopted.

Approval Mechanism

The Departmental Executive was the most organisationally powerful group in the case study and its approval of funding for the CSSP was crucial for the CSSP to have any chance of being implemented. The Departmental Executive's approval also granted organisational legitimacy to the proposal. The Secretary plus all the Executive Directors constitutes the departmental Executive and is the highest decision making

forum in the department with authority to grant or refuse resourcing to divisional proposals and plans.

Project Control Mechanism

The Planning Manager ITB used two instruments to manage the implementation of the CSSP. These were the introduction of the new project management methodology and his control of the CSSP budget. This provided a powerful means of controlling not only what would be done, by withholding or granting funds, but also how it would be done. The power of the Planning Manager ITB to act in this manner arose from the departmental Executive's decision to give ITB responsibility for implementing the Plan including control of the funding.

Resistance Mechanisms

Branch managers of CSD resisted the attempt to control the way projects were funded and managed by the ITB Planning Manager by not complying with the project management methodology and insisting on early allocation of project funds from the CSSP budget. The branch managers and their system owners also resisted the new conception of the organisational role of their systems by arguing that the consultant's understanding of their functions was inadequate. The Branch Manager PCMB was eventually able to convince the Divisional Manager CSD that the reporting problem for the Departmental Executive could not be solved in the way proposed in the CSSP. Simultaneously district managers resisted the attempt to close down shadow systems by arguing that the proposed new central systems were unlikely to meet their needs. These actions could be seen as elements of a resistance mechanism that were a direct response to the implementation of the Plan and countered the control mechanism of the ITB Planning Manager. Coombs, Knights and Willmott (1992, p. 69) comment that the significance of new information systems in organisations are "embedded in strategies and mechanisms of control (and counter-control) … of those whose identity has been constituted through the enactment of these strategies and mechanisms."

The question arises as to why the Divisional Manager CSD did not compel his branch managers to comply fully with the CSSP. The answer relates to the style of management in the department, which was consensual at the branch and divisional level. The Divisional Manager CSD sought to encourage his branch managers to

reach agreement amongst themselves rather than by strong directives from himself. But this approach did not help the ITB Planning Manager's efforts to counter the resistance mechanisms prompting him to remark that his branch manager was not getting much support from the Divisional Manager CSD. CR sees this as a contingent condition of the setting. Tsoukas (Fleetwood and Ackroyd 2000, p. 40) referring to the work of Watson (1986), remarks, "management preferences and value systems may influence the manner in which causal powers are exercised."

Fragmentation Mechanism

This mechanism originates in the different organisational functions within the department, which generate unique information needs and drive the development of independent single function information systems. The mechanism was active in some of the central service delivery divisions but strongest in relation to districts. Districts were much more closely involved with operational service delivery than the CSD functions while the latter were more focussed on the central management requirements of the department and the Departmental Executive. In the absence of comprehensive systems that can meet a wide range of information needs different organisational entities try to develop their own systems. Districts and some service delivery divisional users of CSD systems were able to meet their needs through the ready availability of desktop computers to develop 'good enough' local shadow systems. In organisational information and systems management terms this constitutes a fragmentation mechanism. There is support in the literature for the concept of a fragmentation mechanism originating in the divergent interests of subunits of an organisation. Referring to the work of Goodhue, Kirsch, Quillard and Wybo (1992a) and Goodhue, Kirsch and ybo (1992b), Premkumar and King (1994, p. 98) suggest that:

> Large firms may have coordination difficulties in instituting a comprehensive IS planning system and be splintered by divergent interests … and that "data integration", a major outcome of strategic IS planning, becomes more difficult when organizations become complex and there is significant heterogeneity among the subunits

This completes the initial retroduction of causal mechanisms for this case study. The mechanisms are summarised in Figure 6.6 Supportive and Unsupportive Causal Mechanisms and further refined in chapter ten during the cross case comparison.

The Appendix to this thesis (Agential Groups, Mechanisms, Interaction and Events) summarises the sequence of events, the causal mechanisms that led to these events and the originating social objects for the mechanisms for this case study. The next section provides the conclusion to this case study by explaining the outcomes in terms of the contingent interaction of causal mechanisms.

SUPPORTIVE MECHANISMS	UNSUPPORTIVE MECHANISMS
Advocacy • Initiation of SISP project by ED CSD and BM ITB. **IS Demand Management** • Business case argues for cost savings through reduced systems demand as a result of better corporate systems **Challenge** • Critique of existing system arrangements not meeting district needs and the needs of top management **Integration** • Integrated application architecture required interconnection of previously autonomous systems to exchange information for consistent management information • Modification of CSD systems to better support district information needs • Central management role of Departmental Executive requiring integrated sources of management information **Approval** • Departmental Executive approval of the CSSP and provision of budget **Project Control** • Compliance with Planning Manager to obtain project funding • Compliance with project management methodology	Resistance • Rejection of problem diagnosis and project conceptualisation of solution • Refusal to comply with project management arrangements • District reluctance to accept central systems • Influence of branch managers on Divisional Manager CSD **Fragmentation** • Different organisational functions generate incompatible information needs • Ability to build shadow systems using desktop technology • Limited usefulness of central systems for districts • Autonomous CSD systems

Figure 6.6 Supportive and Unsupportive Causal Mechanisms

6.5 Conclusion – Explaining Outcomes

The Divisional Manager of CSD advocated the initiation of the SISP project largely as a response to the perception of inefficient uses of departmental IS resources. At the same time however organisational conditions, stemming from the structural relationships involved in the implementation of the purchaser – provider model of service provision had created a complex client – service delivery model. For the Departmental Executive management of this delivery system necessitated comprehensive, consistent and integrated information. In this can be seen the effect of a structural condition of the service delivery system creating a complex information management problem which shaped strategic considerations for new information systems.

But the nature of this need was bound up with the tensions emanating from a centralised management role for the Departmental Executive versus a decentralised service delivery system. This was a significant contributing cause behind the development of numerous 'shadow systems' that could support the working requirements of regions who were directly responsible for the operational management of the semi-autonomous service providers. These conditions helped to produce the opposing integration and fragmentation mechanisms.

In overall terms the consultancy can be seen as a centrally initiated intervention that confirmed the inadequacy of CSD systems and produced a proposal premised on integrated systems leading to staff reductions and fewer shadow systems. This proposal was an influential idea that supported the central management role of the Departmental Executive and offered efficiency savings that could be reallocated to service delivery priorities. Despite the Departmental Executive's approval it could not be implemented properly however because underlying agreement to the proposals was not achieved with CSD branch managers. The CSSP represented a challenge to the CSD branch manager's control of the CSD systems agenda, which they had been able to maintain because of their autonomous status within CSD and their central management role in the department. The CSSP implicitly recast some aspects of their functional role via the reform of their systems to focus on new requirements and they also saw the CSSP as owned by the ITB rather than as a divisional initiative, thus increasing ITB's control over the CSD systems agenda at their expense.

Other factors also impacted on the outcome of the attempt to implement the CSSP. Replicating shadow system functionality in central systems was more difficult than anticipated, districts were wary of the losing the usefulness of their shadow systems and the work involved required resources beyond what could be made available in a context of competing demands for corporate IT resources. Thus the mechanism causing shadow systems in the first place remained unchecked by the proposed integrating mechanism so no shadow systems were closed down.

Chapter Seven

Case Study Two: SISP Project in the Department of Education

7.1 Introduction

This chapter describes the second case study of this thesis. Unlike the first case study the researcher was not a participant. The data for this case was obtained through attendance at six cross-divisional reference group meetings, one ICT Strategy Council meetings, two workshops, twenty-one interviews and review of selected SISP project documents. The case study describes a consultancy project to develop an ICT strategic plan for a government organisation known as the Department of Education. The consultancy project was initiated by the Director of the corporate IT function with the approval of the head of the department. During the consultancy the head of the department was replaced twice and the government cut the staff numbers in head office, where the consultancy took place, by 25%. Thus this is a case of SISP in a turbulent environment but contrary to Salmela, Lederer and Reponen's (2000) finding shows how this instability was damaging to the comprehensive style of SISP adopted in this case. The first success criteria that had been set out at the initiation of the consultancy was the "broad acceptance, and Department's ownership, of project deliverables and recommendations" but the strategies recommended by the consultants were never fully accepted by the senior management of the department and after fifteen months of trying to achieve this the Director of the corporate IT function left the department. By this outcome the case is a study of the failure of a SISP intervention.

7.2 Context - Social and Technological Conditions

The setting for this case study is a government department responsible for 1615 government schools (primary and secondary) and nineteen technical colleges across nine regions. Table 7.1 Department of Education Statistics summarises the numbers of corporate staff, teachers and students.

School Type	Teachers	Students	Staff Type	Number
Primary and Secondary	38,000	535,000	Head Office	1500
Technical	8,400	368,000 (includes part time)	Regional	240

Table 7.1 Department of Education Statistics

Most of the events described in the case study occurred in the head office of the department. Head office consists of four major divisions managed by an Executive Director. The Secretary together with the four Executive Directors of the divisions constitutes the departmental executive. Each division has a number of branches managed by Directors. The department has a Schools division, responsible for overall management of primary and secondary schools and a Technical Education division responsible for technical schools. The Corporate Services Division (CSD) has responsibility for IT, Finance, HR and school facilities management. The fourth division is the Cross Sector Planning Division (CSPD) whose role is to provide strategic management across all sectors of the educational portfolio. Regional Directors of the nine regions report to the Executive Director of the Schools Division. Regional Directors liaise with school Principals in the implementation of school related policies. Schools Principals have significant autonomy in the management of schools and teaching practice. The organisational structure of the department is shown in Figure 7.1 Organisation Structure of the Department of Education. For clarity only the branches specifically referenced in the case study are shown.

Technological Conditions

There were approximately two hundred head office and regional information systems, which supported the administration of the department and schools but exclude curriculum or learning related systems. As a result of previous programs the department had already made significant investments in ICTs for teaching and learning. These investments included 136,000 curriculum computers in schools to give a student ration of one for every 3.9 students, provision of notebook computers to all school and technical teachers, a technical school virtual campus with 106 providers

and an educational channel with 300,000 digital resources. A key issue in relation to this investment was its effectiveness in improving teaching and learning performance.

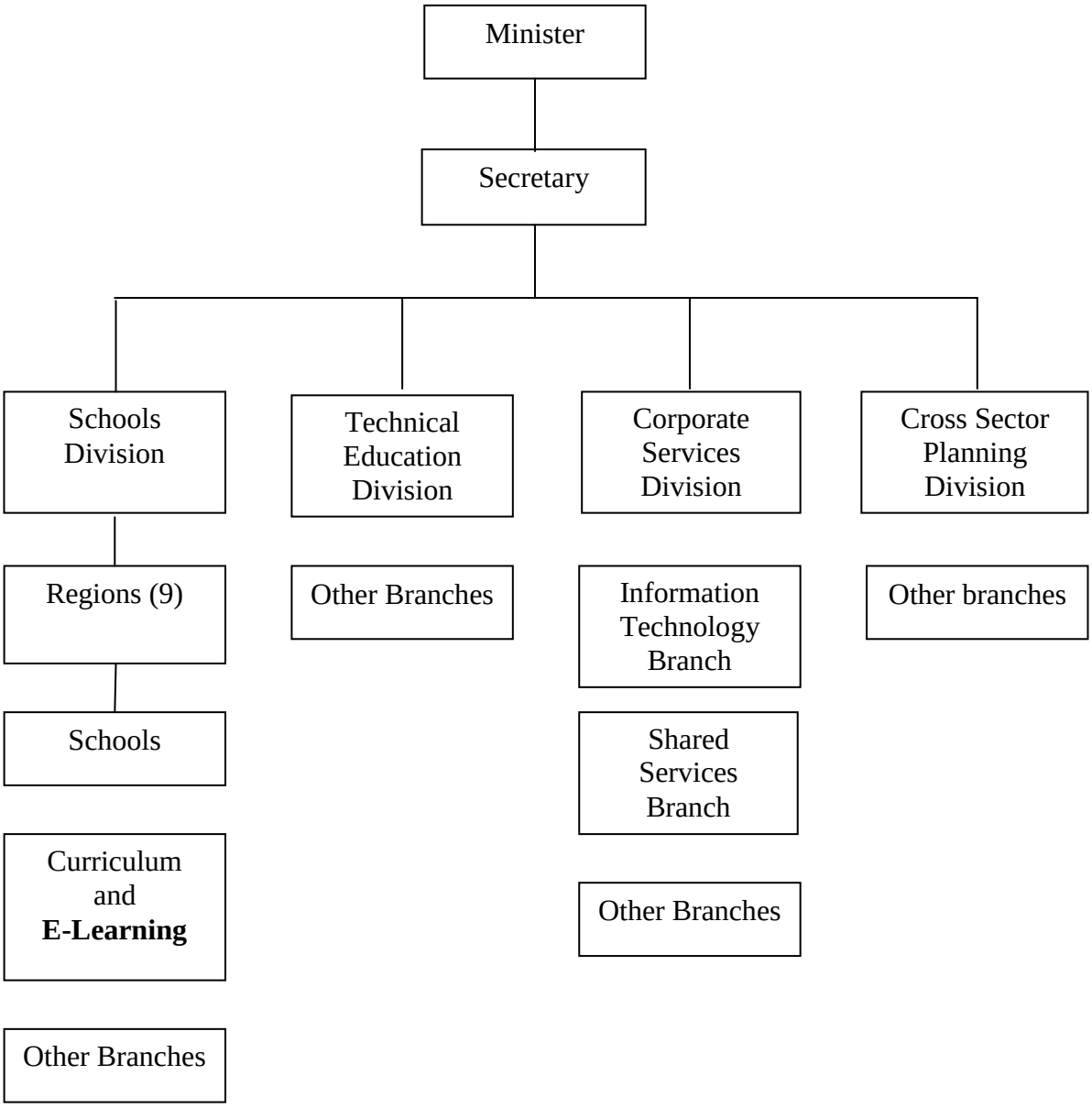


Figure 7.1 Organisation Structure of the Department of Education

Some stakeholders felt that the previous heavy focus on ICT in schools had led to a neglect of the department's corporate management systems. At the operational level there was no strategy in place to manage the risks associated with the loss of these valuable ICT assets. There was also evidence of the uncoordinated initiation of ICT

projects outside of any overall departmental framework or guiding vision a process that had led to the creation of some two hundred applications at head office. The Director ITB also felt the need to justify the expenditure on his function but in addition to this issue was the demand on his branch for ICT support from the other divisions and also branches within his own division (Corporate Services). Branches who had invested in ICTs to support their functions experienced an increasing need for technological support and the demand for this support was increasingly directed at the corporate IT function.

7.3 Case Study Description

The case is described in two broad phases first the development and then the post development phase. The development phase covered a period of approximately five months while the post development phase extended for a further two years.

7.3.1 Development Phase

Initiation of the SISP Consultancy Project

During 2002 the Director CSD recruited the Director ITB. An early initiative of the new Director ITB was to propose an IT strategic planning consultancy project. The Secretary, who was the supervisor of the Director CSD, supported the proposal on the basis that the planning consultancy focus on corporate management systems and provide a risk management strategy for them. He also wanted to improve the control of expenditure on ICT generally and increase the benefit to the department and schools of this expenditure but did not want the consultancy to focus on the use of ICT for teaching and student learning purposes. This was the preserve of the schools division so the scope of the consultancy was to end at the "school door".

The Director ITB, who became the Director ITB for the planning consultancy, felt that the Secretary was conservative and didn't want much change in relation to the role of ICT in the organisation. Nevertheless the idea of increasing the benefit to the functions of the department of the money spent on ICTs remained important for the Director ITB, as some weeks after the commencement of the consultancy he commented "This is a critical project for me because there is a perception that ITB is a multi-million dollar overhead that doesn't add much value".

The reporting arrangements for the ICT planning consultancy, which is the subject of this case study, are shown in Figure 7.2 Reporting Relationships of the SISP Consultancy Project. The department's key advisory and decision-making forum for ICT strategy and policy is the ICT Strategy Committee (ICTSC), which during the events described in the case study became the Knowledge Management Committee (KMC). This committee represents all divisions and advises the departmental executive on major ICT related decisions. The Director Information Technology Branch (ITB) led the SISP consultancy project with the assistance of his project manager. Reporting to the Project Manager were the Principal Consultant and the Risk Management Consultant who were responsible for a small group of research and analysis consultants. The Cross Divisional Steering Committee (CDSC) was a group of senior managers representing a cross section of the major areas of responsibility across the four divisions.

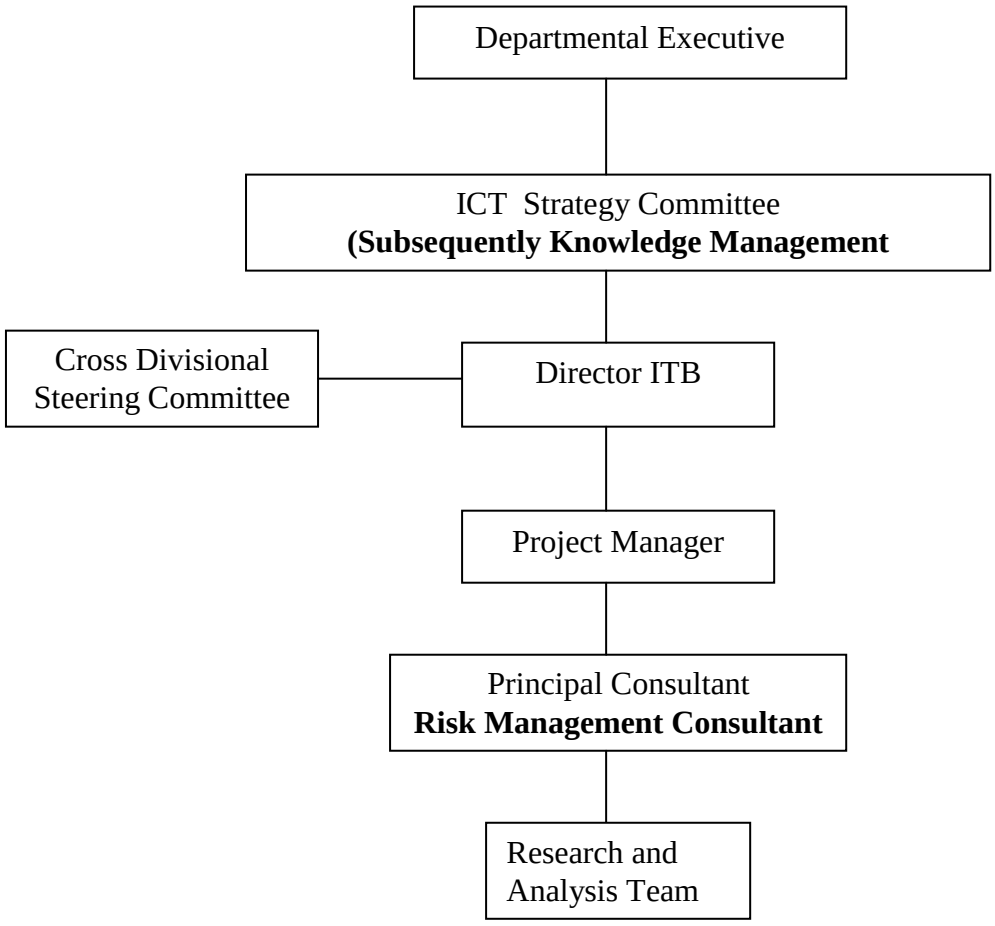


Figure 7.2 Reporting Relationships of the SISP Consultancy Project

The role of the CDSC was to provide guidance to the consultancy process and to review and endorse its recommendations before their submission to the ICTSC. A representative from the government's ICT Central Agency (ICTCA) was also present at these meeting. The ICTCA was responsible for promoting the government's policies in relation ICT policy and strategy.

New Secretary Appointed

The consultancy was scheduled to commence in January 2003 with a completion date four months later in May. However by the time that the consultancy got underway a new departmental Secretary had been appointed. The new Secretary took a more direct interest in the planning consultancy and sought confirmation from her direct reports, the executive heads of the major divisions of the department, of their support for it. Whereas the initiating Secretary and the Director of CSD had emphasised the importance of a risk management strategy for the department's corporate management systems and the potential of the consultancy to build up the administrative capacity of the organisation, the new Secretary wanted the consultancy to focus of the enabling potential of ICTs for student learning in schools. In an address to senior managers shortly after her arrival, she set out what she thought an e-Learning program could provide:

- Better access to education and training opportunities
- Improved learning outcomes – quantitative and qualitative
- Prepare for success in the global information economy
- Connect consumers and creators of knowledge
- Synergy with other public and private sector institutions
- More efficient and effective public education system

The project manager for the planning consultancy said that the new Secretary saw ICT as having the potential for "causing a paradigm shift in the delivery of education in schools or the business of teaching and learning in schools". A consequence of this different emphasis was a strong endorsement of an e-Learning strategy.

First CDSC Meeting

At this meeting the principal consultant and the Director ITB discussed the new Secretary's refocussing of the consultancy project on ICTs for teaching and learning rather than just head office management functions. The broadened scope of the consultancy project meant an additional four weeks would be required to complete the assignment. The key message to the members of CDSC was to "illustrate how an ICT strategic plan is a concern of the whole department not just the IT division" hence there was a need to have a more comprehensive and integrated plan for the department that would incorporate the ICT needs of corporate and school management as well as the delivery of educational content. During the meeting the consultant asked "Do you buy this?" and the Director ITB stated "we are looking for agreement that this is the way forward". But none of the representatives responded to this request. One representative wanted to know what the mandatory versus optional components would be, another wanted more information on the implications for schools and the Schools division representative asked about how the views of representatives, expressed at the business value workshops, would be incorporated in the strategic IS plan (the Plan).

The Principal Consultant stated there was a need to change from a belief based culture of decision making to an information based one that uses objective evidence and he noted that some interviewees had called for the Department to be run more like a commercial organisation. Hence the challenge was to assess the performance of teachers and educational outcomes. This discussion led to a related aspect, the educational effectiveness of the expenditure on PCs in schools. The meeting discussed the fact that the department had spent over $530M in this area, was a leader in the area of equipping students with PCs and was in fact ahead of its own target of one PC to every five children. The issue was whether or not it is educationally better to be ahead of the goal? The departmental e-learning specialist noted that there was no rationale for deciding this because it is not clear what the impact of improving the ratio had on educational outcomes.

Determining Business Value of ICT

As eluded to in the first CDSC meeting the consultancy project conducted a number of workshops with representatives of various branches of the department's divisions to understand the nature of the department's need for and issues with ICTs. In these workshops it was evident that representatives of some administrative functions of the department did not necessarily agree with the new Secretary's view on the transformative potential of ICTs in relation to teaching and learning. This was apparent in one workshop held shortly after the new Secretary was appointed. The aim of the workshop was to develop the business context for the ICT Plan using a methodology called the Enterprise Value Framework. The methodology set out five strategic drivers, which were defined as "things the Department must focus on to meet its business goals successfully". The five strategic drivers were:

10. Responsiveness to stakeholder views, requirements and contributions
11. Fostering of innovative, high quality products and services
12. Provision of focused investment to improve learning outcomes and devolved operations
13. Facilitation of access
14. Effective resource management

Participants were required to identify the organisational assets that would enable the achievement of the five strategic drivers and in particular the nature and source of the value of these assets. In relation to the first driver it was suggested by a participant that performance assessment was a communications asset that supported collaboration with stakeholders but was dropped after discussion on the grounds that there were no universally agreed performance standards and deliverables. Teachers also resent being inspected. Debate continued for two hours before the consultants were able to focus the participants on the second driver. The consultants asked who the customers for the organisational products of the framework were but one participant pointed out that principals and teachers did not consider themselves as customers but as educators. Evidence based research is put forward as an asset that supports this driver but the Director CSD, who initiated the consultancy, stated that research can't establish the

factors that determine the difference between educational outcomes of different schools. She referred to an article in the press over the weekend that stated e-Learning was problematic for this reason. Another participant suggested the importance of the state-wide delivery infrastructure of the education system but the consultants did not investigate this suggestion. The next asset supporting product service innovation was an enabling environment and it was suggested that this is the professional practice culture of teachers but this was judged by the group to be a closed culture not amenable to innovation. By the end of the day only the first two of the five strategic drivers had been considered and the outcome in terms of identifying the business context assets and their value adding characteristics was inconclusive.

Second Cross-Divisional Meeting

The second cross-Divisional meeting of divisional representatives focused on the department's current information systems. The consultants had completed a key deliverable of the assignment, the assessment of the existing information systems in use within the department. Forty of the two hundred systems identified by the consultants being used by the department had been assessed on two criteria, business importance and usefulness versus technical strength. They were grouped into three categories: retain, enhance and replace. The problem with the assessment was that the consultants expected many more to be in the 'replace' category whereas most were in the 'retain' and 'enhance' categories. Since most applications appeared to be sound as measured by the two dimensions a representative from the internal audit group asked 'is our non-strategy working?' The consultant thought that the user opinions on which the assessment was based might be biased, because people had grown used to their systems and didn't want to lose them even though they might not be very good systems. In support of this comment the Director ITB suggested that negative system assessments had political impacts on system owners. At the end of the meeting the Director ITB asked the group if the meeting was adequate. Only one representative said yes while the others remained non-committal.

Dismissal of the Director Corporate Service Division

Within two weeks of the second cross divisional meeting and midway through the consultancy it was announced that the Director CSD, who initiated the consultancy

project with the previous Secretary, was leaving the department. The reasons for this abrupt departure were not clear but it is suggested that it is the result of a power struggle with the Head of Schools division. This meant the original authorising stakeholders and supporters of the Director ITB and the consultancy project were no longer present in the department.

Third Cross Divisional Meeting – Five Key ICT Strategies

By this time the consultants had completed the workshops around the subject of business value and the consultations with regional offices and schools. The business value framework consisting of the five strategic drivers discussed earlier were now linked to a set of five supporting ICT strategies. Two of the strategies aimed to build the capabilities to deliver the other three strategies. The relationship between capabilities, strategies and strategic drivers is shown below in Figure 7.3 ICT Strategic Drivers and Strategies.

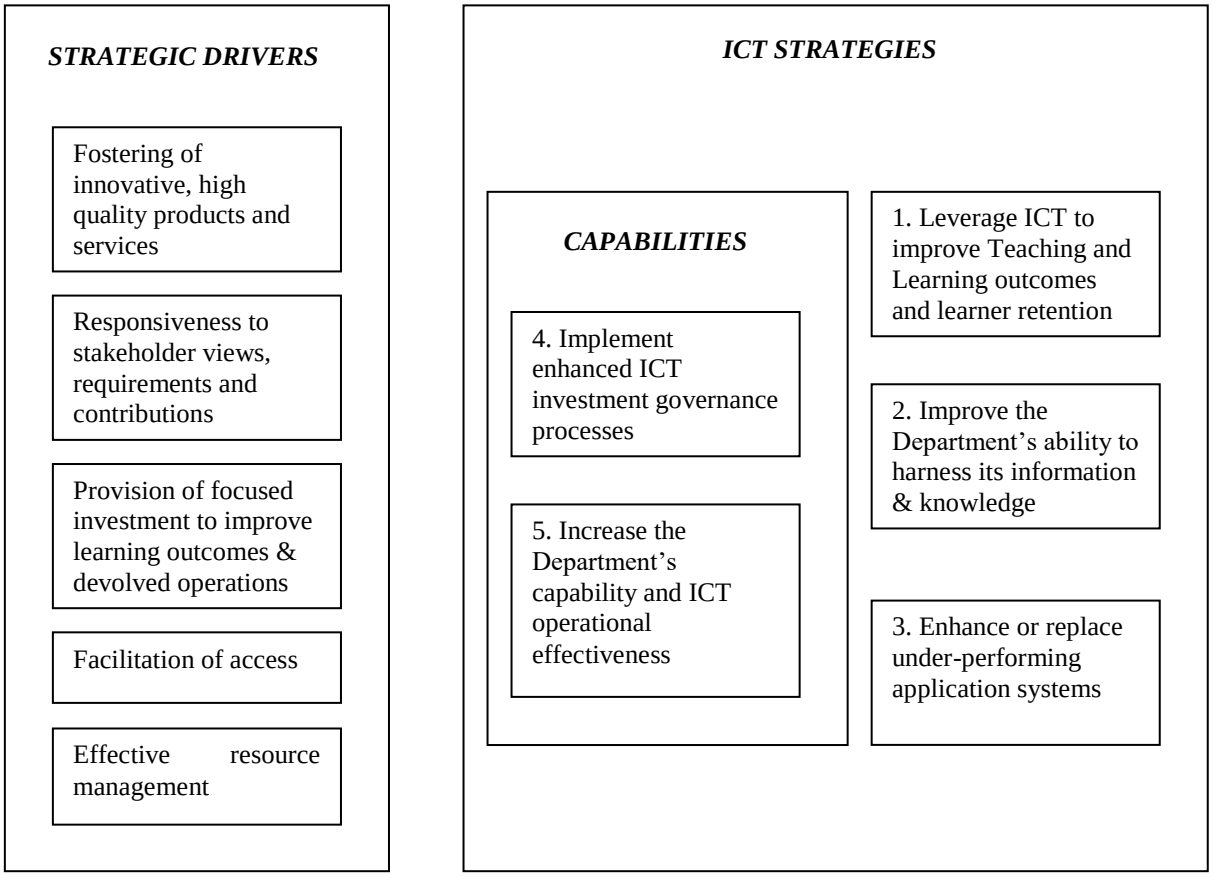


Figure 7.3 ICT Drivers and Strategies

The principal consultant said that "we have not found a strong vision for ICT but there are strong directions" presumably that the business is taking. He repeated an earlier statement he had made about "taking the organisation from a belief based culture to an information based culture". He also said that the ITB needed to be more outwardly focussed and noted that there had been previous good ICT plans and work but they had not gone anywhere. As the meeting was about to close the Schools division representative said "I am concerned about the observations regarding capacity and capability, school and school district support structures, management of interfaces, different parts versus commonness in particular how do the strategies translate into meeting these challenges, how will it work?" Neither of the consultants responded to this question.

Reinforcing the Business Value Concept

A week after the third cross - divisional the Director ITB hosted an address by an internationally famous consultant, John Thorp, who is associated with the consulting firm undertaking the assignment. Thorp is the author of the book *The Information Paradox* (1998) and the aim of the address is to promote the business value concept amongst the business managers of the department, however, of the twenty people present only about a quarter of the attendees are business rather than IT managers. Thorp's key theme is increasing the business value of the enterprise through portfolio management of business programs. This meant evaluating and selecting the highest potential value investments and ensuring the effective management of execution. Hence there was a need to identify the sources of value. New proposals for ICT investments should be justified through complete and comparable business cases but the emphasis should not be on cost analysis but value benefits. This can be done through the value-mapping concept that was used in the workshop held early in the consultancy. When senior management have a shared visibility of the total portfolio of business program ("everyone on the same page") Thorp argued that somewhere between 20-30% of the resources deployed can be reallocated.

Appointment of New Secretary

The day after the presentation by John Thorp an announcement is made that a senior executive from the central finance agency will replace the current Secretary. No explanation for the departure of the current Secretary is given. A new head of CSD was appointed from the Treasury department simultaneously with the appointment of the new Secretary. Both these men had worked together at the Treasury and their appointment was understood to be the Government's response to the perception of the department's lack of effective financial and budgetary control. The new Secretary was described in a national newspaper, *The Age*, (2003) as a "toe cutter" who was "committed to reining in department spending".

As with the previous Secretary, this meant the Director ITB had to familiarise the new Secretary with the IS planning consultancy project but more importantly change the focus of the project to suit his perspectives and priorities, specifically from educational outcomes to financial management. At the same time he also had to

undertake the same process with his new head of CSD. This was a crucial task as funding for the Plan's proposed program of projects would be dependent on the recommendation of the head of CSD to the new Secretary. The senior IT planner remarked that the Director ITB's tactic was to try and win over the new head of CSD to then influence the Secretary on "the merits of the Plan but this was being impeded by the climate of uncertainty at the higher levels".

Second ICTSC Meeting

With this eventful news, which represents the third Secretary to oversee the consultancy project, a meeting of the top ICT governance forum, the departmental ICT Steering Committee (ICTSC), is held. At the meeting the audit manager said he expected the next year's departmental budget to be restricted, so that the ITB would probably not be fully resourced to meet its obligations. The Schools division representative raised a concern about mechanisms for discussing the five strategies of the Plan and getting feedback. The Director ITB and his project manager conceded that these were not yet in place. A representative of the Learning and Teaching Innovation area of the Schools division stated that managing the e-learning initiative would be his focus and his commitment to the strategies in the Plan would depend on the extent to which the strategy supported the e-Learning initiative.

Fourth Cross – Divisional Steering Committee Meeting

At the fourth cross - divisional meeting the principal consultant revealed that stakeholders found the draft material too technical so a more simplified version was circulated and this has been received more positively. There is to be more attention given to the 'socialisation' process and stakeholder communication. A number of issues were identified in relation to four of the five strategies in the Plan. The first strategy, ICT for teaching and learning via an e-Learning approach, was seen to be an area of high growth but an issue here is that teachers are seen to be less comfortable with technology than they need to be. In relation to the second strategy, which is primarily concerned with information management, a survey of users has found that the problem is not with the availability of information but rather the effectiveness of its usage. In relation to the third strategy the Director ITB notes a divergence of views between teachers who want this strategy to support flexible learning objectives

and IT managers who see it mainly as an IT infrastructure enhancement. In regard to the fifth strategy, rationalisation of servers is seen as a significant cost saver as the risk management consultant points out that many servers have less than five percent utilisation rates. One possible action here will be the use of a common infrastructure of servers so that business units will not have to buy their own servers. The Director ITB commented that one issue with this approach will be a call for a user pays approach rather than a corporate cost borne by all business units as those areas not using the facility much will not want to subsidise those using it a lot. The Schools division representative asked about the timing of the implementation of the strategies and how the consultants will convince executive management in the department to bear the cost. The Director ITB responded by saying that that up to $80M is spent on unknown ICT within the Department so the opportunity to reduce this should be convincing.

Fifth and Sixth CDSC Meetings

Key issues discussed at the fifth CDSC meeting were the likelihood of reduced resourcing in the coming financial year, the need for effective governance of ICT project initiation, the fact that the five strategies reflected head office management priorities rather than educational outcomes and the need for skill development and organisational cultural change. At the sixth meeting the Director ITB and the consultants sought endorsement to the latest versions of the proposed strategies. The Director ITB said that the "strategy document is the most valuable to the Executive" then asked the question "Have we retained integrity of the business areas and their needs?" There was a long silence and the project manager broke it by saying and laughing at the same time: "I think the answer is no".

The Director ITB then attempted to discuss the response of the Departmental Executive to the ICT strategy document but before he could do so the Schools division representative said that her Director had not seen the draft before the Executive meeting and asked: "Did you get endorsement from the DoE Executive?" Answering the Director ITB said, " In varying degrees. It was the new Secretary's first day and he said that he saw the plan as integral to department's efforts to improve. One Director didn't appear to understand the Plan, which concerns me, another rejected the student identifier concept but another complimented the

strategy's quality but said there should have been a school architecture as well. Another Director also complimented the quality but stressed the importance of governance". The Director ITB's own supervisor, the replacement for the original Director CSD, had been hesitant about the priority of some of the actions and the method of control. The new Secretary said that he wanted a portfolio management approach. Finally the Director ITB noted that in relation to the Plan there was "distance between Directors and distance between Directors and the Plan" and went onto say "I recognise that IT is not the top priority and my influence is limited. We must demonstrate the business value of integrating IT with the business".

The representative from the central IT agency observed that it was more than just communication that was required "Directors need to understand their behaviour impacts the likely success of the Plan". He said "This is a fundamental point that there needs to be a change in the Executive mindset. There is a need to distil the strategy down to what behaviour needs to change". At this point the audit manager remarked that "The Department needs a 'turnover' culture – it is not just about individual project initiatives. The Government and central agencies have lost confidence in our ability to manage ourselves". The Schools division representative asked "what value can we put on initiatives to answer central agency criticisms?" The principal consultant remarked that the focus of the plan is to "improve management of performance and improve the quality and timeliness of information, which is required to manage performance. The business said it wanted more information to know performance. The strategy is designed to lift the Department's performance to the next level."

Third ICT Steering Committee Meeting

The third ICTSC meeting was to be the one at which the strategy would be endorsed but it was poorly attended with four of the business representatives missing and only the divisional representatives from the TED, the Cross Sector Planning Division (CSPD) and the Director responsible for Service Rationalisation in attendance. The Director ITB was particularly disappointed and felt let down by the business. The senior departmental IT planner related what was said at the meeting. The TED representative said it was not clear what they were being asked to sign up to. She also saw the strategic IS plan as essentially an ITB plan not a business plan. The Service

Rationalisation representative said she couldn't see what the priorities were, thought the strategy document was large and difficult to read and was not ready to endorse the plan. She also said "we know how to run our own ICT projects" perceiving a threat to her own branch autonomy in relation to initiating ICT projects. The disappointing ICTSC meeting marked the end of the development phase for the Plan.

7.3.2 Post Development Phase

A New Tactic – Strategy as Principles

The senior IT planner commented that the new Secretary was not familiar with the educational sector but it was known that he was a centralist.: "Everybody is waiting to see which way the wind is blowing so the environment is not really supportive especially as some senior Executives have lost their jobs or moved on". The attempt to influence the new Secretary and head of CSD to support the five strategies of the Plan with defined projects was not successful because they do not approve the proposed budget. To some extent this reflected not only the more restrictive financial management agenda of the new Secretary but also the failure to obtain the support of other stakeholders. The project manager conceded that "the original IT plan document was not understood, not trusted and hence there was no commitment from the cross-divisional group to it". In response a new tactic was adopted in which "specific solutions are not prescribed, but directions are set" so that the five strategies are recast as four key principles and endorsement sought for these as a first step towards more specific approvals for particular projects. The four ICT Strategy 2003-08 Principles for Endorsement were:

15. Business Units will drive ICT projects relevant to their business needs (strategies 1, 2 and 3)

16. ICT investment management processes need to be enhanced (Strategy 4)

17. DoE will leverage standards and common solutions across DoE and WoG (Strategy 4)

18. The Department's ICT capability needs to be improved (Strategy 5)

Implementation in a Period of Organisational Turmoil

Approximately four weeks later the Government announced that the head office staff numbers are to be reduced by 25% or 375 positions. The Minister is quoted in a national newspaper (The Age 15 August 2003) as saying that the reductions were necessary to "'streamline' her department after an internal review found that sections of head office were inefficient and not meeting schools needs".

During the weeks after this announcement there was a mixed response to the new approach of casting the strategies as four key principles. The principles were received positively by stakeholders including the new Secretary but the new Director of CSD told the project manager that the departmental executive did not as yet 'own' the five core strategies of the plan. The new Secretary had expressed his support for the Principles as a good business engagement model but was less interested in the strategic role of ICT and more focused on cost containment as well as portfolio rather than silo management of the department.

Three months after the announcement of the staff reductions, the Director ITB felt the impact personally through the loss of the senior IT planner position who had been a source of important advice and support to him during the planning consultancy. But there was much worse to come with the loss of eventually 40% of his staff. The project manager said:

> The feeling pervading the ITB area is a retreat into a bunker mode mentality. People are not talking to each other anymore. The Director ITB is in the front line of all of the anger and frustration of the downsizing. He has aged about 50 years and there is a constant stream of people wanting to talk to him about their future. He feels the cuts have been too deep in his area and he has been the meat in the sandwich.

Knowledge Management Committee

A new IT governance committee called the Knowledge Management Committee (KMC) was established to replace the ICTSC. The KMC received delegated authority from the departmental Executive for setting the priorities of the projects associated with the five ICT strategies and authorising their initiation. The Director ITB was

able to secure the use of the Value Management Framework within the KMC approval process. Divisions were given ownership of those ICT projects in the IS Plan that relate to their core business but were required to prepare business cases demonstrating the business value of individual project proposals. As reported by the project manager the Chair of the KMC wanted a much stronger focus on central administration and efficiency, away from the emphasis on schools and student learning, as he believed that too much ICT resource had been given to schools and not enough to technical colleges. He also believed that many older teachers were not familiar with ICT and somewhat reluctant to engage with it. He dropped the e-Learning strategy from first to third place so the new priority order for the five strategies was:

19. Governance

20. ICT Capability

21. E-Learning

22. Information Resources

23. Enhancement and Replacement projects

The First KMC Meeting

Seven months after the completion of the planning consultancy the first full meeting of the KMC was held. The project manager, who is also minute taker to the KMC, reported that four issues were discussed at the meeting. The first issue is the intelligibility of the strategy. The strategy document is perceived as difficult to understand because approximately forty percent of the document is highly technical, conceptually challenging, layered, large and full of technical jargon. The members of the Committee had difficulty understanding the architecture concept. The second issue was more political in nature. There is a perception by some business unit managers that the Director ITB is using the ICT strategy to impose his ideas and wishes on the business. Yet the objective of the KMC was to overcome this problem by transferring the decision-making power to senior business unit managers. The third issue was that the ICT plan has to be updated in relation to the departmental corporate planning process. The fourth issue was specific to the Manager of the

Shared Services Branch who was a divisional colleague of the Director ITB who had become responsible for corporate systems (procurement, finance, HR). She was a member of the steering committee for the project to develop to the Plan but was now arguing that the strategy implied a massive investment in resources for her division since the corporate systems needed replacing. She called these her eight 'dog' systems. She also wanted to manage her area of systems responsibility in her own way rather than within the framework of the ICT plan. Thus she wanted her own branch level ICT resources, processes and approach but this clashed with the Plan's governance and portfolio management objectives and philosophy.

Departmental Executive Approval for the Plan

Two months after the first KMC meeting and ten months after the final version of the Plan was provided by the consultants the departmental Executive approved the plan but without any funds being allocated for its implementation. The project manager commented that in order to get Executive approval the Plan was reduced in length down to a ten page summary which the project manager said was watered down to provide non-controversial 'motherhood' type statements.

Implementation Malaise

Five months after the first KMC meeting or twelve months after the delivery of the Plan, the project manager and Director ITB were continuing the attempt to implement the five key strategies of the Plan using the KMC but it was becoming clear that this committee's ability to fulfil is governance role was limited. A key problem for the KMC that emerged with the Enterprise Value Framework was that for a priority ordering of project initiatives to be made there needed to be a basis for determining the relative business value contribution in each case. However, actually determining this contribution was difficult, because it was not defined in an agreed and clearly delineated manner across organisational functions since, as the project manager said "there is no will to operate in a portfolio manner" and the membership had different priorities for ICT as it related to their different business needs. It also continued to be difficult to establish the benefit of ICT investments in schools in terms of educational outcomes.

The governance strategy in the Plan was designed to counter the tendency of the divisions to proliferate local applications, which duplicated existing capability and burdened the limited capacity of the whole of department ICT infrastructure, a tendency confirmed by the findings of the planning consultancy. However the ability of ITB to influence this issue in KMC meetings was limited first of all because ownership of the funding for ICT projects resided with the relevant business units albeit subject to a successful business case and secondly, because the Chair of the KMC moved to limit the influence of the Director ITB on the governance issue referring to him as the 'Chief Help Desk Officer'.

Departure of the Director ITB

One year and three months after the consultants had provided the final version of the Plan the Director ITB begins to the suffer signs of ill health and takes sick leave. One month later an announcement is made that the Director ITB has requested that he be transferred out of the department and this is to be effected by a secondment to the central government agency responsible for whole of government ICT policy and strategy.

Appointment of Consultant to Review Progress

After the departure of the Director ITB a consultant was appointed by the Director CSD to advise him on the status of the Plan and what actions should be taken on the Plan's recommendations in the current organisational circumstances. In the month prior to the delivery of the consultant's report the project manager said the consultant had taken a very negative view of the Plan. He declared the Plan 'dead in the water', that the KMC ought to be disbanded and that the Director CSD does not own the Plan. Subsequently the Director CSD told the project manager that he believed the consultative process around the development of the Plan was not successful. Within two months of the release of the consultant's report ITB was restructured and a new Director ITB appointed together with the appointment of the department's first CIO. The ICT governance strategy was subsumed within a whole of department review of governance. The role of the KMC, as one of the Secretary's six Executive Committees, was redefined in this review.

Status of the Plan – End of Case Study Period

A final interview was held with the key informant for this case study approximately ten months after these changes were made or two years and five months after the development of the Plan. The interview examined the degree of progress on the five key strategies of the Plan. The project manager said the new CIO was focussed on teaching and learning but had few resources while the new Director ITB controls the ICT infrastructure. The project manager said that establishing ICT capability was a current focus of activity but that "we are doing the plan again" and she will be interviewing all the Executives of the department again. Asked why, she said that there were many new players in the Executive layer of the department. There was a need to try and get these new Executives to work better as a team and to get the new players to begin to own the Plan. The divisions still saw the Plan as owned by ITB because there was no senior business executive champion for it despite the existence of the CIO whose role it was to do this. She said people were calling for ICT related responses to various business issues but they were unaware that the Plan had foreseen or canvassed the important projects much earlier.

7.4. Causal Analysis

This section uses the open systems conceptualisation of SISP developed in chapter five to explain the causes of the outcomes observed in this case study. The illustration of this conceptualisation is shown below in Figure 7.4 Open Systems Conceptualisation of SISP.

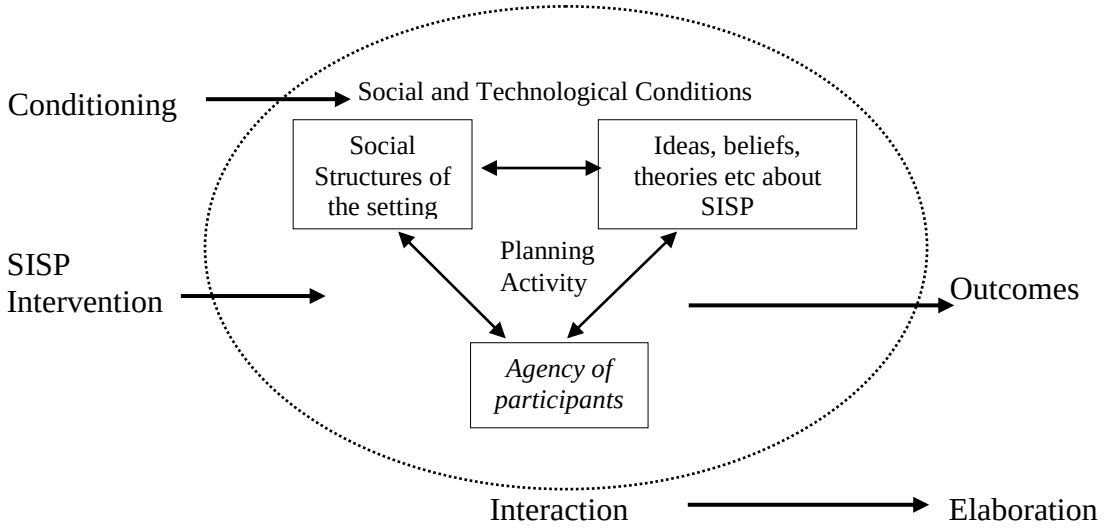


Figure 7.4 Open Systems Conceptualisation of SISP

The explanation proceeds by discussing the structural aspects of the setting and then the influential ideas used by agents. The key causal mechanisms are then identified in terms of supportive and unsupportive mechanisms that either retard or advance the SISP intervention and, through their interaction, show how outcomes eventuate.

7.4.1 Structural Analysis

The structural analysis identifies the social structures or structural relationships that together with agency are the source of the causal mechanisms and their powers to affect the course of events. Seven structural relationships are evident in the case study:

- Government and community
- Government to department
- Secretary to department
- Business unit autonomy
- Structural role of the corporate IT function
- Market based dependency of departmental functions.
- Schools and departmental management

Government and community

Governments and the community are structurally related. Under the relevant legislation the government is obliged to provide a public or state education system to ensure all children receive a basic education. As elected representatives of the community, governments are obliged to honour the commitments given during election campaigns and communities retain the power to withdraw their support for government policy at any time. The political importance to the Government of the perception of positive treatment of schools can be seen in the way the restructure staff cuts were made to head office but not to schools. On the other hand communities are dependent on the actions and resources of government for a large range public goods, public services and public infrastructure including the provision of a public educational system. Government's obligation to provide the state education system of primary, secondary and technical schools requires the collection and processing of large amounts of data. This information management task is the driver of the widespread use of and resultant dependency on ICT products and services in government departments.

Government to Department

Government power is legitimated through the constitution and elections and enables control of resources for the administration of the state. Governments have the power to create, restructure and abolish departments, which are the organisations that governments use to implement government policy. Government also sets policy directions in relation to major areas of public service provision such as education and the executive management of government departments is subject to the authority of government through the relevant Minister. This is both constraining and enabling since the government can authorise departmental programs and provide resources to enact them but can intervene to change policy or restructure the department as in the case study example. An important source of influence in relation to the greater use of ICTs in government departments was the Government's ICT Central Agency (ICTCA), which was responsible for promoting the government's policies in relation ICT policy and strategy. The ICTCA also had a representative present at the CDSC meetings and had endorsed the planning consultancy project.

Secretary To Business Units Of The Department

The Secretary is the most senior and powerful of the positions in the department's bureaucratic hierarchy. Departmental secretaries are appointed directly by the Government and given wide powers over departmental arrangements, which are subject only to the direction of the Minister and Cabinet. Business units are dependent on the Secretary for the approval of significant strategies and initiatives particularly those with whole of department implications. Amongst a range of powers over departmental resources they are authorised to restructure departments, abolish positions, dismiss employees and have significant discretion over departmental expenditures. Secretaries also define departmental policies, initiate major projects and are frequently the most influential person on the department's executive and related management decision-making forums.

Business Unit Autonomy

A hierarchical set of power relationships existed within the department. Divisional executive managers had organisational autonomy subject only to the authority of the Secretary. In turn Directors of branches within divisions had decision-making autonomy subject only to the authority of the relevant divisional executive director for example the Director ITB was subject to the authority of the Executive Director CSD. The divisional and branch level organisational autonomy enabled them to initiate new ICT projects without reference to the requirements of the corporate IT function. The uncontrolled proliferation of new ICT systems represented the action of the fragmentation mechanism. The consultants themselves noted the structural source of this mechanism. They found "Devolved decision-making carries with it risks of a loss of control, increased cost and duplication of effort" and the

> Existence of ICT "silos" – the Department's use of ICT has historically focused on development of local solutions using disparate standards and approaches. This had the effect of reinforcing "silos" in the Department that make it difficult to take a "joined up" approach to significant new programmes focussing on the goals and targets. (SISP Consultant Report for DoE 2003).

Structural Role Of The Corporate Itb Function

The Director ITB had control over the departmental ICT infrastructure and his business unit was the department's main internal source of ICT expertise. This organisational position made ITB a corporate resource with an obligation to support all divisions but with a significant degree of influence and autonomy in relation to departmental ICT standards and policies especially in relation to the department ICT infrastructure. The relationship between the Director ITB and his Executive Director CSD was very important for the planning consultancy insofar as it provided the means of influencing the departmental executive. The departure of the first Executive Director of CSD represented the loss of a major ally of the Director ITB. The second Executive Director CSD was much less supportive of the planning consultancy.

