



## **Terms and Conditions of Use of Digitised Theses from Trinity College Library Dublin**

### **Copyright statement**

All material supplied by Trinity College Library is protected by copyright (under the Copyright and Related Rights Act, 2000 as amended) and other relevant Intellectual Property Rights. By accessing and using a Digitised Thesis from Trinity College Library you acknowledge that all Intellectual Property Rights in any Works supplied are the sole and exclusive property of the copyright and/or other IPR holder. Specific copyright holders may not be explicitly identified. Use of materials from other sources within a thesis should not be construed as a claim over them.

A non-exclusive, non-transferable licence is hereby granted to those using or reproducing, in whole or in part, the material for valid purposes, providing the copyright owners are acknowledged using the normal conventions. Where specific permission to use material is required, this is identified and such permission must be sought from the copyright holder or agency cited.

### **Liability statement**

By using a Digitised Thesis, I accept that Trinity College Dublin bears no legal responsibility for the accuracy, legality or comprehensiveness of materials contained within the thesis, and that Trinity College Dublin accepts no liability for indirect, consequential, or incidental, damages or losses arising from use of the thesis for whatever reason. Information located in a thesis may be subject to specific use constraints, details of which may not be explicitly described. It is the responsibility of potential and actual users to be aware of such constraints and to abide by them. By making use of material from a digitised thesis, you accept these copyright and disclaimer provisions. Where it is brought to the attention of Trinity College Library that there may be a breach of copyright or other restraint, it is the policy to withdraw or take down access to a thesis while the issue is being resolved.

### **Access Agreement**

By using a Digitised Thesis from Trinity College Library you are bound by the following Terms & Conditions. Please read them carefully.

I have read and I understand the following statement: All material supplied via a Digitised Thesis from Trinity College Library is protected by copyright and other intellectual property rights, and duplication or sale of all or part of any of a thesis is not permitted, except that material may be duplicated by you for your research use or for educational purposes in electronic or print form providing the copyright owners are acknowledged using the normal conventions. You must obtain permission for any other use. Electronic or print copies may not be offered, whether for sale or otherwise to anyone. This copy has been supplied on the understanding that it is copyright material and that no quotation from the thesis may be published without proper acknowledgement.



Trinity College Library  
Dublin

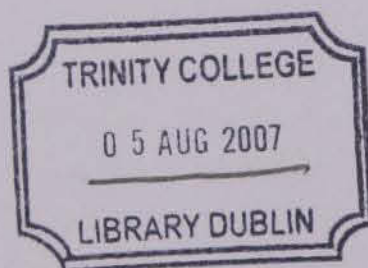


University of Dublin

**THIS THESIS MAY BE READ ONLY IN THE  
LIBRARY**

Bound By:  
THE  
THESIS CENTRE  
65 Camden St. Lwr.  
Dublin 2. Ph: 475 3616  
[www.thesiscentre.com](http://www.thesiscentre.com)





THESIS  
8146

**CIO Perspectives of Their Role in Information Systems Strategy.  
An Application of Grounded Theory in a Health Care Context**

**A Thesis Submitted to**



**The University of Dublin**

**TRINITY COLLEGE**

**For the degree of Doctor of Philosophy**

**Nigel Jeremy Cunningham, BSc., DipComSci., MSc., MBCS, CITP.**

**School of Business Studies**

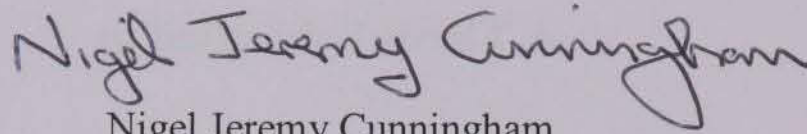
**The University of Dublin**

**Trinity College**

**2007**

## DECLARATION

I hereby declare that this thesis has not been submitted as an exercise for a degree at this or any other university. Except where otherwise acknowledged, it is entirely my own work. The Library of Trinity College may lend or copy this thesis upon request.



Nigel Jeremy Cunningham

Trinity College, Dublin

May 2007

## ABSTRACT

The introduction, management and control of information technology (IT) resources present significant challenges to organisations. The development of an information systems (IS) strategy is a key organisational activity used to address these issues. Despite the importance of IS strategy there are high levels of dissatisfaction. In particular it is the management of the IS strategy process that causes concern. The content of IS strategy dominates research and practitioner agendas, often driven by concerns with the competitive opportunities offered by IT in for profit organisations. IS strategy process research tends to focus on the use and effectiveness of specific planning methodologies and methods, rather than consider the broader set of practices which influence the development and application of IS strategy within a specific organisation. It is even suggested that IS strategy practice is subject to faddishness.

A key figure in orchestrating and shaping the IS strategy is the chief information officer or CIO. There are gaps in our knowledge as to the role of the CIO in the IS strategy process. The objective of this research is *'to acquire knowledge and understanding of the role of the CIO in the IS strategy process, from the perspective of the CIO'*. As no previous theory exists grounded theory methodology is used in an interpretive mode to develop a novel theory of the role of the CIO in the IS strategy process in public healthcare organisations. The fieldwork focuses on CIOs in health care organisations in a region of the United Kingdom National Health Service, the Northern Ireland Health and Personal Social Services. The thesis also reflects on the use of grounded theory methodology in this context.

Rigorous data collection and analysis subsequently shows that CIOs enact six distinct roles in the IS strategy process, namely the Ambassador, the Visionary, the Broker, the Facilitator, the Technologist and the Coach. Each role represents an ideal set of activities through which the CIO influences the thoughts and actions of those involved in the IS strategy process, which is shown to be an emergent, systemic, dynamic social process focusing on relationships, ideas, resources, change, technology and problems.



## DEDICATION

To my parents who encouraged me throughout this endeavour, and continue to provide me with their love and support in all that I do. Also, for Karen who was with me at the beginning of this journey and now continues to support me as my much loved wife.

## ACKNOWLEDGEMENTS

This thesis would not have been possible without the patient, sustained and excellent guidance of Dr Joe McDonagh, University of Dublin, Trinity College. Also, to my colleagues in the IS research group TCD, John, Jack, Eddie and Jorge – fellow travellers all. Thanks also to Mrs Hazel Neale, Librarian, Medical Education Centre, Craigavon Area Hospitals Group HSS Trust for assistance in obtaining many of the references used.