Market Based Dependency On Scarce Ict Resources

Department's are dependent on market based sources of ICT expertise which may be in short supply. A feature of the market for ICT products and services is the high rate of change in information technologies, which drives and is driven by competitive actions in the commercial sector. This leads to scarcity in the market place and escalation in the costs of the relevant products and services, which may be prohibitively high for public sector organisations to acquire. As ICT in government organisations is increasingly outsourced, market dependency and vulnerability intensifies but with limited budgets departments find it difficult to secure the necessary levels of ICT support to meet their needs.

Schools And Departmental Management

Schools retain a significant degree of administrative, curriculum and financial autonomy. Nevertheless although Principals are the administrative heads of individual schools they are under the control of the department via the Executive Director Schools Division. Arguably the primary objective of senior management of the department was to facilitate improvements in teaching and learning outcomes and in this respect the department had a recent history of major provision of personal computers (PCs) to teachers and schools. But there was a tension in the department between senior managers who supported a strong school focus and those who felt ICT investment should be directed to corporate management areas, fuelled by problematic

evidence about the educational effectiveness of these school based investments in ICTs. Figure 7.5 Structural Elements of the Case Study shows the relationships between these structural elements. The arrows are intended to suggest the direction of causal power and the bi-directional arrows that this causal power may be in opposition.

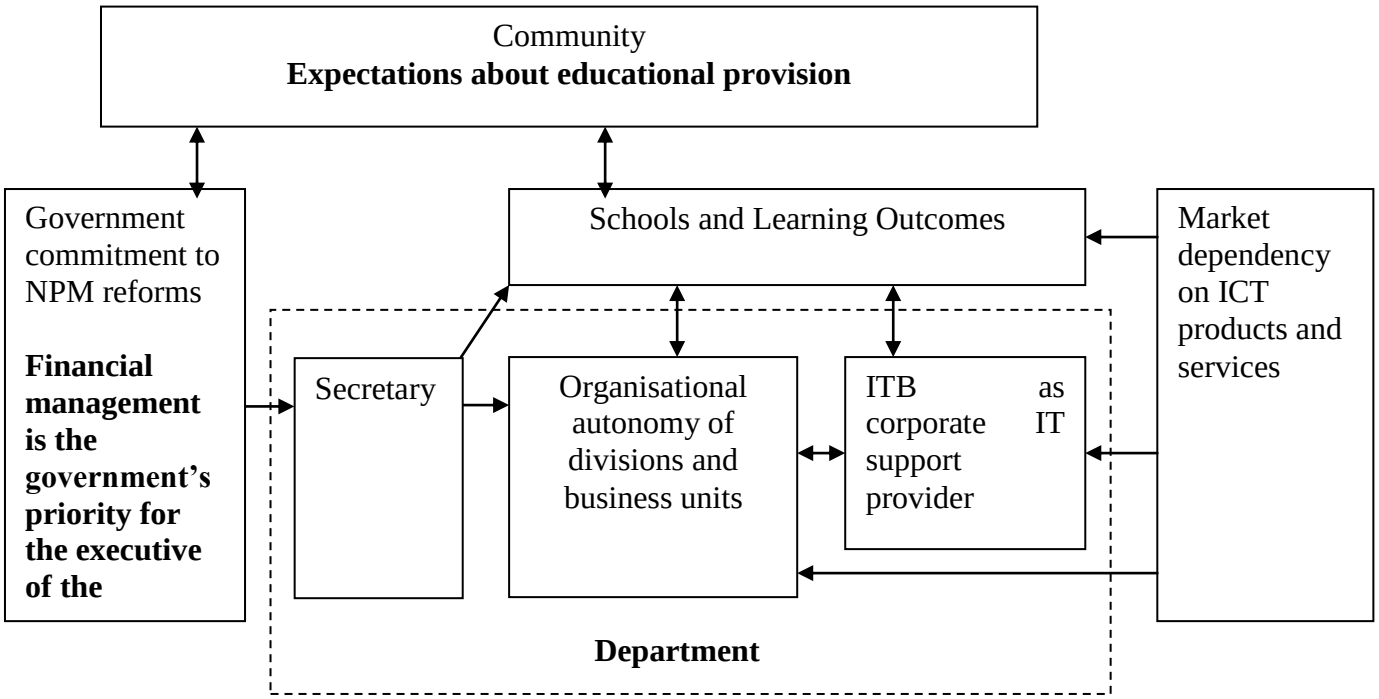


Figure 7.5 Structural Elements of the Case Study

7.4.2 Influential Ideas

There were a number of ideas that had a significant effect on the thinking of participants in the case study. These included the Enterprise Value Framework, the philosophy of New Public Management (NPM) and the use of ICTs to transform teaching and learning. The EVF was the central idea of the consultant's proposed governance strategy. It provided a justification for limiting the autonomy of business units in relation to the initiation of ICT projects by arguing that limited corporate ICT resources needed to be directed to the most important business systems. The EVF attempted to provide a way of establishing what were the most important business systems by arguing for the identification of the functions that created the most value for the department in relation to departmental objectives. In practice however this

proved difficult to establish undermining the attempt to control demand for ICT support.

The EVF can be seen as consistent with the philosophy of New Public Management (NPM) reforms (Lynn 1998, Diefenbach 2009), which have increased the focus on resource management and market dependency of government organizations. This has led to a commitment to the introduction of commercial management models in the public sector, lower costs and investment in government entities, smaller government and a larger role for markets in public service provision. As a result public sector organisations are required to operate within restricted budgets despite demand from the public for more services and support. The EVF sought to encourage departmental managers to understand their functions and management activities in terms of business value concepts. However a contradiction implicit within the NPM philosophy is that while it has promoted measures to reduce the cost of government such as the use of ICTs, which involve expensive investments it simultaneously advocates the reduction of government funding to departments thus limiting their ability to make the necessary investments. This was evident in the beliefs of the third Secretary who was reported by the Project Manager to be less interested in the strategic role of ICT and more focused on cost containment.

The use of ICT to support the delivery of educational material in a process where students conduct their own learning in an online environment has been referred to as e-Learning and this concept has received attention in the educational literature. The second Secretary saw the consultancy as an opportunity to "cause a paradigm shift in the delivery of education" by improving access to educational opportunities, more efficient delivery of educational products and services and facilitating the creation and consumption of knowledge. The relationship between the three influential ideas and their source is illustrated in Figure 7.6 Influential Ideas and their Sources.

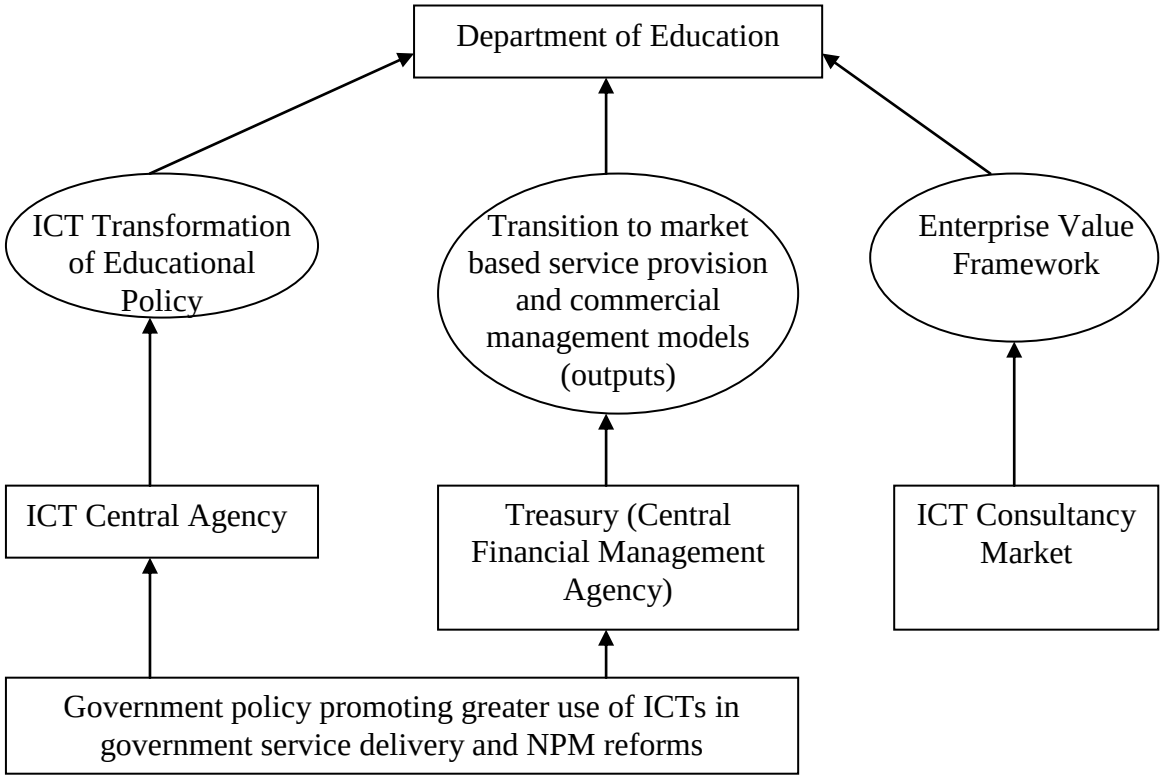


Figure 7.6 Influential Ideas and their Sources

It can be argued that the second Secretary's refocussing of the planning consultancy also showed the influence of NPM managerialist thinking in relation to the use of ICT for teaching and learning as suggested by the emphasis on efficiency and the market and consumerist language of her address to the department's senior managers shortly after her arrival. In terms of educational effects an NPM orientation makes the assumption that an infusion of technology in the form of PCs into schools ought to produce measurable improvements in teaching and learning outcomes. In the case study the evidence for this kind of improvement from the department's schools was not forthcoming. Willmott (2002) discusses the structural tension between educational processes and managerialist thinking from a CR perspective. He argues that the nature of teaching and learning is qualitatively different to the managerialist assumptions about teaching and learning underpinning the NPM managerialist philosophy and this helps to explain why the injection of technology into the educational process is unlikely to produce straightforwardly improvements in educational outcomes.

7.4.3 Causal Mechanisms

Four of the causal mechanisms identified in this case study were also active in the first case study. These are advocacy, consultant engagement, resistance and fragmentation. They are described here in terms of their unique manifestation for this particular case but they emerge from similar agential and structural elements as described in the first case so this level of detail is not repeated here.

Advocacy Mechanism

The case study demonstrates the agency of the Director ITB who was the main advocate of the SISP consultancy strongly supported by his Project Manager and the team of consultants. Advocacy mechanisms originate in the agency of individuals and groups located within the social structure of the organisation. Hence the Director ITB's ability to advocate the SISP consultancy project arose from the powers of his position as the department's senior ICT manager in association with his Executive Director of Corporate Services Division supported by a team of private consultants.

Approval Mechanism

The proposal from the SISP Advocate (Director ITB) to deal with the information management problem through a formal strategic planning consultancy was supported by the head of the Corporate Services division and approved by the Secretary of the department because it promised to address important concerns of the Secretary concerning the risks and costs associated with the department's investment in information systems. The source of the powers of the Secretary is their personal agency coupled with the position they occupy in the internal hierarchy of the department, which is the most powerful position.

Consultant Engagement Mechanism

The engagement mechanism originates in the agency of SISP consultants. It defines the power of consultants based on their perceived expert status to both challenge existing ways of thinking and working in relation to the use of ICTs in the organisation, as well as to facilitate and engender a commitment or at least a consensus to change.

The consultancy represented a challenge to current ways of working with and thinking about ICT in the department. The effect is to challenge complacency about the status quo by causing a degree of anxiety or dissatisfaction with things as they are. The challenge was made through the critique of the technical quality and usefulness of current systems and through the Enterprise Value Framework, which represented and promoted a new way of determining the internal business value of and justification for ICT projects. The consultants also used the risk management concept to characterise the organisational ability to protect itself against major system loss as gravely inadequate. There is support for the challenge mechanism in the literature. Morren and Blom (2003, p.56) refer to the challenge mechanism in psychological research involving attempts to change patient behaviour.

The activity of the consultants was also responsible for building some level of consensus in areas other than the CDSC. The many interviews and workshops did have the effect of creating a greater understanding of what the objectives of the strategy were and was contributing to a degree of consensus amongst some divisions about the strategies. There was also positive response from Principals to the presence of the Director ITB in schools. This mechanism works gradually by creating a shared understanding of the rationale and goals of the consultancy intervention. It is facilitative rather than challenging because it emphasises benefits of change in positive terms rather than emphasising negative aspects of the existing practices. It creates the conditions for acceptance of change to practice rather than challenging current practices. There is support for the consensus building mechanism in the literature. Bovaird (2006, p.98) notes in case studies of public sector organisations involved in procurement of private sector services that people seemed:

> more at ease in an emergent environment in which strategies were negotiated rather than planned, joint actions were tested and piloted rather than 'implemented' and divergent attitudes and interests were incorporated in activities as positive features, rather than being regarded as conflicts which had to be 'reconciled'.

The engagement mechanism was undermined somewhat by the early findings concerning the department's systems which appeared to show no major basis for changing them. Later the technical content of the five strategies made it difficult for

CDSC members to understand them, which contributed to a failure to generate consensus with this group. A study by Salmela, Lederer and Reponen (2000) found that planning proposals were more readily accepted when the potential benefits were evident throughout the organisation (2000, p.9). This supports the proposal that the challenge mechanism in the case study suffered from a causal liability (Sayer 1992, p.105) insofar as its technical and business content was hard for members of the CDSC to understand in terms of benefits to them and this impeded their willingness to accept the proposals.

Resistance Mechanism

The resistance mechanism emerges from the agency of stakeholders in the SISP process combined with their relative degrees of organisational autonomy to resist proposals they perceive as disadvantageous. The resistance mechanism was triggered by the challenge mechanism and was evident in the refusal of the CDSC members to endorse the strategies of the Plan, in the refusal of the departmental executive, under the third Secretary, to provide the funds to implement the strategies and in the refusal of the Director CSD to defend the Plan in the face of the criticisms made by the reviewing consultant. CDSC members could not see how the new strategies were linked to key business imperatives they faced and virtually all senior stakeholders had difficulty comprehending the rationale of the plan because of unfamiliar business management concepts such as the EVF as well as the technological orientation of the material. After the establishment of the KMC, the resistance mechanism was also evident in the actions of the Director Shared Services in her response to the governance strategy. She wanted to maintain an independent approach to the management of her systems but simultaneously wanted the support of the corporate IT function (see ICT Support Demand Mechanism).

Fragmentation Mechanism

As in the first case fragmentation mechanism was evident through the proliferation of new uses of ICT throughout the department in an uncoordinated manner without reference to a corporate ICT strategy. Business units of the department had varying levels of access to sources of ICT capability independent of the corporate ICT function, which they used in opportunistic ways to meet their unique information

management needs. The opportunistic rise of information systems is noted in the literature as the phenomenon of 'shadow systems' (Boudreau and Robey 2005, p.11). This has the effect of fragmenting the systems and information environment of the organisation. There is support in the literature for the concept of a fragmentation mechanism originating in the divergent interests of subunits of an organisation (Goodhue, Kirsch, Quillard and Wybo (1992a) and Goodhue, Kirsch and Wybo (1992b), Premkumar and King (1994, p. 98).

Secretary's Intervention Mechanism

The second Secretary intervened to reorientate the consultancy project seeing it as an opportunity to "cause a paradigm shift in the delivery of education". This intervention mechanism originates in the powers assigned to the Secretary's position in the organisational hierarchy combined with the agency of the occupant or, in the words of Sayer (1992, p.214) the "political structure by virtue of which an occupant of one of its 'niches' can bring about specific changes". There appeared to be two motives for the Secretary's intervention. First it showed clearly the Secretary's ability to define the strategic direction of the department's educational agenda thus demonstrating strategic leadership befitting her role. Second the consultancy project also represented an opportunity to reform the department's approach to curriculum delivery in line with the Government's education agenda, demonstrate a commitment to the new uses of ICT based public service provision as well as the possibility of a reduction in current levels of resourcing.

ICT Support Demand Mechanism

The ICT support demand mechanism originates in the structural powers of business unit managers and activates when they are unable to sustain their opportunistic use of ICT capabilities. Having created local information systems that become important for the operations of the business unit there is a subsequent experience of complex technological and informational support needs. A key finding of the consultants was a

> Lack of necessary ICT skills in the Department has resulted in significant time and budget overruns on major projects. The skills required include project management, systems analysis, business analysis and a range of

> ICT capability across the whole systems development life cycle including service delivery and operational procedures.

Business units have a choice between investing more resources in supporting their new systems, draining resources from their functional priorities, or seeking this support form corporate sources within the organisation. The Director Shared Services sought to do this after the establishment of the KMC when the full resource implications of the support requirement for the systems in her branch became clear.

ICT Demand Control Mechanism

This mechanism originates in the structural powers of the Director of the corporate ICT function and it was the demand from business units on his function's resources that triggered it. The mechanism was manifest through attempts by the corporate ICT support centre to establish various arrangements to control the demand for ICT support. These included service level agreements, policies setting out standards for new system developments and controls over access to the departmental ICT infrastructure. In addition to these operational measures the SISP consultants developed the governance strategy and the EVF as a strategic response to this problem. The consultants had found that there was a

> Lack of Department-wide governance to ensure that ICT investments are selected through a common assessment of value, that solutions contribute to a coherent Department-wide capability, and that projects are managed to maximise the return.

The governance strategy sought to control the autonomy of business units to create new systems project by requiring a full business case justification before commencement. The business case would then be assessed within the total portfolio of ICT investments to assess relative priority in terms of business importance and value. This process, when implemented, represented a constraint on the autonomy of business units to initiate new IT systems projects. It also effectively restricted access to scare corporate ICT support resources to only those initiatives with the highest business value contribution as established by the EVF.

Government Intervention Mechanism

This mechanism originated in the Government's powers over the functions and operations of departments. In this case the mechanism was triggered by the Government's perception that the department could not manage its operations within its budget. It was manifest first in the appointment of the third Secretary and then in the reduction of head office staff numbers by twenty five percent. It was an external intervention into the management of the department, which had major affects on all areas of head office including the corporate IT function.

The supportive and unsupportive mechanisms are summarised in Figure 7.7 Supportive and Unsupportive Causal Mechanisms. In some cases the causal liabilities of particular mechanisms is indicated to show how a mechanism may be undermined by elements of its own constitution. Figure 7.8 A Partial Causal Chain – Pressure on the Corporate IT Function depicts the causal associations between structural relationships, mechanisms and events as these relate to the demand for support from the corporate IT function.

The Appendix to this thesis (Agential Groups, Mechanisms, Interaction and Events) summarises the sequence of events, the causal mechanisms that led to these events and the originating social objects for the mechanisms for this case study. The next section provides the conclusion to this case study by explaining the outcomes in terms of the contingent interaction of causal mechanisms.

SUPPORTIVE MECHANISMS

Advocacy
- Director ITB in conjunction with Executive Director CSD initiate the SISP project.
- Director ITB champions the project strongly until his departure.

Approval
- First Secretary approves initiation of the SISP project.

Consultant Engagement
- Consultancy challenges existing practices in relation to ICT usage in the department
- Early findings on systems does not support the need for change (causal liability)
- Intensive consultations create a positive disposition to the consultancy proposals amongst some principals and some business unit but not with key decision making stakeholders
- Recasting the strategies as principles and directions rather than specific solutions. Divisions accepted the principles.
- Technological content of strategies is difficult to understand (causal liability)
- Business value contribution of new ICT initiatives hard to determine (causal liability)

Secretary's Intervention
- Second Secretary emphasises the potential of e-learning to transform teaching and learning.
- Investments in personal computers for teachers and students not showing educational improvement outcomes (causal liability)

ICT Demand Control
- Consultants develop a governance strategy to manage escalation of costs of ICT opportunism by branches.

UNSUPPORTIVE MECHANISMS

Resistance
- Persistent non committal stance of CDSC members to the strategies
- Scepticism by some corporate head office managers to second Secretary's emphasis on e-learning
- Branch Manager Shared Services insists on an independent approach
- Funding withheld by departmental executive for the strategies and it does not 'own' them.
- Review consultant is highly critical of the Plan

Fragmentation
- Ready availability of ICT capability at the desktop level allows business units to create, in an unmanaged way, new uses of ICT in response to the need to manage information

ICT Support Demand
- Business units generate demand for corporate IT support
- Director Shared Services insists on corporate IT support

Government Intervention
- Appointment of new Secretaries changes the focus of the consultancy
- Restructure of department, leading to cuts of 25% in head office staff, distracts attention from the consultancy and leads to highly restrictive conditions on funding for new strategies.

Figure 7.7 Supportive and Unsupportive Causal Mechanisms

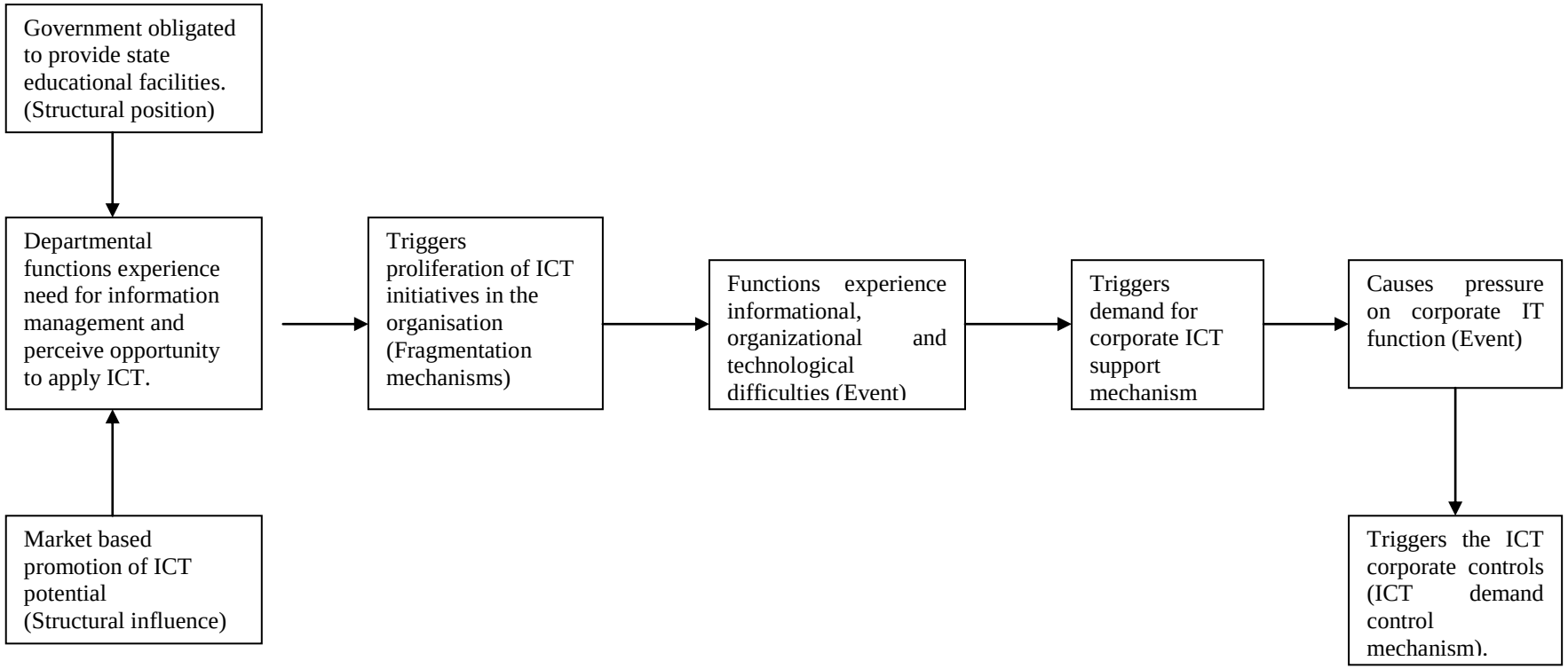


Figure 7.8 A Partial Causal Chain – Pressure on the Corporate IT Function

7.5 Conclusion – Explaining Outcomes

A key initial condition of the setting was the uncoordinated initiation of ICT projects outside of any overall departmental framework or guiding vision. This condition was the result of a fragmentation mechanism originating in the autonomy of the department's divisions to initiate their own ICT projects. In turn this provided the stimulus for the initiation and advocacy of the strategic planning consultancy project.

The consultants sought to address the ICT management and benefit problems on the basis of an argument about the business value of ICTs to the department, which was to be defined via the Enterprise Value Framework. However, the CDSC resisted the EVF because it was unfamiliar, could not provide a practical method of evaluating the business value of organisational efforts nor did it provide a means of assessing the benefits of ICT investments in schools versus corporate management centres. It also generated strong resistance by its implicit limiting effect on the autonomy of the CDSC members.

An important aspect of the failure to gain support for the five ICT strategies was the difficulty of the associated documentation. CDSC members repeatedly complained about the difficulty of comprehending the material, which was also voiced subsequently at a key departmental executive meeting. This could be seen as a causal liability of ICT strategies that contain inherently technologically oriented rather than business oriented material. Similarly the EBV content was inherently limited by its reliance on measurable investment returns, which in the context of public education were difficult to pin down.

The second Secretary's intervention to use the planning consultancy as an opportunity for the transformation of teaching and learning boosted the justification for the strategic planning effort but was resisted by the CDSC members and others such as the first ED CSD who pointed to the problematic effectiveness of ICT investments in schools in terms of educational outcomes. With her departure the pursuit of the transformation of teaching and learning through ICTs was unsustainable, first because it was too great a change for the department and second because the Government was focussed on a very different agenda for the department.

The government's intervention through the appointment of the third Secretary with a brief to cut costs and staff numbers in the department was aimed at administrative centres rather than the educational delivery points (schools). This undermined the ability of the Director ITB to maintain momentum of the SISP project intervention in two ways, first by denying resources (funding to implement the five key strategies) and second, by creating a major distraction to stakeholders who now had to consider their own organisational survival. It might have been expected that the EVF focus on business value would have garnered support in the cost cutting climate but it was resisted by virtually all stakeholders including Director ITB's own Executive Director, because it was not clear how the new governance framework would advance anyone's agenda except perhaps that of the Director ITB by relieving the pressure on ITB.

However after the strategy had been reduced to a ten-page summary document, which the project manager regarded as "dumbed down" the departmental executive finally gave their approval to the reordered strategies but without funding. The structural constraint of insufficient resources tended to intensify tensions in the KMC over which division's projects would be resourced and continued the pressure on the corporate IT functions to provide support despite the fact that it had lost forty percent of its staff. The KMC also struggled with determining the business value of particular projects within the portfolio management framework. At a personal level the Chair of the KMC resisted the Director ITB having a significant strategic role in the future of the strategies, so after what was now fifteen months of trying to get the plan approved and implemented the Director ITB left the department. All of this tended to create the conditions of implementation malaise and the new ED CSD's independent review resulted in a highly negative assessment of the Plan and the role of the KMC. Shortly afterwards the KMC was reconstituted with new members who had little or no exposure to the consultancy and the issues it had raised about the department's use of ICT. A form of corporate amnesia had set in as in the final interview with the project manager, almost two and half years after the consultancy was completed, she said, "we are doing the plan again". Thus the SISP project, through the implicit ICT demand control mechanism of the governance strategy, was unable to counter the power of the fragmentation mechanism originating in the structural autonomy of divisions and the branches within them.

Chapter Eight

Case Study Three: A Government Law Department

8.1 Introduction

This chapter describes the third case study of this thesis. The setting for the study is a government department responsible for the justice portfolio including the support of the courts system and the management of prisons. Unlike the previous case studies this is not a study of the development of an IS strategic plan. The department had already developed an IS strategic plan some eighteen months prior to the commencement of the interviews for this study. Instead, this is a study of the attempt to implement the previously developed IT strategic plan in association with and as a support for the attempt to implement a Knowledge Management Strategy (KMS). The study provides a causal explanation of the eventual outcomes of these efforts using the previously developed analytical framework. This is a non-participant observer case study based on a total of eleven interviews plus four informal discussions with four key informants. The chapter is structured as follows:

8.2 Context - Social and Technological Conditions

Organisational Functions, Structure and Key Agents

The department's primary functions were to manage the prison system, support the judiciary and courts with information systems and a range of administrative facilities and services, protect and uphold consumer rights as well as the development and enactment of legislation in relation to the justice system of the state. The department employed approximately 4600 staff, collects revenue of approximately $650M and has a budget of approximately $702M. The Secretary was the department's most senior executive management position and reported to four Ministers with different portfolio responsibilities in relation to the activities of the department. The department was structured around five divisions each of which was managed by a Deputy Secretary. Within each division were a number of independent business units managed by executive managers reporting to the relevant Deputy Secretary. The organisation structure at the commencement of interviews for the case study is shown in Figure 8.1 Organisation Structure of the Law Department.

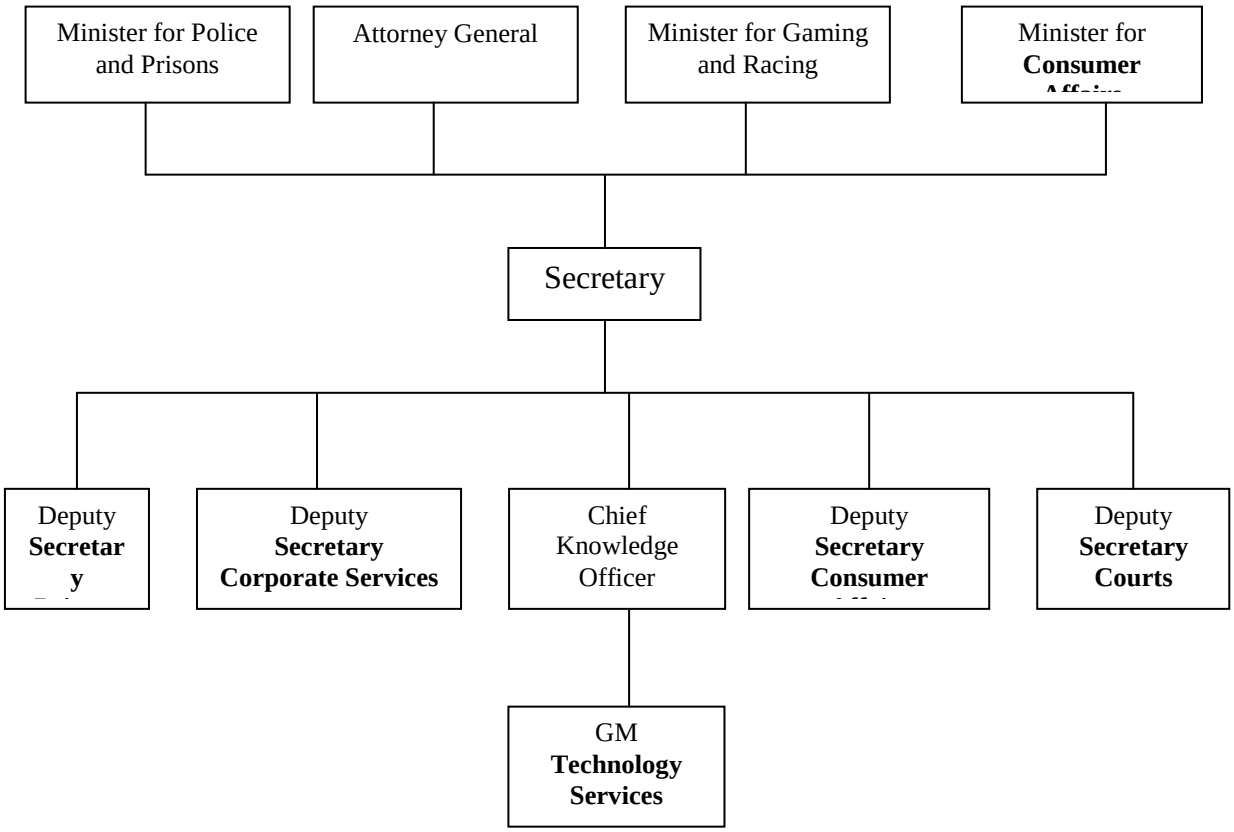


Figure 8.1 Organisation Structure of the Law Department

The key actors in this case study are the departmental Secretary, the Chief Knowledge Officer (CKO), his direct report the General Manager Technology Services (GM TS) and the Deputy Secretaries of divisions. A summary of the roles of these positions is given in Table 8.1 Roles of Key Actors.

Position	**Organisational Role**
Secretary	Head of department and chair of departmental executive. Reports to four Ministers with portfolio responsibilities.
CKO	Responsible for implementation of IT strategy and knowledge management strategy. Member of departmental executive
GM TS	Responsible for IT infrastructure. Reports to CKO.
Deputy Secretaries	Responsible for business functions of the department. Members of departmental executive.

Table 8.1 Roles of Key Actors

IS Strategic Planning and Knowledge Management in the department

The GM TS had initiated an IT planning exercise about two years prior to the commencement of the case study which was completed about nine months later. Thus the department was just over twelve months into the implementation of the IT Plan at the time the case study took place. The IT Plan identified ten goals for the Department including:

- To become a "joined up Department" to deliver integrated services where practical
- To develop a knowledge management environment that captures explicit knowledge (e.g. lessons learned, case studies, research reports, etc)
- To enable staff to identify appropriate expertise and work collaboratively to develop solutions to increasingly complex issues

On the basis of the assessment of the department's IT capabilities, government directions and the department's business priorities the plan identified eight key initiatives or themes focused on the department's core activities:

24. Access to Equitable Justice
25. Offender Management, Victim and Client Support
26. Customer Responsiveness (Possible CRM application)
27. Connecting Justice Online (Records management, EDMS, internet and intranets. Lotus Notes as a KM tool)
28. Managing Performance (KPI data warehouse)
29. Managing Finances and Assets (Oracle upgrade)
30. Building staff capabilities (Lotus Notes training, HRM self service)
31. IT infrastructure

The Secretary was committed to organisational decentralisation and encouraging change through a collaborative approach rather than edict. He was also sympathetic to knowledge management concepts and had established the CKO position at Deputy

Secretary level approximately one year before the case study commenced. Unlike the GM TS, whose role was confined to management of the IT infrastructure, the CKO was the senior executive at deputy secretary level responsible for the strategic management of IT across the department, a major ongoing project called the Criminal Justice Enhancement Program (CJEP) and the development and implementation of the Knowledge Management Strategy (KMS). Both the CKO and the GM TS were closely involved in the governance role of the KMC. The KMS had four key component strategies:

32. Knowledge competencies and behaviours such as leadership including the middle management layer (awareness and training, leadership support, knowledge mapping).

33. Knowledge networks or collaboration networks. There are three projects in this area (Communities of Practice, Centres of Excellence and Lotus Notes 'Quickplaces').

34. Improving Knowledge enabling systems (Knowledge portal, new knowledge management applications and shared platforms)

35. Aligning the incentive structure including performance plans and job based competencies.

Approximately six months prior to the commencement of the interviews for this case study an election had resulted in the government being returned to office and the department had subsequently been assigned new functions. A summary of the background conditions and events prior to the case study is given in Table 8.2 Prior Events.

Event
Executive approval to develop IT plan November 2000
Final draft released December 2001
Secretary appoints a CKO approximately March 2002
IT Plan published April 2002
Collaborative approach promoted by Secretary and a CKO and embodied in a Knowledge Management Strategy (KMS). Manifest in a Communities of Practice (CoP) initiative.
2002 government re-elected. New priorities and functions for the department.

Table 8.2 Prior Events

8.3 Interviews with Key Informants

This section provides a summary of the key points from each interview of the key informants with extensive use of direct quotations from the interview transcripts. The study relies on information provided by four key informants: the CKO, the GM TS, the senior IT planner and a former IT infrastructure manager over a period of nineteen months during the implementation of the department's IT Strategic Plan. The senior IT Planner provided an independent perspective on the commentary provided by the CKO and GM TS but was a direct report to the GM IT and was present in the first interview with the CKO. The Secretary was not interviewed so the reasoning behind her actions is inferred from the comments of the informants and reference to key departmental information such as the One Justice Statement.

First and second interviews with the Senior IT Strategic Planner

The initial interview discussed the approach to the research project and access to key stakeholders in relation to the implementation of the department's IT Plan. In this interview the senior IT planner said that overall implementation of the eight strategies was proceeding reasonably well with the exception of the data warehouse and CRM strategies. This was related to declining interest in these initiatives of key stakeholders in the business but there was also emerging issues in relation to changing priorities and new stakeholders taking over responsibilities with little or no prior knowledge or commitment to the initiatives. There had recently been the failure of a bid to the Treasury for funding for an IT project, which was seen as a significant setback. The second interview was held one month later and the key piece of new

information was the appointment of a new departmental Secretary who was known to have centralist views about organisational management.

Interview with GM Technology Services

In this interview the GM TS discussed four issues that had emerged during the implementation of the IT Plan. The first of these was related to the problem of corporate IS governance:

> Business units break the rules and there is a need to stop business areas deviating from the plan. The plan's initiatives are linked to business drivers of business units. The centre has provided seed funding for the key themes or initiatives of the Plan but the business units put up funding for their projects within these themes. Thus most of the funding comes from the business units and they drive the initiatives.

The second issue was the problem of business units lacking appropriate project management expertise:

> Business units do not always run the projects well and then attempt to put the blame back on corporate ICT. They claim for example that they were given the wrong function point count. They are in a position to bypass corporate ICT and go straight to the Secretary if there are problems with the project.

One response to this problem was for the central IT branch to locate experienced staff in business units to help them with their projects. Another issue was the inadequacy of funding for corporate IT infrastructure and related projects, which serve the needs of all business units. Funding for these types of projects was generally higher than that for individual business unit initiatives. The GM IT felt that large IT systems especially those that aim to support more than one business unit are problematic:

> Big systems always fail and enterprise-wide initiatives have to have Secretary level support to succeed because of the politics between business units. It can't be a business unit manager. The CJEP initiative is a case in point. It was initiated by an earlier Secretary and continued by

> the previous Secretary. It remains to be seen whether the current Secretary will maintain the level of support but probably she will.

A feature of the department was the separation between the judicial appointments and departmental staff appointments. Judges are not obliged to comply with the requirements of the department or even the Minister

> The Chief Justice and Judges are appointed by Parliament so are independent from the Minister and so he can't mandate anything or direct them. This has been a major headache from the point of view of introducing new systems. It has not been possible to put one system in place in this area.

The GM TS said that for IT planing to succeed the climate had to be right:

> This includes imperatives such as efficiency needs through reduced funding, the need to improve services, the need to streamline processes and a Ministerial desire for improvement and a willingness to push for funds for this purpose.

Third interview Senior IT Strategic Planner

During this interview the Senior IT Planner revealed that the new Secretary had initiated a review of the organisation structure, the span of control and the delivery of corporate services. This was leading to a questioning of the CKO role and whether it should become part of the Corporate Services Division or should remain a separate division from core business activities. The CJEP project was also to be reviewed and a new project was being considered in relation to the Courts. This would be a major process reengineering project, which would affect all jurisdictions with a view to determining how they could operate more effectively.

First interview with CKO

At this interview the CKO described the origins of the Knowledge Management Committee, the supportive and unsupportive aspects of the department for knowledge management initiatives, components of the department's KM strategy as distinct from

its IT plan and some factors impacting KM initiatives with particular reference to an initiative to establish a Communities of Practice within the department.

The previous Secretary had established the Business Excellence initiative that had a priority to focus on knowledge related approaches to planning issues. The Knowledge Management Committee (KMC) was a response to this need and was "an Executive Sub-Committee with a degree of Executive authority and key senior business unit representation." It was also an attempt to establish a whole of department or enterprise wide committee. The CKO said that the KMS is "designed to counter the devolutionist behaviour and the tendency not to talk across silos" but the "the roots of silo behaviour are deep" particularly in those areas where there is an older male culture (courts and prisons). Some members of the KMC found it difficult to adopt the 'corporate citizen' role:

> There is a long established culture of devolved management to strong business units. Unfortunately the corporate IS function is weak in organisational power and the drivers for the key initiatives of the IT plan are with the business units. In this environment driving a enterprise architecture view of reuse, corporate IS standards is difficult and silo based solutions are sub-optimal.

In contrast to individualistic silo behaviour:

> The KM strategy is based on a collaborative approach, requiring high levels of trust between participants and the provision of incentives to share knowledge to build a commitment to group sharing of information. Thus how people learn is a function of the social context and the aim of the strategy is to develop joined up groups of people working together to develop common knowledge domains. The traditional situation is no collaboration, which means a reliance on formal hierarchical processes. This is the way systems have been built in the past and it has led to fragmented silo based systems.

Funding Issues

The way the department was funding its IS related initiatives was also a problem. Previously this had been on the traditional recurrent basis for certain functions such help desk, outsourced functions, facilities management rather than being tied to specific initiatives to promote desirable change and improvement. A related aspect was that in the devolved environment business units were initiating projects in an uncoordinated manner:

> Different business units were driving application development initiatives and requesting supporting ICT infrastructure with no systematic way of bringing this together. There was no coherent funding mechanism for deciding between priorities. It was a case of the loudest voice influencing the Ministerial pecking order.

Enterprise Architecture

The IT Plan was part of the response to the problem of uncoordinated initiatives. It emphasised the importance of development within an overall enterprise architecture with associated standards but did not properly address the structure of funding. To address this problem funds are to be allocated on the basis of core infrastructure needs, business priorities and compatibility with architecture standards:

> we have been looking at the concept of funding pools to fund core IT infrastructure projects on the basis of what investments should be made and in what areas. We have focussed on identifying our priorities to determine the allocation of funding. We are developing and implementing guidelines to ensure application driven expenditure is compatible with the department's IT architecture.

Business units will be given support "in initiating and completing application development projects". The role of the KMC is to oversee these activities with the aim of being "able to assess the effectiveness of outcomes overall or from an enterprise perspective".

Implementation Factors

The CKO then discussed some of the factors that were impacting the implementation of the IT Plan. These were new functions that the department had to take on following the election of 2002, which didn't change the government but did change the Government's priorities for the department:

> The 2002 election occurred after the IT strategy was developed. The Government changed its priority projects. It wanted a sex offenders register, a victim's register and there were also machinery of government changes. These new priorities had to be accommodated without additional funding and cut across the existing priorities of the IT strategy. The effect has been to distract attention from the strategy and dissipate resources.

The change of Secretaries is also a factor "This has slowed progress on some initiatives. There has been a questioning of the rationale and a need to reconfirm directions" but it has also led to the introduction of a major new project called the Justice Statement Project not envisaged in the IT Plan. The CKO said "this will add a full year to the plan".

A third issue was the inability of some business units to fulfil their roles in relation to some of the strategies in the IT plan. Two strategies have been delayed as a result, the Customer Responsiveness Initiative and the Managing Performance initiative. In the former case this was due the fact that "the identified business unit leaders of the project (Corporate Development Unit) either didn't want to or couldn't lead the initiative to a successful conclusion " and in the latter the lack of business unit interest in performance management. The final issue was the requirement to accommodate the demands of whole of government IT initiatives being driven by the Government's CIO office. These have had to be accommodated within the current strategy and without additional funding to that identified in the IT Plan.

New Secretary's Restructure

The new Secretary's recently announced restructure of the department was seen by the CKO as supporting the corporate citizen perspective partly by realigning the Justice portfolio to create one Justice culture and partly because the new Secretary

was seen to be more inclined towards stronger central control. This was different approach to the previous Secretary who "tried to influence through encouraging the business units to see the logic of the path". Towards the end of the interview the CKO revealed that the Secretary had cancelled a key initiative of the KM strategy. This was the Communities of Practice initiative (CoP), which was one of three initiatives supporting the implementation of the Collaborative Networks component strategy of the KM Strategy. The reasons for the Secretary's termination of the CoP strategy were not entirely clear but the CKO suggested that it was related to " the result of the push for greater cost efficiencies and less trust in groups to work collaboratively. All new Secretaries have to make their mark in some way. This is her way".

Fourth interview Senior IT Strategic Planner

At this interview the senior IT strategic planner revealed that the Secretary's restructure of the department had resulted in the abolition of the Chief Knowledge Officer's position and his division. The CKO position had been in existence for little over twelve months as an initiative of the previous Secretary. In its place a new division called Strategic Projects and Planning has been established with an Executive Director. The former CKO has been retitled Director IT Strategy and Knowledge and will report to the Executive Director of the new Division. The senior IT planner said "The change management in the current restructure has been poor and there was virtually no consultation in the decision to abolish the CKO". He felt that the relocation of the GM IT division seemed like reversion to a traditional model of IT being part of Corporate Services instead of reporting to a broader based knowledge constituency from business units. However the key issue behind the abolition of the CKO role was "that it is hard to know whether the focus on knowledge management has delivered value". The new structure is shown in Figure 8.2 Organisation Structure after the Secretary's Restructure.

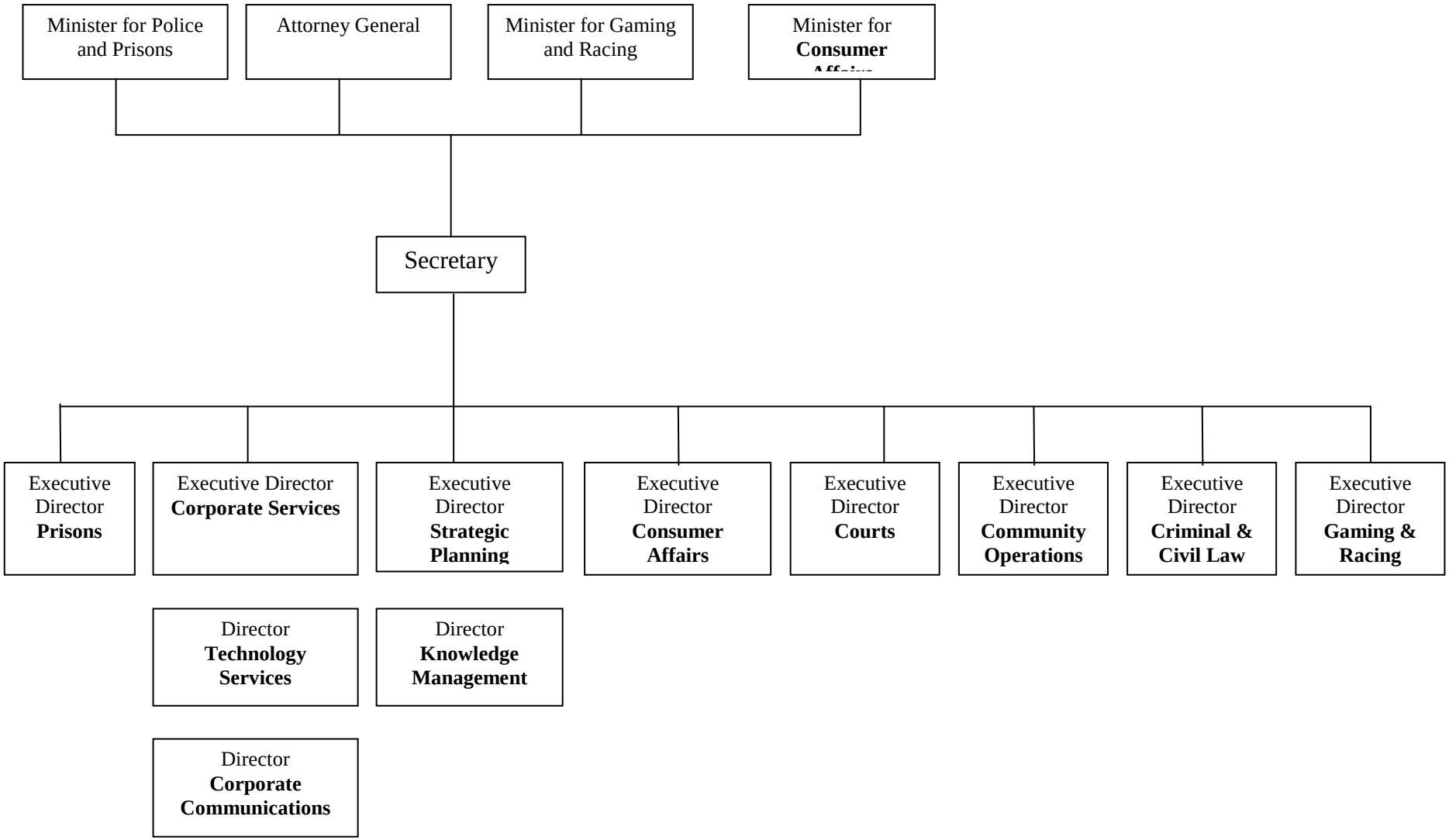


Figure 8.2 Organisation Structure after the Secretary's Restructure

Fifth interview Senior IT Strategic Planner

This interview with the senior IT planner provided further insights into the new Secretary's reasons for the abolition of the CKO division. The senior IT planner said that the new Secretary was previously a Deputy Secretary for Prisons and held very different views on how the department should be organised to the previous Secretary. This has led to the consolidation of the key elements of central IT services. IT staff previously located in business units were being transferred to the central IT branch as well as responsibility for some IT projects, such as the technical upgrade of the Supreme Court infrastructure, because the relevant business unit were unable to complete the project. The senior IT planner said that "She wanted the CKO position back in the business rather than on the Executive".

ICT strategic planning will now occur within the new Strategic Projects and Planning division not the Corporate Services division. The senior IT planner felt that there might be a gradual centralisation of application development in contrast to the previous Secretary's more decentralised approach. The former CKO is now responsible for the CJEP project, the Integrated Courts Management System (ICMS) and the development of an Enterprise Knowledge Portal for the department although the GM IT also has responsibility for online services. The ICMS is the system, which will support the implementation of the Attorney General's Justice statement:

> The statement is concerned with how the courts will operate, the business processes and administration. Previously there was a direct link between the Department and the Courts. It was more the purchaser – provider model. This has changed with the introduction of a Courts Governance Function. The key issues revolve around what services will be provided for the Courts and how this will be done. For example instead of a register of hearings for each court there will be one register that all Court administrators can access. The Justice Statement has a section devoted to ICT support and the statement is very important for the ICMS. It will affect how Courts interact but it is not focussed on the content of legal judgements.

Other imperatives were emerging since the IT plan was developed. These included a focus on Emergency Management and the concept of shared services, which was being promoted by the government's Office of the Chief Information Officer (OCIO). This involves the rationalisation of ICT support across three government departments so that these services would be located at one site rather than each department having its own ICT support services. Project management was also an important issue. The CJEP project was being seen to be taking too long to complete.

Second and final interview with CKO

The new structure had been in place for about seven months at the time of this second interview with the CKO. The Secretary's organisational restructure resulted in a new and larger Executive for the department but without a place for the CKO. The CKO had in effect been demoted from Executive Director level to Director level reporting to a new Executive Director of Strategic Planning and Projects. However, while the CKO lost control of the technology management function, as the Director Technology Services (formerly GM TS) now reported to the Executive Director of Corporate Services, he retained responsibility for IT strategic planning and for Enterprise Architecture and Standards. This represented a separation of responsibilities for technology delivery from technology strategy. The CKO said the new organisational structure represented a change from the "business excellence" focus of the previous Secretary to a "more traditional business namely policy and program outcomes as well as efficiencies from centralised and shared services".

The One Justice Statement

The thinking behind the restructure originated in the Secretary's One Justice Statement:

> This endorses the idea of common organisational values, common processes and shared systems. The aim is to recognise our distinct core competencies. This is also supported by the idea of a high performing organisation and high performing teams. The related themes are continuous improvement and productivity efficiency. The One Justice statement is an overarching management philosophy.

The "concept of a more joined up department against the old culture of strongly autonomous business units" was influential in the action to remove IT support units from business units and centralise them. The Secretary had also:

> Given much greater strength to a portfolio view of the organisational IT investment. At the same time this has created some opportunities in that we can now look at a portfolio perspective rather that single point solution business unit systems. We can now look at what is the best portfolio investment. This supports an architecture investment approach eg should we buy, build or outsource? It allows alignment more strongly from an Enterprise Architecture point of view.

Managing Funding

The CKO felt that the Secretary's "changes have undone some things we wanted to continue but removed some barriers". The portfolio view meant that funding for IT projects would be determined on the basis of business priority:

> In the past there was a chaotic context for funding. There was a continuing financial crisis around the accommodation of funding for new initiatives against the existing set. This was not favourable to IT strategic planning initiatives. Now we have a signed off set of priorities. We are now establishing a corporate ICT replenishment fund and we will test any new emerging initiatives against existing priorities and rank them.

The CKO felt this approach would allow a "more rational discussion to take place" around how funding should be allocated. In line with the greater focus on project management the CKO said a key task for him was "the establishment of a Project Office with reusable project management processes".

Impacts of Change on IT Plan versus KMS

The CKO did not feel that the departmental restructure had had much impact on the IT Plan as distinct from the Knowledge Management Strategy (KMS):

> There were no short term consequences for the IT Strategic Plan but it will be reviewed later in 2004 and early 2005 after the new KMS is developed.

> The IT Strategic Plan was in some sense less controversial than the KMS. The IT Plan is a "bunch of initiatives" but there was and still is an issue of the ROI for IT assets. We need more clarity around the value adding aspect of IT. Things like the IT infrastructure layer are locked, we won't be reinvesting in this so the value add will be in the applications that run on the infrastructure.

The KMC, which was endorsed in the IT Plan as the preferred governance instrument for ICT decisions in the department, not only survived the Secretary's restructure of the department but had been enhanced by a series of IT committees focussed on security, architecture, web site management and project management using PRINCE2. This represented a "cascading net of governance forums".

Business Ownership of IT Projects

However despite the Secretary's changes and the renewed governance and project based focus there was still a problem with the "lack of business ownership of implementation of ICT projects". In this regard some of the Secretary's changes had had a negative effective. For example on the centralisation of IT support units "as soon as you remove support for IS projects you remove business ownership". The project management approach did not seem to help with this problem either:

> We follow all the standard approaches here PRINCE2 project management methodology, we try to get stakeholder buy-in, sign off to important stages in projects, user testing, full system life cycle management etc but we are still not getting managers to own the business outcomes. They are not actively contributing to the process of getting business outcomes through business process change. Business unit managers are not seeing or owning the change management aspect."

The CKO argued that there was a deeper factor behind the cause of the business ownership problem which he described as a

> generational and cultural issue. ICT is seen as a specialised area and managers are IT averse and also risk averse. There is a cargo cult mentality that sees IT systems as something that is dropped into place and

> you just turn it on. They are not connecting with the fact that the ICT is changing their business processes. They don't see that it is not business as usual. From a cultural point of view managers see IT as risky, the terminology is a mystery and they want the IT areas to take all the risk of implementation.

Impact of Machinery of Government Changes and Central Agency Requirements

The ability to implement the IT Plan was also affected by machinery of government changes that had expanded the range of functions the department was now responsible for:

> New functions taken on by the department highlight the limited interoperability of our existing systems. This is increasing the diversity of functions so the organisation is becoming more complex. For example the Law department has taken on the administration of the gambling area. The information in this area is secret so that high levels of security are required. Out staff numbers have risen from approximately 4000 to 5000 and the number of business units has risen from about 35 to 50.

The central agency responsible for whole of government ICT strategy, the Office of the Chief Information Officer was also affecting the strategic management of ICT in the department:

> The OCIO's architecture team and the work plan prepared by their consultants is providing a shaping framework of what we should and shouldn't do. The WoG shared data centre was not in our strategic plan. Our focus was internal except for CJEP, which involved a shared facility … but the OCIO initiatives has shifted our thinking to a shared data centre with other departments including the DHS.

One further factor of importance was the limitations of the department's existing ICT infrastructure:

> We are very conscious of network bandwidth limitations and how this can have a disenfranchising effect in relation to access to KM resources as it

> effects available functionality and in turn levels of service. We need to put KM resources online so we must have an excellent network.

The Communities of Practice Initiative

When asked about the relationship between the IT Plan and the KMS the CKO said that they overlapped "Together they form a total approach which is about three quarters KM and one quarter IT". However unlike the IT Plan, the impact of the departmental restructure on the CoP initiative, which was a key initiative of the KMS, was very negative. The CKO described the genesis of the CoP initiative, which was underway when the new Secretary arrived "our first activity was a discovery process for example we find that some CoP's actually took the form of existing Committees. Sometimes they are spontaneous and sometimes they need a supporter". A key activity of the CKO was to help to "initiate them and provide various forms of support such as setting guidelines for operation". In time they became:

> peer to peer networks and more than Communities of Interest because they were focussed on practice to provide an outcome for the group. They sought to identify best practice in relation to identified problems and helped bring together individuals who were geographically dispersed. They survived through the natural flow of interest amongst participants.

However the new Secretary's actions "sent the message that KM was not a priority so people began to drop off the initiatives in the KMS". Apparently the new Secretary felt "there were too many meetings occurring in relation to the KM initiatives". She wanted the business units to "stick to the knitting" so she:

> put her foot on the initiative. She thought that people were investing too much time in what appeared to be non-productive activities. She saw it has a diversion from real work, unproductive and that people were spending too much time in meetings.

The culture of the organisation began to turn against the conditions necessary for the CoP initiative to flourish:

> Managers tended to insist their staff work on their traditional tasks and not spend time on Communities of Practice related activity. Managers would

> not allow space for people to pursue the CoP activities and you have to do this or it cant work. They were not tolerant. There was real tension in finding space in the normal day to day work. Nevertheless the initiative was starting to influence other areas.

An example of this change in culture was in relation to one of the four strategies of the KMS, which sought to align the incentive structure including performance plans and job based competencies in order to encourage behaviour that would be conducive to establishing a KM culture and thereby support the other initiatives in the KMS. The CKO said "Job descriptions for example didn't match what people actually did". Unfortunately however the Human Resources , which was to implement this strategy failed to do so because "the HR Director didn't see it as his role".

The CKO had decided that now was a good time to review the KMS. He said that his challenge was to "rework the KMS and the IT Strategic Plan in the light of the One Justice statement". The KMC had approved the proposal for a review and will be responsible for endorsing or otherwise the review's findings and recommendations. An external consultant was to conduct the review.

8.4 Causal Analysis

This section uses the open systems conceptualisation of SISP to explain the causes of the outcomes observed in this case study. The illustration of this conceptualisation is shown below in Figure 8.3 Open Systems Conceptualisation of SISP.

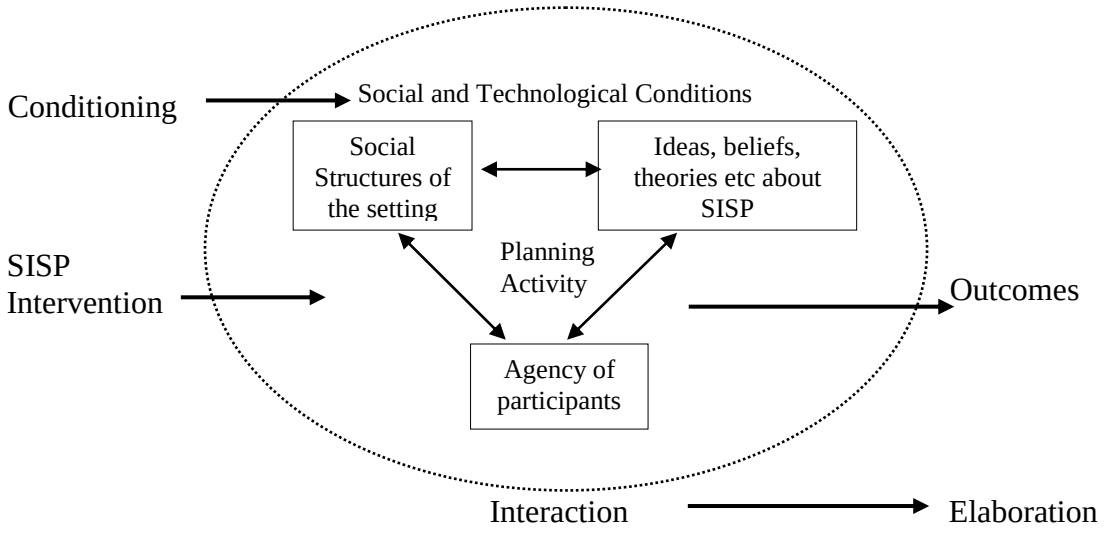


Figure 8.3 Open Systems Conceptualisation of SISP

The explanation proceeds by discussing the structural aspects of the setting and then the influential ideas used by agents. The key causal mechanisms are then identified in terms of whether they are supportive or unsupportive that is whether they retard or advance the SISP intervention. The conclusion answers the research question by showing how outcomes eventuate through the contingent interaction of these mechanisms.

8.4.1 Structural Analysis

The structural analysis identifies the social structures or structural relationships that are with agency the source of the causal mechanisms and their powers to affect the course of events. The analysis focuses on internal or necessary relations between individuals and groups and the associated powers. Seven structural relationships are evident in the case study:

- Government and community
- Government to Secretary
- Central agency to Secretary
- Secretary to business units within department
- Divisional autonomy

- Chief Knowledge Officer to other business units of the department
- Judiciary and Secretary

Government and community

Governments and the community are structurally related. Under the relevant legislation the government is obliged to maintain the judicial system of law for the community. As elected representatives of the community, governments are obliged to honour the commitments given during election campaigns and communities retain the power to vote governments out of office. On the other hand communities are dependent on the actions and resources of government for a large range of public goods, public services and public infrastructure including the provision of a judicial system with an independent judiciary. This includes the provision of ongoing administrative support including information systems to help manage the large amount of information related to judicial processes and the management of prisoners and prison facilities.

Government to Secretary

It is through the Secretary's role that the Government, via the relevant Minister, exercises its power to restructure the department and determine its policy agenda. The Government's response to its obligations to the community is reflected in changes to whole of government organisational arrangements and responsibilities following re-election such as the creation of new functions to support the registration of sex offenders and their victims. In this regard the ICMS project can be seen as the result of the Government's desire, as expressed in the One Justice statement, to improve the responsiveness of the Courts to the public's need for accessible and efficient judicial processes. These changes were implemented through the appointment of a new Secretary and the subsequent restructure of the department.

Central Agency to Secretary

Central agencies such as the Treasury department and the Office of the Chief Information Officer (OCIO) are instruments of government with responsibility for whole of government policy frameworks and strategies, which may, for example, seek whole of government improvements in efficiency and effectiveness. These

frameworks and strategies can tend to constrain the autonomy of departments in areas such as IT strategy. Such agencies have varying degrees of power to require compliance from departments and their powers to compel compliance is moderated by the ability of Secretaries to argue for varying degrees of exemption or modification to the policy to better suit the department's particular needs. On the power of central agencies Moore (1995, p.119) comments: "Overhead agencies such … budget agencies … exercise enormous control over an organization's purposes by determining the allocation of fiscal and human resources to the organization's varied tasks. Public managers are generally legally obligated to follow the rules promulgated by these agencies"

Secretary to business units of the department

The Secretary is the most senior and powerful of the positions in the department's bureaucratic hierarchy. Departmental secretaries are appointed directly by the Government and given wide powers over departmental arrangements, which are subject only to the direction of the Minister and Cabinet. Business units are dependent on the Secretary for the approval of significant strategies and initiatives particularly those with whole of department implications. Amongst a range of powers over departmental resources they are authorised to restructure departments, abolish positions, dismiss employees and have significant discretion over departmental expenditures. Secretaries also define departmental policies, initiate major projects and are frequently the most influential person on the department's executive and related management decision-making forums.

Chief Knowledge Officer to other business units of the department

The CKO and the GM TS had control over the departmental ICT infrastructure and his business unit was the department's main internal source of ICT expertise. This organisational position made the CKO's division a corporate resource with an obligation to support all divisions including the IT related needs of the judiciary. At the same time the CKO had a significant degree of influence and autonomy via the KMC in relation to departmental ICT standards and policies especially in relation to the department ICT infrastructure. Initially the CKO was a member of the departmental executive reporting directly to the first Secretary who was supportive of

the CKO and the KMS. Thus the CKO had peer level status with the other executive directors of the department.

Divisional Autonomy

Executive managers of business units within the department enjoyed considerable organisational autonomy subject only to the authority of the Secretary. They also controlled most of the funding for new IT projects. This enabled them to initiate new ICT projects without reference to the requirements of the corporate IT function. The uncontrolled proliferation of new ICT systems represented the action of the fragmentation mechanism, which originated in divisional and branch level autonomy. The CKO commented " There is a long established culture of devolved management to strong business units".

Judiciary to the Secretary

Judges are appointed by Government but are independent of Government control in judicial matters and are also organisationally independent of the Secretary yet are entitled to full administrative support including information systems from the Department. The provision of IS support was reflected in two projects referred to in the case study namely the CJEP project which had been running for some seven years and the ICMS project announced during the period of the case study. The former IT Infrastructure Manager of the department's IT branch remarked on the difficult implementation issues that had been encountered during the implementation stages of the CJEP project. He felt these stemmed from the reluctance of judges and their supporting legal staff to accept IT based ways of working and the fact that they enjoyed a degree of organisational independence not shared by other business units. Figure 8.4 Structural Relationships of the Law Department shows the relationships between these structural elements. The arrows are intended to suggest the direction of causal power and the bi-directional arrows that this causal power may be in opposition.

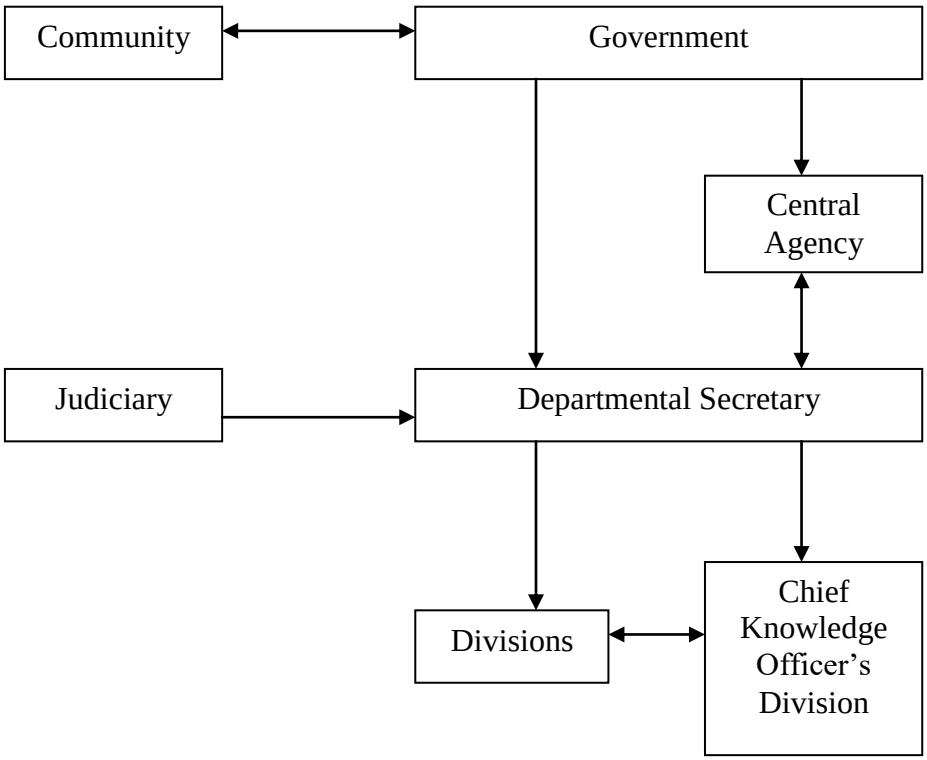


Figure 8.4 Structural Relationships of the Law Department

8.4.2 Influential Ideas

This section proceeds by identifying the influential ideas in the case study and who held them. It then discusses how these ideas supported the actions of particular agents or why they held these ideas. The final part of this section examines the interaction between these ideas and whether these they tended to conflict, reinforce each other or lead to no interaction. In reviewing this case study three key ideas are evident:

36. Organisational collaboration and the sharing of knowledge

37. Organisational efficiency

38. Organisational integration

Organisational collaboration and the sharing of knowledge

The main advocate of the ideas associated with organisational collaboration and the sharing of knowledge was the CKO. For the CKO a key problem for the strategic management of information systems in the department was the fragmentation associated with hierarchical, silo-based organisations "The traditional situation …

means a reliance on formal hierarchical processes. This is the way systems have been built in the past and it has led to fragmented silo based systems." Thus a fragmented organisation produces fragmented information systems. The CKO saw a collaborative approach, as manifest in the CoP initiative, as a way of counteracting the fragmentation mechanism originating in the hierarchical, silo-based organisation. Hence the Knowledge Management Strategy (KMS) was 'designed to counter the devolutionist behaviour and the tendency not to talk across silos'.

Organisational efficiency

The efficient allocation and use of departmental resources was an important idea for the CKO, OCIO and the second Secretary. The CKO said that the silo-based structure had "led to uncoordinated demands from business units for ICT infrastructure support" and that before the development of the IT Plan there had been "no coherent funding mechanism for deciding between priorities". Hence separate resourcing of individual business units for the same capability was seen as inefficient. Efficiency gains were key to the shared services initiative of the OCIO and the rationalisation of ICT support across three government departments so that these services would be located at one site rather than each department having its own ICT support services. Finally the CKO felt that the second Secretary's termination of the CoP initiative were related to "the push for greater cost efficiencies" and "efficiencies from centralised and shared services".

Organisational Integration

The idea of organisational integration was prominent within the IT Plan and it was important to the CKO in the form of enterprise architecture and the second Secretary in the form of the One Justice statement. The department's Law Department IT Strategic Plan (2002, p.5) emphasised this theme in two of the six key opportunities it identified for the department:

- Deliver integrated services online, including interactions with multiple business units and integration with back-end systems.
- Integrate services with partner organisations to enable the partners to improve services to their customers, and reduce the workload in the Department.

The Plan also identified ten goals for the organization the first of which was "To become a "joined up Department" to deliver integrated services where practical". The One Justice statement encapsulated a strategic management idea of a coherent set of processes rather than separate and hence fragmented capabilities. The Senior IT Planner commented on the significance of the statement for the second Secretary:

> This endorses the idea of common organisational values, common processes and shared systems. The aim is to recognise our distinct core competencies. … The related themes are continuous improvement and productivity efficiency. The One Justice statement is an overarching management philosophy.

Enterprise or whole of organisation approaches to IT management and particularly the idea of enterprise architecture are very prominent ideas within the IT practitioner literature (James, Handler, Lapkin and Gall 2005) as well as in government literature (Federal Enterprise Architecture Program 2006). The enterprise approach is a response to the problem of organisational fragmentation in relation to the use of IT and manifest in the tendency of business units to pursue their local needs at the expense of the corporate whole of organisation perspective. Garson sees 'enterprise' approaches as a form of organisational consolidation closely allied to centralisation "There is a direct link from the concepts of managing by results, eliminating duplication, and leveraging IT to the contemporary reality of recentralization, enterprise architecture, and other forms of large-scale IT-based consolidation" (Garson 2006, p.452).

Interaction of Ideas

The enterprise approach to IT management and the One Justice statement can be seen as attempts to overcome the organisational fragmentation of effort that result from the silo effect resulting from functional specialisation. Both sets of ideas represent similar responses albeit different domains (IT versus organisational management) to the same issue. The enterprise approach to IT management idea tries to integrate the organisation along process, system, informational and technological lines while the One Justice statement indicates integration envisaged as encompassing values, processes and systems and links this to efficiency and productivity.

The two ideas are compatible and reinforcing and the idea of organisational efficiency is also compatible with them since complete integration implies removal of redundancy and duplication. The link between the two ideas (One Justice and enterprise IT management) was also evident in the adoption of a portfolio approach to IT investment decisions. However the enterprise approach to IT management and the management philosophy implicit with the One Justice statement represent an opposing response to the problem of organisational fragmentation to the collaborative approach favoured by the CKO. At the heart of the collaborative approach is acceptance of business unit autonomy as a precondition for the sharing of information whereas the opposite could be said about the enterprise approach to IT management and the One Justice statement as these rely less on collaboration and more on control of divergent views from common approaches. Hence they are fundamentally about limiting the autonomy of business units. The Secretary's recentralisation of IT support to business unit would appear to bear this out. A similar point could be made about the opposition between collaborative approaches versus whole of enterprise IT management approaches. In this sense the CKO was supporting contradictory management approaches.

Business Value or Benefit

The interaction of ideas was also evident in the way in which the business value or benefit of some initiatives designed to gain organisational improvements could be more easily demonstrated than others. In a resource constrained organisational setting with competing demands for resources to support organisational priorities the demonstrability of organisational value or benefit, such as efficiency gains, from particular proposals becomes paramount. In the case study this applied to both the IT Plan initiatives and the CKO role. In the second interview with the CKO he said that "there was and still is an issue of the Return on Investment (ROI) for IT assets. We need more clarity around the value adding aspect of IT." The Senior IT Planner said that the "key issue behind the abolition of the CKO role was "that it is hard to know whether the focus on knowledge management has delivered value". In relation to the termination of the CoP initiative the CKO felt that the second Secretary could not 'see' the benefits of the initiative:

> She thought that people were investing too much time in what appeared to be non-productive activities. She saw it has a diversion from real work, unproductive and that people were spending too much time in meetings.

Those initiatives, which cannot demonstrate what influential stakeholders take to be organisationally valuable such as a return on investment in terms of the cost benefit logic of the business case, are likely to be rejected. Giroux and Taylor (2002) comment that:

> an innovative idea will succeed to the extent that – because it interests a sufficient coalition of the organization's communities, including top management, and is seen to be consistent with their standards, values and interests – it is ultimately translated into organizational action. (p.503)

The source and interaction between these ideas is summarised in Table 8.3 Influential Ideas and their Interaction.

Idea	Collaboration	Integration (Enterprise IT Management)	Integration (One Justice)	Efficiency
Advocate	CKO, First Secretary	CKO, Market based sources of IT consultancy	Second Secretary	All agents
Manifest as	CoP initiative	Portfolio approach to IT investments and enterprise IT architecture	One Justice Statement	Shared Services initiative. Centralisation of IT resources
Objective	Share knowledge, generate innovative ideas. Reduce organisational fragmentation.	Reduce organisational fragmentation in relation to IT usage	Reduce organisational fragmentation, refocus on core competencies.	Reduce duplication and costs of operation
Interaction effect	Conflicts with the integration ideas since integration is based on reduction of business unit autonomy.	Consistent with the One Justice statement hence a reinforcing effect.	Consistent with the Enterprise IT management approach hence a reinforcing effect.	Consistent with integration ideas but works against organisational flexibility necessary for success of the collaboration approach.

Table 8.3 Influential Ideas and their Interaction

8.4.3 Causal Mechanisms

In the previous case studies mechanisms have been characterised in terms of being either supportive or unsupportive of the IS planning project and the implementation of the resultant IS strategy. In this case study it is evident that some mechanisms had both supportive and unsupportive effects, rather than being wholly one or the other type of effect and these effects differed for the implementation of the IT plan as distinct from the implementation of the KMS, particularly as it related to the Communities of Practice (CoP) initiative.

Advocacy Mechanism

The case study demonstrates the agency of the CKO who was the main advocate of the KMS and the CoP initiative. Advocacy mechanisms originate in the agency of individuals and groups located within the social structure of the organisation. Hence the CKO's ability to advocate the SISP consultancy project arose from the powers of his initial position as a member of the department's Executive and the support he received from the Secretary who appointed him.

Fragmentation Mechanism

The CKO said there was "Different business units were driving application development initiatives and requesting supporting ICT infrastructure with no systematic way of bringing this together". These observations can be seen as evidence of the action of a fragmentation mechanism, which arises from the autonomy of departmental business units triggered by their need for information systems to meet their information management needs. Business units have a degree of capability to meet this need, through the possession of funding to initiate their own ICT projects and the ready availability of the appropriate technology, but they are also vulnerable to the difficulties and challenges of successful IT project management.

Secretary's Intervention Mechanism

The new Secretary's action to restructure the department can be seen as an intervention mechanism triggered by a perception that the department was being distracted from its core business ("stick to the knitting") and by the Government's assignment of new functions and the influence of integration ideas. The Secretary's intervention led to a reorganisation of the department, which aimed to create greater integration between business units but had a number of different effects including:

- Centralisation of IT support resources
- Separation of IT strategy from IT service delivery
- Abolition of the CKO position and the CoP initiative
- Initiation of a major new IS project (Integrated Courts Management System)

- A widened span of control through the creation of new divisions

Stenmark (2003) referring to the work of Ciborra (2000) notes the importance of the control mechanism in relation to IT infrastructures "In Ciborra's critical review of the literature on the management of corporate infrastructures, it is concluded that the centrality of control is one of the basic tenets" (2003, p.213). The second Secretary's actions in this regard were also consistent with evidence from other countries such as the US at the time. Garson comments "In the late 1990s and into the 2000s, financial austerity led states to transfer IT personnel from operating departments back into the central IT office, reversing some of the earlier decentralization." (Garson 2006, p.452.)

Resistance Mechanism

Resistance was evident to both the IT Plan strategies and the KM Strategy. In the case of the IT Plan there was evidence of business unit managers refusing to adopt changes to their usual ways of working as a result of the Customer Responsiveness initiative and the Managing Performance initiative and in the implementation of content management software within the HR area. In the case of the KM Strategy the CKO explained how the Secretary's termination of the CoP initiative resonated with "disempowering factors in the management culture. Managers … would not allow space for people to pursue the CoP activities" and the HR Director would not revise job descriptions to encourage knowledge sharing behaviours. These behaviours can be seen as the effects of a resistance mechanism triggered by the difficulty and challenge of change, a lack of capacity and skills to adopt specific IT related changes, the perception that the department was being distracted from its core business and the apparent absence of business benefits from the CoP initiative.

Integration Mechanism

The last section discussed the influence of ideas about IT integration (enterprise architecture) and organisational integration (One Justice Statement). The IT Plan was premised on the goal of integrated service provision and the ICMS project was also a means for increasing the degree of process integration in regard to the support of the courts function. These initiatives can be seen as evidence of an integration mechanism demonstrating the attempt to counter the fragmentation effects of business

unit autonomy (see below fragmentation mechanism). The source of this mechanism was in the agency of the Secretary in initiating the ICMS project and that of the CKO in promoting the KMS as a way of countering 'silo behaviour' by promoting adherence to integrating frameworks for decision-making such as the enterprise applications architectures and portfolio management of project resourcing. Such frameworks integrate by promoting a whole of department perspective over that of individual business units.

IS Demand Management Mechanism

As the senior executive responsible for the implementation of the IT Plan the CKO with the KMC acted to put in place arrangements that facilitated implementation of the Plan's strategies. The KMC also had powers to grant some resources for new IT projects. Under the portfolio approach this would occur when proposals (business cases) aligned with enterprise IT directions and had high business importance. These actions can be seen as a control mechanism, which were triggered by the effects of the fragmentation mechanism.

Government Intervention Mechanism

Government's have the power to restructure the public sector, create new portfolios and functions and reassign responsibilities amongst departments. In this case study the Government intervened to assign the department new responsibilities, for example the establishment of a sex offenders register and victim's register, following the Government's re-election. The effect on the implementation of the IT Plan was, in the words of the CKO, that these new responsibilities "cut across the existing priorities of the IT strategy" and "distract attention from the strategy and dissipate resources". However such interventions may create supportive conditions for the implementation of IT Plans such as those suggested by the GM TS "imperatives such as efficiency needs through reduced funding, the need to improve services, the need to streamline processes and a Ministerial desire for improvement and a willingness to push for funds for this purpose."

Central Agency Intervention Mechanism (OCIO)

In this case the central agency responsible for whole of government IT policy (OCIO) intervened with a requirement for the department to use a new whole of government, shared service IT facility rather than developing its own data storage capability. This mechanism had a constraining effect on the department because it forced an adjustment to the department's IT Plan since the requirement was not anticipated and no additional resources were provided.

Collaboration Mechanism

The first Secretary's actions to foster business excellence was intended to encourage greater resourcefulness of ideas and approaches to the business of the department as well as a more collaborative rather than authoritarian and hierarchical culture. This helped to facilitate an environment for the emergence of CoPs (Brown and Duguid 1991) within the department, which illustrates the action of a collaboration mechanism. This mechanism is triggered when individuals discover a common and mutually beneficial professional practice interest and begin to operate as an informed group in which there is a greater voluntary sharing of information. The CKO enumerated three factors for the collaborative approach to be effective:

(viii) People will participate voluntarily

(ix) Senior business sponsors to nurture the contribution of knowledge to the organisation

(x)Group leaders with the necessary qualities to promote the information sharing culture.

Brown and Duguid (1991) argue that the emergence of CoPs is important for organisational learning. CoPs help organisations become enacting organisations (Daft and Weick 1984), which are both adaptive to environmental conditions and proactive in terms of organisational innovation. CoPs do this by helping organisations move beyond the restrictive effects of formal ways of working and practice. Such organisations

> do not assume that there is an ineluctable structure, a "right" answer, or a universal view to be discovered; rather, they continually look for innovative ways to impose new structure, ask new questions, develop a new view, become a new organization. (Brown and Duguid 1991, p.52)

However CoPs will only flourish in organisations where "internal communities have a reasonable degree of autonomy and independence from the dominant world view" and if this is achieved "large organizations might actually accelerate innovation" (Brown and Duguid 1991, p. 54). The effects of these mechanisms on the implementation of the IT Plan and Knowledge Management Strategy are summarised in Figure 8.5 Supportive and Unsupportive Causal Mechanisms. The figure indicates the effect on the attempt to implement both the IT strategic plan and the KMS. Some effects were supportive and some were unsupportive in each case and sometimes an effect supportive of the IT plan implementation was not supportive of the KMS implementation for example, the IS Demand Management mechanism was more supportive of the IT plan implementation than the KMS. In some cases the causal liabilities of particular mechanisms is indicated to show how a mechanism may be undermined by elements of its own constitution.

The Appendix to this thesis (Agential Groups, Mechanisms, Interaction and Events) summarises the sequence of events, the causal mechanisms that led to these events and the originating social objects for the mechanisms for this case study. The next section provides the conclusion to this case study by explaining the outcomes in terms of the contingent interaction of causal mechanisms.

SUPPORTIVE MECHANISMS

Advocacy
- Director ITB in conjunction with Executive Director CSD initiate the SISP project.
- Director ITB champions the project strongly until his departure.

Government Intervention
- Create conditions for change within departments, which may be favourable for new IT based projects associated with these changes such as the ICMS project.

Secretary's Intervention (IT Plan)
- Consistent with the IT Plan's whole of department, integrated approach to IT management of demand for ICT infrastructure
- Initiated further integration through the ICMS project
- Countered fragmentation mechanism through more centralisation of control

IS Demand Management
- Centralisation of IT support because evidence of business units inability to finish project.
- KMC approval of project funding on the basis of business priorities that are agreed with all business units. These priorities used as a control instrument for approving which initiatives are funded.
- Plan as a way of coordinating the demands for ICT infrastructure projects.
- Corporate IT function has limited organisational power (causal liability)

Collaboration
- Communities of Practice emerge in the organisation when individuals discover a common and mutually beneficial professional practice interest and begin to operate as an informed group
- CKO provided support for CoPs, which survive through a natural flow of interest.
- First Secretary's focus on 'business excellence' created conducive organisational conditions for CoPs to flourish

Integration
- CKO's implementation of an enterprise application architecture
- Secretary's initiation of the Integrated Courts Management System project

UNSUPPORTIVE MECHANISMS

Government Intervention
- Machinery of Government changes result in new functions for departments without additional funding and not necessarily consistent with the IT Plan.

IS Support Demand
- Business units requesting supporting IT infrastructures for their applications

Secretary's Intervention
- Reduced business ownership through centralisation of IT resources
- Expanded the timeframe for implementation of the IT plan through the inauguration of a major new IS project (ICMS)
- Created three new divisions with unplanned for IT needs
- Terminated the CoP initiative and abolished the CKO role

Central Agency Intervention
- IT Plan had to accommodate requirement to use whole of government shared services IT facility.
- Shared service concept is consistent with centralisation of control

Resistance
- Business units refuse to accept the implied business process changes of IT projects in the Plan.
- Business refuse to fulfil their project obligations in relation to some of the strategies in the Plan eg IVR and Managing Performance.
- 'Cargo cult' mentality, generational and cultural issue not seeing their business is being changed. They see it as risky. A problem for the IT Plan implementation.
- Declining interest of stakeholders in strategies and their project commitments
- Intolerance of management culture to CoPs. No space allowed in day to day work. HR Director resistance to changing incentives for knowledge sharing in job descriptions.

Fragmentation
- Uncoordinated IT initiatives as business unit IT initiatives deviate from the plan and they can bypass central IT unit
- Business unit politics undermine IT initiatives that apply to more than one business unit.
- Business units have limited IT project management expertise (causal liability). This may effect their ability to comply with the intentions of the IT Plan.

Figure 8.5 Supportive and Unsupportive Causal Mechanisms

8.5 Conclusion – Explaining Outcomes

While the GM TS had brought about the development of an IT Strategic Plan partly to counter the organisational fragmentation around IT management that had its source in business unit autonomy, a different conception of organisational management to the bureaucratic and prison based management culture in the department, using a collaborative approach, was being promoted by the Secretary and the CKO. This approach drew on the knowledge management literature and argued that creating the organisational conditions for the emergency of innovative ideas is a primary management goal. But the implementation of the IT plan and the KMS then encountered the conjuncture of three intervention mechanisms: the new functions imposed by the Government following its re-election, the appointment of a new Secretary, with quite different ideas about strategic management to her predecessor, and the efficiency driven shared services initiative of the OCIO. These intervention mechanism were aligned and implied a reduction of organisational freedom to pursue alternative management approaches, to such things as the management of organisational knowledge, because they all implied greater overall control of the organisation using the ideas of organisational integration and resource usage efficiency.

The Secretary's restructure of the department was a response to the government's new requirements of the department, the recommendations of the departmental review she commissioned as well negative perceptions of the KM strategy. Her intervention had both supportive and unsupportive effects however. The Secretary's intervention was consistent with the IT Plan's assumption of a more integrated organisational approach to IT enabled service provision and the adoption of an enterprise application architecture however it also tended to increase centralised control since the underlying objectives were "efficiencies from centralised and shared services" as well as "continuous improvement and productivity efficiency". The centralisation of business unit IT support staff tended to lead to a decline in business ownership of the IT Plan projects. The initiation of the ICMS project was consistent with the integration objective but this had the effect, in the words of the CKO, of "adding a full year to the Plan" making implementation of the Plan more difficult especially without sufficient additional resources. The intervention also resulted in an increase in the number of

divisions, from five to eight, which worked against organisational integration by creating additional and different functional areas.

The Secretary's intervention was clearly unsupportive of the KM culture and initiatives that the CKO and the previous Secretary had tried to establish. She forced the CKO to place less emphasis on collaboration and move closer to more centralised management approaches. The IT Plan fared better than the KM agenda because it was more aligned with the Secretary's centralisation and integration objectives. But both the centralised enterprise IT management approach and the collaboration approach encountered the resistance mechanism. The first because it limited business unit IT autonomy and the second, because its perceived efficiency payoff was not evident to the new Secretary or managers unfamiliar with the concept, under pressure to take on new government functions and entrenched in older management cultures.

Hence this case study illustrates two different approaches to the strategic management of an organisation's IS, collaborative versus control and is a specific illustration of the conflict between managerialist views and the necessary organisational conditions for CoPs to flourish. The first Secretary was prepared to support initiatives designed to engender the kind of culture necessary for CoPs. He supported the CKO and used his structural power to allow a degree of social practice flexibility to reinforce the collaboration mechanism. The second Secretary saw the prevailing organisational situation as unresponsive to the government's requirements with too much decentralisation, leading to a dissipation of organisational energy and a lack of overall control. Accordingly she used her structural power to impose a greater degree of centralised control particularly in relation to IT resources. But she went further by abolishing the CKO role and terminating the CoP initiative, suggesting that she saw these as serious impediments to her objectives. These actions, which were completely antipathetic to the argument of Brown and Duguid (1991), reinforced the resistance mechanism, evident in the behaviour of those managers who did not want to commit to the KMS initiatives, and effectively neutralised the collaboration mechanism.

Chapter Nine

Case Study Four: Business Unit Led SISP Project

9.1 Introduction

This chapter describes a SISP project that was initiated and managed by a business unit of a large Australian government department, the same department as the first case study, which was of a SISP project managed by the corporate IT function. The business unit was called the Handicapped Persons Division (HPD) responsible for the provision of support services to physically and intellectually disabled clients. In this sense the case is a study of a business unit driven SISP project, which SISP theory suggests should achieve greater alignment with business needs than one driven by the corporate IT management function. However despite the location of the SISP project within a business division of the department the outcome was not successful. The chapter is structured as follows:

9.2 Context - Social and Technological Conditions

Organisational Functions, Structure and Key Agents

The case study takes place within a government department with primary responsibility for government policy implementation in relation to handicapped persons (physical and intellectual), support for socially vulnerable families, public hospitals, primary health care system, care for the elderly, public housing and public health regulation. The Secretary was the department's most senior executive management position and reported to three Ministers with different portfolio responsibilities in relation to the activities of the department. The department was structured around nine divisions, managed by an Executive Director in each division, as well as nine regional offices with regional managers assigned a semi-formal reporting relationship to particular Executive Directors. The department employed some 10,000 people directly but also operated through approximately 2000 semi-autonomous agencies that were either partially or fully funded by the department. The departmental structure is illustrated below in Figure 9.1 Organisation Structure of the Department of Health, Housing and Community Support (DHHCS) and funded sector agencies.

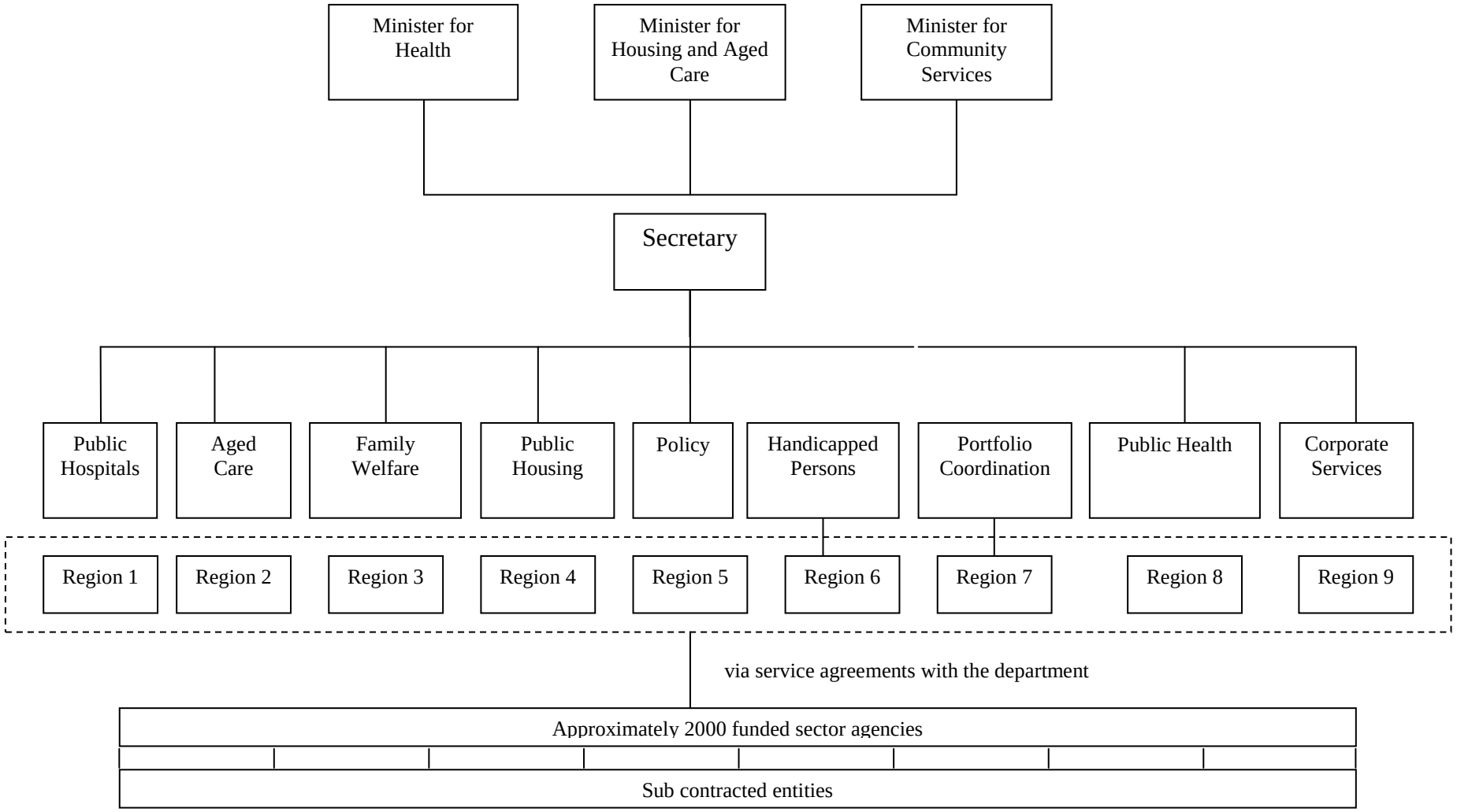


Figure 9.1 Organisation Structure of the Department of Health, Housing and Community Support and Funded Sector Agencies

The Handicapped Persons Division consisted of four branches Policy and Program Development, Service and Quality Development, Budget and Program Support and Performance, Planning and Research. The managers of each of these branches reported to the Executive Director of the division. The services for each of these programs were delivered in two ways. First, through approximately 300 funded agencies and second, through direct service provision by departmental staff located in regional offices and special homes for the intellectually disabled. An organisation structure for the HPD is shown in Figure 9.2 Handicapped Persons Division Organisation Structure. The key agents in this case study who were influential in the events and outcomes of the attempt to develop and implement the HPD IS Plan are given in Table 9.1 Roles of Key Agents.

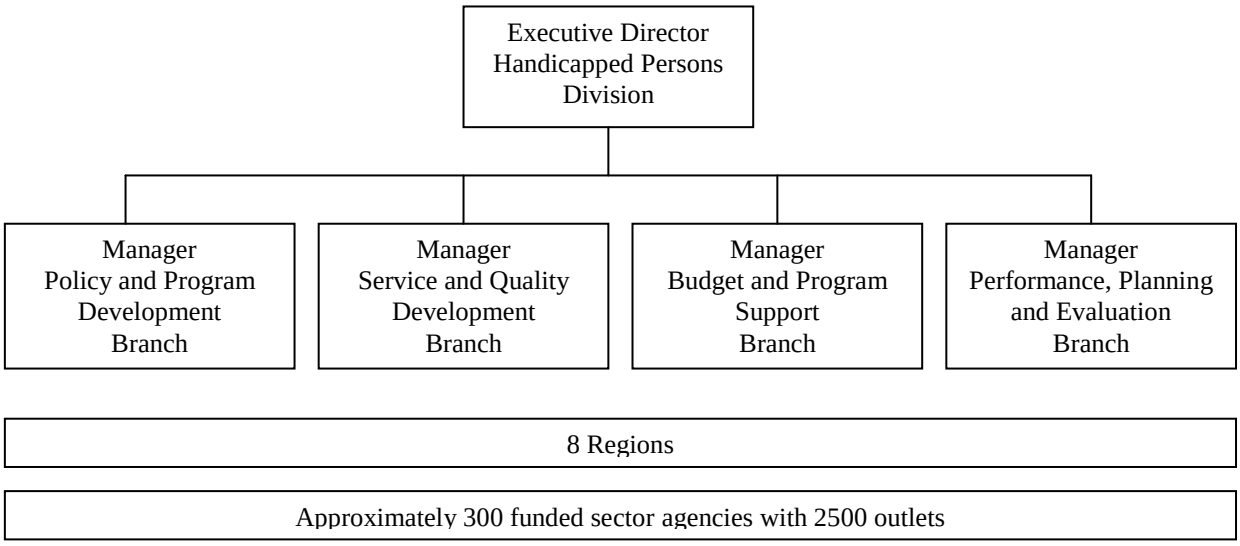


Figure 9.2 Handicapped Persons Division Organisation Structure

9.3 Case Study Description

9.3.1 Development of the HPD Information Systems Strategic Plan

In the year prior to the case study period the Manager, Information Analysis (IA) of HPD conducted a service system review project. The review project did not result in an IS Strategic Plan but it did reveal many information management issues associated with HPD's use of the 300 independent service providers particular those relating to coordination of service provision to clients and standardisation of information entities for management and reporting. The report concluded that there was a fundamental

requirement “for a seamless systems environment for the information requirements of HPD” (p.20) that would incorporate ‘invisible interfaces’ and a ‘multi-level security access regime’ because of privacy requirements for clients but which would allow access by providers.

Position	Organisational Role
Minister	Member of government, rather than the department with oversight of the Handicapped Persons portfolio
Secretary	Head of department.
Executive Director, HPD	Senior executive responsible for the management of the HPD and the delivery of disability support services to handicapped persons.
Branch Manager, Planning and Performance Evaluation (PPE)	Responsible for performance monitoring, evaluation, resource planning and improvement of the service system for handicapped persons. (one interview)
Manager, Information and Analysis	Responsible for information collection and analysis to support the performance monitoring and evaluation function of the division. Two persons occupied this role during the case study period. (Two interviews)
Senior Project Officer	Responsible for coordinating the consultancy project to develop the HPD IS strategic plan. (Three interviews)
Manager, Central IS Planning Unit	Responsible for promoting and coordinating IS strategic planning across the department. Reports to the Branch Manager of the central IT branch.
IS Planning Consultants	Aa team of consultants for the development of the HPD IS strategic plan. Reported to the Manager, Information and Analysis. (One interview)
Case Management Consultants	Responsible for the consultancy to provide advice to the Executive on the future of case management systems in the department. Reported to a steering committee made up of Directors from Family Welfare Division and Corporate IS Branch.

Table 9.1 Roles of Key Agents

Following the conclusion of the service system review project the Manager IA approached the Corporate IS Branch (CISB) to develop specifications for an information system to help HPD with the coordination of service delivery to its clients . The Manager of the Information Systems Planning Unit (ISPU) recommended the development of a HPD IS Strategic Plan as a preliminary step that would “define the business model for service delivery both now and in the future, supporting business processes and the priorities for systems development. On this basis systems requirements can then be determined and specifications prepared.”

The memorandum contained a brief and Terms of Reference for a proposed IS planning consultancy to be advertised by public tender for a response from a suitable

consultancy firm. The Manager IA and her Branch Manager PPE accepted the advice from the CISB and agreed to use the brief prepared by the ISPU for an IS planning consultancy. There remained the question of funding to pay for the consultancy. Fortuitously the Minister had excess funds available and was favourably inclined towards the idea of Individualised Funding. The Manager IA described how her manager

> came to see her and said the Minister was looking for an initiative to use up some funds before the end of financial year. The Minister was aware of the information management problems [identified in the stage 1 work] and had $10M of surplus funds. My manager took the project plan [from the principles document] to the Minister and the Minister assigned the money to the project.

The Manager, IA said she now had "the vision, direction, alliances and now the money". The brief prepared by the ISPU unit was advertised to consulting firms on the government's tendering panel and six firms responded. A local firm was selected with previous experience with the department and in the handicapped persons area with another state government. The successful firm proposed a team of four consultants with an eight week time frame to deliver an IS strategic plan in three stages.

The Planning Process

The Manager IA said the "consultancy was very tightly managed and on a fixed price" and she personally specified who was appointed to the project team. Her Senior Project Officer managed the day to day processes of the consultancy but said that "during the consultancy there were times when the consultants were unsure of how to take it forward". The Branch Manager, PPE said "The plan was developed with the requirements of internal users and NGO staff in mind. No major issues arose during the process of developing the plan". However an interview with the Principal Consultant provided a different view of the process of developing the plan:

> The brief seemed like a standard IS planning assignment and fitted our methodology. There would be a business review stage, a focus on data and applications and a change component. I thought our goal was to make

> sure HPD got an IS Plan that was right for the division. We were going to use a fairly generic IT strategy methodology and start with an analysis of the business functions of the division.

As is usual in such assignments the consultants sought confirmation from their client, in this case the Manager IA, of their proposed approach so as to ensure there were no potential obstacles or issues that might interfere with the approach:

> We decided to test this with our main client contact since sometimes things change and different approaches might be required. When we showed her what we had in mind she said this was not really what she wanted. She said "I have tenders underway, I need a systems architecture for them". In response we changed our direction from business strategy analysis to a systems architecture emphasis and brought in a systems architect onto the team. We changed the whole focus of the consultancy within one week.

The tenders underway that the Manager IA referred to were In-Home Accommodation Services (IHAS), Program of Aids and Equipment (PAE) and Respite. The Principal Consultant said that in his experience this kind of change in direction from what was set out in the brief for the assignment happens rarely that is about one in ten consultancy assignments. The problem with this reorientation of the consultancy was that the emphasis on systems architecture represented a jump to technology considerations ahead of the need to consider the business imperatives as the context for such an architecture. This was consistent with IS planning practices and methodologies in the IS consultancy field that prescribe the need to ensure business needs drive technology and system decisions rather than the reverse. The Principal Consultant said

> they would normally do a business-IT visioning exercise, which aimed to fix immediate to mid term problems but be heading in the longer term strategic direction. You focus on the business not the technology

However when he presented the results of the business context analysis to the project steering committee the Manager IA " recoiled from the business model of the division that the consultants had formulated". She "did not like the high-level business

processes that were depicted eg case management, service management etc. There was significant resistance to the preliminary vision". The Principal Consultant thought the cause of this resistance was due to the limited number of stakeholders who were to be involved in the consultations for the assignment

> the Manager IA had not discussed with the other areas of the division that the consultancy would attempt to analyse the overall business operations and model them. … it seemed like the proposals were too politically sensitive for her to circulate to other areas of the Division

This was particularly frustrating for the Principal Consultant because he "felt as a consultant he had to start with some sort of overall business model of service provision covering such things as customer self help, case management oversight, etc. but the Manager IA and her supervisor the Branch Manager PPE were not prepared to commit to this". He (Principal Consultant) was focussed on "what were the business drivers?" He needed a "business context not just an architecture to solve a local issue".