## TABLE OF CONTENTS

**Declaration**

**Summary**

**Dedication**

**Acknowledgements**

**Table of Contents**

**List of Figures**

**List of Tables**

**Abbreviations**

<b>1.0</b>	<b>Introduction</b>	<b>1</b>
1.1	Introduction	1
1.2	Research Question and Rationale	4
1.3	A Challenge in Practice	5
1.4	The Structure of the Thesis	7
1.5	Theoretical and Practical Significance	9
1.6	Summary of the Research Methodology	10
1.7	Conclusions	12
<b>2.0</b>	<b>The Elusive Nature of Strategy</b>	<b>14</b>
2.1	Introduction	14
2.2	A Faltering Evolution	16
2.3	Strategy Content	23
2.4	Strategy Context	24
	2.4.1 The Public Sector	26
	2.4.2 Levels of Strategy	27
2.5	Strategy Process Perspectives	28
	2.5.1 Rationality	30
	2.5.2 Incrementalism	31
	2.5.3 The Garbage Can	35
	2.5.4 An Interpretive View	36
	2.5.5 Problems of Implementation	37
	2.5.6 Implementation and Change	39
	2.5.7 Strategic Action and Learning	41
2.6	Holistic Views	42
	2.6.1 A Systems Perspective	45
	2.6.2 Strategizing	47
	2.6.3 Strategists	48
	2.6.4 Role Concepts	57
2.7	Conclusions	58

<b>3.0</b>	<b>The Nature of Information Systems Strategy</b>	<b>60</b>
3.1	Introduction	60
3.2	Characterising Information Systems	61
3.3	Interpretations of IS Strategy	64
3.4	A Fragmented Evolution	68
3.5	The Context of IS strategy	72
3.6	The Content of IS strategy	74
	3.6.1 Competitive Advantage	76
	3.6.2 The Alignment Allegory	78
3.7	The Process of IS Strategy	81
	3.7.1 IS Strategy Methods	83
	3.7.2 Holistic Views	90
	3.7.3 The Human Dimension	96
	3.7.4 The Dilemma of the CIO	99
3.8	Conclusions	101
<b>4.0</b>	<b>A Processual Research Design</b>	<b>103</b>
4.1	Introduction	103
4.2	Paradigms of Inquiry in IS Research	104
	4.2.1 Positivism	106
	4.2.2 Interpretivism	107
	4.2.3 Critical Research Philosophy	109
	4.2.4 Paradigmatic Relationships	110
4.3	Rationale for an Interpretive Paradigm	110
4.4	Defining Process	114
4.5	The Nature of Process Inquiry	116
	4.5.1 Researching Strategy Process	121
	4.5.2 Utility of a Process View	123
	4.5.3 Process theories	124
	4.5.4 Process theories in IS	126
4.6	Process Research Methods	129
	4.6.1 Ethnography	130
	4.6.2 Case Studies	130
	4.6.3 Action Research	132
	4.6.4 Grounded Theory	132
	4.6.5 Challenges of Data Collection	133
	4.6.6 Data Analysis Strategies	136
4.7	Making Methodological Choices	141
4.8	The Grounded Theory Methodology	142
	4.8.1 Interpretive Grounded Theory	144
	4.8.2 Rationale for Selecting GTM	145
	4.8.3 Literature and GTM	148
	4.8.4 Researcher-Practitioner Bias	150
4.9	Conclusions	151

<b>5.0</b>	<b>The Grounded Theory Method in Practice</b>	<b>153</b>
5.1	Introduction	153
5.2	Data Collection	154
	5.2.1 Selecting the Data Sources	155
	5.2.2 Secondary Data	159
	5.2.3 Recording the Data	159
5.3	Data Analysis	160
	5.3.1 Open Coding	161
	5.3.2 Comparison and Conceptualisation	164
	5.3.3 Methodological Schisms	164
	5.3.4 Memos and Diagrams	167
	5.3.5 Theoretical Sampling	169
	5.3.6 Theoretical Sensitivity	170
	5.3.7 Theoretical Sorting	170
	5.3.8 Theoretical Saturation	171
	5.3.9 Theoretical Coding	172
	5.3.10 Ideal Types and Typologies	176
	5.3.11 Re-entering the Field	178
	5.3.12 Delimiting and Writing the Theory	178
5.4	Validity and Reliability	180
	5.4.1 Confirmability and Authenticity	182
	5.4.2 Dependability	182
	5.4.3 Transferability	183
	5.4.4 Credibility	184
5.5	Reflections in Practice of GTM	187
5.6	Conclusions	189
<b>6.0</b>	<b>The Role of the CIO in Practice</b>	<b>191</b>
6.1	Introduction	191
6.2	The Context: Northern Ireland DHSSPS	192
	6.2.1 IS Strategy in the NHS	194
	6.2.2 ICT Strategy in the Northern Ireland DHSSPS	196
6.3	Deriving the Role Attributes	198
	6.3.1 Focus	198
	6.3.2 Perspective	198
	6.3.3 Influencing Domain	199
	6.3.4 Decision Trajectory	199
	6.3.5 Influencing Activity	200
	6.3.6 Enactment	200
	6.3.7 Timing	201
6.4	The Praxis and Theory of CIO Roles in the IS Strategy Process	203
	6.4.1 The Ambassador in Practice	203
	6.4.2 The Ambassador in the Literature	210
	6.4.3 The Visionary in Practice	216
	6.4.4 The Visionary and the Literature	223
	6.4.5 The Broker in Practice	225
	6.4.6 The Broker and the Literature	232

6.4.7	The Facilitator in Practice	234
6.4.8	The Facilitator and the Literature	240
6.4.9	The Technologist in Practice	242
6.4.10	The Technologist and the Literature	248
6.4.11	The Coach in Practice	250
6.4.12	The Coach and the Literature	256
6.5	Holistic Enactment	259
6.6	Conclusions	264
<b>7.0</b>	<b>Implications and Conclusions</b>	<b>266</b>
7.1	Introduction	266
7.2	Achievement of Purpose and Aims	266
7.3	The Contribution to Knowledge	267
7.4	Implications for Theory	268
7.5	Implications for Practice	271
7.6	Limitations	273
7.7	Extending the Work	275
7.8	Conclusions	278
	<b>Appendices</b>	<b>280</b>
	<b>Bibliography</b>	<b>293</b>