The restrictions on whom the consultants could talk to were enforced during the consultancy "We didn't talk to the other stakeholders only to the Manager IA and her supervisor, not the entirety of HPD. They controlled what the consultancy did". The Senior Project Officer said that at the time there were "political power plays amongst members of the Divisional Executive. This led to no real ownership of the Plan because they hadn't been adequately involved in its development". The restriction of the business vision to that of the Manager IA and her supervisor also continued and this was the vision for a systems architecture to support individualised funding. The Branch Manager PPE said in his interview

> HPD wanted to move away from block funding of an agency for a certain number of clients to funding for each client eg individualised funding. This requires a different type of information system to the first funding model. HPD need NGOs to take up the individualised funding model but if the information systems doesn't provide much support for this they wont.

The Principal Consultant's comments about the Manager IA show the alignment between her views and her supervisor the Branch Manager PPE

> Her main business need was around payments to service providers and the importance of making administrative savings in this area. The aim was to save money in this process. One way of doing this was by automating payments to individuals as they chose particular services. The other aspect of this was that HPD was currently making bulk payments to providers who then dole the money out to individual clients. Her model would provide the funds directly to clients and as they chose and used services would be able to track expenditure and service usage.

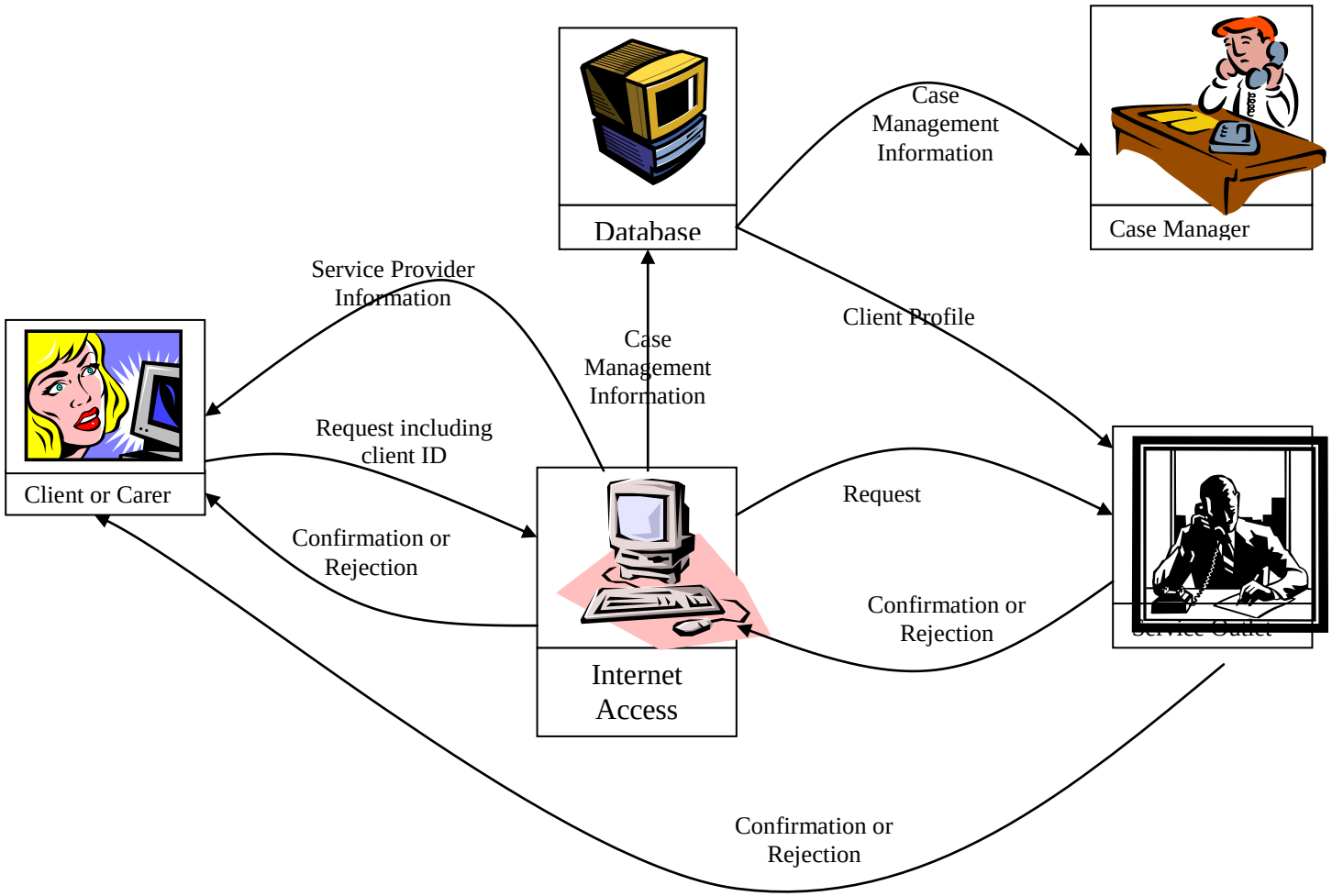
Fundamentally individualised funding was, in the words of the Principal Consultant "a model of choice for the user" but he saw a problem with this model "How could disabled clients be expected to get access to or use the necessary IT facilities?" But the Manager IA and her supervisor "glossed over this issue. They were only interested in automating the administration of payments".

Summary of the Plan

Despite the constraints on the consultants on who they could consult with and the restricted business focus to individualised funding they produced a fully documented IS strategic plan for the HPD within the eight-week time frame of the consultancy project. The Executive Summary described the business vision as "Conceptually a client will have the ability to choose services from any service provider or outlet they desire. Information will be captured as part of any transaction between the client and service provider and could be made available for reporting from the provider, for tailoring services and for provider funding". (HPD IS Plan 2001, p.3). The booking of a service from a provider by a client or carer and the registering of service delivery is illustrated in Figure 9.3 Booking a Service.

The central element of technology architecture set out in the HPD IS Plan was an Integrated Core Repository of Client and Provider Information (ICRCPI) that would be developed using CRM software. The ICRCPI would enable the vision of integrated information access and exchange between clients and providers. This would require a single authoritative source of client, carer and provider information,

unique identification for clients and implementation of data standards covering all information entities involved in the links between HPD head office, regional offices and provider locations. All of these elements had to operate in a fully integrated manner over the Internet for the vision to be realised.



Over a web style interface, clients may access basic information on service providers, the services they offer and their location. In a secure environment clients may request a booking be made with that service provider. The service outlet of that provider (or service provider's main office) would make a judgement as to their ability to accept the request. This may be supported with additional information (eg special needs) access to which must already be granted by the client. The service outlet will then confirm or reject the request and notify the client electronically, by phone or across the counter. The client's case manager may also be informed of successful bookings.

Figure 9.3 Booking a Service (HPD IS Plan 2001, p.17)

The Outcome of the Planning Process

The final version of the Plan was presented by the Principal Consultant at a meeting of about thirty people including the project team and senior representatives of HPD, CISB and FWD. The author of this thesis was present. The vision of internet based service provision to handicapped persons was greeted with great enthusiasm. The Manager IA said the consultancy was very successful and noted the support it received from the Director CISB at the presentation. She said "It was an affordable, scalable and manageable plan for HPD that was tailored to the division's requirements to serve disabled people". Subsequently the Minister who had funded the planning consultancy was briefed. The Branch Manager PPE said "The Minister was supportive particularly of the idea of booking a service. The idea of a 'transaction' captured her imagination. This fitted the individualised funding concept". Hence the outcome was positive.

9.3.2 Post Planning Phase – Conflicting systems initiatives

As the momentum to commence the projects in HPD's IS Plan increased two issues, related to the role of technology in supporting the management of clients, were emerging in the department. The first issue concerned the Family Welfare Division (FWD). Within the department the functions of the HPD in supporting the needs of disabled people existed alongside the role of the FWD in supporting the needs of clients in families in need of financial and other forms of social support. Both divisions had a client focus but the nature of the needs of these client groups was very different. The HPD project was focussed on physically disabled people who were to be given online access to a system for individualised support. Hence HPD clients were largely self supporting requiring little direct support form departmental staff. The clients of FWD were children, young adults and parents with problems related to family breakdown and in some cases this led to involvement with the justice system. These clients were managed on a case basis often requiring intensive intervention by the department's case management workers. The issue for FWD was the presence of clients who used multiple services of the division or who kept re-entering the service system for support. Hence there was a need to know whether a client of FWD was perhaps also a client of the Housing division so that action in one part of the department could be assessed for its impact on the client in terms of other areas that

were involved in helping the client. Thus an integrated or common view of the client's engagement with the department was necessary in order that the department's overall efforts could be better managed and coordinated to provide a coherent and complete response to client needs. To do this client identification across all the programs of the department was required and this would also require an integrated view of all the service entities involved in meeting a particular clients needs.

The second issue concerned the CISB. FWD had two client management systems to support its functions and operations, the Client Management System (CMS) and the Client Justice System (CJS) while HPD used HPDIS. The CMS, CJS and HPDIS had all been developed using the same software technology. The issue for the CISB was the age of the technology platform and the recent news that the original vendor would no longer support the version the department was using and had plans to phase out support all together. This led CISB to the view that these systems should be moved to a new software technology platform.

A Joint Integration Project

These two issues led to the emergence of the Integration Project initiated by CISB and jointly supported with FWD. The project would simultaneously address CISB's obsolete technology platform issue and this in turn would support progress towards more integrated client management and servicing. The brief for the Integration project also focussed on the idea of Customer Relationship Management (CRM) software as the common technology platform noting that the intake phases of programs could be supported by "using a commercial CRM product" (Integration Project Brief 2001, p.12). The HPD IS Plan had also anticipated the same sort of software platform for the ICRCPI. The similarity of needs was noted in the Integration project brief, which went so far as to say that the HPD and Integration projects were "entirely consistent" and the "timeframes are consistent" and "that the CRM concept here will constitute that proposed by the HPD IS Plan" (2001, p.30). Representatives of HPD, FWD and CISB then met to discuss a joint approach to the "establishment of a centralised repository of all HHCD client core data" which was agreed.

Breakdown of the Joint Integration Project

An issue emerged between the parties over the timing of the development of the centralised repository and in June 2001 the Manager IA decided to "proceed independently" with a tender to the market for the ICRCPI because the timeline for the Integration project's delivery of a centralised repository of client data was estimated to be at least twelve months longer than HPD could wait. The HPD implementation project needed the ICRCPI much earlier as a basis for the development of its other activity systems in the HPD IS Plan. The Technical Project Manager under the direction of the Manager IA then prepared a Request for Tender (RFT) and sought responses from the market to a CRM like product and development services for the ICRCPI.

However the approach to the development of a centralised repository of all HHCD client data became an organisational issue over whether HPD's direction to establish its own repository (ICRCPI) would be appropriate for the client case management orientated needs of FWD and because of the potential difficulty of reversing the technological direction in the future. CISB became concerned that the HPD direction would undermine the integration of the technology platform imperative. The declaration of independence by HPD prompted CISB and FWD to initiate a consultancy project to resolve the issue of the strategic approach to the development of a centralised repository of client data. Consultants were appointed to advise the departmental Executive on the appropriate strategic choice.

The Strategic Review Consultancy

The consultants focussed on the need for better coordination of client servicing across the three divisions of HPD, FWD and now Housing Division. To facilitate better coordination the concept of linking across the services in these divisions was emphasised. The four main reasons for linking services were preventive intervention, service efficiency, service planning and worker safety. The consultants concluded that the linkage across divisions was of a "thin Common Client Layer" (CCL), which would allow some minimal form of cross-divisional service coordination while recognising the differences between the kinds of client needs each division serviced. The information architecture to support this dual level of linkage (departmental

common layer and divisional common layer) is illustrated in Figure 9.4 Informational Linkages to Support Coordinated Client Servicing.

The consultants noted, "the service delivery model between different programs is sufficiently different that it is possible to envisage different IT solutions for different programs" (Integration Consultant Report 2001, p.31). On this basis, the first option identified by the consultants for the departmental executive was to allow HPD to proceed with its tender for a system solution to support Individualised Funding (IF) for HPD clients, as long as the solution could support the thin CCL concept.

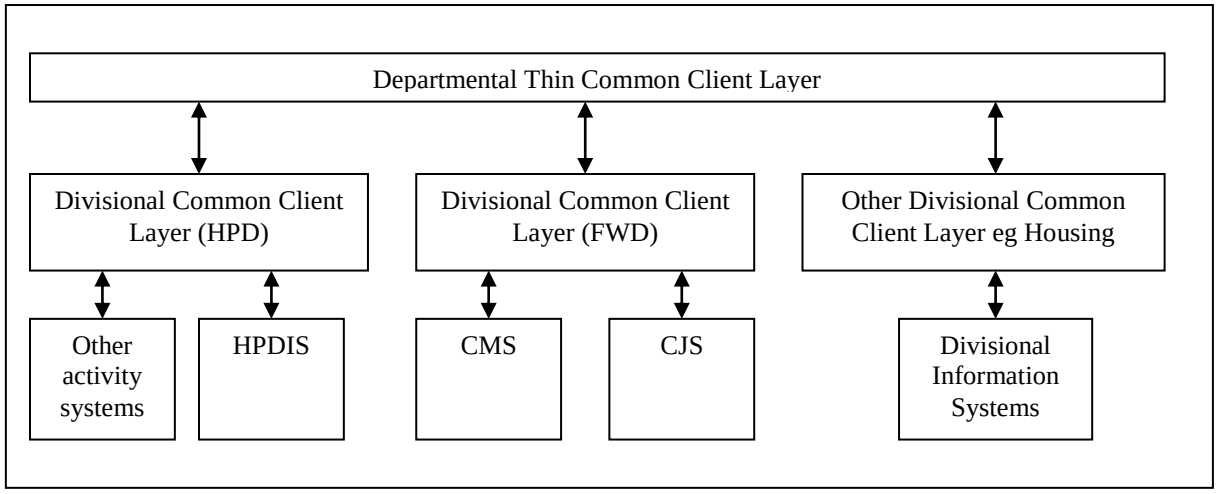


Figure 9.4 Informational Linkages to Support Coordinated Client Servicing

However the consultants argued that the department was in fact seeking greater integration of client servicing activities as a strategic goal and a common application platform would support this. On this basis divisions should not pursue separate technology developments but be required to comply with the strategic agenda of a common application platform. Hence the second option, to be provided to the departmental executive, was to halt the HPD tender for its own solution, for the ICRCPI, pending a tender for the acquisition of the common application platform. CISB and FWD preferred this option.

The Executive Response to the Consultancy

The Director of the consulting firm presented the consultant's analysis at a meeting of the departmental Executive. The outcome of the presentation and ensuing discussion at the Executive meeting was revealed in a letter to the Secretary from the Director of

the consulting firm two days later. The two options had become the source of "detailed discussion" during the meeting. The result of what was probably a very tense discussion was the adoption of the first option allowing HPD to proceed with its tender. Near the start of the letter the Director of the consulting firm felt it necessary to say "we believe we should note the major conclusions from our report, with which all members of the Executive agreed, prior to your arrival at the meeting" suggesting that the Secretary had personally overridden the other Executive Directors and the recommendations of the consultancy. Despite this setback the consultants continued to lobby the BM PPE about the risks of the HPD tender: "The final position put to HPD was that if it wanted to go ahead with its tender it could do so but might be overtaken by a subsequent bigger tender for CISB-FWD and this might mean all the HPD work would be wasted."

A Ministerial Crisis

The Secretary's intervention meant that BM PPE and his Manager IA could proceed with their tender process for an independent CRM technology for the ICRCPI. In fact by this time a vendor, who could supply the systems and technology to realise the vision of IF, had been selected and a contract prepared which the vendor had signed. All that was required for development to begin was to obtain the Minister's approval for the expenditure and her signature on the contract. The formal request for the Minister's approval was lodged in the Minister's office but there was a delay while the Minister was on leave.

On her return however the Minister became engulfed in a political crisis. The upshot of the crises was that the Premier relocated the Minister to another portfolio. The crisis delayed approval for the recommended tenderer. The new Minister would have to be briefed and convinced by the Acting ED to approve the funds and sign the contract. However the Acting ED, unlike his predecessor, was not familiar with the role IT in the division and was not a strong advocate of the HPD IS Plan and the tender. More important for him at the time were the overall demands on the HPD budget. The possibility that the CISB – FWD initiative might deliver a similar capability without the need for the level of expenditure involved in the HPD tender influenced his thinking. The new Manager IA, who took over from the original manager after she was promoted to another department, commented that the HPD

> tender was ready for the Minister to sign but the Minister was on holidays and then got caught up in the chroming incident. By that time the new Executive Director of the Division, who was not comfortable with making ICT related decisions, had decided that he "would not spend any money on the HPD IS Plan if something else might do the main job in 12 months time".

Hence the new ED's "main reason for not acting on the HPD IS Plan was funding rather than the question of what was best for HPD's business needs". Another factor influencing the acting ED may have been peer pressure. Despite the Secretary's intervention the idea of a departmental CCL and a common client management system was being promoted strongly by the Director of the consulting firm, CISB and FWD. As a result the Acting ED may have felt it was best not to set an independent direction. This was the view of the BM PPE when commenting on the new ED who at that stage:

> was also only acting ED. This is an ambiguous position to be in. He was unlikely to feel that he could challenge directions of the Executive especially given the relatively weak organisational power ranking of HPD. You are also trying to win acceptance at the same time by your peers.

Collapse of the HPD IS Plan Implementation

The Acting ED of HPD appears to have acquiesced in what appeared to be a majority view. Doing this was also a way of saving divisional funds. As a result, in the words of the Sernior Project Officer, "there was never any real commitment to pushing the plan with the [new] Minister". Without the Minister's approval for the contract and funding for the acquisition of a suitable technology platform, no effective action to realise the HPD IS Plan could be taken. After several months of attempts by the BM PPE to find alternative resourcing arrangements the initiative, that had been underway for over eighteen months, eventually collapsed. The Acting ED agreed that HPD's client management system needs would now be met through the CISB and FWD common client management project. He also agreed to an ongoing contribution of funds to support this project. This marked the end of the HPD project to establish its own CRM based system as envisaged in the HPD IS Plan for Individualised Support.

9.4 Causal Analysis

This section uses the open systems conceptualisation of SISP developed in chapter five to explain the causes of the outcomes observed in this case study. The illustration of this conceptualisation is shown below in Figure 9.5 Open Systems Conceptualisation of SISP.

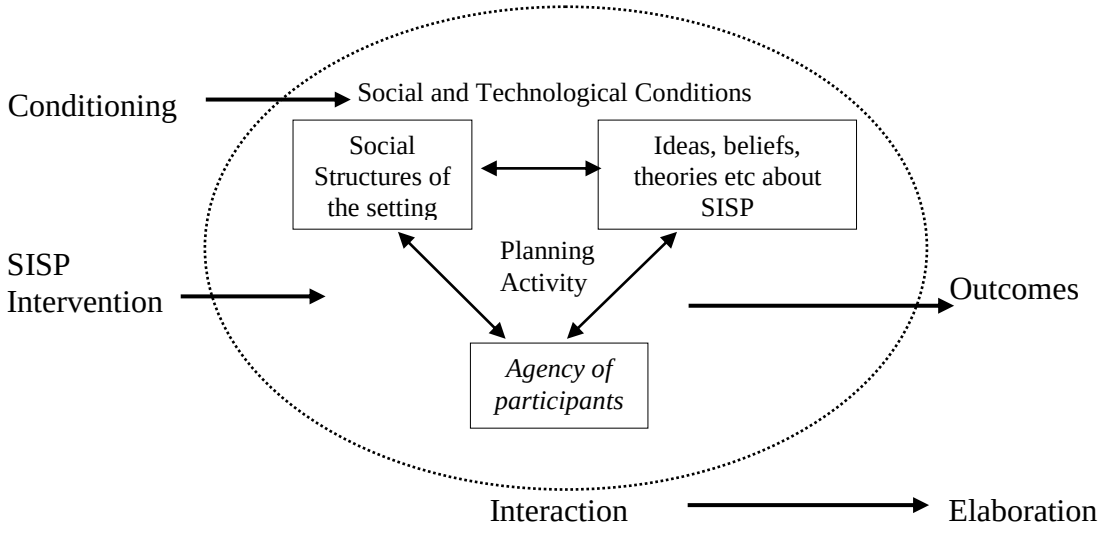


Figure 9.5 Open Systems Conceptualisation of SISP

The explanation proceeds by discussing the structural aspects of the setting and then the influential ideas used by agents. The key causal mechanisms are then identified in terms of whether they are supportive or unsupportive that is whether they retard or advance the SISP intervention. The conclusion answers the research question by showing how outcomes eventuate through the contingent interaction of these mechanisms.

9.4.1 Structural Analysis

The structural analysis identifies the social structures or structural relationships that are with agency the source of the causal mechanisms and their powers to affect the course of events. The analysis focuses on internal or necessary relations between individuals and groups and the associated powers. Seven structural relationships are evident in the case study:

- Department to Clients

- Department to Service Providers
- Minister to Department
- Secretary to Department
- Executive Directors to Department
- Control of Consultants
- Market Based Dependency of IT Products and Services

Department to Clients

Under the relevant legislation the government is obliged to meet the needs of people with physical and intellectual disabilities as well as people who require social assistance and support. This creates a structural relation between clients and the department with clients dependent on the department and the department obliged to ensure the provision of appropriate services.

Department to Service Providers

The department is responsible for ensuring the service system of semi-autonomous service providers functions effectively and to required standards of service provision quality and availability. Disability service providers are dependent on the department for all or part of their annual budgets but the funding is conditional on service providers agreeing to a contractual agreement, which stipulates the services they must provide. Services are 'purchased' under the agreements. These arrangements create a structural 'purchaser – provider' relationship between service providers and the department. However the hundreds of service provider entities in this system created a major coordination challenge for the department necessitating the collection of large volumes of information to support the development and implementation of service agreements. This created the conditions conducive to the initiation of the project to development a plan for an information system to manage the information. In this can be seen the effect of a structural condition of the service delivery system driving strategic considerations for new information systems.

Minister to Department

As members of the government, Ministers are the single most powerful individuals in relation to the structure, functions and resourcing of departments. Ministers can direct that resources be allocated to particular projects and initiatives. Conversely the position of the Minister is vulnerable to political crises resulting from media attention and the desire of government's to minimise the political damage to their credibility as a result of adverse events in the public sector for which they are responsible.

Secretary to Department

After the Minister the Secretary is the most senior and powerful of the positions in the departmental hierarchy and is structurally related to all other positions within the department via a hierarchy of related positions with delegated levels of authority subject to the Secretary's approval. Divisions are dependent on the Secretary for the approval of significant strategies and initiatives particularly those with whole of department implications. The Secretary is frequently the most influential person on the department's executive and related management decision-making forums.

Executive Directors to Department

After the Secretary Executive Director positions represent the next most powerful layer within the departmental hierarchy. Divisional Executive Directors enjoy high levels of organisational autonomy in relation to the activities of their division including control over significant resources and the right to initiate major projects. The Secretary plus all the Executive Directors constitutes the departmental Executive, which is the highest decision making forum in the department.

Control of consultants

Branch Managers are the next layer of management in the departmental management hierarchy. Branch Managers usually have a number of experienced staff reporting to them. In this case study the Branch Manager PPE acted in consort with one of his direct reports, Manager IA, to exercise strong control over the consultants that were chosen to develop the HPD IS plan.

Market Based Dependency on IT Products and Services

Key arguments made by the second set of consultants recruited by CISB and FWD centred on the possibility that the HPD direction might undermine the department's ability to obtain an effective response from the market for the needs of CISB and FWD client case management system. This shows also how the potential response of the market is a major factor in decision making in relation to the strategic management of IT capabilities in the public sector. Finally the vision for HPD clients was heavily dependent on an IT based solution, which would have required both clients and service providers to use internet related IT products and services from market based suppliers. The relationship between these structural elements is illustrated in Figure 9.6 Structural Relations in the HPD Case Study.

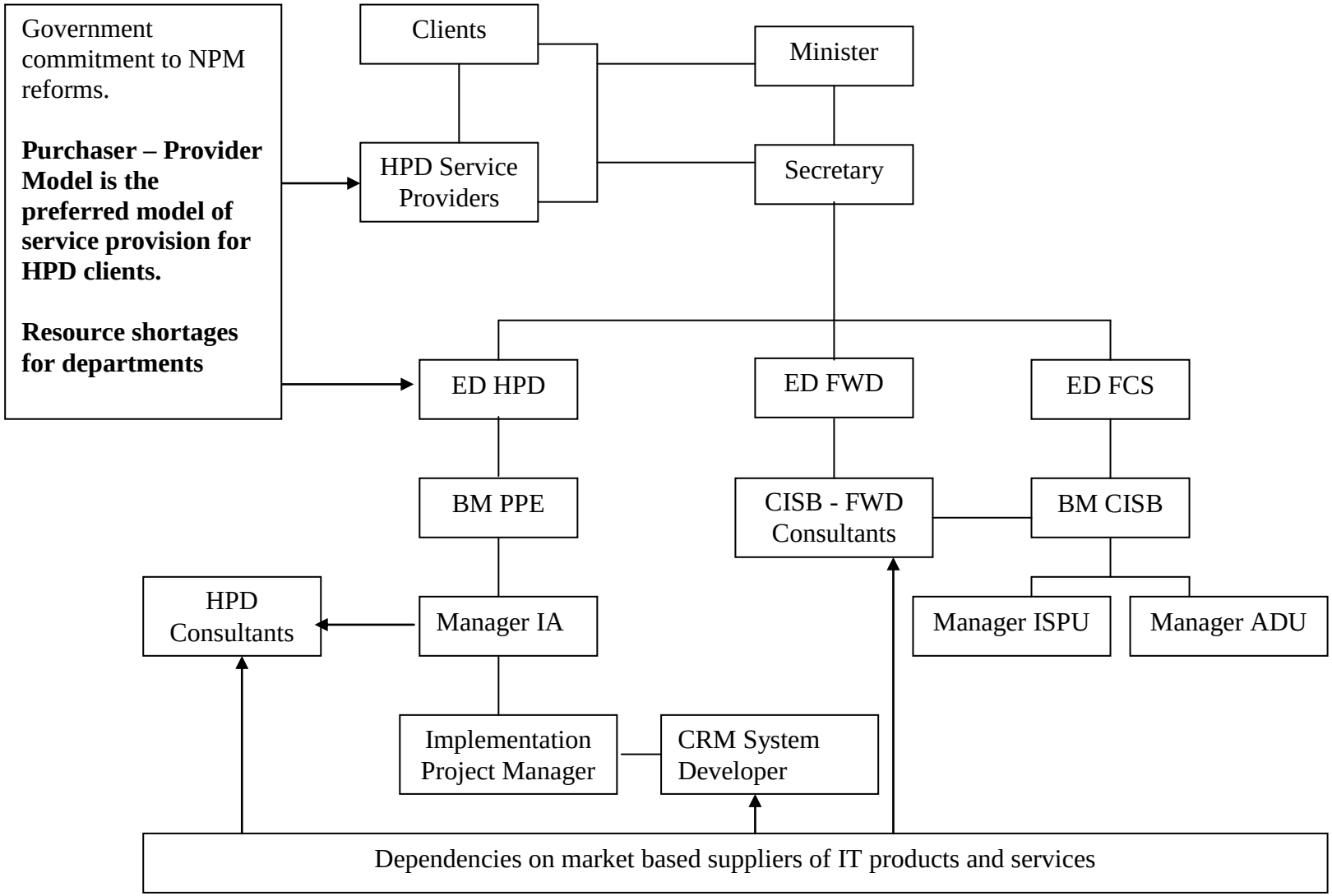


Figure 9.6 Structural Relations in the HPD Case Study

9.4.2 Influential ideas

This section proceeds by identifying the influential ideas in the case study and who held them. It then discusses how these ideas supported the actions of particular agents or why they held these ideas. In reviewing this case study four key ideas are evident:

- Integration of client management information and technology platforms
- Individualised funding
- New Public Management
- Online service provision

Integration

The integration concept was manifest in this case as the ideas of a seamless system for HPD, as a client management system for multi service clients for FWD and as an integrated technology platform for CISB. The idea of a seamless systems environment, another form of the idea of integration, emerged prior to the development of the IS plan for HPD. The idea expressed a strong desire, especially in the word 'seamless' and the phrase 'invisible interfaces', for a solution to the intense need for a range of coordinating information that simply could not be provided in a coherent fashion because of the numerous entities involved in the service system, the lack of commonly used definitions and the complex nature of client needs and service offerings that were often not well matched. In this sense the desire for a seamless systems environment reflected a desire for a seamless service delivery system and provided the initial vision of the solution to the information fragmentation problem bedevilling HPD.

FWD faced a long-standing and difficult issue around clients who used multiple services of the department or who kept re-entering the service system for support, because the service system was designed only to cater for clients with a single well-defined problem or need and the department was structured according distinct single service functions or programs. The Problem Definition report noted that "clients with certain characteristics, such as offending behaviours or dual diagnoses of intellectual disability and psychiatric illness, can experience access problems due to program

boundaries and their status as clients whose conditions are extremely difficult to resolve" and, as a result, some clients were "falling between program boundaries and receiving inappropriate, incomplete or no assistance" (1999, p.29). The informational aspect of the multi-service problem was identified by the Problem Definition Phase report, which found that information was not organised or managed for effective support for multi-service clients:

> At the departmental level, integration of systemic information is difficult in the best scenario and not possible in the worst. Lack of common identification means, common process, and common documentary requirements has led to the divergent evolution of systems which focus upon the requirements of programs rather than holistic client management. (1999, p.38).

These findings convinced senior management of FWD that an integrated or common view of the client's engagement with the department was necessary in order that the department's overall efforts could be better managed and coordinated to provide a coherent and complete response to client needs. To do this client identification across all the programs of the department was required together with integrated client information.

FWD had two client management systems to support its functions and operations, the Client Management System (CMS) and the Client Justice System (CJS) and together with the HPDIS these systems had all been developed using the same software technology platform. A pressing issue for the CISB was the age of the underlying technology platform for these systems and the need for continual upgrades from the original supplier whose long term viability was uncertain. Guaranteeing support for this platform was increasingly costly and difficult. This led to the view that these systems needed a more up to date and integrated technology environment which could then provide information environment to address the multi-service client problem.

Customer Relationship Management (CRM) is a strategic management concept from the private sector which focuses on the "selection, acquisition, retention and extension" (Gartner Thompson and Nelson 2004, p.15) of customers and CRM software can be used to keep track of all of a company's customers and the types of

interactions they have with the company. In this case study CRM software was attractive because if clients are conceptually the same as customers from the point of view of the software, it offered the potential to establish fully integrated information on all clients of the department including the history of their interactions across all programs of the department. Hence it addressed the multi-service client management problem.

Individualised Funding

Laragy (2001, p.3) notes that individualised funding:

> Means that funds no longer go from the funder (government or its representative) to service providers, but go directly to the individual who requires assistance. Individualised funding gives control of the funds to the person so they can purchase the services they require, sometimes with the assistance of a broker or other agent. The intention is that the person will determine the services needed and their needs will shape the service system.

The idea of individualised funding was taken up by the Manager IA and used to underpin the vision of the HPD IS plan and as the basis for the design by the consultants of a system architecture to support its implementation. The idea of individualised funding was also subsequently successfully used in discussions with the Minister by the BM PPE to promote acceptance of the HPD IS plan. It would have appealed to the Minister because of its political popularity in terms of giving funds and control over choice of services to clients of here portfolio. The idea of choice for the client also resonated with NPM ideas about a greater service orientation for the public sector.

New Public Management

NPM ideas were influential in this case study (Diefenbach 2009). The 'purchaser-provider' model of service delivery represented a manifestation of NPM ideas particularly the emphasis on greater use of market based service entities to meet the social provisioning obligations of government. The customer orientation of NPM in the form of choice of service and provider for the client was manifest in the

Individualised Funding idea. NPM is also associated with the reductions in resources for government. Resource constraints were an important influence in the decision of the new ED to abandon the IF system being advocated by the Manager IA and BM PPE. This suggests a contradiction in the implications of NPM ideas applied to public sector organizations insofar as successful innovation requires resources for its development and implementation, which will be difficult to achieve in resource constrained settings.

Online Service Provision

The delivery of human services electronically, using internet based technologies, was an influential idea present inside and outside of the department at the time of the HPD IS planning consultancy. The department had launched a major Business Transformation Project (BTP) two years prior to the start of this case and one of the initiatives of the BTP project was entirely devoted to promoting "client centred care through encouraging the development of IT infrastructure to support electronic service delivery within the human services system" (Transformation Project Briefs 1998, p.60). At the same time the government, through its central agency responsible for whole of government IT policy, was continuing the Online Government 2001 program, which obliged all departments to comply with a number of additional requirements to support electronic delivery of public services.

9.4.3 Causal Mechanisms

With the relevant social structures in mind and the key influential ideas eight types of causal mechanisms can be identified in this case study:

39. Advocacy
40. Resistance
41. Fragmentation
42. Integration
43. Consultant Engagement
44. Project Control

45. Approval

46. Secretary's Intervention

47. Government Intervention

Advocacy Mechanism

The case study largely revolves around the actions of two groups of agents who were instrumental in the initiation of projects (HPD IS planning project and the Integration project) that contested the department's strategic IT agenda for the management of client information. The first group consisted of the BM PPE and Manager IA of HPD while the second group consisted of senior managers and executive directors of the CISB and FWD. Each group can be understood as organisational advocates and their actions and the results of these actions as evidence of the effects of advocacy mechanisms.

Advocacy mechanisms have been described in the analysis for the first two cases. Such mechanisms originate in the agency of individuals and groups located within the social structure of the organisation. In this case the advocacy mechanism originated largely from the middle level of management. Advocates at the middle management level in organisations can "alter the firms strategic course by providing top management with unique interpretations of emerging issues and by proposing new initiatives" (Floyd and Wooldridge 1997, p.466). However advocates must "assemble a sufficiently powerful coalition to ensure that the manager's preferred policies will be authoritatively endorsed" (Moore 1995, p.151). Such coalitions must include members who are "not only in the higher echelons of the administrative organizations, but also on the political level of these public organizations" (Sundin and Tillmar 2008, p.123). Building coalitions of support depends on establishing legitimacy in the eyes of influential stakeholders. Legitimacy can be developed in a number of ways including having direct authority, setting the agenda (Fligstein 1997), using quantification and measurement of results (Colomy 1998; Dejean et al. 2007) and linking to emergent issues in the macro level discourse of the organization's environment (Lawrence and Phillips, 2004). However some contingent conditions of an organization's environment may be "more enabling than others" (Sundin and Tillmar 2008, p.16) and advocates may also be biased about the limitations of their

initiatives and overlook the possibility of resistance. Moore (1995, p.111) notes "Aggressive advocates may succeed in advancing their purposes, but they run the risk of failing to learn" and they may also antagonize opponents (Moore 1995, p.158). The CISB – FWD coalition were motivated to resist the HPD initiative and sought to escalate the issue of the department's CRM technology platform to the departmental executive but were not successful. Moore (1995, p.117) notes this particular tactic by advocates where "a crisis can be created to generate pressures for cooperation and place the matter higher on the remote superior's agenda".

Resistance Mechanism

Resistance to the HPD IS Plan was evident from two quarters, the FWD-CISB coalition and the new ED of HPD. From initial cooperation the FWD-CISB coalition turned to resisting the HPD initiative. The FWD-CISB coalition used the second group of consultants to argue against the HPD initiative and escalated the issue to the departmental Executive. This can be seen as the action of a resistance mechanism. This power to resist originates in the structural location of the relevant actors who in this case were the corporate area responsible for the department's technology infrastructure.

The second ED did not support the implementation of the HPD IS plan so he did not advocate the project to the new Minister or allocate divisional funding. This disengagement from the whole HPD IS planning project might have been due to the fact that the Manager IA would not allow the consultants to engage widely with HPD stakeholders including the new ED who was at that point the Assistant ED. Early engagement with him may have reduced this disinterest but his refusal to approve resources from within his own division for the implementation of the HPD IS plan can be seen as the action of a resistance mechanism.

The source of the powers of the ED is their personal agency coupled with the position they hold within the departmental hierarchy. But the refusal of the ED to approve resources also has to be seen as the effect of the context of public sector resource constraints. The problem of resourcing in the public sector and the tendency this has to make managers look for other sources of resources outside their specific organizational domain may alter the way strategy development is viewed. Llewellyn

and Tappin (2003, p.976) argue that strategy may become a way of obtaining resources, particularly funding, rather than a way of legitimizing organizational initiatives hence, instead of 'strategy driving funding' funding drives strategy (2003, p.277). Llewellyn and Tappin (2003, p.977) suggest that for senior managers this means "the ability to attract external funds" is "a defining criterion for successful management across the whole of the public sector" (p.977). The ED of HPD found that his client information management problem could be solved by an initiative being resourced mainly by CISB and FWD rather than using the resources of his own division.

Fragmentation Mechanism

HPD's reliance on a large number of service delivery entities generated an information fragmentation problem. There were also different information systems in these entities as well as within the department's regional offices, which were used to manage information associated with the delivery of HPD's services to handicapped clients. A similar fragmentation mechanism was at work in relation to the information associated with clients using multiple services in relation to FWD and the historical development of separate or silo based information systems in relation to CISB.

Integration Mechanism

The projects to realise HPD's goal of integrated service provision for HPD clients ("seamless system"), FWD's need for an integrated client management capability and CISB's desire for a single technology platform to service both division's client management information systems can be seen as evidence of an integration mechanism. The integration mechanism can be seen as a response to or triggered by the fragmentation of information and information systems resulting from the effects of a distributed service delivery system in the case of HPD, clients using multiple services in relation to FWD and the historical development of separate or silo based information systems in relation to CISB.

The integration mechanism works by bringing about commonality rather than diversity of approach and practice within or across the different functional domains of the organisation. For HPD the objective was service system integration, for FWD

integration of the functionally separate internal client service programs and for CISB technological integration. The source of this mechanism was in the agency of the respective advocates in HPD, FWD and CISB coupled with their different levels of influence within the departmental hierarchy.

Consultant Engagement Mechanisms

SISP consultants engage stakeholders in a process involving the analysis of the current organisational situation and the development of a rationale for change either in response to pressing problems or in pursuit of opportunities for organisational advancement. In the second case study of this thesis the causal mechanism associated with consultants was described as an engagement mechanism to encompass two different effects, resistance or agreement to change. For some stakeholders the engagement process is a challenge (Moren and Blom 2003) particularly when consultants argue against prevailing beliefs of stakeholders or are able to show evidence of poor results from existing working arrangements of the organisation. This challenge mode of the engagement mechanism may activate the resistance mechanism from those responsible for the relevant organisational functions (Sturdy 1997, p.397). For other stakeholders the engagement process is helpful because it may provide fresh perspectives and new approaches that are seen to be relevant and effective in resolving current issues and problems. This consensus mode of the engagement mechanism may lead to agreement to the proposals for change from the consultants.

The engagement mechanism originates in the agency of consultants and their role as independent sources of expertise on organisational issues. Consultants are a source of ideas that can provide strong reasons for change in the client organization and they may have great organizational impact where they are in contact with senior decision makers. Their capabilities in this regard stem from the possession of expert knowledge as specialists in particular fields and the experience they accumulate through exposure to a wide range of organizational settings and associated problems. On the basis of their independence and their specialist expertise they gain legitimacy in the eyes of stakeholders and are thus able to challenge entrenched positions providing strong reasons for change. The organizational context for SISP consultancy is however likely to be political (Bloomfield and Danieli 1995, p.25; Sturdy 1997,

p.391). Thus the perceived independence of consultants is important for dealing with the problem of internal organizational politics (Bloomfield and Danieli 1995, p.25). The powers of consultant are also vulnerable to the constraints placed upon them by the clients who hire them (Sturdy 1997, p.397) which can be seen as the action of the project control mechanism.

The first group of consultants, working for the Manager IA, proposed a new business model of HPD as the basis for the development of a supporting IT strategic plan but this constituted a challenge to the Manager IA who wanted a different model more strongly focussed on IF. Using her structural power she forced the consultants to develop a strategic IS plan that aligned with her purposes and in doing so constrained the range of stakeholders the consultants were allowed to consult with. This limited the range of people with whom the consultant's could generate agreement with to her model. Hence the consensus mode of the engagement mechanism was restricted. The second group of consultants, working for senior management in CISB and FWD, used the idea of common technology platforms and integrated client management information to argue that the HPD initiative would limit the department's strategic options in the future. This showed the challenge mode of the engagement mechanism.

Project Control Mechanism

The Manager IA rejected the consultant's proposed business model for HPD and insisted that they produce a systems architecture to support the concept of Individualised Funding (IF). This response can be seen as the action of a project control mechanism originating in the agency of the Manager IA and her role as manager of the consultancy project. The Manager IA was the project manager for the HPD IS planning consultancy project. The power of the Manager IA to control the outputs of the consultancy originated in her deep knowledge of HPD IS requirements, organisational authority from her role as Manager IA and a contractual relationship with the consulting firm such that refusal to comply with the Manager could constitute grounds for termination of the contract and non payment.

In the prescriptive project management literature project managers are considered responsible for controlling and directing the project team (PRINCE2 Manual). In this regard project managers have considerable powers to control and direct the activities

of project team members to ensure projects do not fail. Clegg and Courpasson (2004, p.528) comment "the project leader, assessed on a capacity to lead a team towards success, has a certain power over other team members". Control of consultants is also one of the 'critical incidents' Kaulio (2008, p.343) studied and "how to manage and monitor consultants doing major work packages in the project; … indicates that consultants today are a normal part of projects, and that the project leader must devote time to managing this specific relationship" (p.343-344).

SISP projects, involve processes of consultation with relevant organisational stakeholders to determine the need for information systems and to engender consensus to consultant proposals. However the ability of a consultancy project to deliver strategic benefits can be impaired by too much control. Artto et.al. (2008) note that much project management literature assumes a dominating 'parent' or host organisation for the project. This means "there is not much freedom for the project to derive the project's goals autonomously or to use other mechanisms for strategy creation than the one dictated by … or strongly constrained by one strong stakeholder … whose interests the project must continuously follow" (2008, p.6). Moore (1995) uses the concept of a "latent constituency" (1995, p.116, p.133) in one of his case studies about a government official in which "a potentially important opportunity was lost because of his failure to engage … a latent constituency … that would have agreed with his reasons" (1995, p.146) for a particular initiative that was blocked. Such constituencies can be "activated". This is relevant to the Manager IA's refusal to allow the consultants to engage more widely with the "latent constituency" of stakeholders including the person who was to become the ED of HPD. Engagement with the Assistant ED, as latent constituent, may have engendered his support, as a latent causal mechanism, of the HPD implementation project when he became ED.

Minister's Approval Mechanism

The proposal to deal with the information management problem through an integrated system that would result from a formal strategic planning consultancy was well received by the Minister and this triggered a favourable response to the request for funding for the consultancy. Subsequently, following the development of the HPD IS plan, the concept of IF was strongly endorsed by the Minister. This led to the establishment of the HPD Implementation Project and funding for the associated

resources. Both these instances of Ministerial approval can be seen as the action of an approval mechanism originating in the agency and role of the Minister.

The source of the powers of the Minister is their personal agency coupled with the position they hold as a member of the government. The Ministerial role is the most powerful of all positions in the government bureaucracy and the powers of this role are exercised through the control of public sector organizations including the ability to grant critical resourcing especially to initiatives that offer to resolve strategic problems in the Minister's portfolio or enhance the political image of the Minister and the Government. The position of the Minister is vulnerable however to political crises resulting from adverse events in the public sector organizations for which they are responsible.

Secretary's Intervention Mechanism

The Secretary intervened to prevent the departmental Executive blocking the implementation of the HPD IS plan as a result of the recommendations of the second group of consultants. What triggered the intervention is not clear from the interviews for this case study but what is clear is that she did not accept the case made by the consultants to halt the HPD implementation project. Her intervention caused the consultant's to change their recommendation. It is possible that she was aware of the Ministerial support for the IF idea and believed that it should be given the opportunity to be realised in some form to test its viability. This can be seen as the effects of an intervention mechanism originating in the agency of the Secretary and the powers of the Secretary's role as head of the department.

Government Intervention Mechanism

The Premier as head of Government has the power to change the allocation of portfolios to cabinet Ministers. In this case the Minister was moved to a new portfolio when the political crisis surrounding her handling of the 'glue sniffing' incident became politically damaging for the government. For the BM PPE and the Manager IA this represented the loss of their most powerful supporter and arguably the most significant factor in the demise of their project. This was a contingent event unrelated to the reasons for the project's initiation. A summary of the mechanisms identified in

this case study is provided in Figure 9.7 Supportive and Unsupportive Causal Mechanisms.

The Appendix to this thesis (Agential Groups, Mechanisms, Interaction and Events) summarises the sequence of events, the causal mechanisms that led to these events and the originating social objects for the mechanisms for this case study. The next section provides the conclusion to this case study by explaining the outcomes in terms of the contingent interaction of causal mechanisms.

SUPPORTIVE MECHANISMS

Advocacy
- Initiation of HPD IF project by BM PPE and Manager IA.
- Initiate separate approach from the Integration project

Minister's Approval
- Approves funding for HPD SISP project
- Endorses the IF SIS Plan for HPD

Engagement Mechanism (HPD consultants)
- HPD SISP consultants engage with Manager IA
- Mechanism constrained by Manager IA

Project Control
- Manager IA rejects initial HPD SISP consultant system architecture and reorientates to focus on IF

Integration
- Manager IA promotes idea of 'seamless system" for service system for disabled clients
- HPD consultants recommend CRM software as technology basis for integrated client management for IF vision

Secretary's Intervention
- Prevented the Board terminating the HPD IF initiative

UNSUPPORTIVE MECHANISMS

Advocacy
- CITB and FWD initiate Integration project
- CISB and FWD initiate second consultancy

Fragmentation
- Distributed service delivery system of semi autonomous service delivery entities creates a fragmented information systems environment.

Project Control
- Manager IA prevents HPD SISP consultants from engaging with all stakeholders

Integration
- BT project identifies emergent need for coherent response to client needs across multiple divisions providing client support
- CITB argue for a single replacement environment for older client support systems

Engagement Mechanism (Integration Project)
- Integration consultants persuade the Executive to terminate HPD initiative but Secretary overrides this position.
- HPD BM PPE is lobbied.

Resistance
- CITB and FWD consultants counter HPD IF initiative to build an independent CRM system
- HPD BM PPE is lobbied.
- Issue of which CRM approach will be the departmental platform raised to Board level who agree to termination of HPD initiative
- New ED of HPD refuses to support HPD IF initiative

Government Intervention
- Minister moved to another portfolio

Figure 9.7 Supportive and Unsupportive Causal Mechanisms

9.5 Conclusion - Explaining Outcomes

Organisational conditions, stemming from the structural relationships involved in the implementation of the purchaser – provider model of service provision created a complex client – service delivery model, which in turn led to the need for many types of coordinating information and a significant information management problem for the department in relation to the provision of services to handicapped persons. This activated the advocacy powers of the Manager IA and her Branch Manager PPE in HPD to initiate a project around the idea of a "seamless information processing system" that would provide consistent and reliable information for the different requirements of clients, providers and departmental managers in the service system.

Individualised funding allowed for the provision of funds direct to the client rather than through an intermediary. The idea of individualised funding to clients of HPD had been investigated by HPD in the period prior to the initiation of the planning consultancy but during the initiation phase the Manager IA took up the idea as her vision for the "seamless" system. Administratively the idea suggested the potential for greater control over payments to clients than the current intermediate model involving service provider entities. The idea fitted well with the imperative to respond to client needs and was politically attractive for its emphasis on choice for the consumer of HPD services. When the proposal to develop a plan, for a system to respond to the information management problem in the service system, which would support IF, was presented to the Minister it triggered immediate approval and she granted funding for the consultancy. At the same time the BTP was promoting the use of the Internet for online service provision which provided a precedent idea for the delivery of IF using internet based technologies. Thus the idea of IF was administratively, managerially and politically desirable and its realisation technologically feasible.

Once the HPD IS planning consultancy got underway the consultants tried to respond to the original information management problem of the HPD service delivery system with a broadly based business model for the division but this triggered a dominating response from the Manager IA, because their model was not primarily about the delivery of IF. She forced the consultants to design a systems architecture for the implementation of IF and restricted their consultative process showing how the

engagement mechanism was countered by the project control mechanism. An important consequence of this constraint on the consultants, was no engagement with the future ED of HPD so that a positive disposition to the vision of the plan was not engendered with this latent constituency and the potential for resistance was not addressed. Nevertheless the consultants delivered a plan to their client's requirements and because it was consistent with politically attractive ideas about client choice the Minister once again provided endorsement to the vision it embodied.

The second group of advocates in the case study established the Integration project, which was a response to two different organizational conditions. The first, was FWD's need for an effective response to the problem of ensuring clients of multiple program services could receive a coherent and consistent response from the department's separate programs and the second, CISB's need to deal with the aging technology platform of the existing client management systems in FWD and HPD. These different needs of CISB and FWD were mutually supportive once it became clear that a 'state of the art' technological solution (CRM) could address them simultaneously, which was the same technology recommended by the HPD SISP consultants. Initially the idea of an integrated approach to the management of client information brought together HPD, CISB and FWD in a temporary alignment of different advocacy mechanisms resulting from a confluence of integration ideas about client management information and a common, up to date technology solution that would enable their joint realization.

However when it became apparent that the CISB-FWD project would not be able to deliver the client management solution quickly the Manager IA and the BM PPE declared they would develop their own system using the CRM software. This declaration of independence triggered the initiation of a consultancy by the CISB-FWD coalition in a bid to create independent grounds for an Executive level decision on what the appropriate strategic client information management technology platform should be and who should develop it. The consultancy was a tactical manoeuvre by CISB-FWD to move the decision to a higher decision making forum that would be able to compel compliance by HPD.

The consultants mounted a strong challenge to the BM PPE arguing that the HPD initiative should be halted because it might harm the departmental interest in terms of

the willingness of the market to respond favourably to a future tender by the CISB – FWD coalition. Surprisingly, for reasons not fully determined but possibly to do with the Minister's support for IF, the Secretary prevented her own Executive from approving the consultant's recommendation to halt the HPD initiative. In terms of causal mechanisms the Secretary's intervention mechanism neutralised the challenge to the HPD initiative arising from the engagement mechanism of the second group of consultants.

However the HPD Minister's vulnerability to political crisis led to the HPD project losing the Ministerial approval mechanism at the crucial moment when this was necessary for the contract to engage the CRM system developer. At the same time a new ED was appointed to HPD. He had previously been a member of the HPD executive but had not been engaged with during the development of the HPD IS plan. For the new ED, limited divisional funding was a more pressing issue than the realisation of the IF vision so he resisted the advocacy of the BM PPE for the HPD IS Plan agreeing instead to support the CISB – FWD Integration project, which represented a resource saving for him.

The case can be taken to illustrate the problem of strong advocates 'failing to learn' (Moore 1995) because the Manager IA restricted the consultant engagement mechanism, which might have revealed not only the potential for resistance from the future ED of HPD but also provided an opportunity to build wider consensus about the IT enabled vision of the IF idea amongst other 'latent political constituencies' (Moore 1995, p.116, p.133) within the department. In terms of the outcomes of organizational attempts at SISP the case study shows how one group of advocates secured strong alignment between a business imperative (Individualised Funding for clients) and an IS strategy, which is consistent with prescriptive SISP theory. But they could not sustain this condition as a result of the rise of a viable and increasingly more broadly supported alternative IS strategy that met the business imperatives of a second group of organisational advocates, the Minister's political demise and the indifference to their advocacy by the new ED of HPD. Thus the configuration of what Moore (1995, p.119) calls the 'authorizing environment' changed for the HPD advocates, suggesting that alignment is only a temporary state of affairs vulnerable to the ever present potential of unsupportive causal mechanisms to emerge, in the form

of other powerful organisational groups initiating new courses of action, that are injurious to earlier initiatives.

Chapter Ten
Comparative Analysis of Case Studies and Implications for SISP in the Public Sector

10.1 Introduction

The three objectives of this chapter are to:

(xi) Conduct a comparative analysis of the case studies in order to corroborate the existence of posited structures and mechanisms prevalent in individual cases presented in chapters 6 to 9.

(xii) Identify key implications for SISP in the public sector on the basis of the theorised causal mechanisms from (i).

(xiii) On the basis of (i) and (ii) develop the full explanatory framework or realist theory for the outcomes of SISP projects in government departments.

The comparative analysis for this chapter is based on Bergene's (2007) CR informed comparative method (2007), which was also discussed in the methodology chapter. Bergene's method involves an external structural analysis of all cases, an internal analysis of each case, a combined comparative analysis of structures and mechanisms, across all cases, to establish and refine their theorisation and then identification of the contingent manifestations of the theorised structures and mechanisms. It should be noted that most of the internal analysis of the case studies was carried out at the end of each case study chapter so only the external analysis and cross case comparison steps will be described in this chapter. The additional step taken in this chapter is to theorise the implications of the mechanisms for the practice of SISP in the public sector. In this way the mechanisms constitute individual findings of the thesis, which together with the identified structures make a significant contribution to new knowledge about SISP in the public sector. The component analytical tasks of the comparative methodology are summarised in Table 10.1 A Realist Comparative Methodology.

Step	Focus	Analytical Task
1	External Analysis.	Describe the larger structural context of the cases and key influential ideas.
2	Internal structural analysis across cases.	Delineate common and unique structures and compare how they were manifest in different cases.
3	Comparative analysis of mechanisms evident in individual case studies.	Delineate common and unique mechanisms and compare how they were manifest in different cases.
4	Contingent conditions triggering mechanisms.	Describe the contingent conditions of the cases.
5	Implications of causal mechanisms for SISP projects in public sector organisations.	Detailed description and retroduction of causal mechanisms, support in the literature and indicating the implications for SISP in public sector organisations of the theorised causal mechanisms.

Table 10.1 A Realist Comparative Methodology (After Bergene 2007)

The comparative analysis is then used to develop the explanatory framework or the realist theory of SISP to achieve the third objective of this chapter and represents the primary contribution to knowledge of this thesis. The explanatory framework is based on the work of Sayer (1992, p.109) and Danermark, Ekstrom, Liselott and Karlsson (2002, p.111) and was discussed in the methodology chapter. The explanatory framework draws together the initial realist conceptualisation from chapter five, the corroborated structures, causal mechanisms and ideational elements from the comparative analysis, the analysis of contingent conditions and the empirically observed outcomes from the case studies, to provide the realist theory that explains the observed outcomes. Figure 10.1 Realist Explanatory Framework illustrates the components of this framework.

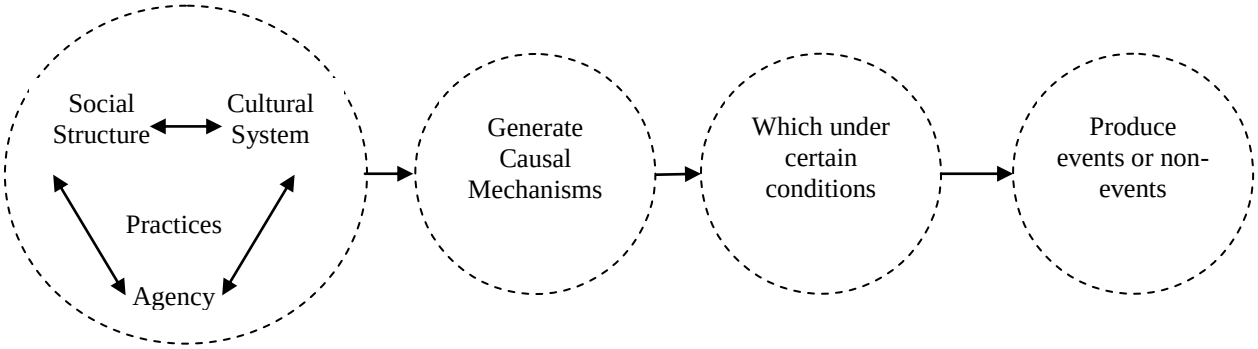


Figure 10.1 Realist Explanatory Framework

(After Sayer (1992, p. 109) and Danermark et al (2002, p.111))

10.2 Step 1 – External Structural Analysis

The case studies took place within large government departments, which operate within a government policy framework, representing the government's response to electoral commitments, the public interest and service provision obligations. Five important structural relationships that werer identified from the four case studies in the public sector are discussed below.

Government and Community

Governments and the community are structurally related. Governments are elected by the community on certain policy commitments and, under existing acts, laws and legislation, they are obliged to meet a range of community needs. Correspondingly, the community is in a dependent relationship with government for the provision of public goods, services and infrastructure.

Government to Department

Departments are perhaps the major instruments of government for the implementation of programs for the delivery of services to the community. Government power, legitimated through the constitution and elections, enables control of resources for the administration of the state such as departments. This is both constraining and enabling for departments since the government can authorise departmental programs and provide resources to enact them but can intervene to change policy.

Central Agencies to Department

One way governments intervene is through the use of central agencies. Central agencies such as the Treasury department and the Office of the Chief Information Officer (OCIO) are instruments of government with responsibility for whole of government policy frameworks and strategies, which may, for example, seek whole of government improvements in efficiency and effectiveness. These frameworks and strategies can tend to constrain the autonomy of departments. On the power of central agencies Moore (1995, p.119) comments: "Overhead agencies such as … budget agencies … exercise enormous control over an organization's purposes by determining the allocation of fiscal and human resources to the organization's varied tasks. Public managers are generally legally obligated to follow the rules promulgated by these agencies."

Dependency on Service Delivery Agencies

As well as departments the government also relies upon a range of entities with varying degrees of organisational autonomy for service delivery. These include small to large non government organisations that receive varying amounts of government funding in return for providing various kinds of social services to the community. Other entities in this category include state schools, hospitals and local authorities. In order to receive government funding however these agencies must enter into formal agreements for service delivery with departments although the agreements do not necessarily allow direct control of their activities. Managing a large set of semi-autonomous entities, which may also be geographically dispersed can be challenging for departments, because they are responsible for ensuring the service system of semi-autonomous service providers functions effectively and to required standards of service provision quality and availability.

Dependency on Market Based Entities

All government departments have established contracts with various market entities for services and products related to information technology and information systems. These include IT consulting firms, software developers and contractors, IT hosting firms and hardware and software vendors. Department's have outsourced significant areas of their IT operations and assets and have increasingly employed significant

numbers of IT contractors in preference to appointing full time permanent staff members. This has been partly a response to funding and position restrictions from the Treasury in line with the NPM agenda but also in response to the policies of the OCIO, which have advocated outsourcing as a cost effective way of providing IT services to departments. This has led to a significant market dependency by departments for IT services and products especially as in-house resources have diminished. A feature of the market for ICT products and services is the high rate of change in information technologies, which drives and is driven by competitive actions in the commercial sector. This leads to scarcity in the market place and escalation in the costs of the relevant products and services, which may be prohibitively high for public sector organisations to acquire. The five external structural relationships of the larger context of the case study departments are illustrated in Figure 10.2 Structural Context of Government Departments.

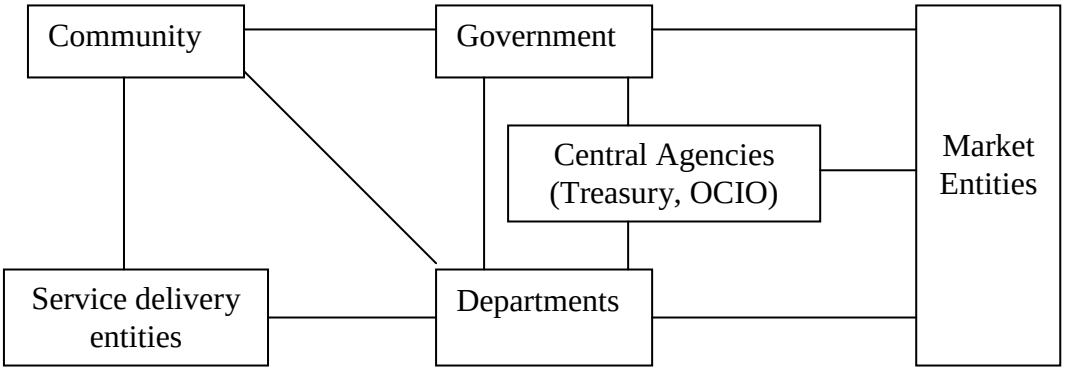


Figure 10.2 Structural Context of Government Departments

Influential Ideas

The Treasury has been the main instrument for the implementation of the Government's commitment to key ideas emanating from the NPM discourse (Diefenbach 2009) particularly a preference for market based provision of public services and an emphasis on controlling and where possible reducing the cost of public services and the expansion of the public sector. A consequence of the government's commitment to the NPM agenda was severe resource constraints on departments who were also required to satisfy stringent criteria in terms of output

measurements to the Treasury department in order to obtain annual funding allocations for their operations.

Aspects of the NPM discourse influenced actor's thinking in all cases. An important principle of NPM thinking has been structural reform of the public sector including the reduction in size or 'downsizing' of government organisations, privatisation and quasi-privatisation of public sector functions (Hood 1991, Meier and Hill 2005, p.55), implementation of purchaser-provider models and changes to organisational forms such as efforts to decentralise or centralise political and administrative functions and processes (Pollitt 2005, p.381). Lapsley notes that "this thinking implies that the 'right' structure is essential for NPM to flourish" (2008, p.82) and for policymakers structural reform is "the policy of first resort" (2008, p.83). Structural changes were made to departments in two of the case studies. The greatest impact of structural change was in case two with the Government intervention to reduce the administrative staff numbers by 25% during the SISP project. In case three the Secretary restructured the department and abolished the position of CKO. Structural reform effects were also implied by the idea of 'joined up' or integrated government evident in the Attorney General's One Justice statement. The idea of choice, manifest in the policy proposal for IF, for consumers of HPD disability services in case four resonated with NPM ideas about a greater service orientation for the public sector.

The importance of achieving clear results in NPM leads to a preoccupation with establishing clear measurements of business benefits (Noordegraaf and Abma (2003). In case one the CSSP implied there would be staff savings (efficiency of information management) and the consultants used a 'business case' instrument to show the investment returns would be greater than the costs of implementation. In fact no such staff savings were achieved. In case three the absence of visible and verifiable business benefits led to its demise at the hands of a Secretary focussed on efficiency. The adoption of the portfolio management approach in case two and three, to assess the relative business value contributions of competing IT project proposals, reflects the influence of business investment management approaches which have also been advocated as appropriate for the public sector in the NPM discourse.

The OCIO has been the central agency for promoting the vision of organisational transformation through IT including the idea of online government services using

Internet technologies. This finding is similar to the point made by Willcocks, Currie and Jackson (1997) in relation to the perceived benefits of major organisational reengineering projects. A major whole of organisation IT based transformation project was undertaken in the department where the first and fourth case studies were undertaken, just prior to the commencement of the research for this thesis. All cases showed that actors were influenced by the discourses of organisational transformation through IT illustrating what Chiappello and Fairclough (2002, p.195) term a discursive imaginary. The IT transformation discourse was evident in the second case with the second Secretary's enthusiastic endorsement of the concept of e-Learning. The internet was a key element in the fourth case study SISP project which proposed a system that would allow handicapped clients to choose services from providers via a CRM technology that could enable the IF policy agenda. The development of strategic IS plans can also be seen as a major means by which the discourse of IT transformation is realised.

Traditionally the public sector has been characterised by separate departments responsible for particular policy areas and within departments separate functions or programs as evident in all four case studies. From a service provision perspective this creates a difficulty for clients in terms of finding and obtaining a coherent and complete service response. From an information systems perspective it has led to independent systems that are incompatible and create challenges for management seeking consistent and complete reporting information. Hence the third influential idea in relation to the public service organisations studied in this thesis has been integration in relation to both organisation and information systems. The integration discourse has been manifest in NPM catch phrase of 'joined up government', 'one stop shops' for government services provided online using the internet and, in the IT literature, as enterprise application architectures that integrate applications and IT infrastructure services. The IT integration discourse manifested itself in the idea of integrated systems in case one with EAI technology, the Integrated Courts Management System in case three and integrated management of client information using CRM technology in case four. This evidence supports the points made by Martin (2005).

10.3 Step 2 – Common Internal Structures

The organisational structure that was common to all case study departments was the traditional bureaucracy. Bureaucracies are characterised by a hierarchy of structurally related positions with associated roles or position specifications where higher positions have greater levels of official authority than positions below them. Another common characteristic of the hierarchical structure of the case study departments is the existence of subunits. Thus each department is headed by a Secretary with a number of Executive Directors as direct reports. Each Executive Director heads a division within which are a number of branches headed by Directors. Within branches are sections with Managers in charge in each case. The general hierarchical bureaucratic structure common to all departments established from the case studies is illustrated in Figure 10.3 Common Hierarchical Structure of the Case Study Departments. The figure also indicates the location of the corporate services division and within this division the corporate IT branch, which was common to the first, second and fourth case studies. In case three this model was adopted after the Secretary's restructure. Importantly the bureaucratic hierarchy of related positions allows for the formation of groups of SISP advocates who are able to initiate SISP projects.

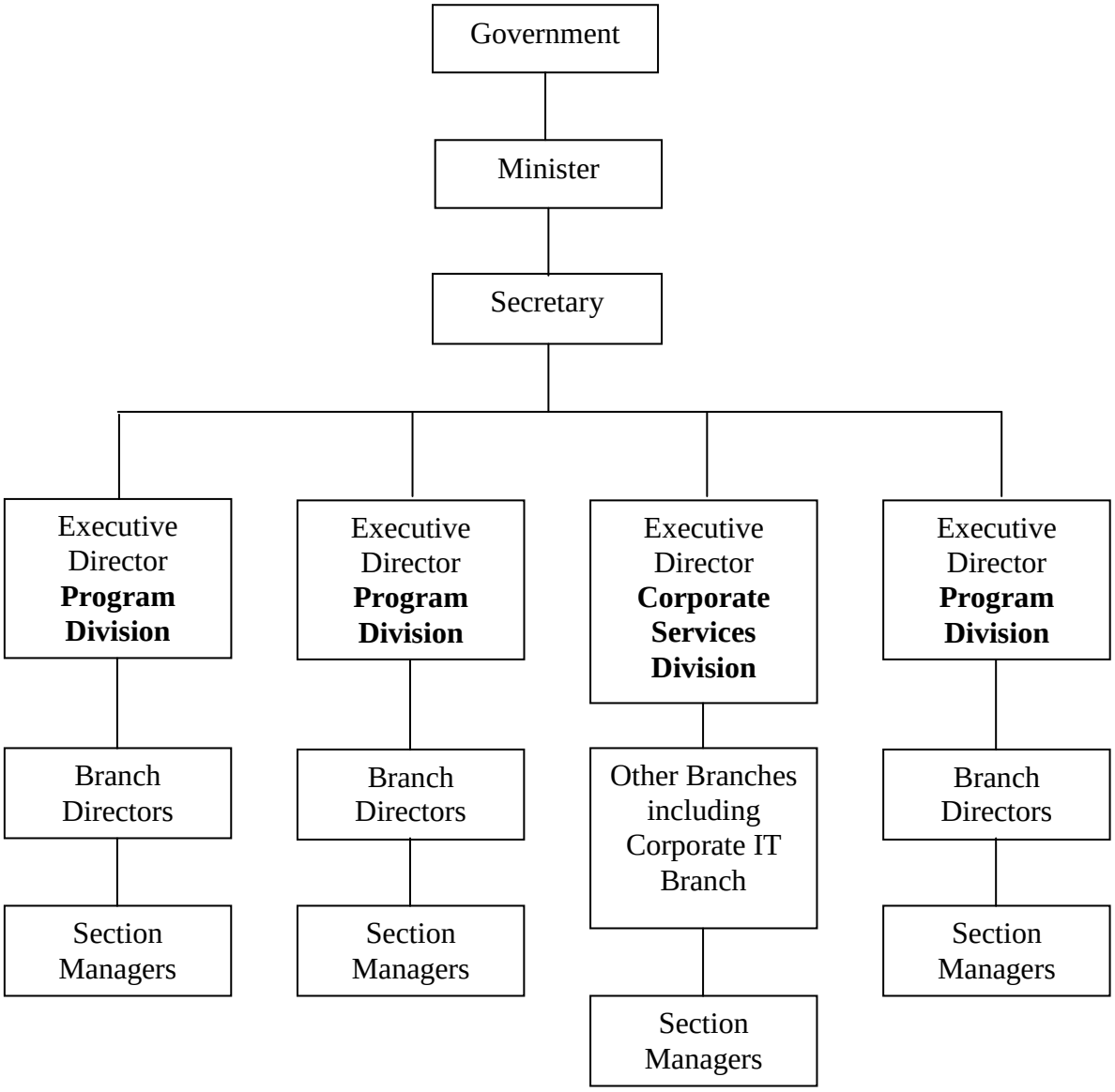


Figure 10.3 Common Hierarchical Structure of the Case Study Departments (Indicating Corporate Services Division and Corporate IT Branch within this Division)

One of the properties of bureaucracies is the ability to process large amounts of information (Fleetwood 2004, p.48), which is important given the scale of service delivery activity and the resource coordination required by these departments. All of the case study departments had major investments in information technology and information systems to support their operations through the computer based collection, processing and distribution of information. The formal responsibility for the management of the associated resources was vested in the Executive Directors of Corporate Services and the subordinate branch level Director of IT. However other

groups associated with line of business functions within the department often 'own' major business systems so that strategic management of the major information systems of a department involves a number of senior stakeholders with differing priorities. Paralleling the structural tension between business units and the corporate IT function was a similar tension which arose as a consequence of the decentralised service delivery system and the centralised management function of the departmental bureaucracy. The dispersed service delivery system with its semi-autonomous entities and the departmental entities responsible for its operational management tends to produce a fragmentation of information and systems, which is difficult to reconcile for central management reporting purposes.

Case Specific Structural Relationships

Within each case there were particular structural relationships that were important in each department in terms of the outcomes of the associated SISP project. These case specific structural relationships are summarised in Table 10.2 Key Structural Relationships of the Internal Context of the Case Study Departments.

Case	Structural Relationships
1	ED CSD and his branch Directors; Director CISB and peer relationships in CSD. Underlying structural relationship tensions between decentralised and centralised management.
2	Secretary, ED CSD and Director ITB; ED CSD and other divisional Executive Directors; Director ITB and CDSC and IT governance committees (KMC). Structural tension around relative priority of resourcing for curriculum IT versus administration and management.
3	CKO and Secretary. Structural tension between senior management actors advocating different approaches to the strategic management of IT, efficiency versus organisational learning.
4	BM PPE and Minister, Secretary to Executive, Executive Directors of CSD, FWD and Director CISB; BM PPE and ED HPD. Structural tension around the locus of control for strategic IT agenda for the department, individual business unit or the dominant alliance.

Table 10.2 Key Structural Relationships of the Internal Context of the Case Study Departments

In the first case study two important structural relations were evident. The first was between the ED CSD and his direct reports, the Directors of each of the CSD

branches, and then the peer level relationship that existed between these Directors particularly with the Director CISB and his IT Planning Manager. This peer level status gave the Directors the power to contest the approach to implementation of the IT Plan that resulted from the SISP project. The second was between the centralised management of the department via the Secretary and all Divisional Executive Directors and the decentralised service delivery structure, which used eight Districts with District Managers. This generated an underlying structural relationship tension between decentralised and centralised management.

In the second case study there were at least four important structural relationships. The first was between the original Secretary, the ED CSD and her direct report the Director ITB. Together these three actors initiated the SISP project. This relationship remained absolutely crucial for the Director ITB throughout the SISP project because the changes to the occupants of the positions of Secretary and ED CSD deprived him of major structural allies. The second important relationship was the peer level relationship that existed between the ED CSD and the other Executive Directors of the divisions in the department. The peer level status meant that they could contest the purpose and content of the SISP project at the Executive Director level. The third important relationship was between the Director ITB and his peers within the CSD. Again the peer level status meant they could contest the recommendations of the SISP project. The fourth important structural relationship was between the Director ITB and the CDSC and the department's IT governance committees. These committees had the power to withhold endorsement of the SISP project recommendations, which they in fact did and this was an important factor in the lack of higher level endorsement by the Secretary and Executive, although the Government's intervention to reduce staff numbers was a major factor in the failure of the SISP project to gain Executive approval in this case.

In the third case study two structural relationships were important. The first and most important was that between the Secretary and the CKO. The original Secretary had been strongly supportive of the KM oriented approach to the strategic management of IT but this changed on the appointment of a new Secretary. This reflected a tension between an efficiency versus organisational learning approach to the strategic management of IT in the department. The second was the peer level relationship

between the CKO and other Executive Directors of the department. The peer level status plus control of resources meant that they could institute IT projects outside of the IT Plan's approach.

In the fourth case study four structural relationships were important. The first was between the Minister and the BM PPE, which resulted the funds necessary to initiative the SISP project. The relationship was important in approving the IT Plan that resulted from the SISP project and the demise of the Minister was a significant factor in the failure to proceed to implementation. The second important structural relationship was between the Executive Directors of the CSD and FWD and the Director of the CISB. These actors formed the Integration project, which eventually opposed the HPD project. The third relationship was between the Secretary and her Executive Directors. The Secretary intervened to prevent the Executive from approving the attempt to terminate the HPD project. The fourth important structural relationship was between the BM PPE and the second ED HPD. The second ED HPD did not support the HPD project deferring instead to the proposal of the Integration project. The structural tension in this case study arose from the autonomy of divisions pursuing independent strategic IT strategies. The HPD had the ability to develop and implement a strategic IS plan for its own needs but this had constraining implications for other divisions such as the CSD and the FWD.

From this discussion it is apparent that the internal structural conditions of the case study organisations and the structural position and relationships of the SISP advocate with other agents in the structure were crucial determinants of the progress of the SISP project and the ability to achieve its objectives.

10.4 Step 3 – Cross Case Comparison of Causal Mechanisms

The causal analysis for each case study was reviewed for the particular causal mechanisms posited as providing an explanation of the SISP project outcomes. The results of this review are presented in Table 10.3 Common and Particular Mechanisms in the Cases. The table shows which mechanisms were present in each case and the total number of cases in which they were active.

Mechanism	No. Cases	C1	C2	C3	C4
Advocacy	4	✓	✓	✓	✓
Resistance	4	✓	✓	✓	✓
Fragmentation	4	✓	✓	✓	✓
Engagement	3	✓	✓		✓
Secretary Intervention	3		✓	✓	✓
Government Intervention	3		✓	✓	✓
IS Demand Management	3	✓	✓	✓	
Integration	3	✓		✓	✓
Project Control	2	✓			✓
Approval	2	✓			✓
ICT Support Demand	2		✓	✓	
Collaboration	1			✓	
Central Agency Intervention	1			✓	

Table 10.3 Common and Particular Mechanisms in the Cases

An inspection of Table 10.3 shows that thirteen different mechanisms were identified as active across the four case studies. Three of these mechanisms occur in all four case studies (Advocacy, Resistance, Fragmentation), five mechanisms occur in three case studies (Engagement, Secretary Intervention, Government Intervention, IS Demand Management, Integration), three mechanisms occur in two case studies (Approval, ICT Support Demand, Project Control), while the remaining two mechanisms occur in only one of the case studies (Collaboration, Central Agency Intervention). On this basis a tentative conclusion is made at this stage to the effect that eleven of the mechanisms were evident in more than one case study, which provides corroboration for their existence in other settings. The remaining two mechanisms, whose effects were evident in only in one case study, may have been present in the other case study setting but inactivated. The grounds for arguing this point are:

- The OCIO central agency is a source of a potential intervention mechanism for any of the case study departments even though its direct effects were only manifest in case three. An OCIO representative was present at CDSC meetings of the SISP Project in case study two for example but did not intervene.

- The collaboration mechanism was evident in case three because the CoP initiative facilitated its activation. There was no such initiative underway in the other cases but the potential for collaborative effects in organisations such as government departments exists.

A brief comparative summary of the mechanisms across the four case studies follows to explicate Table 10.3. A more detailed description of each causal mechanism is provided in section 10.6 Causal Mechanisms and Implications for SISP in the Public Sector.

It is clear that an advocacy mechanism was active in all cases. In case study one the ED Corporate Services, the Director ITB and the Manager ISPU were the SISP advocate. The CKO was clearly the KM advocate in case study three and the Director ITB was the main advocate in case study two for the SISP project. The Director PPE and the Manager IA were the SISP advocates in case study four.

The resistance mechanism was also manifest in every case. In case study one the recommendations of the SISP project and the attempt to implement them were resisted by peers of the Director CISB and by District Managers. Hence the engagement mechanism did not generate consensus in this case study. In case study two the Director ITB encountered resistance to the SISP project recommendations from the reference and IT governance committees, his peers in CSD, the head of the Schools division and the second ED CSD and the Executive of the department. In case study three the CKO described resistance to the recommendations of the IT Plan and the CoP initiative from Divisions and the Secretary. In case study four the BM PPE and the Manager IA experienced resistance from the alliance between the CISB and FWD and eventually the new ED HPD.

The engagement mechanism was manifest in the first, second and fourth case studies. It does not appear in the third case study because consultants were not involved. In the first case study the consultants integrated architecture recommendation was a challenge to both the peers of the Director of CISB and the District Managers with their local shadow systems. It was also clear that during the attempt to implement the CSSP the lack of consensus amongst peers of the Director CISB became apparent suggesting the engagement mechanism failed to have the effect of creating agreement

amongst stakeholders. In the second case study the consultants proposed Enterprise Value Framework was a challenge for members of the CDSC and the IT Governance committees. In the fourth case study the first group of consultants challenged the centrality of the idea of IF in relation to HPD's information needs and the second group of consultants challenged the independent direction being taken by HPD in relation to a CRM application. In case study two the SISP project manager reported that the consultants had achieved consensus amongst some groups of business unit IT users for elements of the IT Plan and the Director ITB in promoting the SISP project had received a positive response from a number of school principals. Case study four can be seen as an example of the blocking of the engagement mechanism as a result of the actions of the project manager. The consultants did not have permission to engage with the full range of stakeholders, so the individual who was to become the ED HPD was not consulted with sufficiently and hence was not disposed to support the development of a CRM based system for HPD when he did in fact become the ED. This can be seen to be a failure to engage with a latent constituency (Moore 1995), which contained the power to approve or influence the progress of subsequent proposals.

The fragmentation mechanism was evident in the first, second and third case studies. Local shadow systems in Districts and in divisions were a particular issue for the SISP project in case study one. The same issue was apparent in case study two and in case study three. Case study two shows causal connections between a number of mechanisms. First the fragmentation mechanism, arising form the autonomy of business units, leading to the demand for technical support for business unit systems in turn creating demand pressure on the corporate IT branch which activated a demand management mechanism.

The relevant Secretary intervened in the SISP project in the second, third and fourth case studies. In the second case study the Secretary intervened to reorientate the SISP project to focus on educational delivery rather than the management of the department. She wanted to "cause a paradigm shift in the delivery of education" by using the project to promote the concept and technology associated with e-Learning. In the third case study the Secretary intervened in the implementation of the IT Plan. She reversed the previous Secretary's approach to the strategic management of IT and

the KM approach by centralising IT resources and abolishing both the CKO position and the CoP initiative. In the fourth case study the Secretary intervened to prevent her own Executive from approving the termination of the HPD SISP initiative.

The Project Control mechanism was in evidence in the first and fourth case studies. In the first case study the SISP advocate, Manager ISPU implemented controls over the implementation stage of the SISP project and in the fourth case study the SISP project advocate, Manager IA, reorientated the SISP consultancy to focus on IF rather than on an architecture to address the general information management issue identified in the HPD service delivery system just prior to the consultancy.

The Government Intervention mechanism was evident in case study two and three. It was most dramatically illustrated in case study two with the appointment of two successive Secretaries and a major reduction in departmental administrative staff by 25%. In case study three the Government imposed new functions on the department, which had implications that had not been anticipated in the IT Plan and without additional resources being provided. This is an example of intentions being defeated by causal mechanisms originating in the external context of the department.

The Approval mechanism was activated in case study one and case study four. In case study one the Executive of the department approved the recommendations of the SISP Project and in case study four the Minister approved funding for the SISP project. But case study two and four also demonstrate where the approval mechanism was not activated. In case study two the Director ITB could not obtain approval for the recommendations of the SISP.

The IS Demand Management mechanism was activated in case study two and three and originated in the corporate IT branch. This mechanism is a response to the demands of business units (divisions and branches) for IT support from the corporate IT branch. The mechanisms takes the form of specific measures to manage demand such as service level agreements and support policies (case study two) and demand for IT support is also managed indirectly through portfolio approaches to resourcing for IT projects as recommended by SISP consultants, for example the EBV framework in case study two.

The integration mechanism was evident in case study one and four. In case study one a key recommendation of the consultants was an integrated systems architecture that would link the systems of the CSD and provide functionality to reduce the need for Districts to maintain shadow systems. This was to be achieved using EAI technology but was impeded by lack of available technical expertise. In case study four the integration mechanism was manifest as the Integration project which sought to meet all of the department's client management information needs through one technology platform (CRM) rather than having different platforms for HPD and FWD.

The third case study was unique in that it showed the working of a collaboration mechanism. This mechanism arose from an initiative to establish a Community of Practice. The initiative was a recommendation of the department's IT Plan which was supported by the original Secretary in this case study but terminated by the second Secretary.

The intervention mechanism of the OCIO, a central agency of government, was also evident in the third case study. This required the department to adopt a whole of government policy for the use of a shared data centre for departmental data that had not been anticipated in the IT Plan.

In the second case study an issue for the Director ITB was the growing demand on the corporate IT branch for systems support from business units around the department who had developed their own information systems. The support demand mechanism emerges from the conditions created by the fragmentation mechanism by which autonomous business units develop their own local systems outside of any strategic framework or systems development standards in response to their information management needs.

10.5 Step 4 – Contingent Conditions

In a CR based comparative analysis it is important to identify the contextual contingency or the contingent conditions of the cases (Sayer 1992, p.248; Bergene 2007, p.23). A number of contingent conditions were evident in the case studies some of which were case specific and some common to all. Two conditions were common to all cases, first, the varying levels of technology, system and process incompatibilities across business units. This condition had arisen partly because of

the bureaucratic structure of functionally separate organisational domains with their function specific information system needs and partly because autonomous business units could acquire resources to develop their own systems and then did so. In other words this condition arose as a result of the fragmentation mechanism but its effects constituted a contingent condition for all actors in the case studies. The second condition, common to all cases, was the general dependency in varying degrees, particularly of corporate IS areas, on the availability of information technology products and services from market based suppliers. This was relevant to the use of SISP consultants in case one, two and four and the effects of choosing particular technologies such as EAI and CRM in case one and four respectively. Obsolete technology platforms were a contingent condition for the CISB in case four which motivated their readiness to embrace a new replacement technology in the form of CRM software. Case one also revealed a contingent factor in the discovery of business complexity in shadow systems that impeded the development of a replacement budget management system for District shadow systems. A structural constraint on departments was limited funding for all activities leading to contention over the priority of resource allocations to corporate management facilities, such as corporate IS, versus line of business functions which more directly served the portfolio priorities of the Minister. This condition prompted to the ED CSD of case one to comment that "it is really hard to get the Board to agree to IT proposals". A result of this constrained resource condition was under resourcing of corporate IS branches and their inability to guarantee availability of necessary technologies from the market based suppliers. The effect of the Government Intervention mechanism in case two resulted in staff reductions in the department and this created conditions of high job insecurity for many staff. This impaired the ability of the Engagement mechanism to keep the attention of stakeholders on the recommendations of the SISP project.

Sayer (1992, p.92-93) shows how the occupants of positions in social structure constitute an external or contingent relationship but this does not mean such relationships are unimportant (Sayer 2000, p.124). The occupants of the positions of Secretary were clearly important in cases two, three and four and there were unexpected losses of key sponsors for the advocates of SISP projects. In case three the change in the occupant of the Secretary's position and in case four the change of

Minister and the change of ED HPD were clearly important contingent effects on the eventual SISP project outcomes. The occupant of the ED CSD was important in case one insofar as he influenced the outcome of the development phase and the absence of his influence in the implementation phase led to the demise of this phase. The nine contingent conditions of importance in the case studies are listed in Table 10.4 Contingent Conditions of the Cases.

Contingency		Cases
1.	Business unit ownership of systems. Technical, system and process incompatibilities. Business unit dependency on local systems. Effect of fragmentation mechanism.	All
2.	Constrained corporate IT capability.	All
3.	Market based IT dependency.	All
4.	Severe departmental resource constraints	All
5.	Changes in the occupants of the position of Secretary and Minister	2,3,4
6.	Reduction in staff numbers creating conditions of job insecurity	2
7.	Scare technology expertise.	1
8.	Complexity with business processes.	1
9.	Obsolete technology platforms	4

Table 10.4 Contingent Conditions of the Cases

10.6 Detailed Exposition of Causal Mechanisms and Implications for SISP in Public Sector Organisations

This section provides a detailed exposition of the thirteen causal mechanisms, relates them to the literature and indicates the implications of the mechanisms for the practice of SISP in the public sector. In this way the mechanisms constitute individual findings of the thesis, which together with the identified structures make a significant contribution to new knowledge about SISP in the public sector. This section draws on the advice of Elder – Vass (2007a, 2007b) who has written articles on how CR research can better theorise causal mechanisms. He comments "it is impossible to identify mechanisms without identifying the property to be explained, the entity possessing it and the characteristic set of parts and relations that underpin the mechanism." (Elder-Vass 2007a, p.235). In view of this methodological advice this section offers a refinement to the theorisation of causal mechanisms that was

presented in the individual case study analysis in chapters six to nine. For each causal mechanism the associated entities, powers, parts and relations and the way these constitute the powers of the entities is given with reference to the literature where appropriate.

10.6.1 Finding 1 – Advocacy Mechanism

Evidence of the effects of an Advocacy Mechanism

Advocacy refers to those agents in the organisation who initiate and sustain the SISP project. There was evidence of an advocacy mechanism in all cases. In case study one the advocacy mechanism was evident through the actions of the ED CDS, BM CISB and the CISB IS Planning Manager. The ED CDS was a key advocate for the SISP project both in terms of its initiation and the promotion of its recommendations at the Board level. His advocacy waned somewhat during the implementation phase as resistance increased. The Director ITB was the main advocate in case study two for the SISP project. He advocated the SISP project, its vision and recommendations throughout the project against strong opposition and deteriorating organisational conditions. The CKO was clearly the KM advocate in case three and particularly for the CoP initiative. In case study four the BM PPE and Manager IA were strong advocates for a vision of a system to support Individualised Funding. The BM PPE advocated the HPD IF initiative against strong resistance from the Integration project consultants. Also in case study four the CISB IS Planning Manager and the Manager of Application Development advocated the need for a SIS plan to the Manager IA as the framework for development of a response to the HPD information management problem with its service delivery system. The evidence for the operation of an advocacy mechanism in the case studies is summarised in Table 10.5 Case Study Evidence for Advocacy Mechanism.

Case	Evidence
1	• Manager ISPU and Director CISB propose SISP project. ED CSD advocates SISP project to his branch managers. • ED CSD advocates consultant recommendations to departmental Board
2	• Director ITB advocates a SISP project to ED CSD and Secretary.
3	• CKO advocates a KM orientation to the SIS plan and promotes the CoP initiative.
4	• CITB Manager ISPU and SDU advocate SISP project as necessary preliminary step for HPD IF project. • Advocacy of HPD IF project by BM PPE and Manager IA in face of resistance from the CISB-FWD integration project.

Table 10.5 Case Study Evidence for Advocacy Mechanism

Retroduction of the Mechanism

Advocacy mechanisms originate in the agency of individuals and groups located within the social structure of the organisation. Agents and groups acting as advocates, have powers to initiate, pursue and promote projects, ideas and other proposals within the organizational setting as a result of their personal initiative, their access to structural resources and powers and their ability to determine the most propitious circumstances and timing for their initiatives. The advocacy mechanism captures the concept of agential intentionality, which Hendry (2000, p.961) sees as at the heart of the rational or comprehensive model of strategic planning. The process by which the advocacy mechanism works is manifest through the initiating and tactical actions of advocates in support of their initiatives. Advocates decide to act in particular ways in response to organisational conditions that present problems requiring solutions or opportunities for changing current ways of working. Hence the advocacy mechanism is triggered when the organisational conditions are conducive to the opportunistic orientation of certain agents. Following Elder-Vass (2007a) the key structural elements of the advocacy mechanism are summarised in Table 10.6 Structural Elements of the Advocacy Mechanisms.

Mechanism	Entity	Parts and Relations	Property
Advocacy	Any group or individual in the organisation who promotes a particular course of action or objective.	Organisational actors in structurally related positions with specified powers or who gain the support of others with greater powers	Relative power to garner resources to promote a particular issue or objective, raise awareness, challenge existing arrangements, form an alliance or oppose the actions of other groups and initiatives.

Table 10.6 Structural Elements of the Advocacy Mechanism

There is extensive support in the managerial and public management literature for the workings of an advocacy mechanism. Advocates work by taking the initiative, influencing and aligning with prevailing ideas about organizational purposes and building coalitions of support (Moore 1995; Giroux and Taylor 2002; Sundin and Tillmar 2008). Advocates at the middle management level in organisations can "alter the firms strategic course by providing top management with unique interpretations of emerging issues and by proposing new initiatives" (Floyd and Wooldridge 1997, p.466). However advocates must "assemble a sufficiently powerful coalition to ensure that the manager's preferred policies will be authoritatively endorsed" (Moore 1995, p.151). Such coalitions must include members who are "not only in the higher echelons of the administrative organizations, but also on the political level of these public organizations" (Sundin and Tillmar 2008, p.123). Building coalitions of support depends on establishing legitimacy in the eyes of influential stakeholders. Legitimacy can be developed in a number of ways including having direct authority, setting the agenda (Fligstein 1997), using quantification and measurement of results (Colomy 1998; Dejean et al. 2007) and linking to emergent issues in the macro level discourse of the organization's environment (Lawrence and Phillips, 2004). However some contingent conditions of an organization's environment may be "more enabling than others" (Sundin and Tillmar 2008, p.16) and advocates may also be biased about the limitations of their initiatives and overlook the possibility of resistance. Moore (1995, p.111) notes "Aggressive advocates may succeed in advancing their purposes, but they run the risk of failing to learn" and they may also antagonize opponents (Moore 1995, p.158).

Connecting with the literature

On the basis of studies of US government departments Duffner, Holley and Reed (2002, 2003) found that elected officials are not involved in SISP. In all of the case studies for this thesis non-elected public servants were the main advocates for the SISP project thus supporting their finding. However in case study four an elected official, the Minister, was involved in the SISP process as a result of the activities of senior managers seeking to involve them in the approval process. Contrary to Duffner, Holley and Reed (2002, 2003) this research reveals that elected officials are on occasion involved in SISP if non-elected advocates of SISP are in a position to draw them into the SISP process.

Hence SISP Advocates seek to enlist the support of influential members of the departmental hierarchy and this is consistent with the private sector SISP literature that emphasises the importance of securing top management support for SISP projects to succeed (Kearns 2006, p.236; Teo and Ang 2001, p.457) and the importance of the relationship between the most senior management position (CIO) and the SISP Advocate (CIO) (Bai and Lee 2003; Hann and Weber 1996) to improve the quality of the SISP process. All case studies for this thesis show that the absence of a positive relationship between the senior SISP advocate and the head of the department (Secretary) was detrimental at some stages for the success of the SISP project thus supporting these findings.

Turning to the management literature case study four provides support for Floyd and Wooldridge (1997, p.466) contention that middle level managers can be effective advocates in organisations. Case studies two, three and four also support Moore's (1995, p.151) point that advocates are effective when they can build a coalition of support at senior levels including at the political level as argued by Sundin and Tillmar (2008, p.123). Johanson (2009, p.888) notes that unless strategic planners such as SISP advocates can link up with organisational power networks they will not be able to bargain for resources or get their proposals accepted. The fourth case study also supports Lawrence and Phillips (2004) point that legitimacy is enhanced when advocates link their projects to emergent issues in the macro level discourse of the organization's environment. Case studies two, three and particularly four illustrate Moore's (1995, p.111) point concerning the possibility of aggressive advocates failing

to learn or antagonizing opponents (1995, p.158). In this regard Sambamurthy, Venkataraman and DeSanctis (1993, p.25) note that the skill, knowledge and experience of SISP practitioners is important for the SISP process but Segars, Grover and Teng (1999, p.225) note that they may have deep - seated philosophies about the way SISP should be done which will limit flexibility in the approach to SISP.

Implications for Public Sector SISP

SISP Advocates seek to enlist the support of influential members of the departmental hierarchy. In case one the SISP advocates (Director ITB and Manager ISPU) enlisted the support of their Executive Director of Corporate Services who in turn advocated the proposal to the department Executive as well as to his own direct reports. The same approach was taken by the SISP advocates in case two and three with the first occupant of the Secretary's position. The fourth case was different in that the SISP advocates were able to enlist the support of an elected official, the Minister whose structural powers are greater than those of the Secretary and providing evidence contrary to Duffner, Holley and Reed (2002, 2003) in that on some occasions elected officials are involved in SISP projects.

Effective advocacy is essential for SISP projects to achieve their intended objectives because they encounter resistance from other stakeholders. However the power of advocacy arises from agency, structural location within the organisation and the ability to link to issues of major concern for top management. This implies SISP advocates need to be cognizant of their structural location, their ability to form coalitions of support at other levels in the organisation and the alignment of the SISP project with top organisational issues. SISP advocates at the middle level need the support of top management as advocates for the project because the strategic implications of SISP projects imply a commitment to strategic change, which requires the support of those responsible for the strategic management of the organisation. But advocates for SISP need to realise that they are forced to operate within a context of other stakeholders whose organisational power will limit the extent to which a particular SISP project can be pursued as envisaged. This context is also changing so that SISP advocates will need to be flexible in their approach to influence and negotiate with emerging individuals and groups and alert to latent constituencies who could impact the outcome of the SISP project. Finally SISP advocates may emerge

from business units showing that SISP is not necessarily the preserve of the centralised IS management functions. This may lead to conflict between the strategic objectives of the centralised IS function and those of the business unit SISP advocates.

10.6.2 Finding 2 – Resistance Mechanism

Evidence of the Effects of a Resistance Mechanism

Resistance refers to forms of opposition to the process, recommendations and implementation actions of SISP projects. There was evidence of resistance to the SISP project in all case studies including disputing the validity of the consultant's analysis, refusing to comply with the project control arrangements and refusing to relinquish control of local shadow systems (case study one), withholding of endorsement by approving entities (case study two and four), active undermining of the SISP advocate (case study one and case study two), refusal to adopt new ways of working with IT enabled processes (case study three) and commissioning consultants to build a case against that proposed by a business unit SISP advocate (case study four). In case study four the CISB – FWD coalition were motivated to resist the HPD initiative and sought to escalate the issue of the department's CRM technology platform to the departmental executive but were not successful. Finally in case study four the new ED of HPD resisted the advocacy of his direct report (BM PPE) to provide funding for the SIS plan which had previously received the Minister's endorsement. The evidence for the operation of a resistance mechanism in the case studies is summarised in Table 10.7 Case Study Evidence for Resistance Mechanism.

Case	Evidence
1	• Rejection of problem diagnosis and project conceptualisation of solution • Refusal to comply with project management arrangements • District reluctance to accept central systems • Influence of branch managers on Divisional Manager CSD against SIS plan recommendations
2	• Persistent non committal stance of CDSC members to the strategies • Scepticism by some corporate head office managers to second Secretary's emphasis on e-learning • Branch Manager Shared Services insists on an independent approach • Funding withheld by departmental executive for the strategies and it does not 'own' them. • Review consultant is highly critical of the Plan
3	• Business units refuse to accept the implied business process changes of IT projects in the Plan. • Business refuse to fulfil their project obligations in relation to some of the strategies in the Plan eg IVR and Managing Performance. • Declining interest of stakeholders in strategies and their project commitments • Intolerance of management culture to CoPs. No time allowed in day-to-day work. HR Director resistance to changing incentives for knowledge sharing in job descriptions.
4	• CITB and FWD consultants counter HPD IF initiative to build an independent CRM system • HPD BM PPE is lobbied with the 'good corporate citizen argument' • Issue of which CRM approach will be the departmental platform raised to Board level • New ED HPD refuses to approve the HPD IF initiative

Table 10.7 Case Study Evidence for Resistance Mechanism

Retroduction of the Mechanism

Lapointe and Rivard (2005) argue that resistance to new information systems is triggered by perceived threats but will also depend on individual and organisational conditions and the nature of the new system innovation. SISP advocates must seek approval for SISP recommendations from senior management, agreement from peer level middle managers whose functions may be affected by the recommendations and acceptance by those who will be required to use the new systems that flow from the SISP plan. These recommendations may be perceived as implying disadvantageous changes to existing organisational arrangements so that senior managers may refuse to

grant approval, peer level Directors may withhold agreement and proposals for new systems may be met with scepticism from the intended users. Hence the resistance mechanism emerges from the agency of stakeholders in the SISP process combined with their relative degrees of organisational power to resist proposals for organisational change they perceive as disadvantageous in some way.

The resistance mechanism in relation to SISP are triggered by the actions of the advocacy and engagement mechanisms that propose strategic change in the organisation, through the strategic use of information systems, and by the integration and project control mechanisms that endeavour to implement the changes. Typical triggers of resistance to the introduction of new information systems include perceived inability to adapt to change (Marakas and Hornik 1996), perceived loss of organisational status or the balance of power (Markus 1983, Lapointe and Rivard 2005), and perceived inequity in relation to others (Joshi 1991). Resistance may also arise because the reasons for change are poorly defined and understood so that resistance is not necessarily unreasonable (Lapointe and Rivard 2005). The key structural elements of the resistance mechanism are summarised in Table 10.8 Structural Elements of the Resistance Mechanism.

Mechanism	Entity	Parts and Relations	Property
Resistance	Senior managers, business unit heads and intended system users.	Organisational actors in structurally related positions with specified powers	Organisational autonomy grants authority to dispute SISP Project recommendations

Table 10.8 Structural Elements of the Resistance Mechanism

Connections with the SISP Literature

All the case studies provide evidence of the absence of high levels of cooperation between groups in the departments, which impaired the ability to achieve the objectives of the SISP projects. This provides evidence in support of Segars and Grover's (1998, p.144) argument that cooperation between powerful groups within the organisation is a key factor in the success of SISP. High functional differentiation in public sector organisations has been found to be a cause of the inability to obtain consensus to SIS plans (Byrd, Sambamurthy and Zmud 1995) and this was evident in

case study one and case study two. During the attempt at implementation in case study one and during the planning phase of case study two managers of peer level functions of the corporate services division strongly resisted the proposals that were put forward by the SISP advocates. The conflict in case study four between corporate versus business unit SISP advocates also illustrates Sambamurthy, Zmud and Byrd's (1994) finding that the level of consensus among SISP practitioners has an impact on the effectiveness of SISP. These findings and the evidence from the case studies also support Smith, Campbell, Subramanian, Bird and Nelson's (2001, p.154) point that in a public sector context SISP advocates must find ways of crossing formal organisational boundaries for SISP recommendations for new systems to be effective.

However resistance to the proposals of SISP projects may also arise from non-elected senior managers within government departments. This was evident in case study two, three and four. In all these cases the main SISP advocates lost their original top management supporters and their replacements had either a different strategic objective for the SISP project (case study two), were indifferent or opposed to it for reasons to do with changed government priorities (case study two and three) or felt there were more cost effective alternatives as in case study four. This supports Willcocks (1994) contention that senior management remain largely disinterested in the strategic role of IS.

Lapointe and Rivard (2005) find that the object of resistance may change between the system innovation, its significance and the advocates of the system innovation. Case one shows resistance by central system owners to the consultant's diagnosis of central system limitations but during implementation resistance focussed on the Planning Manager's attempt to control project funding. Case study two shows resistance initially directed at the intelligibility and relevance of the EVF proposed by the consultants then becoming focussed on the main SISP advocate (Director ITB) because the SISP project appeared to be geared to his interests. In case four the corporate IT group moved from being supportive SISP advocates during the period when the HPD was developing its SIS plan to being opponents of the plan when its strategic significance for the whole department in relation to the choice of CRM software became apparent. The fourth case study also shows how corporate SISP advocates sought to escalate the choice of CRM software issue beyond peer levels to a

higher forum for resolution. This illustrates Moore's (1995, p.117) observation of a resistance tactic used by advocates where "a crisis can be created to generate pressures for cooperation and place the matter higher on the remote superior's agenda".

More generally, case studies one, two and four can also be taken to illustrate the operation of the political model of organisational change. This supports Knights and Murray (1994, p.71) point that SISP is bound up with political conflict in organisations. Generally the case studies show the influence of organisational politics between SISP advocates promoting organisational change and other managerial groups resisting this advocacy (Eisenhardt and Zbaracki 1992; Knights and Murray (1994); Mintzberg, Ahlstrand and Lampel 1998; Robey and Boudreau 1999). SISP can be understood in terms of organisational struggles between dominant groups hence the political model of decision-making is relevant. These political struggles take place however within an internal social structure and external governmental context, which the political model with its emphasis on the pursuit of vested interests tends not to emphasise, so overlooking the fact that the agents are constrained by their position in the organisational hierarchy and subject to the effects of interventions from the external governmental context.