## LIST OF FIGURES

- Figure 1. Organisation of the Thesis
- Figure 2. Strategy in Flight
- Figure 3. An Integrative Framework of Strategy Making Processes
- Figure 4. Managerial Roles
- Figure 5. The History of Information Systems
- Figure 6. The Components of IS Strategy a Socio-technical Perspective
- Figure 7. A Conceptual Model of Technology Impact
- Figure 8. The Process Research Cycle
- Figure 9. Iterative Data Collection and Analysis Activities
- Figure 10. Examples of Concepts Emerging from Open Coding
- Figure 11. Patterns of Concepts Coalescing into Categories
- Figure 12. The Progress of Theoretical Coding from Concepts to Theory
- Figure 13. Summary of the Coding Stages for Interpretive Grounded Theory
- Figure 14. Summarising all the Stages in the GT Research Process
- Figure 15. The Structure of the Northern Ireland Health and Personal Social Services

## LIST OF TABLES

- |           |  |
|-----------|--|
| Table 1.  | Definitions of Strategy: The Swings of the Pendulum                        |
| Table 2.  | Definitions of IS Strategy   |
| Table 3.  | IS Strategy Phases and Tasks   |
| Table 4.  | IS Strategy Formulation Models   |
| Table 5.  | Metatheoretical Assumptions of Positivism and Interpretivism               |
| Table 6.  | Sense Making Strategies  |
| Table 7.  | Quality and Rigour Related to the Stages of Theory Building Research Cycle |
| Table 8.  | A Typology of CIO roles in the IS Strategy Process                         |
| Table 9.  | The Ambassador: Attributes, Key Activities and Examples from the Data      |
| Table 10. | The Visionary: Attributes, Key Activities and Examples from the Data       |
| Table 11. | The Broker: Attributes, Key Activities and Examples from the Data          |
| Table 12. | The Facilitator: Attributes, Key Activities and Examples from the Data     |
| Table 13. | The Technologist: Attributes, Key Activities and Examples from the Data    |
| Table 14. | The Coach: Attributes, Key Activities and Examples from the Data           |



## ABBREVIATIONS

CASE	-	Computer Aided System Engineering
CEO	-	Chief Executive Officer
CFO	-	Chief Financial Officer
CIO	-	Chief Information Officer
CTO	-	Chief Technical Officer
DHSSPS	-	Department of Health Social Services and Public Safety
ERP	-	Enterprise Resource Planning
GP	-	General Practitioner
GTM	-	The Grounded theory Method
HIS	-	Hospital information system
ICT	-	Information, Communications and Technology
IM	-	Information Management
IT	-	Information Technology
IS	-	Information Systems
IS Strategy	-	Information Systems Strategy
LHSCG	-	Local Health and Social Care Group
MIS	-	Management Information Systems
MS	-	Microsoft
NPfIT	-	National Programme for Information Technology
NHS	-	National Health Service
RISC	-	Regional Information Steering Committee
RBV	-	Resource Based View
SMT	-	Senior Management Team
TCE	-	Transaction Cost Economics

## CHAPTER 1.0

### INTRODUCTION

#### 1.1 Introduction

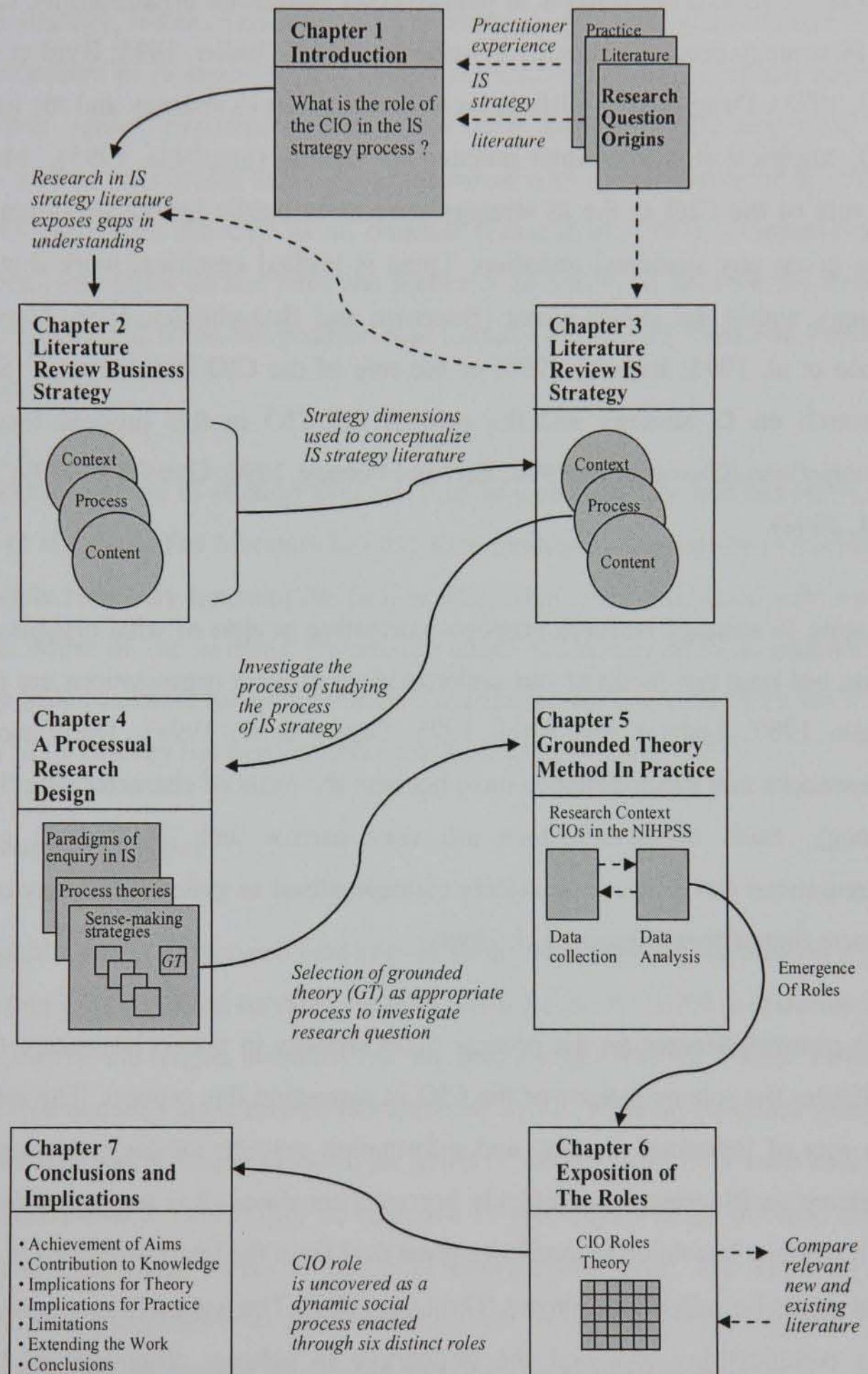
Information technologies continue to weave their way into the fabric of the activities of individuals, organizations and society. Yet the expectations of information technologies (IT) to significantly improve the delivery of public services such as healthcare remains somewhat unfulfilled. The success stories of IT are often overshadowed by significant and prominent failures. A key activity undertaken by organisations to facilitate the introduction, management and control of IT resources is the development of an information systems strategy (Boynton and Zmud, 1987; Lederer and Mendelow, 1986, 1987; Galliers and Sutherland, 1991).