Implications for Public Sector SISP

As noted in the discussion of the advocacy mechanism SISP advocates operate within a context of other stakeholders whose power to resist arises from their agency, structural location and the ability to forcefully argue the merits of their priorities and concerns within the wider departmental business agenda. This power can limit the extent to which a particular SISP project can be pursued as envisaged, which in the strategic management orientation of the comprehensive model of SISP tends to privilege a whole of organisation perspective on the role of information systems and a centralist management approach rather than the local business unit perspective and a more decentralised management approach. Hence SISP is a contested site because the recommendations of SISP projects may imply strong constraints on the autonomy of business units to develop their own information systems solutions to local business needs. The issue then becomes whose agenda for the strategic management of the organisation's information systems will prevail that of the SISP advocates or that of

business unit advocates. The comprehensive model of SISP argues for alignment with top management's priorities however in the case studies for this thesis SISP was carried out by middle level managers with varying levels of support from top management depending on organisational conditions and changes to the occupants of top management positions. This means that often there will not be an overriding imperative for peer level business functions to assent to the proposals of corporate or central SISP advocates and so it is to be expected that obtaining consensus with such peers will be difficult. In this case the absence of strong and sustained backing from senior managers of the organisation determined to impose a centralist approach to SISP implies that such an agenda is not perceived as important or appropriate by the top management group. Accordingly SISP advocates may have to operate without unerring top management support or clear business direction and they may have to adjust the SISP project objectives to fit the political conditions of the organisation and the preferred style of strategic management of the top management group. This may require greater emphasis on a consensual approach to SISP more oriented to business unit level needs and priorities at the possible expense of the full realisation of the whole of organisation benefits suggested by the comprehensive model of SISP.

10.6.3 Finding 3 – Fragmentation Mechanism

Evidence of the effects of a Fragmentation Mechanism

Fragmentation refers to the uncoordinated creation of information systems within an organisation and the emergence of incompatibilities between systems and information stores. Fragmentation of systems and data occurs at both the individual level through for example individual use of desktop tools and at the group level when subunits create their own systems. The fragmentation mechanism was evident in all cases. Local shadow systems in regions and in divisions were a particular issue for the SISP project in case one. The same issue was apparent in case study two and in case study three. In case study four HPD's reliance on a large number of service delivery entities generated an information fragmentation problem. The evidence for the operation of a fragmentation mechanism in the case studies is summarised in Table 10.9 Case Study Evidence for Fragmentation Mechanism.

Case	Evidence
1	Shadow systems in regions and divisions of the Corporate Services Division
2	Business units create, in an unmanaged way, new systems
3	Uncoordinated IT initiatives as business unit IT initiatives deviate from the plan and they can bypass central IT unit
4	Distributed service delivery system of semi autonomous service delivery entities creates a fragmented information systems environment.

Table 10.9 Case Study Evidence for Fragmentation Mechanism

Retroduction of the Mechanism

In case study three the GM IT described the ability of business units to initiate systems projects because they had the funds available to acquire the necessary IT resources. Hence the fragmentation mechanism arises from the organisational autonomy of departmental business units combined with access to funding and certain forms of IT such as desktop computers. The fragmentation mechanism is triggered by business unit needs for information systems to meet their information management requirements in conjunction with the absence of corporate systems that could meet this need. An important element of this mechanism is that locally developed systems more closely align with the unique information needs of the business unit rather than the general information of corporate systems. As a result business units develop 'good enough' local shadow systems outside of the corporate strategy for new systems. The key structural elements of the fragmentation mechanism are summarised in Table 10.10 Structural Elements of the Fragmentation Mechanism.

Mechanism	Entity	Parts and Relations	Property
Fragmentation	Management and staff of business units.	Organisational actors in structurally related positions with organisational autonomy.	Autonomy grants authority and resources to develop their own information systems in response to local information management needs.

Table 10.10 Structural Elements of the Fragmentation Mechanism

Connections with the Literature

The findings from case study one and four support Goodhue, Kirsch, Quillard and Wybo (1992a) and Goodhue, Kirsch and Wybo (1992b) that in large complex organisations with significant heterogeneity among the subunits fragmentation of information will occur. In case study one shadow systems in regions and divisions created multiple sources of information making it difficult to establish the authoritative account for senior management and in case four many service delivery entities generated information fragmentation.

Boudreau and Robey (2005, p.11) note that users create shadow systems to overcome the limitations of central systems. In this respect, case studies one, two and four provide evidence in support of Willcocks (1994) and Bellamy and Taylor (1998) on the effects of conflict between non-integrated organisational forms and centralized standardised systems that such organisations attempt to use. Case study one provides similar evidence to Salmela, Lederer and Reponen (2000) that illustrates the difference between centralised and decentralised information needs. In their case study the central inspection office wanted performance evaluation and reporting information while regional inspectors needed a more practical tool for recording inspection information and some regions wanted to develop their own independent systems. But underlying the different informational needs of the regions and the central office were organisational political tensions around the role of each group within the NBLP. This supports the argument that fragmentation of information systems is closely related to the structural relationships of organisational subunits. Smith, Campbell, Subramanian, Bird and Nelson's (2001, p.154) study of comprehensive SISP in the City of St.Louis in the US provides similar evidence to case studies of the effects of a fragmentation mechanism in public sector organisations. It was the many subdivisions of the municipality that generated a "hodgepodge" of uncoordinated systems development with the resulting systems being unable to share information.

Implications for Public Sector SISP

The following discussion constitutes a new contribution to causes of fragmentation by highlighting the structural context beyond the immediate imperatives of IS

management groups that generate the conditions for fragmentation of IS in government departments and links this to the organisational style of strategic management (centralised versus decentralised).

The fragmentation mechanism indicates that information systems in public sector organisations have been developed in a largely uncoordinated and piecemeal way but this is caused and sustained by certain organisational conditions. The first condition is the organisational autonomy of business units within the bureaucratic hierarchy of a department and their ability to acquire control of resources with which to build new information systems to meet their information management requirements. At a deeper level is the second condition, which are the diverse needs of the client constituencies that the department, through its business units, is required to serve and which generates different information management requirements across business units. In addition government departments are required to respond to the priorities of government so that they are pulled between the two poles of the diverse needs of client constituents, including the extensive use of semi-autonomous service delivery systems to meet these needs, implying a decentralised mode of operation and the more strategic and centralised management objectives of government. The conclusion is that fragmentation of IS in departments arises primarily from this tension between internal and external structural factors where the former is shaped by the latter.

In the case studies the presence of the fragmentation mechanism was accompanied by a decentralised approach to IS development, which may be a reflection of a more decentralised approach to the strategic management of the organisation as a whole. Hence in pursuing SISP in the public sector setting advocates need to be aware of the structural effects of the organisation's approach to its overall management and within this the management of its IS resources and SISP recommendations need to be compatible with the organisation's general strategic management approach. However a major cause of the fragmentation mechanism is the absence of central system capability to meet local needs. This suggests that the fundamental issue about fragmentation is whether the benefits of countering it, through more centralised and integrated approaches, outweigh the costs of the impairment of local business unit capability to meet their information management needs. This brings the debate back to the question of how much centralisation should be imposed on the organisation in

relation to IS and illustrates Heeks (2000) about the centrality of this debate in the public sector IS management domain (Ward and Peppard 2003, p.345). If a heavily centralised approach is taken the central IS function must be able to meet the decentralised and diverse business unit need for IS capability. In large diversified bureaucracy this will be difficult so that the pressure for local capability will persist as a fragmentation mechanism acting transfactually and emerging from the structural tension between centralised and decentralised organisational imperatives.

The fragmentation mechanism also has implications for the alignment of business strategy with IS strategy because alignment implies integration rather than fragmentation of effort. The diverse needs of the client constituencies that the department, through the business units, is required to serve may generate a need for a more decentralised approach to management and hence a lower degree of integration. This requires understanding the diverse purposes of the organisational subunits and whether the integration implicit in comprehensive SISP is viable or appropriate. Few public sector organisations have dominating unitary objectives a point made by Ballantine and Cunningham (2001) in their critique of SISP. If the agenda of senior management, under the influence for example of NPM ideas for improvement in efficiency, is to overcome fragmentation by seeking greater integration and centralisation then it has to be realised that this cannot be done by SISP alone but requires corresponding commitment to the supporting organisational form. The danger remains that notwithstanding senior management's commitments the diverse needs of client constituents driving the functional and IS diversity of the business units will continue to work against centralisation and integration agendas.

10.6.4 Finding 4 – Engagement Mechanism

Evidence of the effects of a Engagement Mechanism

The engagement mechanism refers to the activities and the effects of these activities of private sector SISP consultants in government departments who are recruited by SISP advocates to assist in the conduct of SISP projects including the development of the SIS plan. The engagement mechanism was manifest in the first, second and fourth case studies. No consultants were involved in case three. In the first case study the consultants integrated architecture recommendation was a challenge to both the peers

of the Director of CISB and the District Managers with their local shadow systems. The consultant's successfully engaged the Board of the department and won approval for their proposed integrated architecture but the attempt to implement it surfaced a lack of consensus amongst peers of the Director CISB suggesting the engagement mechanism failed to create agreement amongst stakeholders. In the second case study the consultants proposed Enterprise Value Framework was a challenge for members of the CDSC and the IT Governance committees. However the SISP project manager reported that the consultants had achieved consensus amongst some groups of business unit IT users for elements of the IT Plan and the Director ITB in promoting the SISP project had received a positive response from a number of school principals. In the fourth case study the first group of consultants challenged the centrality of the idea of Individualised Funding (IF) in relation to HPD's information needs and the second group of consultants challenged the independent direction being taken by HPD in relation to a CRM application. Case study four can be seen as an example of the blocking of the engagement mechanism as a result of the actions of the project manager. The consultants did not have permission to engage with the full range of stakeholders, so the individual who was to become the ED HPD was not consulted with sufficiently and hence was not disposed to support the development of a CRM based system for HPD when he did in fact become the ED. The evidence for the operation of an engagement mechanism in the case studies is summarised in Table 10.11 Case Study Evidence for Engagement Mechanism.

Case	Evidence
1	• Consultants engage with central system owners, users and regional shadow system owners and discover widespread dissatisfaction with central systems • Integrated architecture proposal challenges independence of existing system owners in the corporate services division and regional shadow system owners • Consultants successfully convince the Board to fund the program of recommendations but do not uncover the latent resistance to the recommendations amongst peer level Directors of the key SISP Advocate
2	• Consultancy challenges existing practices in relation to ICT usage in the department but this triggers the resistance mechanism with key decision makers who have difficulty understanding the EFV • Consultations create a positive disposition to the consultancy proposals amongst some principals and some business unit
3	• N/A
4	• HPD SISP consultants engage with Manager IA proposing a systems architecture for the HPD information management problem but the proposal is rejected by Manager IA • Integration consultants persuade Board to terminate HPD initiative but Secretary overrides this position. • Engagement mechanism is restricted by the SISP Advocate • HPD BM PPE is lobbied by consultants with the 'good corporate citizen argument'

Table 10.11 Case Study Evidence for Engagement Mechanism

Retroduction of the Mechanism

The engagement mechanism emerges from the agency of consultants, their association with the structural position of SISP advocates in the organisation and their use of influential expertise and ideas as expert SISP practitioners. Consultants engage with stakeholders of the organisation in order to assess the effectiveness of current uses of information systems and technology and to promote the adoption of their recommendations. Consultants are a powerful source of ideas that can provide strong reasons for change in the client organization and may have great organizational impact where they are in contact with senior decision makers. Their capabilities in this regard stem from the possession of expert knowledge as specialists in the SISP process and information systems combined with the experience they accumulate through exposure to a wide range of organizational settings and associated problems.

They possess strong diagnostic and analysis skills and can provide influential assessments and insights into organizational issues and conditions not usually available to key decision makers in the organisation. This analytic diagnosis can be supported by reference to other organizations to demonstrate its external validity. On the basis of their independence and their specialist expertise they gain legitimacy in the eyes of stakeholders and are thus able to challenge entrenched positions within the organisation paving the way for change (Heeks 2001, p.85). However consultants also present a challenge to stakeholders in relation to existing arrangements and ways of working, supporting Moren and Blom's (2003) concept of a challenge element to the engagement mechanism. The engagement mechanism generates varying degrees of acceptance or consensus and resistance depending upon factors such as the style of engagement and the manner and degree to which proposals impact stakeholder interests. However the challenge aspect of the engagement mechanism may activate the resistance mechanism. In contrast consensus emerges when stakeholders are not forced to accept a proposal but are allowed to participate as equals in its formulation and the proposal reflects their needs (Bovaird 2006; Forester 1980, 1981, 1993). Understanding of the need for the changes implicit in proposals and the possibility of direct benefits to participants are essential for agreement to emerge. Consultants are able to engender this consensus through skilful facilitation of discussion. The many interviews and workshops of a consultancy project can have the effect of creating a greater understanding of what the objectives of the SISP project are and engender a degree of consensus amongst stakeholders about the benefits of the recommendations. This aspect of engagement may also reveal what Moore (1995, p.116, p.133) refers to as latent constituencies who can be potential sources of resistance.

The engagement mechanism is triggered early in a SISP project by the SISP Advocates to begin the process of gathering information about an organisation's use of IS and the associated issues. The actual timing and process of engagement may be shaped by the consultant's own SISP methodology but is subject to the SISP Advocate's discretion. Once they have established the evidence to support their arguments and they have assessed the likelihood of acceptance of their ideas by the key stakeholders, consultants are ready to engage influential stakeholders. The goal is to achieve consensus but the consultants will be ready to challenge entrenched positions by demonstrating the greater merits of their proposals in relation to

organisational objectives than the positions of those who oppose them. The key structural elements of the fragmentation mechanism are summarised in Table 10.12 Structural Elements of the Engagement Mechanism.

Mechanism	Entity	Parts and Relations	Property
Engagement	SISP Consultants	Consultants connect with structural influence via their close association with SISP advocates.	Able to generate SIS plans and change the strategic agenda of senior decision makers in the organisation in relation to its information systems. Able to generate enthusiasm for proposed IT reforms and the vision of a more beneficial approach for users of IT in the organisation but may fail to do so and generate resistance. Influential with key decision makers in the organisation.

Table 10.12 Structural Elements of the Engagement Mechanism

Connections with the Literature

The use of consultants in the case studies is consistent with Smith, Campbell, Subramanian, Bird and Nelson's (2001) study of comprehensive SISP in the City of St.Louis in the US that also found the use of consultants in a public sector organisation but does not discuss their role in the case. Gaining consensus amongst stakeholders is important in SISP (Sambamurth, Zmud and Byrd 1994) so is arguably the key goal of consultants. But the failure to engage effectively is noted by Moore (1995, p.116, p.133) as the failure to engage a latent constituency. Case four provides evidence of this failure in relation to the second Executive Director of the HPD who resisted the attempt to enlist his support for the CRM project. Case four also shows how the consultants were strongly controlled by the SISP Advocate so that their final plan reflected this stakeholder's preferred vision. This illustrates how the objectivity of consultants can be undermined which is also reported in an example from Heeks (2001, p.86) and also supports Bloomfield and Danieli (1995) point about the process of consultancy representing a continuation of ongoing organisational conflict and politics.

Case studies one and two both show consultants achieving varying degrees of consensus amongst key stakeholder groups suggesting that effective engagement can generate consensus and agreement to change and this supports Bovaird's (2006, p.98)

point that a consensual style of management facilities agreement to change. Mirchandani and Lederer (2005) found that greater the level of autonomy given to business units for the conception of strategy (identifying opportunities and strategies for improvement) the more they perceived the process as fair. Grover and Segars (2005, p.765) argue that the SISP process needs to be a balance between rationality and adaptability to allow organisational learning in response to changes in the environment and changes in the technology base (2005, p.765). This requires "Diverse participation across hierarchical levels and functions, large numbers of participants, frequent assessment and adjustment of plans, open feedback systems and frequent SISP related meetings". SISP consultants produce the SIS Plan but in case one and two there were problems with the acceptance of this material by stakeholders and in case one and three during implementation. These findings support Lederer and Sethi (1992) who found SIS plans do not always make a clear link to business objectives or are difficult to implement because insufficiently specified. Case two supports Gosain (2004, p.163) who notes the tendency of IT consultants to use terminology that is not context specific as well as Heeks (2001, p.86) that consultants display inadequate understanding of organisational complexity (technological, political, cultural) and may fail to establish conditions for successful implementation.

Implications for Public Sector SISP

The scale of SISP projects in large government departments even ones confined to a single division mean that the assistance of SISP consultants is virtually unavoidable given the absence of such expertise in the department, which is a reason Heeks (2001) identifies for the use of consultants. But the potential for such consultants to impose standard private sector approaches unthinkingly, or to produce documentation that cannot be successfully communicated or is difficult to implement are risks for SISP advocates. Gaining agreement to the plan but without a commitment to implementation represents a failure to engage and defeats the purpose of the SISP project. In this respect the consensus generating capacity of consultants is most important perhaps more so than the challenge aspect. SISP advocates need to facilitate the action of the engagement mechanism in constructive ways that allow as much opportunity for the vital task of generating consensus and revealing latent constituencies. But the ability of consultants to do this is weakened if they are

perceived to be merely the agents of the primary SISP advocate. A less control oriented and more democratic approach to engagement with stakeholders along the lines of Forester (1980, 1981, 1993) and Bovaird (2006) offer the greatest potential for protecting the objectivity of SISP consultants and improving the chances of acceptance and commitment to the changes implied by the SISP projects recommendations. This is particular true where the organisational approach to the management of the department favours a more decentralised style but may be difficult to adopt where the SISP Advocate exerts too much personal control or where the department has a strong bureaucratic control culture. The finding that consultants can and should be used skilfully to generate consensus in relation to SISP in public sector organisations such as government departments is not emphasised in the SISP literature and constitutes a relatively new finding.

10.6.5 Finding 5 – Secretary's Intervention Mechanism

Evidence of the effects of a Secretary's Intervention Mechanism

The case studies show different roles played by the Secretary in relation to the SISP project. In the first case the Secretary, as head of the departmental Executive, approved the SIS plan with its integrated application architecture and granted significant resourcing. In the second case three different persons occupied the Secretary's position. The first approved the initiation of the SISP project, which was focused on reducing the costs of head office systems while the second intervened to reorientate the SISP project to focus on educational delivery. She wanted to "cause a paradigm shift in the delivery of education" by using the project to promote the concept and technology associated with e-Learning. The third occupant did not support the SISP project so facilitating its demise. In case three two persons occupied the Secretary's position. The first supported the initiation of the SISP project and particularly its Knowledge Management (KM) initiative to establish a Community of Practice (CoP). The second occupant intervened in a way that had both supportive and unsupportive effects for the implementation of the department's SIS plan. It helped to counter the fragmentation mechanism by increasing the emphasis on integration and centralising resourcing for IS initiatives. On the other hand the intervention reversed the previous Secretary's support for the KM approach by abolishing both the CKO position and the CoP initiative. In the fourth case study the

Secretary intervened to prevent her own Executive from approving the termination of the HPD SISP initiative. Unlike case three the Secretary acted to protect an existing initiative. The evidence for the operation of the Secretary's intervention mechanism in the case studies is summarised in Table 10.13 Case Study Evidence for Secretary's Intervention Mechanism.

Case	Evidence
1	• Secretary approved the initiation of the SISP project
2	• First Secretary approved the initiation of the SISP project, second Secretary reorientated the SISP project and the third Secretary withheld support.
3	• First Secretary approved the initiation of the SISP project and KM approach. Second Secretary, terminated the KM approach, centralised IT resourcing and refocussed the implementation on systems integration.
4	• Prevented the Board terminating the HPD IF initiative

Table 10.13 Case Study Evidence for Secretary's Intervention Mechanism

Retroduction of the Mechanism

The Secretary's Intervention mechanism emerges from the structural powers, granted by Government, of the position of Secretary within the internal bureaucracy of the department and the agency of the occupant. The Secretary is the most senior and powerful of the positions in the departmental hierarchy. As such the Secretary's role entitles the occupant to intervene in any matter associated with the activities and programs of Divisional Executive Directors and reverse any of their decisions if, in the opinion of the Secretary, there are strong enough organizational or political grounds to do so. This is particularly so for decisions with whole of department implications. The Secretary's powers are subject to the direction of the Minister and adverse events in the portfolio can have a negative impact on the credibility of the Secretary who must be able to find effective ways of resolving and wherever possible preventing such events. In other words a Secretary must be well attuned to the social and operational issues confronting their department and the political environment surrounding their Minister. The key structural elements of the Secretary's Intervention mechanism are summarised in Table 10.14 Structural Elements of the Secretary's Intervention mechanism.

Mechanism	Entity	Parts and Relations	Property

Secretary's Intervention	Secretary who is the most influential actor in the organisation	Highest position in organisational structure with wide powers. Agential powers.	Major powers to manage the organisation including the power to restructure the department.

Table 10.14 Structural Elements of the Secretary's Intervention mechanism

Connections with the Literature

The private sector SISP literature argues that top management support for SISP is important (Kearns 2006, p.236; Teo and Ang 2001, p.457) and all case studies for this thesis show the importance of the Secretary's level of support for the success of the SISP project thus supporting these findings. However Duffner, Holley and Reed (2002, 2003) imply that the top management equivalent in the public sector is the elected officials, such as Ministers, not senior public servants. Except in relation to the initiation of a SISP project (Smith, Campbell, Subramanian, Bird and Nelson 2001) the nature and importance of the Secretary's role as head of a government department in relation to SISP projects is not clearly recognised in the public sector SISP literature.

In the third case the Secretary intervened to centralise IS groups within the department. This provides consistent evidence with Garson (2006) that western governments in the late 1990s and early 2000s were centralising IT functions in response to financial constraints on government departments, which reversed earlier decentralisation.

Implications for Public Sector SISP

The contribution of this finding is the greater recognition in the public sector SISP literature of the importance for SISP projects of the Secretary's role as a source of an intervention mechanism. In relation to the strategic policy agenda of the Government and as a direct report to the Minister and hence the Government, the Secretary occupies a unique position because they are able to (i) influence the strategic agenda of government through the provision of policy advice to the Minister (ii) mediate the effects of the government context on the internal context of the department and (iii) assess SISP projects proposed from within the department in terms of their relevance to the strategic policy agenda of Government.

As a minimum the approval of the Secretary is essential for the success of a SISP project and once granted is a powerful counter to resistance from other stakeholders within the department. But the strategic government context that the Secretary has to operate within coupled with their power to set the strategic priorities for the department, means that SISP projects which connect with imperatives from within this context will be viewed as more relevant and therefore worthy of support than those that are more inwardly focussed on the operational management of the department. This shows that the imperatives of SISP advocates to address their own IS management needs may not align with the Secretary's perception of what is strategically important and even though the former may be a response to financial management pressures to improve the department's efficiency and effectiveness in relation to its information systems investments. This indicates evidence of contradictory effects of different mechanisms (Secretary Intervention v IS Demand Management).

But contingent conditions are important here. What the cases suggest is that when the external governmental context is not active then SISP project which focus more on the internal operations of the department can proceed but at other times such as when there are machinery of government changes or when a department is perceived to be failing in relation to government expectations or when there is a change in the occupant of the Secretary's position such projects are at risk of intervention effects. The cases also show how a SISP project is vulnerable to being refocussed by the particular concerns of particular occupants of the Secretary's position.

10.6.6 Finding 6 – Government Intervention Mechanism

Evidence of the effects of a Government Intervention Mechanism

The Government Intervention mechanism was most clearly evident in case two, three and four. It was most dramatically illustrated in case two with the appointment of two successive Secretaries and a major reduction in departmental administrative staff by 25%. In case three the Government imposed new functions on the department, which had IT implications that had not been anticipated in the IT Plan and without additional resources being provided. Finally in the fourth case study the Minister became engulfed in a political crisis associated with one of the department's Youth Justice

Centres and an incident involving substance abuse. The Premier acted to reassign the Minister to a new portfolio. As a result the HPD SISP advocates lost their most powerful supporter at the moment they required the Minister's signature to approve the tender for the development of the HPD CRM system. The evidence for the operation of the Government Intervention mechanism in the case studies is summarised in Table 10.15 Case Study Evidence for Government Intervention Mechanism.

Case	Evidence
1	N/A
2	• Appointment of new Secretaries changes the focus of the SISP project • Restructure of department, leading to cuts of 25% in head office staff, distracts attention from the SISP project and leads to highly restrictive conditions on funding for new strategies.
3	• Machinery of Government changes result in new functions for the department without additional funding and not necessarily consistent with the IT Plan.
4	• Following the 'glue sniffing' political crisis the Premier reassigns the Minister to another portfolio.

Table 10.15 Case Study Evidence for the Government Intervention Mechanism

Retroduction of the Mechanism

Government power is legitimated through the constitution and elections and arises from control of a state bureaucracy and related entities to enable administration of the state. Government's have the power to restructure the public sector, create new portfolios and functions and reassign responsibilities amongst departments. This can be seen as a Government Intervention mechanism which is triggered by emergent needs of the community, changing political priorities, perceptions of opportunities for improvements in government service delivery arrangements or where departments are perceived to be failing to follow Government policy. The Government can authorise departmental programs and provide resources to enact them but can intervene to change policy or restructure the department at any time. As head of the Government the Premier has the power to reassign Ministers to different portfolios if he or she perceives a need to do so. The key structural elements of the Government Intervention mechanism are summarised in Table 10.16 Structural Elements of the Government Intervention mechanism.

Mechanism	Entity	Parts and Relations	Property
Government Intervention	Government	Government exists in a structural relation with the community and departments which are the instruments for delivery of government services. Government powers are given legitimacy through elections.	Government has virtually unfettered powers over departmental functions and purposes including the power to reduce the size of or even abolish departments.

Table 10.16 Structural Elements of the Government Intervention mechanism

Connections with the Literature

The public sector SISP literature provides some finding on the effects of Government in relation to SISP projects within departments and the general governmental context. Hackney and McBride (2002), show how external interventions by entities within the governmental context of the focus organisation prevented the realisation of the original SIS plan. In contrast Salmela, Lederer and Reponen's (2000) study shows how despite external political intervention by government a comprehensive approach to SISP was largely successful in maintaining commitment to the development of a strategically important information system. The private sector SISP literature also shows conflicting findings about the effect of the external environment on SISP projects with Lederer and Salmela (1996) arguing that stability is important for comprehensive SISP while Newkirk and Lederer (2005) find that external context seems to make no significant difference to the success of the comprehensive model.

In case studies two, three and four of this thesis the external context in the form of the Government Intervention mechanism had significant negative effects on the success of the SISP project providing consistent findings with those of Hackney and McBride's (2002) study. In case study one and in case study four the SISP projects were able to deliver a SIS plan, which was approved by the senior management of the department. In each of these studies this occurred when there was no Government intervention (intervention only occurred in case study four after the SIS plan was approved). This finding is consistent with Lederer and Salmela's (1996) point that a stable organisational environment is conducive to the comprehensive model of SISP.

Implications for Public Sector SISP

For departments the Government is the single most significant entity in the external context because of its control over their strategic priorities and resourcing. Hence department's are structurally dependent on the Government and as instruments of the state, used to implement Government policy, they are vulnerable to intervention at any time to ensure their activities align with the Government's priorities. These interventions may have effects on SISP projects depending on the degree of organisational change that is involved and the mediating effect of the Secretary's role. The triggers for intervention depend on changes in the social, economic and political context of Government but also include internal aspects of a department's activities such as its financial management record.

Contrary to Salmela, Reponen and Lederer (2000) the case studies for this thesis suggest SISP projects using the comprehensive model in the public sector need stable environments to succeed. What the cases suggest is that when the external governmental context is not active there will be less likelihood of intervention effects and SISP projects that follow the comprehensive model have greater chance of at least delivering the SISP plan. Hence such projects should probably not be undertaken when there are significant changes in the governmental context of the department such as machinery of government changes, emergent issues impacting the role of the department or change in the occupant of the Secretary's position.

But consistent with a realist understanding of causation Government interventions may create both supportive and unsupportive conditions for a SISP project. They may create conditions for organisational change, which may be favourable for new IT based projects a point made by the GM IT in the third case study. But it depends on the nature and degree of change that the intervention entails. In case study two the degree of change was highly disruptive so that it had mainly negative effects whereas in case three it was mediated by the new Secretary and supported some aspects of the original SIS plan while being unsupportive of other aspects especially those not consistent with the centralising agenda. This also implies that SISP advocates need to understand the mediating role of the Secretary between the internal and external contexts of the department and the ability of the Secretary to mediate the effects of the intervention.

10.6.7 Finding 7 – Central Agency Intervention Mechanism

Evidence of the effects of a Central Agency Intervention Mechanism

The intervention mechanism of the OCIO, a central agency of government, was evident in the third case study. This required the department to adopt a whole of government policy for the use of a shared data centre for departmental data that had not been anticipated in the SIS Plan. In case two the Government Intervention mechanism was evident but the Treasury department was the vehicle through which the intervention was made. The evidence for the operation of the Central Agency Intervention mechanism in the case studies is summarised in Table 10.17 Case Study Evidence for Central Agency Intervention Mechanism. This mechanism was not evident in the first and fourth case studies.

Case	Evidence
1	N/A
2	The Government Intervention Mechanism worked through the Treasury central agency.
3	SIS Plan had to accommodate requirement to use whole of government shared services IT facility.
4	N/A

Table 10.17 Case Study Evidence for the OCIO Intervention Mechanism

Retroduction of the Mechanism

The Government may intervene in a department directly or through the use of central agencies such as the Treasury department and the Office of the Chief Information Officer (OCIO). Hence the power of these agencies arises from their structural role as instruments of centralised control by the Government. These are government organisations with whole of government responsibilities rather than particular Ministerial portfolios and have varying degrees of power to oblige departments to comply with whole of government strategies. The government uses central agencies to impose strategic policy frameworks on departments and as a means by which departments are held accountable for the use of financial and IT related resources.

The actions of these agencies are influenced by the discourse of organisational efficiency and in the case of the OCIO, efficiencies to be gained through whole of

government IT strategies. In case study three this was the requirement for departments to comply with the use of a new whole of government, shared services IT facility. The effect of such interventions constrains departments in terms the choice of such facilities, which may not be of a sufficient quality or capability to meet a particular department's unique requirements. The key structural elements of the Central Agency Intervention mechanism are summarised in Table 10.18 Structural Elements of the Central Agency Intervention mechanism.

Mechanism	Entity	Parts and Relations	Property
OCIO Intervention	OCIO	A central agency is an instrument of government.	Power to direct government departments to adopt whole of government policies for example in relation to the use of shared IT facilities.

Table 10.18 Structural Elements of the Central Agency Intervention mechanism

Connections with the Literature

Central agencies such as the OCIO in case study three and their impact on the SISP process are not specifically discussed in the public sector SISP literature but similar entities are. Hackney and McBride's (2002) case study of IT strategy in a UK hospital shows how various similar authorising entities limited the autonomy of the hospital in its efforts to implement its strategy. Horton (2003) notes that in his case study of the UK police force there were external pressures to develop formal IS strategies. They are specifically noted in the public management literature (Moore 1995, p.119). Case two and three provide evidence in support of Moore's (1995, p.119) contention that central agencies wield considerable power over government departments and they are vulnerable to intervention by such agencies. DiMaggio and Powell (1983) identify three types of institutional mechanisms coercive, normative and mimetic. Some of the causal mechanisms identified in this thesis can be seen as examples of these institutional mechanisms. The three intervention mechanisms (government, central agency and Secretary) can be seen as examples of coercive institutional mechanisms. The approval, engagement and advocacy mechanisms can be seen as examples of normative institutional mechanisms. The integration mechanism, which draws on ideas about organisational transformation through

information technology can be seen as a mimetic institutional mechanism (refer finding 12).

Implications for Public Sector SISP

Central agencies are part of the external governmental context that departments are forced to deal with. They may impose requirements on departments that may conflict with the strategies generated by a SISP project and force departments into whole of government frameworks or contracts that may be unsuited to the local needs of a department. The three intervention mechanisms (Secretary, Government, Central Agency) show how SISP projects are vulnerable to reorientation by entities with greater organisational power either within the department or the wider governmental context.

10.6.8 Finding 8 – IS Demand Management Mechanism

Evidence of the effects of an IS Demand Management Mechanism

The IS Demand Management mechanism is manifest in specific practices in departments to control access to scarce IS support services such as the use of service level agreements for system support and, at a strategic level, the management of the overhead costs of corporate systems and the demand for new systems through strategic management frameworks that result from SISP projects. A reason for the initiation of the SISP project in the first case study was the need to better manage the overhead cost of the department's corporate systems. The business case for the integrated system architecture proposal argued that these costs and the costs of maintaining numerous shadow systems in regional offices could be reduced, by greater integration of central systems and making them more responsive to regional needs thus reducing the need for shadows systems and the associated staff. Hence the IS Demand Management mechanism was a contributing factor in both the initiation and final output of the SISP project.

The IS Demand Management mechanism was more evident in a different form in case studies two and three. In these cases a portfolio rather than business unit specific view of the department's applications was promoted. This portfolio approach required the establishment of business cases for proposed IT projects from business

units, which would then be assessed within the total portfolio of ICT investments to assess relative priority in terms of business importance. Only those proposals with high business importance would receive approval and funding to proceed from the department's IT governance body (Knowledge Management Committee). The evidence for the operation of the IS Demand Management mechanism in the case studies is summarised in Table 10.19 Case Study Evidence for IS Demand Management Mechanism.

Case	Evidence
1	• SISP project initiated in response to perception of large overhead cost of the IT function and shadow systems. Use of SLAs.
2	• Consultants develop a governance strategy (EBV framework) to manage escalation of costs of ICT opportunism by branches. Priority to be determined by the KMC. Use of SLAs.
3	• KMC approval of project funding on the basis of business priorities that are agreed with all business units. SIS plan used as a way of coordinating the demands for ICT infrastructure projects. Use of SLAs..
4	N/A

Table 10.19 Case Study Evidence for IS Demand Management Mechanism

Retroduction of the Mechanism

The IS Demand Management mechanism emerges from the agency of individuals and groups located within the corporate IS management function of departments and particularly the agency of the responsible Director. Ongoing pressures for reduced corporate IT overhead plus unrelenting demand for IT support services from business units are the triggering conditions for this mechanism. There are different ways of managing the demand for IS support in an organisation including the traditional service level agreements (Ward and Peppard 2003, p.524) that set out the terms and conditions on which support will be provided. The control of demand is also manifest through the SISP project. At the strategic level business units seek to initiate new IT projects, which entail support demands on the corporate IT function. Both of these kinds of occurrences can be seen as the effects of the Fragmentation and the IS Support Demand mechanisms respectively. SISP projects seek to manage the uncoordinated initiation of IT projects by business units through the institution of such things as portfolio management frameworks, as was proposed by the consultants

in the second case study and implemented in the third case study department. Such frameworks endeavour to establish a criterion for the deciding which proposals will be allowed to proceed and in this way control demand. The key structural elements of the IS Demand Management mechanism are summarised in Table 10.20 Structural Elements of the IS Demand Management Mechanisms.

Mechanism	Entity	Parts and Relations	Property
IS Demand Management	The corporate IT function of the department and associated IT resources.	The Director of the corporate IT function has formal responsibility and significant resources to manage demand for IT support services from business units of the department.	Power to formulate and promote IT demand management arrangements such as service level agreements and portfolio management frameworks arising from SISP project recommendations..

Table 10.20 Structural Elements of the IS Demand Management Mechanism

Connections with the Literature

Corporate IT branches typically provide a range of support services to business units including system planning, system development, system support and technology infrastructure support and maintenance (Ward and Peppard 2003, p.355). Case study one, two and three provide support for the observation in the SISP literature that corporate IS functions endeavour to manage internal demand for these services from business units through instruments such as the traditional service level agreements (Ward and Peppard 2003, p.524). Ward and Peppard (2003, p.44) also see the strategies that result from SISP projects as essentially the matching of the demand for new systems to the supply of information technology products and services hence a key deliverable of the SISP project is a comprehensive articulation of business unit demand for new systems and support services (Ward and Peppard 2003, p.233). In private sector organisations portfolio management techniques are used to manage this more strategic level of demand (Ward and Peppard 2003, p.323) and these were instituted during the SISP projects in case study two and case study three. Garson (2006, p.330) notes the use of portfolio management approaches in SISP in the US public sector. Portfolio IS management approaches require the use of IS governance committees such as the Knowledge Management Committee in case study two and

case study three but problems with achieving agreement on priorities were particularly strong in case study two. The difficulties with obtaining agreement on IS objectives in public sector organisations is noted by Ballantine and Cunningham (1999, p.299) as confirming a problematic assumption of private sector SISP approaches in such settings. However such problems are also found in the private sector setting (Ward and Peppard 2003, p.372, p.434).

Implications for Public Sector SISP

Government departments are resourced constrained organisations so they experience a structural constraint via their limited funding from the Treasury but an uncontrolled demand for their services from the community. The Government's expectation is that department's will be managed in such a way that the overhead drain on organisational resources of internal corporate service support functions, such as IT, away from the primary service delivery obligations to the community will be minimised. Internally this situation leads to a constraint on funding for organisational support services leading to an intense and politically charged debate about support priorities. Hence managing the demand for support and the cost of the corporate IT service is a key reason for the initiation of SISP projects in government departments. The emphasis on corporate overhead efficiency tends to foster an overriding concern with financial management rather than long term strategic enhancement (Ward and Peppard 2003, p.317).

Managing the strategic demand for new systems is a key focus of the SISP analysis manifest in the IS portfolio management approach which tries to establish an agreed criteria across all business units to decide the allocation of project resourcing. However this is difficult for at least two reasons. First because such frameworks do not necessarily resolve questions around relative levels of business importance of IT projects proposed by different business units and second, because their conceptual underpinning is not immediately applicable to a public sector context where priorities are set by government often in response to politically sensitive issues. Case study two demonstrates this since the issue of relative business importance could not be resolved by peer level Directors on the KMC. In other words these frameworks cannot resolve the politics associated with the competition of limited internal resources for support functions particularly as they compete with more service delivery oriented priorities

that more directly respond to government priorities. This leaves unresolved the strategic issue of how decisions about the choice of new information systems should be made.

Departments continue to increase their use of and hence dependency on information systems but are constrained in their ability to adequately resource the support need but the underlying causal forces driving the conflict between supply and demand for IS support services and new systems are generated by the structural predicament of government departments. These structural tensions together with the vulnerability of departments to intervention seriously limit the autonomy of departments to maintain long term control over the strategic priorities for their information systems investments. Ballantine and Cunningham (1999, p.299) note that private sector SISP approaches assume organisations have much greater control over their choice of strategic actions than government departments actually possess.

10.6.9 Finding 9 – IS Support Demand Mechanism

Evidence of the effects of an IS Support Demand Mechanism

All of the case study organisations maintained significant corporate IT functions that provided a range of IT support services to business unit users of information systems but the demand for support was most strongly registered in case study two and three. In the second case study an issue for the Director of the corporate IT function was the growing demand on the corporate IT branch for systems support from business units around the department who had developed their own information systems. In the third case study the CKO reported that as business units developed more applications they were seeking more capable IT infrastructures from the corporate IS branch. The evidence for the operation of the IS Support Demand mechanism in the case studies is summarised in Table 10.21 Case Study Evidence for the IS Support Demand Mechanism.

Case	Evidence
1	N/A
2	• Business units create overwhelming demand for corporate IT support • Branch Manager Shared Services insists on corporate IT support
3	• Business units requesting supporting IT infrastructures for their applications
4	N/A

Table 10.21 Case Study Evidence for the IS Support Demand Mechanism

Retroduction of the Mechanism

The IS Support Demand mechanism emerges from the business units of the department and the staff in them who have helped to create their own business systems which require technical support or interconnection with corporate systems. Having created local information systems that become important for the operations of the business unit there is a subsequent experience of complex technological and informational support needs. Business units have a choice between investing more resources in supporting these systems or seeking this support form corporate sources within the organisation. Business units also experience the need for supporting whole of department IT infrastructures to enable their applications to interconnect or to enable the availability of their applications to different users groups who might also be in remote locations. Hence the support demand mechanism activates when business units are unable to meet the support service requirements of their information systems themselves. The key structural elements of the IS Support Demand mechanism are summarised in Table 10.22 Structural Elements of the IS Support Demand mechanism.

Mechanism	Entity	Parts and Relations	Property
ICT Support Demand	Business units (divisions and branches).	Business units (divisions and branches) who have become dependent on IT but who lack the ability to solve support issues or manage IT projects.	Business units (divisions and branches) draw on the obligation of the corporate IT branches to provide IT support. This power of demand arises from the growing dependency of government departments on IT as they are encouraged to increase the use of IT based ways of working.

Table 10.22 Structural Elements of the IS Support Demand mechanism

Connections with the Literature

The IT support services issue was not found in the review of the public sector SISP literature but it is recognised in the private sector SISP literature (Robosn 1997; Ward and Peppard 2003). The changing nature of IT dependency in private sector organisations has increased the importance of IT service support in two ways first, because for many firms business is conducted with customers via IT facilities so the quality of IT service is visible both within and outside of the organisation and second, because the dependency on market entities for the provision of IT services has meant that the performance and cost of these arrangements has become a central IS management concern (Ward and Peppard 2003, p.524). In regard to the first development there is a distinction between the efficiency of the supply of IT support services and the business value view of these services, which are not necessarily equivalent. Hence IT service provision has to consider the perception of the business value of these services by users, their expectations and the interaction with IT service personnel (Ward and Peppard 2003, p.526). In regard to the second development the cost of acquiring such services and who bears it remains a fundamental resource management issue and outsourcing introduces attendant risks. Hence the SISP literature advocates the need for a more strategic response to these issues through the development of IT service strategies (Ward and Peppard 2003, p.524) but the strategic decision is whether decisions about the choice of such services should be

decentralised to business units or remain with the central IT management function (Ward and Peppard 2003, p.363).

Implications for Public Sector SISP

Public sector organisations are using information systems in ways that are raising the perception of quality of IT service delivery with the public and clients of government services and in a resource constrained setting the cost of the necessary support services is an ongoing issue. If business units have IS support resources then corporate IT functions experience less pressure from this mechanism of support demand. However the strategic issue is where the decisions for the choice of services should be located that is whether this should be devolved to business units or located with the central IT function. To some extent this will depend on whether top management of the department adopts a centralised or decentralised management style but will also be part of existing IT governance approaches such as the use of IT steering committees, which were evident in all case studies. It will also be associated with the general approach to managing demand for new information systems in the context of government imposed resource constraints on corporate support functions. Hence the IS Demand Management mechanism is also a response to the IS Support Demand mechanism.

10.6.10 Finding 10 – Project Control Mechanism

Evidence of the effects of a Project Control Mechanism

The Project Control mechanism refers to the management of the SISP project team and the implementation stage of the SISP project and was in evidence in the first and fourth case studies. In the first case the SISP advocate, Manager ISPU implemented controls over the implementation stage of the SISP project and in the fourth case study the SISP project advocate, Manager IA, reorientated the SISP consultancy to focus on IF rather than on an architecture to address the general information management issue identified in the HPD service delivery system just prior to the consultancy. The Manager IA also restricted the action of the engagement mechanism by limiting the range of stakeholders the consultants were allowed to consult with. This was ultimately not supportive of the HPD SISP project. The evidence for the operation of the Project Control mechanism in the case studies is summarised in Table

10.23 Case Study Evidence for Project Control Mechanism. Note that this mechanism was not evident in the second and third studies.

Case	Evidence
1	• Compliance with Planning Manager to obtain project funding • Compliance with project management methodology
2	N/A
3	N/A
4	• Manager IA rejects initial HPD SISP consultant system architecture and reorientates to focus on IF • Manager IA prevents HPD SISP consultants from engaging with all stakeholders

Table 10.23 Case Study Evidence for the Project Control Mechanism

Retroduction of the Mechanism

The SISP process is usually controlled by the SISP Advocate or an associated individual charged with the task of project managing the SISP project. The ability to control a SISP project arises from the agency of the individual combined with the structural powers associated with occupying a senior position within the SISP project team. Managing a SISP project is challenging because of the large amount of organisational research and analysis that must be undertaken as well as the consultations with many stakeholders in varying roles and with different interests and levels of influence. Often this must be carried out in a relatively short period of time and yet still achieve a thorough and comprehensive analysis with time for frequent presentation in authorising forums to build consensus and with a view to obtaining endorsement of the SIS plan at the Executive level.

In the prescriptive project management literature project managers are considered responsible for controlling and directing the project team and ensuring that the project delivers what it has been set up to produce within given constraints around cost and time. In this regard project managers have considerable powers to control and direct the activities of project team members to ensure projects do not fail. Clegg and Courpasson (2004, p.528) comment "the project leader … has a certain power over other team members". The control of consultants is also one of the 'critical incidents' Kaulio (2008, p.343) studied in relation to project leadership. For project leaders "how to get a specific (specialist) consultant assigned to the project" and "how to

manage and monitor consultants doing major work packages in the project; … indicates that … the project leader must devote time to managing this specific relationship" (p.343-344). Such powers are triggered if the project manager detects that the project is deviating from what its objectives are understood to be. The key structural elements of the Project Control mechanism are summarised in Table 10.24 Structural Elements of the Project Control mechanism.

Mechanism	Entity	Parts and Relations	Property
Project Control	SISP Advocates who control the SISP project	Organisational actors in a structurally related positions which grant authority to direct SISP projects	Power to reorientate and control direction of the SISP Project

Table 10.24 Structural Elements of the Project Control mechanism

Connections with the Literature

The way the process of SISP occurs in organisations has been a major focus of research in the private sector SISP literature. Segars, Grover and Teng (1998, p.313) argue that the SISP process is better when it promotes a form of organisational learning "which is structured and formalized; yet 'learns' through adaptive behaviours of participation and reconciliation". Participation refers to the range of stakeholders involved. SISP projects, involve processes of consultation with relevant organisational stakeholders to determine the need for information systems and to engender consensus to recommended strategies. However the ability of a consultancy project to deliver strategic benefits can be impaired by too much control. Artto et.al. (2008) note that much project management literature assumes a dominating 'parent' or host organisation for the project. This means "there is not much freedom for the project to derive the project's goals autonomously or to use other mechanisms for strategy creation than the one dictated by … or strongly constrained by one strong stakeholder … whose interests the project must continuously follow" (2008, p.6). Moore (1995) uses the concept of a "latent constituency" (1995, p.116, p.133) in one of his case studies about a government official in which "a potentially important opportunity was lost because of his failure to engage … a latent constituency … that would have agreed with his reasons" (1995, p.146) for a particular initiative that was blocked. Such constituencies can be "activated". This is particularly relevant to the

Manager IA's refusal to allow the consultants to engage more widely with the "latent constituency" of stakeholders including the person who was to become the ED of HPD. Engagement with the Assistant ED, as latent constituent, may have engendered his support, as a latent causal mechanism, of the HPD implementation project when he became ED. It is also relevant to the Manager ISPU in the first case study whose actions to control the implementation of the SIS plan recommendations generated strong resistance from the owners of the affected systems. In this case although these stakeholders were engaged with during the planning phase of the SISP project the implementation phase revealed underlying resistance to the goals of the SIS plan that they had not previously disclosed so that a less control oriented approach during implementation was needed.

Implications for Public Sector SISP

The Project Control mechanism has a direct effect on the consultative and implementation processes of SISP projects. During the development of the SIS plan the pressure of managing a SISP project in a short period of time tends to encourage a strong project management approach to managing the consultation process. In addition the political sensitivities of the SISP engagement process create difficult interpersonal dynamics that are conducive to greater engagement with favourable stakeholders than ones who may be more sceptical or resistant.

The case studies show that the project control mechanism can impair the engagement mechanism and directs attention to the role of the SISP Advocate in facilitating stakeholder participation and the consultative work of SISP consultants. Because consensus to the recommendations of SISP project is the foundation for approval from the senior management group of the department, the primary objective of SISP advocates must be to facilitate the action of the engagement mechanism in constructive ways that allow as much opportunity for the vital task of generating consensus and revealing latent constituencies. But the ability of consultants to do this is weakened if the SISP Advocate exerts too much personal control over which stakeholders they may consult with.

This finding makes a contribution to the SISP literature, which is relevant to both private and public sector organisations. The discussion of the collaboration

mechanism showed that while the dominant style of organisational management has been identified as important in the Knowledge Management literature in relation to the ability of organisations to learn (Brown and Duguid 1991; Tsoukas and Mylonopoulos 2004; Mylonopoulos and Tsoukas 2003), the particular style of project management adopted by the SISP Advocate has not received much attention. The essential point is that project control must be governed by the need to generate consensus by allowing sufficient latitude for consultants to engage with a wide range of stakeholders and in a way where collaboration about strategic issues and strategies is engendered and consensus can emerge.

10.6.11 Finding 11 – Approval Mechanism

Evidence of the effects of a Approval Mechanism

The Approval mechanism was activated in case study one, two and case four. In case one the Executive of the department approved the recommendations of the SISP Project and in case four the Minister approved funding for the SISP project and subsequently endorsed the SIS plan. In case study two the first Secretary approved the initiation of the SISP project. But cases two and four also demonstrate where the approval mechanism was not activated. In case two the Director ITB could not obtain approval for the recommendations of the SISP project and in case four the BM PPE could not obtain approval from the second ED HPD to commence the development of a CRM system for the division. The evidence for the operation of the Approval mechanism in the case studies is summarised in Table 10.25 Case Study Evidence for Approval Mechanism.

Case	Evidence
1	• Board approval of the CSSP and provision of budget
2	• First Secretary approves initiation of the SISP project
3	N/A
4	• Minister approves funding for HPD SISP project • Minister endorses the IF SIS Plan for HPD

Table 10.25 Case Study Evidence for the Approval Mechanism

Retroduction of the Mechanism

The power to approve arises from the structural position that agents occupy within the internal bureaucracy of the department. The Executive of the department, comprised of the Secretary and Executive Directors of the department's divisions, is the highest decision making group in the department subject only to Ministerial direction and legislative obligations. It is therefore able to approve major resource allocations to give effect to any proposal that is put to it for consideration. Executive Directors have similar powers in relation to the divisions of the department under their control. The source of the powers of the Minister is their personal agency coupled with the position they hold as a member of the government. The Ministerial role is the most powerful of all positions in the government bureaucracy and the powers of this role are exercised through the control of public sector organizations including the ability to grant critical resourcing especially to initiatives that offer to resolve strategic problems in the Minister's portfolio or enhance the political image of the Minister and the Government. Hence the approval mechanism is triggered when proposals are perceived to align with the priorities of government, departmental objectives that support these priorities or internal departmental imperatives for improvement in efficiency and effectiveness. The key structural elements of the Approval mechanism are summarised in Table 10.26 Structural Elements of the Approval mechanism.