Information systems strategy (IS strategy) is also a recurrent theme in management research and is defined as the process of identifying the computer based applications that will assist an organisation in executing its business plans and realizing its business goals (Lederer and Sethi, 1998). Despite the importance of IS strategy there are high levels of dissatisfaction (Galliers, 1987; Lederer and Sethi, 1988; Earl, 1990). It is the management of the IS strategy process which appears to create the most difficulties (Earl, 1993; Flynn and Goleniewska, 1993; Boynton et al, 1994; Teo and Ang, 2001). The Chief Information Officer (CIO) is the individual who has broad responsibility for IT and is a key figure in undertaking the IS strategy (Stephens et al, 1995). This research investigates CIO perspectives of their role in the IS strategy process. It is not a study about rational interventions and decisive choice in the application of technology but rather of the actions and interactions of the CIO in a socio-technical practice.

Chapter one presents the research question, its background and rationale. The structure and content of the thesis are then described, highlighting some of the most pertinent themes. The theoretical and practical significance of answering the research question is then

discussed followed by a summary of the research methodology. Figure 1 shows the organisation of the thesis and provides a map for the journey ahead.

**Figure 1. Organisation of the thesis**



## 1.2 Research Question and Rationale

The objective of this research is to acquire knowledge and understanding of the role of the CIO in the IS strategy process in public sector healthcare organisations. Understanding of the IS strategy process generally is underdeveloped (Baker, 1995; Byrd et al, 1995; Segars et al, 1998). Despite the proliferation of literature on IS strategy and the importance of the CIO, empirical studies of their practice are lacking (Stephens, 1995). More specifically, the role of the CIO in the IS strategy process in public healthcare organisations has not been given any sustained attention. There is limited empirical work that investigates IS strategy within the public sector (Bozeman and Bretschneider, 1986; Caudle et al, 1991; Swain et al, 1995; Bajjaly, 1998) or the role of the CIO in this sector (Stephens, 1995). Research on IS strategy and the role of the CIO in this process focuses on private organisations (Grover et al, 1993; Earl and Feeney, 1994; Gottshalk, 1999; 2000; Gottshalk et al, 2002).

Existing IS strategy research proposes normative models of what organisations should be doing but does not facilitate our understanding of what organisations are doing (Huff and Reger, 1987; Lederer and Sethi, 1996; Segars et al, 1998). These models, analytical frameworks and methodologies have become the basis of characterising the process of IS strategy. Such characterisations are very narrow and IS strategy activities within organisations can be more accurately conceptualised as systems of behaviours, agendas, or process dimensions (Segars et al, 1998).

This research focuses on the process of IS strategy in public healthcare organisations, in particular the role or actions of the CIO in managing this process. The research draws on two sets of literature, strategy and information systems strategy. Perusing the academic literature on IS strategy one quickly becomes becalmed. It is suggested that the very topic of IS strategy has failed to develop a great deal from the late 1980's and is characterised by what might be called faddishness (Galliers, 1999). The use of IT as a competitive weapon, as a reengineering tool and the imperative to achieve alignment of business and IS strategies in organisations are now clichés.

The task CIOs face in undertaking IS strategy is substantial. They encounter problems with organisational strategies (Earl, 1990), a lack of involvement from senior executives (Feeny et al, 1992), the reporting relationship of the CIO (Watson, 1990), difficulties in implementing IS strategy, resource issues as well as technical problems (Lederer and Sethi, 1991). The development of IS strategy often occurs in relative isolation from the business strategy and other senior executives. CIOs also lack strategic influence with top management, as well as operational and tactical influence with users (Grover et al, 1993). Senior executives even view the CIO as an outsider (Enns et al, 1997). Compared with other senior executives, CIOs do not have the authority or ability to achieve the kind of changes that were expected when the position was initially proposed (Ward and Peppard, 1996; Gottschalk, 1999)

Despite the importance of the IS strategy process, limited empirical research has addressed this issue (Byrd et al, 1995). The literature has focussed mainly on the content or outcomes of IS strategy while relatively ignoring the actions and behaviours associated with the IS strategy process. Most of the existing knowledge about CIOs comes from practitioner sources and very little academic research to understand the issues and constraints that CIOs are dealing with in IS strategy has been undertaken (Reich and Nelson, 2003).

### **1.3 A Challenge in Practice**

Across the UK public sector the government spends about 14 billion pounds sterling a year on new and existing IT and related services, directly employs about 50,000 professionals in this field and is one of the largest customers of the technology (HMSO, 2005). Virtually every public service depends upon processes supported by IT. Within healthcare many of these systems are also old and custom built, designed as islands with their own data and technical infrastructure. The availability of effective IT to support those doctors, nurses and social workers and many others in the front line remains poor. The capacity and capability of healthcare organisations and their suppliers to deliver IS strategy has been subject to severe criticism by the UK parliament and press over the last decade.