Mechanism	**Entity**	**Parts and Relations**	**Property**
Approval	Senior decision makers (Ministers, Secretaries and Executive Directors, IT Governance Committees)	Collectively Ministers form the Government and have authority over departmental Secretaries. Within a department Secretaries and Executive Directors, and IT Governance Committees all hold senior positions in the departmental hierarchy.	Powers to authorise or withhold approval for the recommendations of SISP Projects.

Table 10.26 Structural Elements of the Approval mechanism

Connections with the Literature

Top management support for SISP is identified in the private sector SISP literature as important (Ruohonen 1991, p.19; Kearns 2006, p.236; Teo and Ang 2001, p.457) and the cases shows that the actions of the senior managers of the department particularly the Secretary and Executive Directors of divisions had important consequences for the SISP project in each case. But Duffner, Holley and Reed (2002, 2003) argue that the top management equivalent in the public sector is elected officials not senior public servants and these elected officials, such as Ministers, are not involved in SISP in public sector organisations such as government departments. This position suggests that SISP projects currently carried out within government departments have little strategic status because senior managers of departments are cut off from the real strategic domain at the Ministerial level. But this overlooks the fact that the bureaucracy is the source of important input to the government's strategic agenda and senior public servants work closely with Ministers providing policy advice to Cabinet concerning both existing and proposed government initiatives. As evidence of the importance of this proximity is the fact that the fourth case shows the Minister approved funding for a SISP project and the SIS plan it eventually produced providing evidence contrary to Duffner, Holley and Reed (2002, 2003) in that elected officials are on occasion directly involved in SISP projects.

Implications for SISP in the Public Sector

Within the internal hierarchy the Secretary and this position's direct reports at the Executive Director level control the strategic agenda and operation of the department consistent with government policy. This stratum of the bureaucracy constitutes the top management of the department and in the case studies was involved in the SISP projects described in the case studies for this thesis. They contribute to the Government's strategic agenda and they mediate this agenda back into the department. Hence one contribution of this thesis is to broaden the concept of top management used by Duffner, Holley and Reed (2002, 2003) to include not just elected officials such as the Minister but also the highest stratum (Secretary plus direct reports) of the non-elected bureaucracy of public servants within a department who are closely involved in the development and implementation of the Government's strategic programs.

10.6.12 Finding 12 – Integration Mechanism

Evidence of the effects of an Integration Mechanism

The integration mechanism was most evident in case one and four but was also an important idea in case three. In case one a key recommendation of the consultants was an integrated systems architecture that would link the systems of the CSD and provide functionality to reduce the need for regions to maintain shadow systems. This was to be achieved using EAI technology but was impeded by lack of available technical expertise. In case study three the intervention of the Secretary caused the initiation of an integration initiative or the Integrated Courts Management System, which was focussed on IT enabled process integration for administrative support to the state Courts system. In case four the integration mechanism was manifest as the Integration project which sought to meet all of the department's client management information needs through one technology platform (CRM) rather than having different platforms for HPD and FWD. The evidence for the operation of the Integration mechanism in the case studies is summarised in Table 10.27 Case Study Evidence for Integration Mechanism.

Case	Evidence
1	• Integrated application architecture required interconnection of previously autonomous systems to exchange information • Modification of CSD systems to better support regional information needs • Central management role of Board requiring integrated sources of management information
2	N/A
3	• Second Secretary initiated integration through the Integrated Courts Management System project • Implementation of enterprise architecture framework for new systems
4	• The Business Transformation project identifies emergent need for coherent response to client needs across multiple divisions providing client support • HPD seeks a seamlessly integrated system for information across its service delivery system • CITB argue for a single replacement environment for older client support systems • CITB and FWD initiate Integration project

Table 10.27 Case Study Evidence for the Integration Mechanism

Retroduction of the Mechanism

In case studies one and four the integration mechanism arose from the efforts of SISP advocates and consultants to find ways of overcoming the fragmentation effects of separately developed corporate systems and shadow systems in regions. In case study three the push towards greater organisational integration supported by a corresponding integrated information system arose as a result of the Secretary's Intervention mechanism. Hence the integration mechanism emerges from the agency of structurally powerful agents and it is triggered by persuasive arguments about the benefits of greater system and organisational integration as a solution to the problem of fragmented, non-standard systems and information. Hence greater integration promises improvement in efficiency and effectiveness by reducing the variation and diversity of organisational processes and systems.

The fragmentation mechanism produces isolated stores of information across the organisation because independently developed business units systems are not interconnected and are not designed with an overarching architecture in mind that would ensure consistency of information definitions, sources and system interfaces to enable the exchange of information. The integration mechanism works by addressing this problem by removing incompatibilities between subcomponents of an organisation or system and enforcing standardised approaches to information systems development as well as restricting the scope for independent development of such systems. The key structural elements of the Integration mechanism are summarised in Table 10.28 Structural Elements of the Integration mechanism.

Mechanism	Entity	Parts and Relations	Property
Integration	SISP Project groups, Secretary.	SISP advocates and consultants who have recognised roles to promote strategic management of information systems through greater systems integration. The Secretary's position is the most powerful structural position in the internal bureaucratic hierarchy of the department.	Power to formulate and implement organisational approaches, which enforce compatibilities between interfacing subcomponents of systems and organisational business units. Powers to restructure organisational arrangements.

Table 10.28 Structural Elements of the Integration mechanism

Connections with the Literature

In the private sector SISP literature integration of information systems and information is seen as an important reason for having a SIS plan especially to support an integrated business strategy where some form of business process reengineering is contemplated such as in enterprise systems for supply chain management (Ward and Peppard 2003, p.47, p.132, p.164, p.468, p.481, p.542). Business process reengineering has also been applied in the public sector with integrating effects on service delivery processes (Andersen in Heeks 2001). Case studies one, three and four illustrate the prevalence and influence of integration ideas in relation to information systems and organisational change in government departments. A key attraction of these ideas is the vision of interoperating systems generating a seamless flow of comprehensive information (Gosain (2004, p. 152) which inspired the SISP advocate in case study four. This supports Kanungo, Sadavarti, Srinivas (2001, p.31) that in public sector organisations information systems are seen as a way of initiating business change through the integrating effects of technology. Organisational integration efforts also arise from the influence of NPM reforms seeking more coherent and 'joined up' forms of government organisations.

Systems integration has been seen as an issue for SISP (Wainright and Waring 2004, p.335) particularly in relation to Enterprise Resource Planning (ERP) systems, which

imply the need for total systems and operational integration across the organisation (Gosain 2004, p.152). Success with such systems is difficult to achieve because it requires simultaneous attention to four domains technical, systems, strategic and organisational (Waring and Wainright, 2000; Wainright and Waring, 2004; Elbana 2007). Case one provides evidence of the use of EAI technology for integration purposes (Themistocleous, Irani and Love, 2001) but the ability of the host department to use this technology effectively was limited because of insufficient technical expertise and resistance to efforts to integrate corporate systems and decommission shadow systems. All three of these authors note that in practice the organisational and social dimensions of integration are not well understood or addressed.

Case one and three also show the use of enterprise IS architectures as integrating frameworks facilitating centralisation in the public sector supporting Garson (2006, p.452). The integrated architecture proposed in case one as a solution to the fragmentation of systems and information is consistent with Markus (1983) who showed the imposition of centralised approach on a decentralised organisation was used to counter the independence of sub units of the organisation. In case study three the integrating mechanism reinforced the Secretary's thrust towards greater centralisation of IS resources.

Implications for Public Sector SISP

The attempts to integrate IS in government departments is a response in part to the fragmentation of IS within organisations stemming from the autonomy of business units who develop their own IS. However the evidence from the private sector experiences of EIS suggests that the greater the degree of integration the tighter the coupling of organisational functions and hence the less flexibility that organisations have for responding to non-standard events and situations (Gosain 2004, p.153, p.168). This literature also suggests that the integration characteristic of EIS has an implicit centralising tendency (Gosain 2004, p.169). Hence the pursuit of organisational and system integration encouraged by the use of SISP in the pubic sector raises an issue where decentralised and loosely coupled organisational arrangements, such as in case study one and four, are found both as a historical legacy of the less integrated frameworks for service delivery as well as information systems

development in the past, and as a result of the more recent disaggregation of public services in line with NPM reforms that have sought a greater role in public services delivery for market and semi-private based entities. This literature also finds that when there is a mismatch between the centralising tendency of integration and current ways of working shadow systems will emerge (Gosain 2004, p.167), which is consistent with the finding of case study one and with Boudreau and Robey (2005, p.11) who note that users create shadow systems to overcome the limitations of central systems. Hence similar problems encountered by highly centralised system discussed in relation to the fragmentation mechanism will be manifest in relation to highly integrated systems because of the similar organisational incompatibilities they generate (Willcocks, 1994; Bellamy and Taylor, 1998).

10.6.13 Finding 13 – Collaboration Mechanism

Evidence of the effects of a Collaboration Mechanism

In the third case study the first Secretary of the department actively supported the introduction of organisational learning approaches within the department by appointing a Chief Knowledge Officer (CKO) to implement a Knowledge Management Strategy (KMS). The CKO subsequently incorporated a Community of Practice (CoP) initiative within the KMS because such communities are seen as an important way of facilitating organisational learning (Brown and Duguid 1991) and this initiative was successful. In a CoP participants share information and ideas voluntarily and this illustrates the action of a collaboration mechanism. The evidence for the operation of the Collaboration mechanism in the case studies is summarised in Table 10.29 Case Study Evidence for Collaboration Mechanism. Note that this mechanism was only evident in the third case study.

Case	Evidence
1	N/A
2	N/A
3	• First Secretary's focus created conducive organisational conditions for forms of organisational learning to occur • CKO facilitated introduction of a CoPs, which flourished through a natural flow of interest by participants.
4	N/A

Table 10.29 Case Study Evidence for the Collaboration Mechanism

Retroduction of the Mechanism

People in organisations have the potential or causal power, for collaboration in knowledge creating communities and the emergence of a CoP shows the activation of this power or mechanism. CoPs emerge when individuals discover a common interest in relation to some professional or organisational need or problem that benefits by the voluntary sharing of knowledge (Brown and Duguid 1991). Mylonopoulos and Tsoukas (2003, p.141) refer to this as the social-organisational mechanisms of knowledge sharing. Whether the collaboration mechanism will be activated is influenced by agential awareness of others with mutual knowledge interests and the potential benefits from sharing knowledge. Activation may also occur through organisational initiatives to raise awareness and provide supportive conditions and facilities.

Communities of Practice may develop from existing groups such as management committees but there must be group leaders to promote the culture of information sharing. Sufficient time is required for these groups to emerge and a supportive management environment, involving more decentralised authority providing some autonomy for local groups within the organisation and less emphasis on efficiency and hierarchical control, for them to flourish (Mylonopoulos and Tsoukas 2003, p.141, 143). The key structural elements of the Collaboration mechanism are summarised in Table 10.30 Structural Elements of the Collaboration mechanism.

Mechanism	Entity	Parts and Relations	Property
Collaboration	Community of Practice (CoP)	Membership of a CoP.	Power to generate sharing of information and ideas amongst individuals and groups with common interests and needs in the organisation.

Table 10.30 Structural Elements of the Collaboration mechanism

Connections with the Literature

Incorporating Knowledge Management approaches within SISP approaches is consistent with the view of SISP as a form of organisational learning (Huysman, Fischer and Heng 1994; Reponen 1998; Segars and Grover 1998, 2005). In the third case study the first Secretary's managerial approach facilitated the CoP supporting Brown and Duguid's (1991) argument that CoPs will flourish when internal organisational communities have some autonomy and Mylonopoulos and Tsoukas (2003) and Tsoukas and Mylonopoulos (2004) who argue that for knowledge exchange and creation a consensual management style is required to facilitate social-organisational mechanisms of knowledge sharing. The second Secretary's centralising and control oriented intervention reinforces these arguments because her actions led to the abolition of the CoP initiative that the CKO had established. The negative reaction of the second Secretary also provides support for Giroux and Taylor (2002) point that for an innovative idea to be successful it must be seen to support the agenda of powerful individuals and influential groups.

Implications for Public Sector SISP

Brown and Duguid (1991) argue that the emergence of CoPs is important for organisational learning and CoPs help organisations become enacting organisations (Daft and Weick 1984), which are both adaptive to environmental conditions and proactive in terms of organisational innovation. CoPs do this by helping organisations move beyond the restrictive effects of formal ways of working and practice. Such an approach is consistent with the view of SISP as a form of organisational learning (Huysman, Fischer and Heng 1994; Reponen 1998; Segars and Grover 1998, 2005) and it is also consistent with the need for effective engagement with SISP

stakeholders so that their contribution is acknowledged. The third case suggests SISP advocates should use organisational learning approaches such as CoPs to facilitate the engagement mechanism.

Hence this mechanism provides support for the argument that SISP should be approached as an organisational learning process. However the case studies suggest that in the public sector the bureaucratic structures of government departments foster a control oriented culture and this is detrimental to the more decentralised and less efficiency preoccupied culture required for organisational learning approaches to flourish. The disposition of the Secretary can be instrumental in countering the control culture and instituting more decentralised forms of management but the Secretary's powers are subject to the effects of Government interventions into the range of functions a department will be made responsible for.

10.7 Completed Explanatory Framework (Realist Theory of SISP)

It is now possible to complete the explanatory framework as illustrated in Figure 10.1Realist Explanatory Framework and provide a realist theory of SISP. The open system conceptualisation of SISP from chapter five provided an initial framework for theorising the causes of the outcomes of SISP projects but required the retroduction and theorisation of causal mechanisms, social structures and ideational elements to provide the complete explanation. The preceding analysis of this chapter provides the components for the framework and constitutes the realist theory of SISP advanced by this thesis. The completed framework is provided at Figure 10.4 Completed Realist Explanatory Framework for SISP – A Realist Theory of SISP.

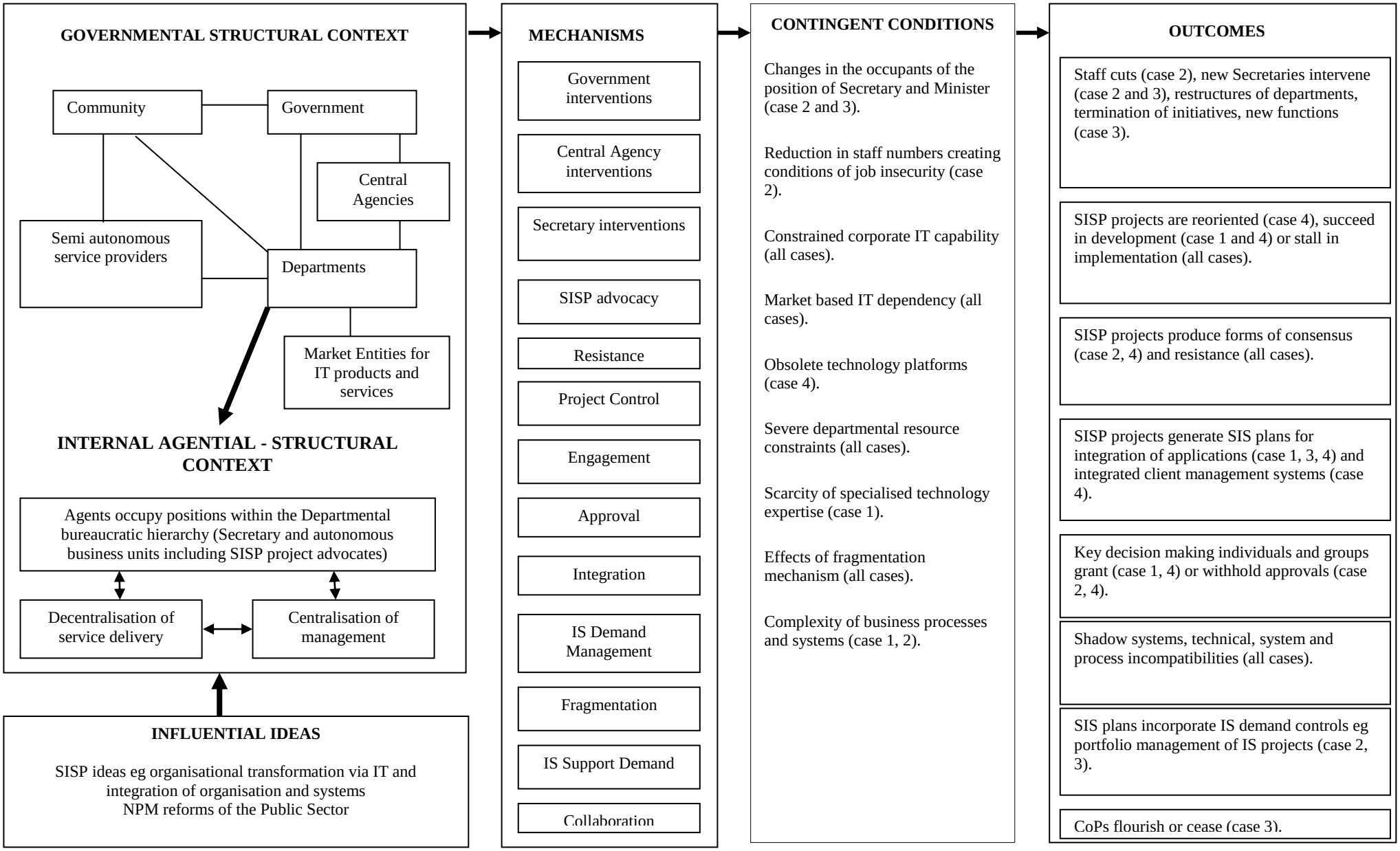


Figure 10.4 Completed Realist Explanatory Framework for SISP – A Realist Theory of SISP

10.8 Conclusion

This chapter has provided the comparative analysis of the four case studies following the suggested approach for realist case comparisons by Bergene (2007). In so doing it has identified external and internal structural contexts of the case study organisations, a set of thirteen causal mechanisms that had a significant impact on the outcomes in each case and nine contingent factors that affected the operation of the mechanisms. Eight of the thirteen identified mechanisms occur in at least three of the case studies providing strong corroboration for their existence in different settings. A further three mechanisms were evident in at least two case studies which gives a total of eleven mechanisms that were evident in more than one setting. Although the effects of the remaining two mechanisms were evident in only one case the possibility of their existence in other settings is not ruled out.

This constitutes the completed theoretical framework for explaining the outcomes of the SISP projects in each case. It enriches the original conceptual framework by indicating the active causal mechanisms, the relevant social structures and the elements of the cultural system or the ideational domain (Archer 1988) from which mechanisms emerge. It also indicates the contingent conditions that shape the operation of mechanisms. The completed explanatory framework of Figure 10.4 constitutes in summary form a realist theory of SISP.

Chapter Eleven

Conclusion and Further Research Issues

11.1 Introduction

This chapter sets out the conclusion of this thesis and follows the suggestions of Robson (2002) for a concluding chapter of a research report or thesis. Robson (2002, p.510) indicates the key elements of the conclusion to a research project as:

48. A response to the research question that the research set out to answer

49. How the research connects with previous knowledge as indicated in the literature review (The connection with the literature was discussed in chapter ten in relation to the thirteen causal mechanisms. This section will indicate the four main contributions to knowledge made by this thesis.)

50. Limitations of the research

51. Lessons learnt from the use of the methodology

52. Implications for practice or policy

53. Suggestions for further research

11.2 The Response to the Research Question

Consistent with the critical realist philosophy that underpins this thesis the form of the answer to the research question is explanatory rather than predictive. Research based on CR proceeds from an assumption of the openness of social reality which means that outcomes of particular practices in social settings cannot be predicted but the mechanisms, social structures, powers and relations that cause outcomes or events can be revealed and explained (Brown, Fleetwood and Roberts 2002, p.5). This means that a realist analysis must identify causal mechanisms that can explain the phenomenon in its context and whose plausibility is strong (Robson 2002, p.38). Causal mechanisms emerge from the structural, agential and ideational ontology of social reality and complete explanation of a phenomenon requires the identification of all of these elements (Taylor and Bain in Fleetwood and Ackroyd 2004, p.276).

However in practice a particular study, such as a set of case studies, can only endeavour to capture some of this totality, where the number of entities involved is manageable and which is adequate for the purposes of the study and such an explanation will always be fallible (Elder-Vass 2005, p.6).

Towards the requirements for a realist explanation, Chapter 10 provided the complete explanatory framework, which is reproduced in Figure 11.1 Complete Realist Explanatory Framework for SISP – A Realist Theory of SISP for understanding the causal elements involved in the explanation of the outcomes of SISP projects in public sector organisations such as government departments. Hence this section proceeds to answer the research question by first providing an overall summary response, then discussing the elements of the explanatory framework and then, in section 11.2.7, providing an overall explanation of the SISP phenomenon.

11.2.1 Summary Answer to the Research Question

As indicated in chapter one this thesis set out to answer the following research question:

> What are the causes of the outcomes of attempts by public sector organisations to develop and implement strategic information systems plans?

In summary form the realist answer to this question, based on the research for this thesis and the explanatory framework developed in Chapter 10 and depicted in Figure 11.1 Complete Realist Explanatory Framework for SISP – A Realist Theory of SISP, is as follows:

> **Outcomes of SISP projects in public sector organisations such as government departments can be explained as the result of the contingent interaction of multiple causal mechanisms originating in the social structures of organisations, their external governmental context and the agency of organisational members who are influenced by the ideas of prevailing discourses relevant to their projects.**
>
> **The contingent interaction of mechanisms means that sometimes mechanisms cancel each other out, reinforce each other's effects or**

modify the effect in some way including the emergence of a dominant causal mechanism that overrides the powers and effects of other mechanisms. Sometimes contingent conditions limit the effectiveness of activated causal mechanisms. Project control may neutralise engagement, advocacy may trigger resistance, resistance may counter integration, intervention may completely derail a SISP project or it may generate organisational conditions that negate collaboration. Sometimes the effects of the activation of causal mechanisms are supportive of the SISP project and sometimes they are not

The following sections explicate each of the elements within the summary answer to the research question.

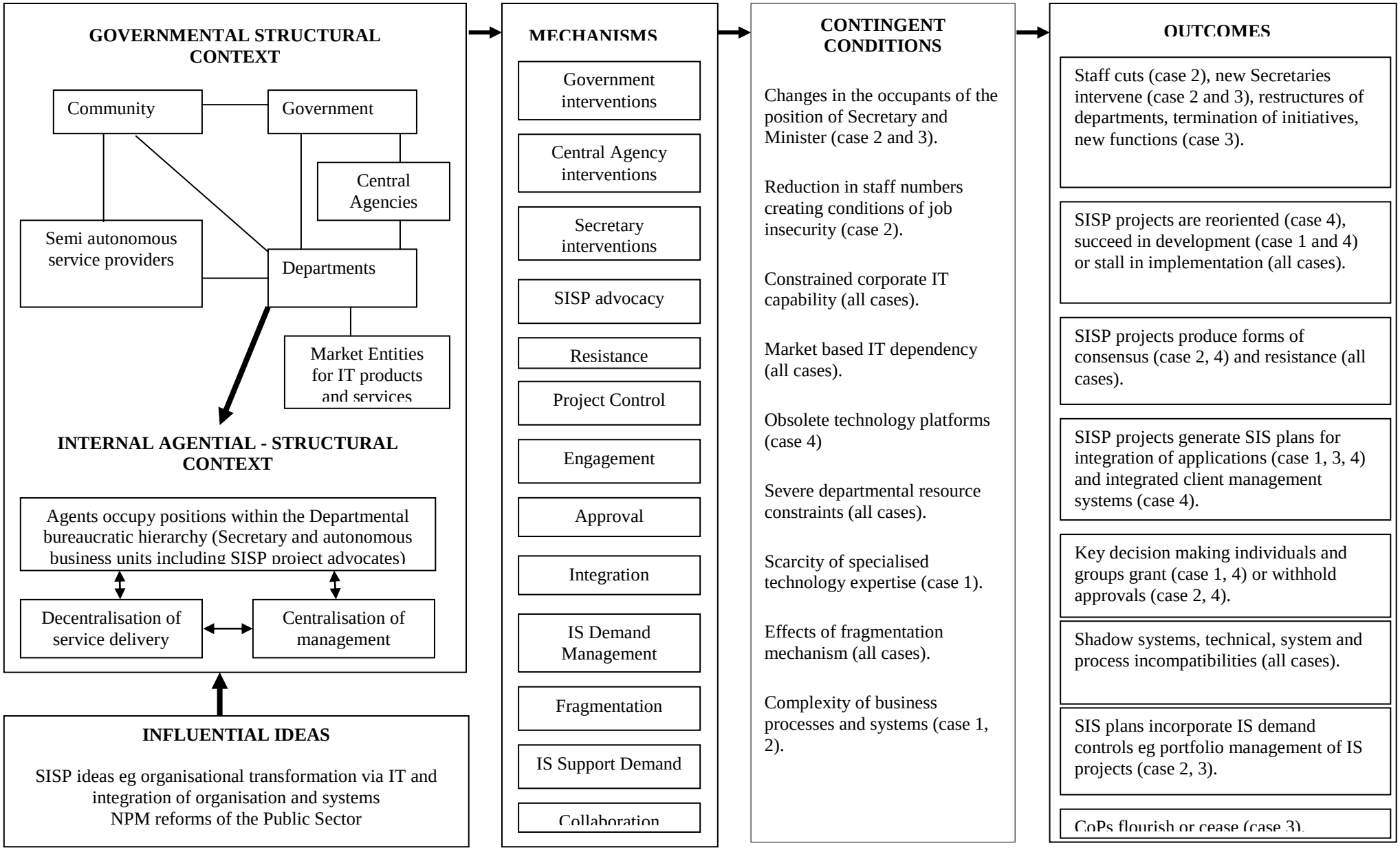


Figure 11.1 Complete Realist Explanatory Framework for SISP – A Realist Theory of SISP

11.2.2 Social Structures

There are two major structural conditions that affect SISP projects in a government department, the internal bureaucratic hierarchy and the external context of government, semi-government service delivery entities and market based providers of relevant products and services such as private sector SISP consulting firms. The internal bureaucratic hierarchy consists of related positions with varying degrees of authority and control over resources. A key functional distinction within the internal hierarchy is that between those functions responsible for forms of direct service delivery to the department's clients and those responsible for internal support services to these functions. Service delivery functions reflect a decentralised mode of operation whereas support functions exhibit a more centralised mode of operation.

The most important entity within the external context of departments is the Government. Departments are dependent on Government for their existence and the Government can abolish or restructure a department. Through the central Treasury agency the Government controls the resources departments are granted. Departments are obliged to implement the strategic policy agenda of Government and they are dependent on Government for the resourcing to do this. The Government can potentially intervene at any time to redirect, restructure or abolish a department, which may have direct consequences for particular departmental projects underway. An important aspect of a department's relationship with Government is resourcing and in Australia, Governments have reduced the size of the public sector and constrained its resourcing. As a result departments operate in a resource constrained environment with constant pressure to reduce the costs of operation.

There are two other important relationships within this external structural context that government department's are involved in. First a relationship with service delivery entities such as semi funded agencies that provide government services. These entities have a measure of structural autonomy from departments but are obliged to conform with departmental policies if they are to continue to receive government funding. They are dependent on the department but the department must invest time and resources in managing this relationship, which requires the management of a significant amount of information particularly where there are many such entities involved. The second relationship is with market - based providers of services that

government departments need such as IT products and services, in order for them to create internal organisational capabilities to manage their functions. In this second relationship departments are in the dependent position and therefore exposed to the vicissitudes of market changes and attendant risks.

11.2.3 Agency

Agents, or occupants of positions, acting as individuals or as groups, are able to draw on the powers and resources associated with their position in the internal hierarchy to perform the duties associated with their position and to pursue various agential projects such as SISP projects. Importantly the internal bureaucratic hierarchy confers a degree of organisational autonomy on the occupants of positions so that they are entitled indeed obliged to pursue projects that fulfil their functional purpose. In fact agents take the initiative to advocate certain projects drawing on their social structural powers to advance these projects and they may acquire additional supporters, through the enlistment of others in the hierarchy or recruitment of people from outside of the department such as consultants to further advance and enable projects.

Functional groupings of the positions in the internal hierarchy (corporate support or service delivery) have different purposes and it is the pursuit of the associated interests and imperatives, which are not necessarily compatible that lead agents into interaction and sometimes conflict. Agential projects take place alongside the projects of other agents and projects may have implications for the organisational autonomy of other agents. Hence agents engage in peer level or horizontal interaction within the internal structure and this may lead to vertical interaction or escalation of issues to higher levels of the hierarchy where agents cannot resolve issues amongst themselves. What this means is that agential projects are constrained by the powers of other agents as a result of their structural autonomy but simultaneously in varying ways enabled by being a member of the organisational hierarchy. Agents do not act completely independently rather they act in consort with other members of the hierarchy who are willing to support the agential project.

A key agent in the internal hierarchy is the occupant of the position of Secretary. This position is the most powerful within the internal bureaucratic hierarchy of the department and it is entitled to intervene into any agential project at any time. This

position is also unique in that it reports directly to the Minister who represents the external governmental context that departments must operate within. Hence the position of Secretary mediates between the internal and external structural context.

Because of the structural dependency on Government, agents face the ever present prospect of government intervention in a department which may alter organisational conditions and make what was initially a viable SISP project unachievable in the changed circumstances. Accordingly agency, which is the driving force or intentionality behind a SISP projects is constrained by structural effects so an intended outcome can be thwarted or at least modified in some way. This shows that contrary to strong social constructionist views of strategy agency alone is not sufficient to explain outcomes.

11.2.4 Ideational Elements

In a CR analysis reasons can be causes of agential actions and behaviour so it is important to identify influential ideas in the social reality of the setting. The public sector in Australia has seen the influence of the New Public Management (NPM) reforms originating in the UK with the Thatcher government. These ideas were reviewed in chapter four in connection with the public sector context and included a preoccupation with contracting out services, organisation efficiency, cost effectiveness, restructuring of government organisations and various forms of performance monitoring and measurement. NPM ideas were influential in case study one and four in the form of the purchaser – provider model of government service provision that utilised hundreds of semi autonomous service providers. Restructuring effects were evident in case studies two and three and efficiency and effectiveness were key concerns of SISP advocates and senior decision makers in all case studies.

A second ideational influence has been the vision of organisational transformation through the use of various forms of information technology. Government's have seen IT as a way of improving the delivery of services through forms of IT enabled processes. In case two the Secretary saw IT as a way of transforming the delivery of educational services. A third influential idea for agents was systems integration and organisational integration. The idea of organisational integration has also been associated with the NPM reforms in the form of 'joined up' government and in

relation to the SISP area as integrated systems and enterprise architectures. Integration promises to overcome the problems of fragmentation in relation to both organisational functions and information systems. In case one an integrated systems architecture was proposed, in case three the Secretary instituted a project to develop an Integrated Courts Management System and in case study four the technology choice for a fully integrated client management system across the department's different client service divisions became the major strategic IT issue.

11.2.5 Causal Mechanisms

Out of the structural, agential and ideational ontological elements of the social setting causal mechanisms emerge and thirteen such mechanisms were identified across the four case studies for this thesis. Causal mechanisms are always associated with an entity of the setting (Elder-Vass 2005, 2007a) and have certain powers and liabilities to produce effects, which may be observable as events at the level of the empirical. An entity may be associated with more than one causal mechanism. The fragmentation mechanism is associated with the independent development of information systems by business units across the functional areas of the department and leads to the organisational condition of fragmented systems and information. The Advocacy, Engagement and Project control mechanisms are associated with the management and initiation of the SISP process by SISP advocates. The Government Intervention mechanism and the Central Agency Intervention mechanisms are associated with the Government and its Central Agencies. The Secretary Intervention mechanism and the Approval mechanism are associated with the role of top management in the SISP process. The Resistance, Collaboration and the IS Support Demand mechanisms are associated with the role of organisational stakeholders in SISP. The Integration mechanism and the IS Demand Management mechanism are associated with the role of the corporate IT function and SISP advocates.

Three of these mechanisms occur in all four case studies (Advocacy, Resistance, Fragmentation), six mechanisms occur in three case studies (Approval, Engagement, Secretary Intervention, Government Intervention, IS Demand Management, Integration), two mechanisms occur in two case studies (ICT Support Demand, Project Control), while the remaining two mechanisms occur in one of the case studies (Collaboration, Central Agency Intervention). Hence eleven of the

mechanisms were evident in more than one case study, which provides corroboration for their existence in other settings. That the last two mechanisms appeared in only one case study does not detract from their existence because the potential for intervention by a central agency exists for the other case study organisations despite its non-activation. By a similar argument the potential for collaboration to emerge in the other departments exists but the trigger for its emergence, a Community of Practice initiative, was not present. The thirteen mechanisms are summarised in Table 11.1 Causal Mechanisms of SISP.

Mechanism	Entity	Parts and Relations	Property
Advocacy	Any group or individual in the organisation who promotes a particular course of action or objective.	Organisational actors in structurally related positions with specified powers or who gain the support of others with greater powers	Relative power to garner resources to promote a particular issue or objective, raise awareness, challenge existing arrangements, form an alliance or oppose the actions of other groups and initiatives.
Resistance	Senior managers, business unit heads and intended system users.	Organisational actors in structurally related positions with specified powers	Organisational autonomy grants authority to dispute SISP Project recommendations
Fragmentation	Management and staff of business units.	Organisational actors in structurally related positions with organisational autonomy.	Autonomy grants authority and resources to develop their own information systems in response to local information management needs.
Engagement	SISP Consultants	Consultants connect with structural influence via their close association with SISP advocates.	Able to generate SIS plans and change the strategic agenda of senior decision makers in the organisation in relation to its information systems. Able to generate enthusiasm for proposed IT reforms and the vision of a more beneficial approach for users of IT in the organisation but may fail to do so and generate resistance. Influential with key decision makers in the organisation.
Secretary's Intervention	Secretary who is the most influential actor in the organisation	Highest position in organisational structure with wide powers. Agential powers.	Major powers to manage the organisation including the power to restructure the department.
Government Intervention	Government	Government exists in a structural relation with the community and departments which are the instruments for delivery of government services. Government powers are given legitimacy through elections.	Government has virtually unfettered powers over departmental functions and purposes including the power to reduce the size of or even abolish departments.
Central Agency Intervention	Central Agencies	A central agency is an instrument of government.	Power to direct government departments to adopt whole of government policies for example in relation to the use of shared IT facilities.
IS Demand Management	The corporate IT function of the department and associated IT resources.	The Director of the corporate IT function has formal responsibility and significant resources to manage demand for IT support services from business units of the department.	Power to formulate and promote IT demand management arrangements such as service level agreements and portfolio management frameworks arising from SISP project recommendations..

Mechanism	Entity	Parts and Relations	Property
ICT Support Demand	Business units (divisions and branches).	Business units (divisions and branches) who have become dependent on IT but who lack the ability to solve support issues or manage IT projects.	Business units (divisions and branches) draw on the obligation of the corporate IT branches to provide IT support. This power of demand arises from the growing dependency of government departments on IT as they are encouraged to increase the use of IT based ways of working.
Project Control	SISP Advocates who control the SISP project	Organisational actors in a structurally related positions which grant authority to direct SISP projects	Power to reorientate and control direction of the SISP Project
Approval	Senior decision makers (Ministers, Secretaries and Executive Directors, IT Governance Committees)	Collectively Ministers form the Government and have authority over departmental Secretaries. Within a department Secretaries and Executive Directors, and IT Governance Committees all hold senior positions in the departmental hierarchy.	Powers to authorise or withhold approval for the recommendations of SISP Projects.
Integration	SISP Project groups, Secretary.	SISP advocates and consultants who have recognised roles to promote strategic management of information systems through greater systems integration. The Secretary's position is the most powerful structural position in the internal bureaucratic hierarchy of the department.	Power to formulate and implement organisational approaches, which enforce compatibilities between interfacing subcomponents of systems and organisational business units. Powers to restructure organisational arrangements.
Collaboration	Community of Practice (CoP)	Membership of a CoP.	Power to generate sharing of information and ideas amongst individuals and groups with common interests and needs in the organisation.

Table 11.1 Causal Mechanisms of SISP

11.2.6 Contingent Conditions

Nine contingent conditions were identified across the four case studies. Contingent conditions create the conditions for the triggering and retardation of causal mechanisms. The fragmented state of information systems in government departments tends to trigger the advocacy mechanism for SISP projects and the mechanisms to integrate systems and control the creation of new systems. Old technology triggers advocacy for investments in new technology. Resource limitations including the availability of IT expertise constrain the effectiveness of SISP advocacy and the ability to realise integration objectives. Organisational instability makes it more difficult to maintain the focus and commitment of SISP participants..

11.2.7 Explaining SISP

Organisational Conditions

The fragmentation of information systems is an organisational condition indicating the causal power of autonomous business units to independently develop their own information systems outside of any overall framework to coordinate these developments. This is the manifestation of the effects of a fragmentation mechanism. From the perspective of the corporate IT function charged with managing the department's IS resources, the fragmentation of demand for information systems creates a number of problems including duplication of functionality as well as system and informational incompatibility. The virtual total dependence of the organisation on computerised information systems for the management of information creates strong demand from business units for technical support, new system enhancements and interconnection with other business systems on the department's network infrastructure. This can be seen as the effects of the IS Support Demand mechanism.

Initiating the SISP Project

Since SISP advocates are usually senior members of the corporate IT function these conditions constitute a key reason for the initiation of a SISP project because such projects are seen as a way of controlling demand for new systems and systems support. But there are other reasons for triggering the SISP advocacy mechanism

which may be of importance to the Secretary of the department and Executive Directors responsible for the corporate service functions including justifying the overhead cost of the corporate IT function, controlling the department's strategic agenda for IT or as a way of realising visions of organisational reform in response to Government priorities.

Enlisting Support

In order for a SISP project to be taken seriously by stakeholders it must be legitimised by senior management of the department so SISP advocates enlist the support of members of the departmental Executive (Executive Directors or the Secretary) and other senior managers whose approval authorises the status of the project and gives permission for commencement. Sometimes SISP advocates may be able to enlist the approval of an even higher agent such as the Minister.

Engaging with Stakeholders

The case studies for this thesis exhibit the traditional strategy as plan form that is a planning phase followed by an implementation phase. The planning phase of the SISP project is focussed on understanding the current state of information systems usage in the organisation and the problems and issues associated with this usage, particularly unmet need for information systems support. SISP advocates in the public sector recruit specialist consultants to undertake the core tasks of consultation, organisational and information systems analysis and formulation of strategic recommendations involved in the planning phase. In order to carry out these activities consultants must engage with the existing owners of information systems. They must also engage with members of the Executive to understand what they see as the strategic agenda for the department and the role of information systems in supporting this agenda. This represents the emergence of the Engagement mechanism, which works through the agency of the consultants. Once the analysis of the existing situation is complete and the priorities of top management of the department clear consultants formulate recommendations, which seek to simultaneously address problems and provide strategies for achieving departmental objectives via the use of information systems.

Activating the Approval Mechanism

The next task is to gain the approval of stakeholders to the recommended strategies. One way this is done is to promote a desirable future state or 'discursive imaginary' (Chiapello and Fairclough 2002, p.195) which was evident in case one as the integrated architecture of compatible systems and in case four as the seamless CRM system for managing client information. Both these visions activated the Approval mechanism of the highest levels of management in the department. The concept of integrated systems was pursued in case one, three and four showing the attempt to activate an Integration mechanism deliberately and directly opposed to the condition of fragmented systems development and consistent with the IS Demand Management mechanism.

The Emergence of Resistance and the Possibility of Consensus

However what is desirable for some stakeholders is contentious for others because the recommendations may challenge existing arrangements by for example limiting the autonomy of current system owners to determine the role for their systems. This was evident in case study one with the integrated systems architecture and in case study two with the Enterprise Value Framework, which engaged with the politics of managing business unit initiated systems development projects but could not gain assent from the stakeholders who would have had to use it. The resistance mechanism may be evident in either the planning or implementation phases of a SISP project. In case one both divisional and regional system owners saw their organisational control over their systems being threatened so resisted the proposal for an integrated architecture. In case study two resistance was encountered early in the planning phase and continued right throughout this phase so that implementation did not occur. In the other cases it was more evident during the implementation phase.

However not all stakeholders resist because it is possible that the engagement mechanism has generated some consensus to the proposed strategies. This is because for these stakeholders the strategies represent an improvement in organisational conditions or the possibility of additional capability through new and beneficial information systems developments. This is important for SISP projects because consensus is the basis for the activation of the Approval mechanism and paves the

way for successful implementation. The engagement mechanism can only have this effect if the Project Control mechanism does not exert too much control on the process of consultation by either restricting the range of stakeholders consulted or advocating a position too strongly. Case study four shows the Project Control mechanisms limiting the effect of the Engagement mechanism where the SISP advocate prevented her own consultants from engaging with the full range of stakeholders. This had the unexpected but extremely important consequence of failing to enlist the one stakeholder who would eventually determine the fate of the SISP project. Consensus emerges when stakeholders are not pressured to accept recommendations they find problematic and are allowed a free voice to express concerns and to participate in contributing to the development of an acceptable solution.

The Effects of Centralised versus Decentralised Management

Hence resistance is associated with too much control. The tendency of bureaucratic hierarchies however is to centralised control by top management and to engender an organisational culture opposed to more decentralised forms of decision making. The structurally imposed resource constraints on departments designed to drive efficiency to maximum levels also tend to foster conditions of strong control to achieve this. SISP advocates originating from corporate IT functions, also reflect a centralised approach to controlling or at least limiting the ability of functionally autonomous business units to influence the strategic IT agenda. Case four illustrates where the central IT function moved against a business unit SISP project for precisely this reason.

But this centralising and control oriented approach is at odds with the structural autonomy of decentralised business units charged with the task of managing a decentralised service delivery system, which is a response to a diverse range of demands arising from the public constituencies the department, through its role as implementer of government policy, is required to serve. Case study three illustrates where Secretary level support was necessary to maintain a more decentralised management culture that was conducive to the emergence of the Collaboration mechanism but was neutralised once the occupant of the Secretary's position changed, who was in turn responding to the imperatives of the Government's priorities.

Unpredictable Intervention Effects

At the same time as these structural conditions affect SISP projects the case studies show different trajectories as a result of the contingent interaction of causal mechanisms. In case two a contingent event, a change in the occupant of the Secretary's position, led to the activation of the Secretary's Intervention mechanism because the new occupant reoriented the SISP project to focus on eLearning rather than the earlier focus on cost and risk management of head office systems. This led to resistance from head office functions who felt the IT enabled delivery of educational services was problematic. Subsequently the Government Intervention mechanism was activated because of the perception of financial mismanagement on the part of the department. This changed the Secretary again, distracted SISP stakeholders and reinforced their resistance because of organisational uncertainty.

In the third case study the Secretary's Intervention mechanism was activated following the effects of the Government Intervention mechanism to assign new functions to the department. The Secretary resisted the Knowledge Management based approach to SISP, demoted the CKO and abolished the Community of Practice initiative because these appeared to be inefficient and not related to core business functions. Quite independently of the Secretary's intervention in this case, the Central Agency Intervention mechanism was activated forcing a change to the SISP plan implementation by requiring the corporate IT function to use a whole of government data centre. In case study four the resistance mechanism arose from the corporate IT function to a business unit led SISP project that threatened their control of the strategic IT agenda for the choice of CRM platform. Unexpectedly the Secretary's Intervention mechanism was activated to counter this attempt to close down the business unit led project. But the project failed to complete because of the contingent event of the Minister's political crisis and the Government Intervention mechanism which relocated her to another portfolio so that the SISP advocates lost their most powerful supporter.

This shows that the external governmental context is a constant source of potential intervention into the activities of departmentally based SISP advocates. They have little or no control over this potential because it resides outside of the department but originates in the structural dependency of the department on Government.

There is then a dynamic within SISP project that can be either oriented towards control or collaboration and this finds a parallel in the strategic management approach to the department. Control approaches tend to generate resistance, collaborative approaches tend to facilitate consensus. But this micro level dynamic of engagement with organisational stakeholders is vulnerable to causal mechanisms emerging from the internal bureaucratic hierarchy and the external governmental context, which is the source of strong imperatives towards efficiency, organisational and system integration as well as the implementation of the NPM reforms.

So the conclusion of this thesis is that SISP represents a centralising mechanism of control of the department's strategic IT agenda, which aspires in various forms to integrated systems and integrated forms of strategic management. However, SISP projects encounter opposing organisational conditions namely organisationally autonomous business units managing decentralised service delivery systems, which generates unique information needs not easily met by fully integrated and centralised systems. Structurally, government departments are pulled between centralising governmental expectations and decentralising efforts to meet community expectations. They have also become dependent on market entities for supply of information systems and IT expertise, which require a strong focus on costs and risks. Hence SISP is at the point of these tensions where efforts are made to meet financial constraints with technology supply constraints with demands for alignment to business needs. A consensual and collaborative style of SISP acknowledging the fundamental conditions of the organisational predicament as indicated by a realist ontology of the organisational setting offers the possibility of a more constructive and enduring response to these tensions and the information systems needs of all SISP stakeholders.

11.3 Contribution to Knowledge

11.3.1 Realist Theory of SISP

The first important contribution to knowledge of this thesis is to provide a new theory of SISP by exploring the phenomenon in a public sector setting (government departments) using Critical Realism. The perspective of CR directs attention to the

ontology of the social reality of the organisational setting and orientates the analysis of SISP around human agency, the stratification of social reality, organisational complexity and the morphogenesis of the organisation in response to internal and external pressures. The realist theory of SISP is captured in Figure 11.1 Complete Realist Explanatory Framework for SISP.

The stratification of social reality into the domains of the real, actual and empirical means that causality cannot be understood solely at the level of events, which will be the result of multiple causation and events may or may not be experienced by agents. This means that theory based on the Humean principle of causation as a constant conjunction of events, such as variance theories of comprehensive SISP (Lederer and Salmela 1996) misunderstands the nature of causality. It also means the objects of research may have aspects, which are not grasped by agential awareness since reality has an intransitive dimension as distinct from the transitive nature of knowledge about such objects. So a purely agential perspective as in interpretivism, which underpins many forms of the incremental model of SISP (Salmela and Spil 2002) provides only a partial understanding of the SISP phenomenon.

Critical realism shows that social reality has structural, agential and ideational domains that are independent but from which, through social practices like SISP, causal mechanisms emerge. This means the social reality of the organisation and its context is an open system of interacting causal mechanisms and because of this outcomes are unpredictable, but a CR analysis can explain the process by which this interaction occurs giving rise to specific outcomes in particular settings. This explains why alignment, predicted by the theory of comprehensive SISP as following on from implementation (Lederer and Salmela 1996) is difficult to achieve because the alignment of the many causal mechanisms involved in the organisational setting is rare and hard to maintain in an open system.

Accordingly SISP projects are themselves causal mechanisms emerging from the agency of SISP advocates and their structural powers resulting from their location in the internal hierarchy of the organisation. A SISP project is also an intervention into the organisation with unpredictable outcomes that are the result of the contingent interaction of causal mechanisms emerging from the ontology of the setting. In CR explanation replaces prediction as the research goal and explanation of outcomes

depends on identifying causal mechanisms responsible for observed events. For practitioners this indicates likely causal factors of relevance to any organisational SISP project.

A CR analysis also indicates general structures likely to be present in other similar settings with similar tendencies. In all cases an internal bureaucratic hierarchical structure of positions with varying levels of power and autonomy was evident and all departments are in a dependent relationship with the Government from which intervention mechanism can emerge. Hence these conditions are likely to be true of any government department. An important overall finding related to the structural aspects of the setting is that SISP has a centralising tendency through the Integration and IS Demand management mechanisms but this is at odds with the structural autonomy of a decentralised management system, which can be seen as a response to a diverse range of demands arising from the public constituencies the department, through its role as implementer of government policy, is required to serve.

The structural autonomy of business units leads to the emergence of the fragmentation mechanism and business units may resist SISP advocates because of the constraining effects of system integration requirements or portfolio management approaches on their efforts to build new systems. However consistent with a CR perspective the open systems ontology of the organisational setting allows for the possibility of collaboration, consensus and organisational learning to emerge during SISP. But the structural predicament of government departments means they are vulnerable to intervention from the Government and its central agencies, which may trigger interventionist behaviour by the Secretary who occupies the most powerful position within the internal hierarchy. Such behaviour may be motivated by the effects of persuasive ideas promising quick ways of resolving organisational management issues. A further benefit of a researcher adopting a CR perspective here is an appreciation of the causal effect of absences, so that the behaviour of agents in pursuit of their goals can be constrained by the internal absence of resources such as technology expertise and services, without them necessarily being fully conscious of such an absence and its effects.

11.3.2 Identification of Causal Mechanisms in Public Sector SISP

The second major contribution to knowledge of this thesis is the identification and theorisation of thirteen causal mechanisms, which are likely to emerge in different combinations in any SISP project undertaken in a government department and will, by their contingent interaction, effect the outcome of such projects. These mechanisms provide the basis for the answer to the research question because, as sought by CR, they constitute a robust or rich causal explanation of outcomes in each case, yet by their corroboration across more than one case indicate general structural conditions and causal mechanisms likely in similar settings thus providing a realist theory of SISP. The thirteen mechanisms are listed in Table 11.2 Causal Mechanisms Identified in the Research.

Mechanism	No. Cases	C1	C2	C3	C4
Advocacy	4	✓	✓	✓	✓
Resistance	4	✓	✓	✓	✓
Fragmentation	4	✓	✓	✓	✓
Engagement	3	✓	✓		✓
Secretary Intervention	3		✓	✓	✓
Government Intervention	3		✓	✓	✓
IS Demand Management	3	✓	✓	✓	
Integration	3	✓		✓	✓
Project Control	2	✓			✓
Approval	2	✓			✓
ICT Support Demand	2		✓	✓	
Collaboration	1			✓	
Central Agency Intervention	1			✓	

Table 11.2 Causal Mechanisms Identified in the Research

The thirteen causal mechanisms were theorised in Chapter Ten and the details of these mechanisms including the entities they are associated with and the source of their causal powers are summarised in Table 11.1 Causal Mechanisms of SISP. Eleven of these mechanism were present in more than one case study providing corroboration of their wider prevalence and three (Advocacy, Resistance and Fragmentation) occurred in all four case studies, suggesting that they are likely to be encountered by any SISP project undertaken in a government department.

Contingent conditions and the effects of other causal mechanisms trigger causal mechanisms. The interaction of mechanisms means that sometimes mechanisms cancel each other out, reinforce each other's effects or modify the effect in some way including the emergence of a dominant causal mechanism that overrides the powers and effects of other mechanisms. The fragmentation mechanism, originating in the structural autonomy of business units, tends to create the conditions for the SISP advocacy mechanism to be activated and is a strong reason for the activation of the Integration mechanism and the IS Demand Management mechanism. Advocacy and Engagement mechanisms can activate the Resistance mechanism or the Collaboration mechanism or both but if the Project Control mechanism interferes with the Engagement mechanism there is likely to be lower levels of consensus amongst stakeholders about the SISP project recommendations. Consensus amongst stakeholders to the recommendations of a SISP process is a prerequisite for activation of the Approval mechanism. A contingent event such as a change of Secretary may activate the Secretary's intervention mechanism and all government departments are vulnerable to the potential for intervention by the Government or its Central Agencies. These interventions are outside of the control of SISP Advocates and may impact the SISP process.

11.3.3 New Findings Associated with Causal Mechanisms

There are a number of new findings implied for SISP in public sector settings like government departments by the thirteen causal mechanisms. These were indicated in chapter ten but are summarised in the following paragraphs.

SISP Advocacy Mechanism

The fourth case study provides a new finding in that the SISP advocates were able to enlist the support of an elected official, the Minister, providing evidence contrary to Duffner, Holley and Reed (2002, 2003) in that on some occasions elected officials are involved in SISP projects. A second new finding from the fourth case study is that SISP advocates may emerge from business units showing that SISP is not necessarily the preserve of the centralised IS management function. This may lead to conflict between the strategic objectives of the centralised IS function and those of the business unit SISP advocates showing that efforts to align information system

investments with business needs can be thwarted by internal organisational conflict over which group establishes what is considered to be the strategic IS priority for the department. This implies that alignment is not an objective concept that all parties readily assent to as implied by the comprehensive theory of SISP because it depends on which group's needs become the alignment objective.

Resistance Mechanism

SISP is a contested site because the recommendations of SISP projects may imply strong constraints on the autonomy of business units to develop their own information systems solutions to local business needs so resistance from these stakeholders is to be expected. SISP is carried out by middle level managers with varying levels of support from top management depending on organisational conditions and changes to the occupants of top management positions. This means that often there will not be an overriding imperative for peer level business functions to assent to the proposals of corporate or central SISP advocates and obtaining consensus with such peers will be difficult. Accordingly this research reveals that in the public sector SISP advocates may have to operate without unerring top management support or clear business direction. They will need to adjust the SISP project objectives to fit the political conditions of the organisation and the preferred style of strategic management of the top management group at the possible expense of the full realisation of the whole of organisation benefits suggested by the comprehensive model of SISP.

Fragmentation Mechanism

The realist perspective on the ontology of the social setting of the organisation was useful in revealing a new finding on the cause of the fragmentation of information systems in public sector organisations. Fragmentation of information systems is caused and sustained by the structural organisational autonomy of business units within the bureaucratic hierarchy of a department and their ability to acquire control of resources with which to build new information systems to meet their information management requirements. The business unit imperative to develop information systems is a response to the diverse needs of the client constituencies that the department, through its business units, is required to serve and which generates different information management requirements across business units. Decentralised

management approaches have arisen as an organisational response to this diversity of demand on government departments so are a contributing factor to the emergence of the Fragmentation mechanism. If the agenda of senior management, under the influence for example of NPM ideas for improvement in efficiency, is to overcome fragmentation by seeking greater integration and centralisation this cannot be done by SISP alone but requires corresponding commitment to the supporting organisational form. The danger remains that notwithstanding senior management's commitments the diverse needs of client constituents driving the functional and IS diversity of the business units in government departments will continue to work against centralisation and integration agendas. Hence an important overall finding is that SISP has a centralising tendency through the Integration and IS Demand management mechanisms but this is at odds with the structural autonomy of a decentralised management system which is a response to a diverse range of demands arising from the public constituencies the department, through its role as implementer of government policy, is required to serve.

Engagement Mechanism

The consensus generating capacity of consultants is important because consensus amongst stakeholders is a prerequisite for gaining the approval of senior management to the recommendations of SISP projects and is important for facilitating implementation actions. A less control oriented and more democratic approach to engagement with stakeholders offers the greatest potential for protecting the objectivity of SISP consultants and improving the chances of acceptance and commitment to the changes implied by the SISP projects recommendations. Such an approach helps to reveal latent constituencies within the organisation who might be the source of future resistance. This is difficult to achieve however if the SISP Advocate exerts too much personal control on the engagement process or where the department has a strong bureaucratic control culture that runs counter to business unit autonomy. The finding that consultants can and should be used skilfully to generate consensus in relation to SISP in public sector organisations such as government departments is not emphasised in the SISP literature and constitutes a relatively new finding.

Secretary's Intervention Mechanism

A new finding is the need for greater recognition in the public sector SISP literature of the importance for SISP projects of the Secretary's role particularly as a mediator between the effects of the government context on the internal context of the department. This means that SISP projects which connect with imperatives from within the Secretary's strategic domain of activity will likely be viewed as more relevant and therefore worthy of support than those that are more inwardly focussed on the operational management of the department. This shows that the imperatives of SISP advocates to address their own IS management needs may not align with the Secretary's perception of what is strategically important. The cases clearly show how a SISP project is vulnerable to being refocussed by the particular concerns of different occupants of the Secretary's position.

Government Intervention Mechanism

Although departments are completely dependent on Government for their existence, the public sector SISP literature does not emphasise the potential effects of a Government intervention into the structure and functions of a department on a SISP project that might be in either the planning or implementation phase. A particular finding here is that contrary to Salmela, Reponen and Lederer (2000) the case studies for this thesis suggest SISP projects using the comprehensive model in the public sector need stable environments to succeed. However consistent with a realist understanding of the contingent effects of causal mechanisms, Government interventions may create both supportive and unsupportive conditions for a SISP project and this depends on the nature and degree of change that the intervention entails and the Secretary's mediating role.

Central Agency Intervention Mechanism

Central agencies are instruments of Government that may intervene to compel the senior management of a department to adopt whole of government policies. They may impose requirements on departments that may conflict with the strategies generated by a SISP project and force departments into whole of government frameworks or contracts that may be unsuited to the local needs of a department. Although there is some acknowledgement of the effects of external authorising bodies

on public sector organisations such as hospitals (Hackney and McBride 2002) endeavouring to implement SISP strategies, central agencies are not specifically noted in the public sector SISP literature so this thesis highlights their potential impact on SISP projects in government departments.

IS Demand Mechanism

An important finding of this thesis is that in the public sector SISP projects are initiated as much to respond to the overhead costs of the department's information systems as they are to position the department for the realisation of strategic objectives. The cause of this fact, not noted in the public sector SISP literature, is the structural predicament of Government departments, which is that they are resourced constrained organisations but experience uncontrolled demand for their services from the community. The Government's expectation is that department's will be managed in such a way that the overhead drain on organisational resources of internal corporate service support functions, such as the corporate IT function, away from the primary service delivery obligations to the community will be minimised. Internally this leads to an intense and politically charged debate about support costs and priorities and generates a preoccupation with cost minimisation and efficiency of investment rather than long-term strategic enhancement, as well as strenuous efforts to establish IS demand management processes. Thus the structural constraint on resourcing limits the ability of government departments to fully implement the long-term strategies recommended by SISP projects. At the same time efforts to erect criteria for managing demand encounter the politics associated with the competition for limited internal resources, resistance from business units who perceive such criteria as constraining their ability to meet their own needs, and problems with assessing the relative business importance of proposed projects where priorities may reflect political issues of government rather than organisational need.

IS Support Demand Mechanism

The research finds that as business units of departments increase their use of information systems they experience complex technological and informational support needs including the need to interconnect with systems in other business units. Business units have a choice between investing more resources in meeting these needs

either by creating support roles within their administrative structure, purchasing services from the market for IT support or seeking this support from the corporate IT function within the organisation. In the case of the latter option, this drives demand on the corporate IT service function and triggers the IS Demand Management mechanism. If business units have their own IS support resources then corporate IT functions experience less pressure from this mechanism of support demand but this implies business units have significant IS management autonomy. Hence the strategic issue is where the decisions for the choice of services should be located, devolved to business units or located with the central IT function, which in turn is a reflection of the underlying structural tension between decentralised and centralised forms of IS management.

Project Control Mechanism

The Project Control mechanism has a direct effect on the consultative and implementation processes of SISP projects. This finding makes a contribution to the SISP literature, which is relevant to both private and public sector organisations. The ability of consultants to generate consensus with stakeholders in connection with SISP project is weakened if the SISP Advocate exerts too much personal control over the engagement process. The essential point is that project control must be governed by the need to generate consensus by allowing sufficient latitude for consultants to engage with a wide range of stakeholders and in a way where collaboration about strategic issues and strategies is engendered and consensus can emerge.

Approval Mechanism

Another contribution of this thesis is to broaden the concept of top management used by Duffner, Holley and Reed (2002, 2003) to include not just elected officials such as the Minister but also the highest stratum (Secretary plus direct reports) of the non-elected bureaucracy of public servants within a department who are closely involved in the development and implementation of the Government's strategic programs and can intervene to alter the focus and recommendations of SISP projects.

Integration Mechanism

The attempts to integrate IS in government departments is a response in part to the fragmentation of IS within organisations stemming from the autonomy of business units who develop their own IS. The literature on integrated systems suggests integration leads to tighter organizational coupling and has an implicit centralising effect on the organisation. A finding of this thesis in relation to greater levels of integration recommended by SISP projects is that in the pubic sector this conflicts with the decentralised and loosely coupled organisational arrangements, which have arisen as a historical legacy of the less integrated frameworks for service delivery as well as information systems development in the past, and as a result of the more recent disaggregation of public services in line with NPM reforms that have sought a greater role in public services delivery for market and semi-private based entities. The literature also suggests that the proliferation of shadow systems is in part traceable to a mismatch between the centralising tendency of integration and current ways of working in the organisation.

Collaboration Mechanism

The identification of a collaboration mechanism provides support for the argument that SISP should be approached as an organisational learning process as the basis for effective engagement with SISP stakeholders so that their contribution is acknowledged and consensus can emerge freely. There are significant organisational benefits by using such an approach as a result of tapping the potential for innovative insights from organisational members. However the case studies suggest that in the public sector the bureaucratic structures of government departments foster a control oriented culture and this is detrimental to the more decentralised and less efficiency preoccupied culture required for organisational learning approaches to flourish. The disposition of the Secretary can be instrumental in countering the control culture and instituting more decentralised forms of management. The finding here is that collaborative approaches facilitate consensus whereas control oriented approaches tend to generate a degree of resistance.

11.3.4 Demonstration of a Research Methodology Informed by CR

The fourth contribution to knowledge of this thesis is that it demonstrates a CR informed methodology for IS research. The methodology begins with an immanent critique of prevailing theory in relation to the phenomenon of interest and from this proceeding to an initial reconceptualisation of the phenomenon consistent with CR metatheory and particularly the concept of an open systems social ontology. The reconceptualisation directs attention to five elements: social structures, agency, influential ideational elements, organisational conditions and the social practices through which social interaction occurs. Case studies are then conducted providing the material for an initial interpretive narrative of events and an analysis of agential motivations and perspectives on their own and others roles. The realist analysis then moves to a structural analysis to determine the necessary relations of the entities constituting the phenomenon, an identification of the influential ideas furnishing reasons for agential projects and actions and culminating in the initial retroduction of causal mechanisms that could explain the observed events of the case study. The next stage is a cross case comparison (Bergene 2007) to corroborate the existence of causal mechanisms posited in one case with other case study settings. The aim is also to validate the existence of social structures across settings and to establish the contingent interaction of causal mechanisms by looking for differences in contingent conditions. The cross case comparison allows for refinement of the initial theorisation of casual mechanisms and a review of the initial realist conceptualisation. The set of causal mechanisms then provide the basis for explaining the observed events of the case studies and together with the analysis of structure and ideational elements constitutes a realist theory of the phenomenon. Each mechanism contains theoretical implications that shed light on aspects of the research phenomenon.

11.4 Limitations of the Research

The third chapter of this thesis discussed the methodology for the research. It described the CR explanatory approach, the specific research design including a response to reliability and validity considerations, the nature of generalisation in CR based research as well as data collection and data analysis technique. This discussion considered potential limitations and responses to address them in relation to the explanatory approach and the data collection and analysis techniques. The research

for this thesis followed the methods proposed and adopted the measures to address these limitations. Accordingly rather than reproducing the discussion from the methodology chapter this section discusses those limitations that emerged during the conduct of the case studies. Five limitations are discussed.

11.4.1 Data Collection

It was not possible to interview the Secretaries of the three departments in the case studies. Hence the motivations and reasons for their actions in intervening in the SISP projects have been inferred from the commentary of other interviewees some of whom were hierarchically in a close reporting position to the Secretary. For example the ED CSD in case one, the Director CISB in case two, the CKO in case three and the Director PPE in case four were all either direct reports to the Secretary or to the relevant ED of the CSD. Other senior staff provided additional sources of information.

In case three there were only three key informants plus a fourth informant who had previously occupied a senior role for many years within the IT branch and who was well informed about the department conditions in relation to the implementation of SIS plans. As noted above it was not possible to interview the Secretary. Also the perspective of business unit managers was not obtained which might have improved the understanding of organisational conditions.

Most formal interviews were with persons who occupied senior management roles, consultants and project managers. Fewer interviewees were conducted with persons who had themselves been interviewed by SISP consultants. In case four however the perspective on the processes of engagement by the consultants was obtained from other members of the project team especially in relation to the second group of consultants.

11.4.2 Conceptualisation of Causal Mechanisms

Lawson (1997, p.212) says that in using retroduction "The goal is to posit a mechanism (typically at a different level to the phenomenon being explained) which, if it existed and acted in the postulated manner, could account for the phenomenon singled out for explanation." The research has endeavoured to posit causal

mechanisms that explain the phenomenon and, following the advice of Elder-Vass (2007a, 2007b), to ensure the grounding of these mechanisms in entities with the relevant properties that could produce the mechanism. A key challenge of a CR based research approach is that mechanisms can be active but not producing observable events. Hence it is possible that other mechanisms are at work that were not detected or appreciated in the analysis. It is also possible that the conceptualisations of social structures in this research may not reflect all relevant necessary relations although strong efforts have been made to be comprehensive and thorough in this regard.

11.4.3 Selecting Between Different Possible Causal Explanations

Mingers and Willcocks (2004, p. 390) note the difficulty of selecting amongst competing explanations for a given phenomenon using the retroductive methodological process. Lawson (1997) argues that the chosen explanation will be the one with the greatest explanatory power or the one that explains more about the given phenomenon than competing explanations. The thesis has argued the advantages of the CR explanation of SISP project outcomes over what might be obtained from a rational, emergent and discourse based theory of strategy and the derivative models of comprehensive and incremental SISP. Each of these alternative theories and models suffer from various disadvantages, including significant ontological flaws from a CR perspective that were discussed in chapters four and five respectively. Furthermore the thirteen posited mechanisms do explain the outcomes of the SISP projects, are plausible because grounded in agential – structural entities, are evident across more than one case so are strongly corroborated and do find support in extant theory in the relevant theory such as institutional theory.

11.4.4 Too Direct an Application of CR

A possible limitation of the thesis is the risk of too direct an application of CR in the formulation of causal mechanisms without intervening theory (Cruikshank 2003 p.143) or to not fully incorporate relevant extant theory in positing causal mechanisms. In the first instance the thesis has avoided this problem with the use of the conceptual framework shown in Figure 5.3 Conceptual Framework, as an intermediate frame of reference between the CR metatheory and posited causal mechanisms following Pawson and Tilley's (1997) CMO approach. Secondly, all of

the posited mechanisms are related to concepts and theories in the literature as encouraged by realist researchers (Lawson in Fullbrook 2009, p.35) and includes references to theory associated with advocacy, resistance and organisational collaboration. In this regard the thesis also indicates the relevance of institutional theory particularly DiMaggio and Powell's (1983) three institutional mechanisms, coercive, normative and mimetic which are consistent with several of the mechanisms identified in the case studies of this thesis particularly the three intervention mechanisms (Government, Central Agency and Secretary) and the Approval, Engagement and Integration mechanisms. Finally all of the posited mechanisms are strongly grounded in agential and structural entities, in line with Elder-Vass's (2007a) criteria of emergence and the empirical evidence supports their conceptualisation.

11.4.5 Only an Adequate Explanation, Which is Fallible

Because SISP is an organisational phenomenon many aspect of organisational behaviour are relevant. The thesis posits some causal mechanisms but almost certainly many others are involved so that the explanation presented can only be a partial one. This is the practical research difficulty of untangling the 'multiple interlocking structural causes' (Mingers and Willcocks 2004, p.392) of phenomena in the social world. Elder - Vass (2005, p. 6) notes the impossibility of accounting for all causal mechanisms but that a practically adequate explanation is achievable (Sayer 1992, p.71).

> In practice, such 'complete' explanations are impossible, in that there may be a vast range of entities that interact to produce any given event, and identifying the causal powers of any one of them may be highly problematic, let alone investigating how they interact in a particular case or even a class of cases. … In practice we can sometimes arrive at an explanation, which is adequate for a given purpose, when the set of entities with a significant causal effect is sufficiently small, although such explanations will always be fallible.

11.5. Lessons learnt from the use of the methodology

Sustained study and reflection is necessary to master the basic principles and concepts of CR. As CR is a development within the philosophy of science a background in philosophical thinking is perhaps an advantage in understanding the arguments of CR.

Pettigrew (1990) refers to the problem of data asphyxiation in processual studies. This is relevant to the case study approach for CR informed research. Participant observation, non-participant observation and interviewing individuals in the case produce copious amounts of data. Analysing this material in detail is time consuming and can become overwhelming. The conceptual framework was very important in focussing attention on structure, agency and ideational elements in the case study accounts and helping to provide a guide to sifting the material for the relevant evidence of causal entities and mechanisms.

Distinguishing between necessary and contingent relations was challenging. For example the relationship between departments and market entities who supply IS services and products. Clearly both entities can exist without each other hence the relationship appears to be contingent, but as soon as a contractual relationship is entered into it would appear that a necessary relationship is formed by virtue of the obligations under contract law. In case one scarcity of particular technology expertise was classified as a contingent condition that hindered the ability of the SISP advocates to progress the development of integrated systems. On the other hand dependency on a resource has elements of a necessary relationship.

The conceptual framework is based on Archer's morphogenetic theory of social change and particularly the three key elements of social structure, agency and the cultural system or those ideas that fall within the law of non-contradiction. A challenging element of producing a causal account of the cases was being able to show the interplay of structural, agential and ideational elements over a period of time. This has implications for the scope of the study and the period to be covered as the amount of analysis necessary to show the morphogenetic process will be significant. Showing the morphogenesis or morphostasis of SEPs, CEPs and PEPs was perhaps only partially achieved in the case study accounts. Horrocks (2009)

indicates the challenges of using Archer's (1995) morphogenetic theory in case study research in government organisations and in relation to the role of IS.

An immanent critique seeks to show that a theory is internally incoherent in relation to the object or phenomenon it seeks to explain. Conducting an immanent critique of existing theory of a phenomenon requires careful thought to understand the way the theory conceives the object to be explained and a careful review of the research using the theory to detect evidence of inconsistency. This would appear to vary in difficulty depending on the theory in question. For example a general principle of CR is that all theory that relies on variance theory to explain a social phenomenon actually assumes a closed systems view of social reality because of its basis in a Humean conception of causality as constant conjunctions of events (Fleetwood 2002, p.61). This provides a ready starting point for critique of a theory such as Lederer and Salmela's (1996) variance theory of SISP but is perhaps more difficult for forms of interpretivist theory for example, because the assumptions about social reality in this theory are less obvious.

The process by which causal mechanisms are identified requires the ability to synthesise a range of clues from the case study accounts to form a judgement about underlying causal processes at work in the setting. In an organisational setting some events give fairly clear clues as to causal powers possessed by groups and individuals while others are more subtle and have effects not easily traceable to particular agents and groups. Elder – Vass (2007a pp. 237-238) provides a helpful criterion for ensuring posited mechanisms are associated with clearly identified entities with properties originating in the causal mechanisms that emerge from the relationships between the parts of the entity.

The explication of causal mechanisms developed over the course of the four case studies as progressive studies revealed different aspects of the causal mechanisms and the author's understanding increased. The analysis of causal mechanisms in the first case represented an initial conception of the mechanisms, which were retroduced and proposed as producing the observed effects. In the first case for example a consultant challenge mechanism is described because this explained the causal effect of the consultant's activities particularly the activation of the resistance mechanism. In case two an additional effect was observed that of consensus generation amongst some

stakeholders. The conception of the mechanism was revised to take account of this new effect and called an engagement mechanism to show how engagement can produce different effects depending on the mode (challenging or consensus building) of engagement with stakeholders.

11.6 Implications for Practice or Policy

Reading the Organisation

A CR perspective on organisational social reality suggests practitioners should try to 'read' the organisational setting for a proposed SISP intervention to form some assessment of how amenable the organisation is to the intervention and the likelihood of support for the development of a plan and successful implementation. As a result of this 'reading' it might be concluded that SISP might not be suitable for some organisations. Reading the organisational setting might begin with a review of organisational history and constitution to understand the reasons for the existence of established groups and organisational processes and to see if there are unresolved organisational tensions. Following this could be an attempt to identify what the necessary relations are within a given setting and which ones are contingent. This could be helpful in identifying which social structures are actually affecting the potential for change but which may not be readily apparent and from this envisage causal mechanisms interacting.

Structural versus Agential Effects

Practitioners need to understand the difference between structural and agential effects. Structure constrains and enables agency so that problems encountered in an organisation are likely to have both structural and agential elements. In this respect practitioners should perhaps remember that in organisations information systems have constraining and enabling effects (Orlikowski 2001) on people in organisations. A better awareness of structural effects should facilitate better problem solving and contribute to a better understanding of the factors impacting organisational performance.

Another avenue of thinking might focus on key IS related issues as these indicate conflicting objectives held by different agents and groups within the setting. Critical

realism focuses on explaining issues and why they have emerged and this approach can be helpful in the design of strategic recommendations as these are, at least in part, countering mechanisms to causal factors retarding the achievement of organisational objectives. The skill here is in abstracting out what causal mechanisms are likely to be efficacious, what will work and what won't, in terms of achieving the objectives of the SISP project (Kowalczyk in Fleetwood and Ackroyd 2004, p.305).

SISP Methodologies

Charles Lawson (2004, p.21) has suggested that much technology based thinking assumes a closed systems ontology of reality in which outcomes are predictable. This is in obvious conflict with the open systems reality of organisational settings, as described by CR, in which the outcomes of interventions into organisations are uncertain and largely unpredictable. Following this line of reasoning SISP practitioners may want to review the appropriateness of the various SISP methodologies on offer for the extent to which, if any, they provide for the unpredictable effects of causal mechanisms, in the open reality of the organisation, that may interfere with the effectiveness of a given methodology and the implementation of strategies that are developed with it. There are many sources of causal mechanisms in the organisational setting which may affect the outcomes of SISP projects including the relative levels of power and interdependence between organisational groups and especially that between IT groups and business units, different cultures of IT and non-IT areas, lack of IT awareness amongst senior managers, resource constraints, organisational vulnerabilities to loss of sources of market based IT expertise, the complexity of established organisational processes and legislative requirements including such things as privacy of information regulations.

11.7 Suggestions for further research

Testing and Refining the Causal Mechanisms of SISP

Further research in SISP could try to use the set of thirteen identified causal mechanisms of this thesis to see if they can be substantiated in further settings or at least better conceptualised. Other mechanisms may of course be discovered. In so doing further research informed by CR could help to refine the methods of causal

analysis in social settings, which would help to advance the applicability of the CR perspective to IS research generally.

The Goal of Alignment

The goal of alignment between an organisation's business objectives and the objectives associated with its investment in IS is implicit within most SISP methodologies. The alignment concept, the independent variable in Lederer and Salmela's theory (1996) and fundamental to much SISP academic research, is however, problematic from a CR perspective. This is because it is assumed that alignment can be achieved by the control of dependent variables, which is a closed systems view of organisations in which outcomes are predictable. As case four showed the alignment concept may be problematic in a large multi-divisional setting where what is seen as alignment at the business unit level may not constitute alignment from the whole of organisation perspective. Accordingly alignment research needs to be reconceptualised to take account of the fact that interventions into the open systems ontology of organisational settings have unpredictable outcomes being the result of many interacting causal mechanisms, both supportive and retarding, of the effort to achieve alignment.

Planning Practice

Forrester's (1993) perspective on planning practice suggests that more democratic forms of planning may lead to less resistance to the recommendations by allowing participant's concerns to be properly heard. The extent to which such open participatory approaches could be used within the SISP domain and their effectiveness in reducing resistance to SISP recommendations is an area of great interest and potential benefit for organisations.

Distinguishing between Structural and Agential Effects

The ability to distinguish between structural effects in organisations and the effects of agency is important in understanding the causes of the outcomes of organisational processes and interventions. This is an issue for practitioners because there is a tendency to focus on stakeholders in the SISP process and less so on structural aspects of the organisation. For example resource constraints reduce the enabling aspects of

the structural context of agency yet staff are expected to continue to perform effectively. How structural effects develop or what cause them and what the impacts on the ability of organisational members to achieve organisational objectives are is another area of research with potential benefit for members of organisations and the ability of organisations to be effective in fulfilling their purposes.

Implementation Research

Implementation is an area that is amenable to a CR based research approach. CR provides a basis for understanding why implementation outcomes are unpredictable. This is relevant to implementation research because of the numerous factors that have been identified as involved in implementation outcomes (Larsen 2001). The implementation of information systems necessarily contends with many factors where new systems result in changed organisational practices but may themselves undergo modification or redevelopment as a result of unanticipated organisational factors and where the outcomes may not be as desired. Pare (2002) for example, using positivist case study research on the implementation of Clinical Information Systems, reports that rather than reliable predictions there will be uncertainty in implementation as a result of contextual conditions. Uncertainty is also inherent in decision-making processes, which are central to many IS practices including SISP. In this respect uncertainty can be seen as an open systems effect and CR once again provides a more consistent methodological basis for investigating processes subject to uncertainty.

Further Critique of Prevailing Strategy and SISP Theory

There is scope for further immanent critique of prevailing theories and methodologies about strategy and SISP. CR points to the need for a sound ontology of the object of research and rejects the Humean concept of causality as simple constant conjunctions. SISP occurs in an organisationl context so an ontology of organisation is needed if a full understanding of the ability of SISP projects to achieve their objectives is to be achieved. Such critique provides the basis for an ontology of organisation that recognises the real source of causality, their effects and how they might be more constructively used for the benefits of organisational members and the society within which such organisations exist. SISP literature in general has a limited understanding of structural and agential relationships and consequences and offers impoverished

explanations of organisational outcomes. This implies that there is scope for much wider uses of a CR informed perspective in management studies (Ackroyd and Fleetwood 2000; Fleetwood and Ackroyd 2004). Elder-Vass (2008) has commenced to develop such an ontology of the organisation but this is by his own admission a beginning. Organisational researchers could benefit by adopting the CR perspective in developing a CR consistent theory of organisation to improve or radically critique prevailing theories.

11.8 Concluding Remark

CR is a metatheory, which can be used to evaluate, from the realist perspective, the underpinning ontology and epistemology of other social theories. This is useful for IS researchers considering the applicability of other theory to understanding IS related phenomena. The argument of CR is that the ontology of both the natural and social reality is an open, stratified system of social objects with causal mechanisms that interact and in which the outcomes of interaction are unpredictable. With this ontology of reality CR shows why causal explanation rather than prediction is the appropriate methodology for social science. Causality can be better understood as the confluence of multiple sources of causal mechanisms, originating in the agency of people who use ideas and beliefs and other elements of the cultural system to seek to advance their interests. The agency of people takes place in a context of relationally constituted social structures, which constrain and enable their ability to act. Explanation of social processes involves identifying causal mechanisms, how they operate and under what kinds of circumstances they may be activated. (Sayer 2000, p. 14) A realist analysis can help to identify the tendencies of causal entities present within the setting and provide an explanation of why particular outcomes occurred in terms of causal interactions. Critical realism has been advocated by IS researchers such as Mingers (2002), Mutch (2002), Dobson (2001a, 2001b), Carlsson (2005) and Horrocks (2009). It is hoped that this thesis helps to advance the use of CR for IS research involving a social dimension.

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Appendix

Agential Groups, Mechanisms, Interactions and Events of the Case Studies

CASE STUDY 1 – CORPORATE IT LED SISP PROJECT

Time Period	Social Objects (Agential Groups)	Causal Powers and Liabilities of Social Objects (Mechanisms)	Social and Technological Conditions (Context of interaction with other structures)	Outcomes of Interaction
1	CSD Branch Managers	Control of CSD systems (structural power). Ability to determine what central systems will provide to users.	Pre-existing set of major central information systems and numerous smaller shadow systems.	
1	Districts	Ability to develop shadow systems with desktop technology (Fragmentation mechanisms)	Limited support from CSD systems	Proliferation of shadow systems and no single authoritative source of management information
1	Board	Approval powers and resource provider. Dependent on districts and CSD for management information.	Districts and CSD systems unable to provide authoritative management information. Board under pressure to demonstrate its efficiency to external entities using authoritative data.	Board decision-making ability impaired.
2	Divisional Manager CSD	Power to initiate SISP consultancy projects.	CSD branch managers accept proposal for a systems consultancy to be conducted.	SISP consultancy initiated.
3	SISP Consultants (SC)	Develop and promote a persuasive business case using the concept of integrated systems. (Ideational mechanism)	Board keen for a solution to the lack of authoritative management information.	Board approves the business case and allocates funds.
4	ITB	Susceptible to competing demands for its IT expertise.	Major systems development projects with critical need for ITB support.	ITB unable to adequately resource implementation projects recommended by SISP consultants.
5	CSD Branch Managers	Ability to resist changes recommended by SCs.	CSD branch managers resist implementation of the SC recommendations as this impacts system autonomy. ITB lack power to enforce compliance with the recommendations of the SC. Divisional Manager CSD does not enforce compliance with the CSSP.	Implementation is retarded.
6	ITB	Lacks causal power to activate the integration mechanism.	Districts remain without operational support form central systems.	Shadow systems remain and fragmentation mechanism remains unchecked.

CASE STUDY TWO – DEPARTMENT OF EDUCATION

Agents	Active Causal Powers and Liabilities (Mechanisms)	Interaction and Contextual Conditions	Events and Outcome of Interaction
Development Phase			
Director ITB, Director CSD, Secretary	The Secretary's position has authorising powers for organisational consultancies and for granting access to resources for consultancy projects. Secretary is focussed on risk management of systems and the need to control IT expenditure because perceived as high and doesn't add much value.	Proposal from Director ITB and Director CSD for consultancy addresses Secretary's concerns. Secretary grants approval and resources.	Consultancy initiated but is not to focus on issues related to schools, teaching and learning. Primary focus is on Disaster Recovery Planning (DRP).
New Secretary	Authority to change focus of consultancy project. ICTs can be used to cause a paradigm shift in the delivery of education in schools and the business of teaching and learning in schools.	Consultancy has to be re-justified both to the Secretary and her divisional heads. New Secretary has to be convinced of relevance of consultancy to educational priorities. Head of Schools Division (SD) and Head TEC Division (TD) query appropriateness of consultancy now that the primary focus is on teaching and learning.	Primary focus of consultancy changed to educational transformation. New round of marketing. Scope of consultancy widened for administrative and educational relevance. E-Learning elevated as the primary strategy of the consultancy. Consultancy project timeframe extended by four weeks.
Consultants and business unit representatives	Ability to promote a new concept for understanding the nature and purpose of organisational activity. Source of business management frameworks for Enterprise Value Framework. Links organisational assets that support six key strategic drivers and the source of value inherent within these assets.assessing business benefit of ICT	Workshop surfaces disagreements about efficacy of e-learning strategy. Participants not response to business value framework.	Little contribution from business representatives to developing a business value framework for the department. Framework does not 'fit'.
Consultants, Director ITB and CDSC	New Secretary's agenda gives consultants and Director ITB authority to insist on CDSC acceptance but CDSC retain ability to question the new agenda.	1st meeting. Director ITB sees consultant's primary role as change agents. Director ITB and consultants push for CDSC commitment but CDSC are non-committal and raise other issues in response.	No firm commitment from CDSC to new scope. Other issues now relevant to the consultancy surfaced that potentially undermine the EVF.

Agents	Active Causal Powers and Liabilities (Mechanisms)	Interaction and Contextual Conditions	Events and Outcome of Interaction
Director ITB, head of Schools division (SD)	Head SC is deputy secretary level and retains a high level of autonomy in relation to management of schools and curriculum delivery.	Director ITB meets independently with head of SD. Head of SD remains sceptical of relevance and is also more concerned with restructuring his division.	Head of SD not supportive of the consultancy. Restructuring of his division distracts SD representatives on CDSC from the planning consultancy.
Consultants, Director ITB and CDSC	Consultant's ability to introduce 'independent' techniques of analysis.	2nd meeting. Director ITB seeks endorsement of consultant's analysis but CDSC remain non-committal. Intelligibility of risk slides raised as a problem for senior management. System assessment graph plots business importance and usefulness (vertical axis) versus technological strength (horizontal axis). Unexpected finding, retain rather than replace most applications.	Unexpected finding on system assessment, retain rather than replace most applications: "our non-strategy is working".
Head of CSD and head of SD	The head of SD second most powerful member of the departmental executive after the Secretary. Ability to take over other division's functions.	Attempted take over of CSD functions (HR, Finance, Assets) by head of SD leads to conflict with head of CSD.	Departure of Director CSD
Consultants, Director ITB and CDSC	Consultant's ability to conduct workshops and propose strategies. Five key strategies from workshops using the EVF. Department needs to move from a 'belief' based culture to a commercial management culture.	3rd meeting. SD representative queries capacity to implement strategies especially in relation to schools. Consultants unable to provide answers.	Consultants find no strong vision for ICT in the department.
Expert consultant (John Thorp)	Consultant's ability to conduct workshops and provide influential ideas and concepts. The EVF and the role of information in generating business value.	Workshop aims to engage participants with the EVF concept but only one quarter of the participants are not from ITB and reaction of this group is non-committal.	No firm commitment to the EVF concept
Premier and Treasury	Premier's authority to appoint new Secretary on advice from central agency responsible for state financial management	Negative perception of department' financial status. Insufficient business management in the department. Government also believes EBF negotiations gave money to teachers but no workplace flexibility in return. Intervention by central agency (Treasury) into senior management structure of the department. Current Secretary replaced after two months in the job.	New Secretary from Treasury appointed. Most of the strategy development work is completed by this stage.

Agents	Active Causal Powers and Liabilities (Mechanisms)	Interaction and Contextual Conditions	Events and Outcome of Interaction
PPAC meeting	Official departmental authoring entity for ICT projects.	1st meeting. Members indicate commitment to plan dependent on alignment with their priorities. Likely resource constraints on ITB during the post planning period.	ICT initiatives being authorised outside of planning process. Arrangement for promotion and dissemination of plan not yet implemented.
Consultants, Director ITB and CDSC	Consultant's ability to use findings on the five strategies to influence stakeholders but findings also influence consultant's thinking and actions. Findings: Teachers not comfortable with e-learning technologies. Divergent views of value of IT between teachers and IT managers. Effectiveness of information usage more significant than availability of information. Risk management of data centres provides opportunity for reallocating business value.	4th meeting. Stakeholders find draft planning material too technical. SD representative queries how senior management will be persuaded to invest in the five strategies and when they will be implemented. Director ITB points to current high cost ($80M) of unknown ICT expenditure.	SD representative accepts the argument about the $80M unknown ICT but members remain non-committal about the desirability of the five strategies. Findings of consultants pose problems for implementation of some of the strategies suggesting limitations of the EVF assumptions about the ability of an organisation to obtain 'business value'.
Consultants, Director ITB and CDSC	CDSC right to criticise consultant recommendations and refuse to confirm.	5th meeting. TEC representative sees governance proposals implying impractical decision-making workload for executives and is not integrated with business planning. SD representative cant see how future state relates to 'community building through schools'. Audit representative notes the strategies more suited to corporate management at head office than core business. They are not connected to core business imperatives, which is the rationale used at the Secretary's previous organisation (Treasury).	CDSC agrees that the strategies must be better related to core business imperatives

Agents	Active Causal Powers and Liabilities (Mechanisms)	Interaction and Contextual Conditions	Events and Outcome of Interaction
Consultants, Director ITB and CDSC	Ability of consultants and Director ITB to advocate acceptance of the strategies. Ability of CDSC to question strategies and withhold endorsement.	6th meeting. CDSC refuse to affirm that the approach to the planning consultancy has 'retained integrity of the business areas and their needs' when asked by the Director ITB. CDSC criticise 'density' of the documentation they are asked to approve. Director ITB reveals mixed response to the strategies by the departmental executive. CDSC unsure of appropriate response to the Executive's response and how to show the business value of the strategies. Audit manager notes "government and central agencies have lost confidence in our ability to manage ourselves".	CDSC withhold endorsement of the approach to the consultancy. Departmental Executive has not given unequivocal endorsement to the recommended strategies. CDSC ability to affirm the draft strategies undermined by the non-committal response of the Executive to the draft strategies. CDSC role ends and is disbanded.
PPAC	PPAC formally the most senior approval body for ICT proposals in the department but is bypassed and does not function well. Four out seven business representatives do not attend the meeting.	2nd PPAC meeting. Plan seen as an ITB plan not a business plan and as a constraint on divisional autonomy in respect of systems. Documentation too difficult to understand what business commitment was being sought.	No authorisation from the department's most senior approval body for ICT proposals. Consultants leave the department on completion of the development phase.
Post Development			
Director ITB, New Secretary	Power to withhold funding approval for any proposed new initiatives. Perception of the department's lack of effective financial and budgetary control. New Secretary was described in a national newspaper, *The Age*, (2003) as a "toecutter" who was "committed to reining in department spending".	The Director ITB's tactic was to try and win over the new head of CSD to then influence the Secretary on "the merits of the Plan but this was being impeded by the climate of uncertainty at the higher levels".	Funding approval for the Plan not granted by the departmental executive.

Agents	Active Causal Powers and Liabilities (Mechanisms)	Interaction and Contextual Conditions	Events and Outcome of Interaction
Director ITB and project manager	Forced to adopt a new approach in face of lack of support from CDSC and funding approval from the Executive.	Five strategies recast as four ICT principles. The project manager conceded that "the original IT plan document was not understood, not trusted and hence there was no commitment from the cross departmental group to it". A new tactic is to be adopted in which "specific solutions are not prescribed, but directions are set" so that the five strategies will now be recast as four key principles and endorsement sought for these as a first step towards more specific approvals for particular projects.	Divisions unanimously support the principles but they now have responsibility for justifying funding. The e-learning strategy is downgraded in importance.
Minister and head SD	Minister has power to dismiss any person within the department.	"fair measure of dissent" between the Secretary and the head SD	Resignation of the head of Schools division.
Minister	Minister has power to direct the Secretary to restructure the department. Perception of the department's lack of effective financial and budgetary control.	Minister reported as saying reductions were necessary to 'streamline' her department after an internal review found that sections of head office were inefficient and not meeting schools needs".	Minister announces head office staff numbers to be reduced by 25%.
Departmental Executive	Power to establish committees and delegate authority. Funding for divisional ICT projects for the strategies in the Plan to be dependent on a business case justification within a portfolio management framework. Political need to preserve perception of ICT investment (PCs) in schools clashes with absence of strong data to support its effectiveness in teaching and learning terms.	New Director CSD advises Director ITB departmental executive still do not 'own' the strategies. PPAC no longer effective as a forum for deciding priorities of ICT proposals. Secretary responsive to portfolio management concept but focussed on cost containment rather than strategic benefits of ICT investments. Executive delegates authority to a new committee to determine the priority of strategies and approve business cases and funding for projects.	Communication brochure circulated. Knowledge Management Committee (KMC) formed and replaces PPAC.

Agents	Active Causal Powers and Liabilities (Mechanisms)	Interaction and Contextual Conditions	Events and Outcome of Interaction
Chair of the KMC	Delegated authority to determine priority of the Plan's strategies. Governance of the ICT investment portfolio is more important than the e-learning strategy.	Members of KMC unfamiliar with the Plan and its strategies. Chair of the KMC believes too much funding goes to schools and older teachers are not using ICTs effectively. Chair seeks to change the priority of the five strategies in the Plan.	Director ITB has to initiate new round of familiarisation of KMC members. Governance strategy becomes the first priority while e-Learning is ranked third.
Minister and Secretary	Power to reduce staff numbers	Staff reductions impact ITB resourcing and transformation agenda for educational ICT investments.	40% reduction in ITB staff numbers. Funding for PCs in schools questioned.
KMC	Power to set the strategic agenda for ICT in the department.	1st meeting. Members find strategy document too technical for them to understand, bears little relationship to the department's corporate planning process and believe the Director ITB is using the Plan to advance his personal agenda. One member wants to manage her division's ICT projects outside of the Plan's framework.	Plan is to be simplified to a ten page summary and relevance to corporate plan made clearer. The e-learning strategy does not appear in the summary plan. CIO proposal downgraded from deputy secretary status.
KMC	Right of members to advocate their individual perspective on the role of ICT in the department. Members advocate different aspects of the role of ICT in the department: governance of systems, information management, e-Learning, effectiveness of PCs in schools, resourcing for system renewals and role of ITB.	Disagreements amongst KMC members over the relative emphasis on governance versus the information management strategies. Influence of Chair of the KMC is limited but is able to restrict the influence of the Director ITB on the governance strategy and the role of ITB in the department. Chair and Director ITB both see themselves as candidates for CIO role.	Departmental Executive approval granted for the Plan but funding for projects is subject to individual business case justification.

Agents	Active Causal Powers and Liabilities (Mechanisms)	Interaction and Contextual Conditions	Events and Outcome of Interaction
Divisional managers responsible for ICT projects in the Plan and Director ITB	Divisional managers retain power to deny implied obligations of the Plan but ITB as a corporate resource provider vulnerable to demands for ICT support.	Meaning of the business value and portfolio management concept not well defined or agreed and "there is no will to operate in a portfolio manner". Divisional managers balk at heavy resource implications of the Plan and are unaware of the resources necessary to maintain current levels of provisioning. Business units lack expertise to manage ICT projects. Demand for new ICT emanating from areas not within the portfolio approach. There are doubts about the effectiveness of PC provision to teachers. ITB attempting to enhance ICT infrastructure to schools but reduction of resourcing for professional development of teachers in ICT use.	Divisional managers deny responsibility for resource implications of system renewals Resourcing for professional development of teachers reduced. No resolution to heavy demands on ITB as supplier of corporate ICT services despite loss of resources through effects of the restructure. Implementation progress retarded.
Director ITB	Vulnerable to pressure of role and resistance emanating from other stakeholders.	Pressure on Director ITB leads to illness and he requests transfer out of department.	Director ITB leaves the department.
Director CSD	Authority to appoint consultants.	Implementation of the Plan generating disagreement.	Consultant appointed to review the state of implementation.
Consultant, Director CSD	Power to alter the content and focus of the Plan and to restructure the ITB. Review consultant states the Plan is 'dead in the water' and KMC should be disbanded. Director CSD states the consultative process for the Plan was not successful.	Consultant and Director CSD strongly critical of the Plan. Acting Director ITB attempts to counter the criticisms by referring to extensive consultations and some partial progress in relation to the assignment of project priorities but she is not successful.	Acting Director ITB not appointed to the position. ITB restructured. A CIO is appointed and a new Director ITB. Role of KMC subject to a department wide review of governance processes.

Agents	Active Causal Powers and Liabilities (Mechanisms)	Interaction and Contextual Conditions	Events and Outcome of Interaction
Former Acting Director ITB		New cadre of executive managers unfamiliar with the Plan content and see it as an owned by ITB. Issue raised originally in the development of the Plan being raised again “we are doing the plan again”	Plan has no senior executive owner. Significant progress on governance strategy but very little on e-learning and other strategies. Business cases comparing costs and benefits not yet prepared. New chair of KMC but CIO and Director ITB invitees only. New issues in schools: increasingly proportion of students already familiar with technology, some schools are ICT advanced and others retarded, chronic need for technical support.

CASE STUDY 3 - LAW DEPARTMENT

Time	Agents and Groups	Causal Powers and Liabilities of Social Objects (Mechanisms)	Social and Technological Conditions (Context of interaction with other structures)	Events of Interaction
1	GM TS	Power to influence Departmental executive on strategic management of IT by making the case for a strategic planning consultancy	Strong business unit autonomy. IT not managed from a corporate perspective, lack of definition/clarity about roles/responsibilities of corporate ITB and business units, there is tension between central control versus local autonomy of IT and overall departmental IT expenditure is not well managed.	Workshops and negotiations between GM TS and senior managers beginning in September 1999.
2	Departmental Executive	Power to approve initiation of IT Strategic Planning consultancies	Efforts made by GM TS for IT planning consultancy.	Consultancy to develop IT Plan approved in November 2000
3	First Secretary	Power to appoint new members of the departmental executive	Influence through argument rather than mandate and prefers management through collaboration and knowledge sharing. Tolerant of BU autonomy. IT governance through Knowledge Management Committee (KMC).	Chief Knowledge Officer (CKO) appointed to the Departmental Executive. GM TS to report to CKO.
44	IT Planning Consultants	Powers to develop IT strategy for the department with ten goals and eight key initiatives.		Departmental IT Plan published April 2002
5	CKO	Power to develop and promote a Knowledge Management Strategy including a Community of Practice (CoP) initiative.	Supportive Secretary and KMC.	KMC approves the KMS. CoP initiative commences.
6	Community	Power to elect governments	Broad support for the government	Government returned to power 2002
7	Government	Power to reallocate existing and assign new functions to public service departments. Power to appoint new Secretary for the department.	Calls for new justice related initiatives from the community	Department has to take on a sex offenders register, a victim's register and other functions. New Secretary appointed.

Time	Agents and Groups	Causal Powers and Liabilities of Social Objects (Mechanisms)	Social and Technological Conditions (Context of interaction with other structures)	Events of Interaction
8	Business units	Organisational autonomy gives power to independently initiate IT projects and resist initiatives in the IT Plan and the KMS.	Pressure to take on new functions, cultural resistance to KM initiatives in light of lack of perceived business value.	Business units deviate from IT Plan and resist the CoP initiative.
9	New Secretary	Power to initiate organisational review.		Organisational review initiated for a period of approximately four months.
10	New Secretary	Power to terminate existing departmental programs and initiatives.	Business unit resistance and new Secretary unsympathetic to CoP initiative.	CoP initiative cancelled.
11	New Secretary	Power to implement changes recommended by the organisational review.	Organisational review supports reorganisation of senior IT management arrangements.	New organisational structure implemented. CKO role abolished. Former CKO demoted. GM TS to report to Executive Director of Corporate Services.
12	New Secretary	Power to implement changes recommended by the organisational review.	Organisational review supports consolidation of IT resources.	Business unit IT resources centralised.
13	Government	Power to define broad portfolio policy	Adoption of integrated services concept for government service provision known as 'joined up government' idea.	Government issues One Justice statement.
14	Office of Chief Information Officer (OCIO)	Power to compel departments to comply with whole of government IT strategy.	Government initiative to improve overall efficiency of public service departments in regard to IT usage.	Former CKO and GM TS obliged to incorporate Shared Services initiatives within context of IT Plan initiatives.
15	New Secretary	Power to initiate major departmental IT projects.	ICMS project initiated to support One Justice theme of organisational integration.	Former CKO assigned responsibility for the ICMS. IT Plan implementation to take an additional one year to complete. Other delays due to need to support new business functions not anticipated in the IT Plan.

CASE STUDY 4 – BUSINESS UNIT LED SISP PROJECT

Time	Agents and Groups	Causal Powers and Liabilities of Social Objects (Mechanisms)	Social and Technological Conditions (Context of interaction with other structures)	Events of Interaction
1	Manager IA	Advocacy powers to initiate projects	Complex information management problem to coordinate service provision to HPD clients.	Initiation of HPD IS strategy.
	CISB Managers	Manager ISPU has IT governance authority	Complexity of systems and information environment. Development of HPD systems requires a strategic framework (architecture) for the interrelationship between systems.	Managers in CISB advise need for a formal IS strategic plan. Manager IA agrees to a formal IS planning consultancy.
2	Manager IA and BM PPE, Minister	Minister's powers to grant approval and resources for project proposals.	Minister aware of need to improve coordination of client service delivery in relation to handicapped persons.	Manager IA and BM PPE obtain Ministerial approval and funding for the consultancy
3	Consultants for HPD	Ability to propose alternative ideas to challenge direction of the consultancy.	Consultant's review HPD business structure and operations for service delivery.	Consultant's propose a business model for HPD.
4	Manager IA	Project management powers.	IF idea is consistent with NPM ideas around client choice.	Consultant's are overruled. Manager IA insists on a systems architecture for IF.
5	Minister	Power to approve and fund systems development projects.	Minister strongly supportive of IF concept enabled by technology plan.	HPD IS Plan is delivered and positively received by stakeholders. Minister strongly supportive.
6	Directors of FCS, CISB, FWD	Advocacy powers to form coalitions and approve and grant resources for project proposals.	Long standing multi-service client problem. Technology platform increasingly out of date.	Integration project initiated.
7	Directors of FCS, CISB, FWD	Integration project has power to develop client IM capability.	Multi-service client is a department wide problem.	HPD agree to Integration Project providing client management information capability.
8	CISB –FWD Integration project team.	Client information management capability is a complex undertaking	Integration project cannot deliver client information management capability quickly.	HPD Project Manager decides to develop separate client IM capability independently of Integration project.

Time	Agents and Groups	Causal Powers and Liabilities of Social Objects (Mechanisms)	Social and Technological Conditions (Context of interaction with other structures)	Events of Interaction
9	CISB –FWD	Power to initiative consultancy	HPD's project potentially sets the strategic IT agenda for client IM technology solution.	Consultants appointed to advise on the appropriate strategy for client IM technology.
10	Consultants for CISB - FWD	Ability to propose alternative ideas to challenge direction of the HPD IS plan implementation project.	Integration project calls for tenders for its client IM requirement.	BM PPE asked to accept the Integration project's approach to the development of a client IM solution. BM PPE refuses.
11	EDs of FWD and FCS	Ability to frame the issue and escalate to a higher authority	Integration project moves toward finalisation of a contract for development of its client IM solution.	Consultant's present case for halting the HPD IS project at the departmental executive. Most members of the Executive appear to accept the consultant recommendation.
12	Secretary	Structural power to overrule other members of the departmental executive.	Secretary probably aware of Ministerial support for the HPD project.	Secretary decides that HPD will not be asked to halt their project. Consultant's change their recommendation.
	Minister	Minister vulnerable to political crises caused by events in the department's institutions.	Chroming incident becomes a political crisis for the government.	Minister relocated to another portfolio before she can approve the HPD tender contract. HPD project loses major supporter.
13	New ED of HPD	Power to grant approval and resources for projects.	Integration project develops momentum. Funding constraints on HPD.	New ED of HPD decides to accept the Integration project of CISB and FWD rather than develop a separate client IM capability. HPD project ceases.