As the new millennium dawned the UK Department of Health goal of providing IT support to clinicians concentrated on assistance at the point of care. There was a general acceptance that this meant lifelong electronic health records for every person in the

country. Five types of electronic patient records needed to be built first in order to consolidate an integrated record. These addressed the needs of professionals and clients in acute hospitals, mental health, GP primary care, community services and social care. In November 2002 the Prime Minister of the UK spelt out his vision for IT in healthcare. He proposed that 600 million pieces of paper a year could be eliminated from the NHS. Significant new funding was made available for the IS strategy by the UK Department of Health and a national programme for health IT (NPfIT) set off at breakneck speed. The IT changes proposed within this programme are individually technically feasible, but they have not been integrated so as to provide comprehensive solutions anywhere else in the world (Brooks, 2006). The NHS's national strategy for IT is now almost three years late. There are problems with General Practitioners resisting the national programme, early adopters of the NPfIT strategy talk of 'nightmarish' problems and ebbing credibility from the very professionals the programme was to support (Collins, 2006). In June 2006 a critical report from the UK National Audit Office (2006) commented on the significant challenges and ominous signs facing the IS strategy in three key areas: ensuring that IT suppliers continue to deliver systems that meet the needs of the NHS without further slippage in timescales; ensuring that NHS organisations play a full part in implementing systems and winning support of NHS staff and the public in making the best use of the systems to improve services.

Further down from the lofty heights of national strategies it is the CIOs in the various healthcare organisations that engage with this milieu. Translating national, regional and local imperatives into a workable IS strategy. The researcher is the CIO responsible for IS in a large public sector healthcare organization in Northern Ireland, involved in many IS strategies both within his organisation and at a regional level. Considerable resources and time goes into the formulation of these local and regional IS strategies. However, they are often not implemented or are not feasible within the context of their use. Gaps appear and the CIO is caught between knowing what to do and actually doing it. Only through understanding the IS strategy process can the gap between formulation and implementation be narrowed

## 1.4 The Structure of the Thesis

The following section outlines the structure of thesis which consists of six chapters. The central themes and arguments of each chapter are summarised. These elaborate on the pertinent literature; describe the derivation of the approach to the enquiry, the research methodology in practice, and discuss the findings and conclusions.

*Chapter two:* in order to structure an investigation into the role of the CIO in the IS strategy process a pre-requisite is an understanding of the extant literature on the parent strategy field and its inherent arguments and contradictions. Strategy is revealed as a broad and elusive domain in need of analysis and synthesis. Prescriptive work focusing on the outcomes of the strategy process or the strategy content predominates (Hoskisson and Hitt, 1990). The process of strategy remains an important though neglected feature of strategy, consisting of formulation or decision making and implementation or actions over time. There is a dichotomy within the strategy formulation process between rational approaches and others that argue strategy is better thought of as an emergent process influenced to a greater or lesser extent by the subtleties of politics and organisational behaviour. The implementation of strategy is often unrealised. The goal of implementation of strategy is change and there are many frameworks, checklists and models that offer prescriptions on how to undertake strategic change. Although strategy formulation and implementation were seen as separate activities by the early researchers, now formulation and implementation are considered closely intertwined. Interest has also been growing in the role of managers in the actual day to day activities that comprise strategy processes (Whittington, 1996, 2002; Johnson et al, 2003). Strategy is an immensely complex process involving the most sophisticated, subtle and at times subconscious of human cognitive and social processes (Mintzberg, 1994a). There are currently major empirical gaps in our knowledge of how organisations undertake strategy and this has implications for IS strategy.

*Chapter three* investigates the nature of information systems (IS), a necessary precursor to understanding the definitions of IS strategy and the evolution of the concept. A significant body of IS strategy research is dominated by the need to achieve competitive advantage, strategic alignment with business strategy and performance improvements. The means by which these outcomes are achieved and sustained have received comparatively little



attention (Ward and Peppard, 2004). Research on the IS strategy process generally is underdeveloped and characterised by prescriptive IS strategy methodologies based on the rational model of strategy making. Despite the proliferation of these methodologies there is varying evidence of their actual practitioners (Earl, 1993; Hann and Weber, 1996). In public organizations in particular the rational logic of the structured methods falters when confronted by the socio-political idiosyncrasies of the organization (Johnson and Scholes, 2002). The IS strategy process is a multidimensional phenomenon. Research on the IS strategy process is found to be underdeveloped. The CIO's perspective of their role in the IS strategy process has not received any sustained attention and is the focus of the thesis.

*Chapter four* takes a stance as regards the philosophy, epistemology and methodology used in the research. A constructivist ontology and interpretive epistemology is used as the research paradigm. Chapters 2 and 3 highlighted the importance of process to strategy and IS strategy. Process research is concerned with the sequence of individual and collective events, actions and activities unfolding over time in context. The chapter argues that process research in particular is valuable in creating research insights into the IS strategy process. An investigation of the data collection and analysis strategies available in process research shows the grounded theory method particularly suitable for answering the research question. There is no existing theory for the role of the CIO in the IS strategy process in public organisations. Grounded theory is an inductive, process orientated and contextually sensitive methodology used to develop novel theory.

*Chapter five* describes the application of interpretive grounded theory method in the research. With this method data collection and data analysis proceed simultaneously. Out of the data collection and analysis six distinct roles for the CIO in the IS strategy process emerge. The Chapter exposes these roles and their emergence through the constant comparison and abstraction process of the grounded theory method. It shows explicitly what I did and how I did it. The reliability and validity of the findings are then discussed using criteria applicable to an interpretive paradigm. The chapter then reflects on the use of the grounded theory methodology in practice.

*Chapter six* discusses the theory of the roles of the CIO in the IS strategy process which are elaborated through the use of ideal types (Weber, 1949,1962) and expressed in a

typology. Each of the uncovered roles of the CIO in the IS strategy process are discussed in practice followed by a comparison of the findings with relevant existing theoretical literature. The roles, although individually distinct, collectively form a gestalt which is described. The role of the CIO in the IS strategy process is shown as a dynamic interactive social process enacted through the six distinct roles.

*Chapter seven* the concluding chapter summarises the research and offers methodological, empirical and theoretical reflections on the content and validity of the thesis. The thesis ends with thoughts and hopes concerning future research.

## **1.5 Theoretical and Practical Significance**

The IS strategy process is an important and underdeveloped area of IS management and how the CIO undertakes this process is in need of further enquiry. To date a large body of work contributes to the outcome or content of IS strategy. Investigations into the IS strategy process, however, are still in their formative stages (Segars et al, 1998). This research will contribute to and address calls for more process orientated research in organisations and IS in particular (Markus and Robey, 1988; Monge 1990; Orlikowski and Baroudi, 1991; Kaplan, 1991; Shaw and Jarvenpaa, 1997). The primary contribution will be to provide novel empirical research into the role of the CIO in the IS strategy process in public sector healthcare organisations through:

Developing a theory for the role of the CIO in the IS strategy process, and contributing to the theoretical development of the IS strategy literature and the wider IS field, particularly in relation to IS strategy phenomena in the public sector.

Understanding the IS strategy process is important in determining the contribution IS make to the performance of organisations, also, failure to carry out IS strategy carefully can result in lost opportunities and wasted resources (Fredrickson, 1983; Lederer and Sethi, 1992).

In public sector organisations applying IS strategically can achieve co-operative advantage: sharing information across organisational boundaries to achieve consequential

outcomes (Andersen et al, 1994). IS strategy also offers public sector organisations the means to address the demands for more and better services in the face of continually declining resources (Andersen et al, 1994). There is a really urgent need for clear management commitment to improvement of healthcare through strategic change facilitated by the introduction of information technologies (Wanless, 2002; Crisp, 2003). Improving understanding of the CIO's role in the IS strategy process is important, otherwise the potential for information technologies to move from a context supporting to a context transforming role in healthcare will be severely limited (King and Teo, 1996).

## **1.6 Summary of the Research Methodology**

The choice of research practices depends upon the questions that are asked, and the questions depend on their context (Nelson et al, 1992). The focus of this research is on developing a context-based, process-oriented explanation and understanding of the phenomenon – the CIO's perspective of their role in the IS strategy process – rather than an objective, static description expressed strictly in terms of causality. Imperatives for studying the IS strategy process directly requires that sequences of events be identified that lead to outcomes of interest (Boland, 1979; Chua, 1986; Orlikowski and Baroudi, 1991).

An understanding of the nature of process inquiry is therefore important, before the investigation can proceed. Process research defines different types of events that occur over time, using these as the researcher's basic theoretical construct. Typically, process models specify antecedent conditions that occur prior to a sequence of events, describe the events in the process itself, and relate those events to outcomes (Robey and Newman, 1996). One of the objectives of process research is to explain why outcomes at the end of a sequence of events occur. The processual approach involves a continuous interplay between academic pre conceptualisation (based on a comprehensive knowledge of the area under study) and detailed empirical descriptions of emerging themes and topics, out of which new concepts are refined and interpretations developed (Dawson, 1997). Different views of the same process also need to be addressed (Checkland, 1981, 1993).

Practice based research in other disciplines provides evidence that what people do and how they do it is frequently counter to rational principles and has clear implications for the

conduct and outcomes of work (Jarzabkowski and Wilson, 2002). A practice perspective to studying 'how to do' strategy (Whittington, 2003) argues that large-scale quantitative studies of a firms' assets, technologies and performance variables are asocial and disembodied accounts that offer little theoretical or practical insight into the dilemmas of practitioners engaged in doing strategy (Jarzabkowski and Wilson, 2002). This research therefore takes an interpretive stance which contends that social processes such as the IS strategy process are too complex, too relative and too elusive to be approached with explicit conceptual frames or standard instruments. The aim of interpretive research is to understand how members of a social group, through their participation in social processes, enact their particular realities and endow them with meaning, and to show how these meanings, beliefs and intentions of the members help to constitute that social action (Orlikowski and Baroudi, 1991;Walsham, 1993).

A style of qualitative process research known as the grounded theory method is used to develop a substantive, descriptive and explanatory theory of the role of the CIO in shaping the IS strategy process. The label qualitative implies an emphasis on the processes and meanings that are not examined or measured in terms of quantity, amount, intensity or frequency. Grounded theory method (GTM) is

*“An inductive theory discovery methodology that allows the researcher to develop a theoretical account of the general features of a topic while simultaneously grounding the account in empirical observations or data.”* (Martin and Turner, 1986:141).

It also facilitates the generation of theories of process, sequence, and change pertaining to organisations, positions and social interaction. (Glaser and Strauss, 1967). The GTM is a general style of doing analysis which does not depend on particular disciplinary perspectives (Strauss, 1987) and therefore lends itself to IS research which can be described as a hybrid discipline (Urquhart, 2000). The approach has been successfully applied in organisational and IS research (Myers, 2002).

The originators of GTM Glaser and Strauss (1967) and Glaser (1978) advise researchers to omit the usual literature review in favour of direct observation of the phenomenon of concern. They caution those using grounded theory to formulate their own interpretations

based on the participants understanding of what was going on. Reading related and unrelated literature is a good way to expand theoretical ideas about the research and increase theoretical sensitivity where the researcher moves from the particular data to the abstract (Schreiber, 2001). This investigation does use the literature in this way.

The seminal advice on the GTM is contradictory, due in part to the schism in the use of the method between the two originators. As it is an inductive, emergent method that is located mainly in post positivism, this requires the researcher to carefully consider their own philosophical position (Urquhart, 2001). In this research the researcher applies the GTM through an interpretive ontology and epistemology, something comparatively new in IS research (Hughes and Jones, 2004). The GTM provides a set of procedures for collecting and analysing data which suit the interpretive tradition and provide important rigour into the research process when dealing with social and organisational contexts. It keeps analysis close to the data and provides for inductive discoveries about the phenomena under study.

## **1.7 Conclusions**

In public healthcare organisations in the United Kingdom the success of major reforming initiatives are dependent on information technologies (Crisp, 2003). IS strategy is an important activity to plan, manage and control IS and services. There are considerable problems with the process of IS strategy. The CIO's perspective of their role in the IS strategy process; however, has not been adequately addressed and is in need of further investigation. The research described in this thesis examines the role of the CIO in the IS strategy process in healthcare organisations in a large public sector organisation, in a region of the UK National Health Service (NHS). In order to investigate the research question a means of investigating a dynamic set of activities unfolding over time is required, a process orientated perspective is needed. Relatively little academic research has been carried out on CIOs in the public sector. As a consequence the research builds a theory for the role of CIO in the IS strategy process. The inductive, process oriented nature of the research leads to the selection of the GTM used in an interpretive mode as the research methodology. As a result of the research a theory for the role of the CIO in the IS strategy process is presented for the first time.

The story begins with mapping the landscapes of two elusive domains, strategy and IS. At the confluence of these two territories lies the difficult and challenging organisational terrain of IS strategy. As with any new territory there are disputes with definitions, boundaries, roles and its place in organisational affairs. Segregation, alignment and integration between IS strategy and business strategy are evident in theory and practice as outcomes of the strategy process. However, the process through which these outcomes are achieved remains unknown. Despite rapid advances in IT, organisations still have to learn how to avail themselves of appropriate technology, identify where and how it can apply (Ormerod, 1995). This requires organisational actors to manage the antecedent events in the change process, the actual process itself, the practice of change management and have the capacity to learn throughout (Guha et al, 1997).

The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that proper record-keeping is essential for the success of any business and for the protection of the interests of all parties involved. The text outlines various methods for recording transactions, including the use of journals, ledgers, and account books. It also discusses the importance of regular audits and the role of the auditor in ensuring the accuracy of the records.

The second part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that proper record-keeping is essential for the success of any business and for the protection of the interests of all parties involved. The text outlines various methods for recording transactions, including the use of journals, ledgers, and account books. It also discusses the importance of regular audits and the role of the auditor in ensuring the accuracy of the records.

## CHAPTER 2.0

### THE ELUSIVE NATURE OF STRATEGY

#### 2.1 Introduction

In this chapter an overview of the general strategy literature is presented in order to provide a critical lens to investigate IS strategy in chapter 3. The general strategy literature has a well established research base and lineage in comparison to IS strategy. Many of its dominant themes are carried into IS strategy. Strategy is now a key term in every major corporation and government institution. There is also a vast and eclectic literature on the subject. However, there is still a lack of consensus as regards the meaning of strategy and varying amounts of cumulative research and knowledge. This is due in part to the contextual and multi dimensional nature of strategy. Because strategy problems cannot easily be framed within a fixed paradigm, strategy is necessarily a multi-paradigmatic discipline, requiring varied theoretical perspectives and methodologies (Hoskisson et al, 1999). As a consequence, the boundaries that mark the strategy field are blurred (Rumelt et al, 1994).

The evolution and varying interpretations of strategy, which are manifest in its many definitions, are revealed in section 2.2. The research literature usefully categorises strategy into distinct dimensions of context, process and content. This conceptual prism provides the means to further examine the strategy literature.

Section 2.3 shows that the content dimension of strategy focuses on the types of strategies which lead to the best performance outcome for different organizations under varying competitive conditions and dominates the research literature. However, the process by which such outcomes are achieved remains unclear.

In section 2.4 the context of strategy is shown to have a considerable influence on both the process by which strategy forms and the output that is produced. Some particular contextual characteristics of the public sector are described along with the challenges these



present to strategy making. Different levels of corporate, business and operational strategy also present further analytical dimensions within the field.

Strategy process research is described in section 2.5 and is concerned with how strategy is formulated and implemented. Strategy formulation is usually depicted as a linear, orderly set of steps executed by rational actors. Alternatives to this dominant rational view are discussed which emphasize the limitations and idiosyncrasies of human behaviour in decision-making (Cyert and March, 1963; Quinn, 1980; Johnston, 1988; Mintzberg, 1991; Wrapp, 1984). The need to counterbalance analytical thought with a greater concern for action, appreciating both thinking and acting to give emphasis to the dynamic aspects of both marks a shift in the language of strategy to embrace change (Pettigrew et al, 2001). There are a number of problematic issues concerning strategy definition, formation and impacting conditions, which have contributed to the elusive nature of strategy and impeded its epistemology.

Section 2.6 reviews holistic approaches to strategy making that attempt to combine and transcend the different dimensions of strategy. Although the dimensions of strategy are useful to establish what is known and what is unknown, in practice there is interaction and overlap between them. Strategy process is a purposeful activity enacted by groups and individuals so an examination of the role of those who do strategy or strategists is essential. A parallel stream of research has emerged recently which attempts to open up the how to 'black box' of strategizing that investigates how the practitioners of strategy really act and interact (Whittington, 1996; 2002; Mintzberg et al, 1998; Johnson et al, 2003). Understanding this practice of the strategy process through roles enacted by individuals and groups is essential to provide a platform for the investigation into the role of the CIO in the IS strategy process to come.

## 2.2 A Faltering Evolution

The concept of strategy was introduced into the organisational literature and advanced during the late fifties by faculty members at the Harvard Business School. In its contemporary form the field of strategy is an invention and export of the United States (Pettigrew et al, 2001). The works of Chandler (1962), Ansoff (1965) and Andrews et al (1965) are perhaps the most influential and nearly all of the issues concerning strategy can be found in embryonic form in these writings (Rumelt, et al, 1994). Chandler, using descriptive studies of large US corporations, explored how their administrative structures had been adapted to accommodate growth. He showed how executives at these companies discovered and developed roles for themselves in making long-term decisions about the direction of their enterprises and then made investments and modified organisational structure to make those strategies work. Strategy was distinct from and preceded structure. Andrews et al (1965) built on these ideas emphasising the notion of a changing environment presenting opportunities and threats. The organisation's strengths and weaknesses were adapted to avoid the threats and seize the opportunities. Ansoff provided a more sophisticated analysis of the concept of strategy, which was also reflected in a more elaborate view of the process of creating strategy. Works by Ansoff (1965) and Andrews et al (1965) emphasised the normative aspects of business knowledge and are mainly interested in identifying and developing the 'best practices' that were useful for managers, using in-depth case analysis as the primary research approach. However, heavy emphasis on the case approach and the lack of generalisation did not provide the platform necessary for continued advancement of the field (Hoskisson, et al 1999).

None of these early researchers directly changed practice; at best their first works offered a set of constructs and propositions about how strategies formed and how they affected the performance of the business enterprise. Impact on practice was left to prominent United States based consulting firms such as McKinsey, Bain and the Boston Consulting Group. The latter became best known for its two related conceptual inventions, the experience curve and the growth share matrix. These concepts drew a clear line between operational decision making and corporate strategy emphasising the latter. Briefly, the experience curve maintained that whoever captured market share early, whoever gained the most experience in production would end up with the lowest cost, assuming efficient operational

management practice, and whoever had the lowest cost would have the highest margin. With the highest margin came cash flow and an ability to withstand competition and whatever actions it required. This reasoning led to the growth share matrix, whose terminology of cash cows, dogs, stars and question marks became widely used (Rumelt, et al, 1994).

Even twenty years ago many of the normative strategy models promoted by 'blue chip' companies and consultants were beginning to look increasingly inadequate, and this inadequacy is aggravated by what was perceived as greater complexity of strategic problems (Pennings et al, 1985). Also such specialised models depend greatly on individual preferences and ingenuity (Camillus, 1982). Developments in the strategy field<sup>1</sup> in the beginning of the 1970's fostered a move primarily towards economics in theory and method. The influence of industrial organisational economics, in particular, on strategy research was substantial, in terms of methodology; strategy research became much more scientific (Schendel and Hatten, 1972). Two major research themes emerged.

First, that internal firm characteristics and unique competitive resources led to economic success shifted attention from internal to external industry structure and competitive position in the industry (Porter, 1980; 1985). The central tenet of this theme is that a firm's performance is primarily a function of the industry environment in which it competes; and because structure determines conduct, which in turn determines performance, conduct can be ignored and performance can, therefore, be explained by structure. Porter (1980, 1985) made an influential contribution to strategy. Using a structural analysis approach he developed the Five Forces Model to understand the structure of an industry. The ability of a firm to gain competitive advantage over its rivals according to Porter rests on how well it positions and differentiates itself in an industry. The collective effect of five economic forces - the bargaining power of suppliers, the bargaining power of buyers, the threat of new entrants, the threat of substitute products, and rivalry among existing firms, determine the firm's financial performance. Until Porter's work, firms had been seen as adapting to general, even rather vague environments.

---

<sup>1</sup> The identification and clarification of the fundamental issues of scientific interest distinguish a field of scholarly enquiry (Rumelt et al, 1994)

The second theme that emerged was the use of more rigorous methodologies to establish the contingent relationship between strategy content, administrative systems and firm performance (Chakravarthy and Doz, 1992). The research focus changed from inductive case studies, largely on a single firm or industry prevalent in the sixties to deductive, large scale statistical analysis of secondary published data seeking to validate scientific hypotheses, based on models abstracted from the structure-conduct-performance paradigm. Attention to explanation and prediction, rather than prescription, was strongly advocated by strategy scholars with the aim to move the area towards a more rigorous 'scientific' academic discipline (Hoskisson et al, 1999). In addition to these broad perspectives developed within the strategy field during the 1980's strategy scholars dramatically increased their use of economic theory. Two branches of organisational economics, transaction cost economics (TCE) (Williamson, 1975, 1985) and agency theory (Fama and Jensen, 1983; Hoskisson et al, 1990) were particularly controversial and influential on strategy. TCE research is built on the assumptions of human (managerial) behaviours and attributes of transactions that affect modes of transaction<sup>2</sup> and outcomes. Agency theory extends these issues and posits that due to separation of ownership and control in modern corporations there is a divergence of interests between shareholders and managers. Managers are assumed to maximise their own self interests even at the expense of shareholders. Agency theory assumes that human beings are boundedly rational, self-interested and opportunistic (Eisenhardt, 1989). As such it helps enter the 'black box' of strategy making to examine the causes and consequences of agency conflict between shareholders and managers, and the effectiveness of governance devices designed to mitigate the conflict. Therefore, the theoretical concern of agency theory is more at a firm level of analysis than TCE (Hoskisson and Hitt, 1990).

In a further departure from industrial economics, scholars revived interest in the resource based view (RBV) of the firm. This theory suggests that it may be more appropriate to think of firms as possessing different combinations or levels of strategic resources and capabilities (Penrose, 1959, Rumelt et al, 1984; Wernerfelt, 1984). Organisations able to develop and accumulate several different process skills into a complex strategy making 'capability' might therefore be expected to out-perform less process capable organisations. No two companies are alike because they have not had the same sets of experiences,

---

<sup>2</sup> A Transaction cost is cost incurred in making an economic exchange

acquired the same assets and skills, or built the same organisational cultures. These assets and capabilities determine how efficiently and effectively a company performs its functional activities. A company will be positioned to succeed if it has the best and most appropriate stocks of resources for its business and strategy (Collis and Montgomery, 1994). Resources and capabilities that are valuable, uncommon, poorly imitable and non substitutable also comprise the firm's unique or core competencies (Prahalad and Hamel, 1990) and therefore present a lasting source of competitive advantage. The RBV calls for qualitative methods to identify a firm's unique resources; the approach often uses single studies to examine firm strategies or industry structure. The study of the RBV requires a multiplicity of methods to identify measure and understand resources, residing within the boundary of the firm (Hoskisson et al, 1999).

It is argued that the rise of the resource-based theory of the firm offers new opportunities to bring more organisation theory into the strategy domain (Barney, 1992). Strategy research was moving back to investigating how firms' internal mechanisms and attributes influence firm strategy and performance. Research streams focus on specific types of resources inside a firm, such as strategic leadership and tacit knowledge. Methodologically, the RBV also helped the strategy field reintroduce inductive, case-based methods focused on a single firm or a few firms into the research to complement deductive, large sample methods (Hoskisson et al, 1999). Table 1 shows some shifting perspectives and definitions of strategy over the last forty years.

**Table 1. Definitions of Strategy: The Swings of The Pendulum (After Hoskisson et al, 1999)**

Strategy definition	Article	Perspective	Methodology/theories
<p>“A means of establishing an organisational purpose – the determination of the basic long-term good of the enterprise and the adoption of courses of actions and allocation of resources to carry out these goals”</p>	<p>(Chandler, 1962:13)</p>	<p>Strategy is a rational process. Outcome is improved performance measured by financial indicators.</p>	<p>Descriptive, inductive case studies on single firms or industry Structure follows strategy</p>
<p>“The definition of the competitive domain of the firm – the pattern of objectives, purposes or goals and major policies and plans for achieving these goals, stated as to define what businesses the company is in or is to be in and the kind of company it is to be”</p>	<p>(Andrews et, al, 1965:15)</p>	<p>Rational process Structure follows strategy</p>	<p>Descriptive, inductive case studies on single firms or industry</p>
<p>“Strategy is a pattern or plan that integrates an organisation’s major goals, policies and action sequences into a cohesive whole. A well formulated strategy helps to marshal and allocate an organisation’s resources into a unique and viable position based upon its relative internal competencies and short-comings, anticipated changes in the environment and contingent moves by intelligent opponents”</p>	<p>Quinn (1980:3)</p>	<p>Strategy is a mixture of rational and incremental processes adapting to the environment</p>	<p>Normative and logically derived insights from case studies of multinationals</p>
<p>“A competitive strategy is seen as a broad formula for how a business is going to compete and a formula for finding a profitable position in the industry”</p>	<p>Porter (1980:16)</p>	<p>Rational process to attain competitive advantage within a particular industry. Positioning</p>	<p>Deductive large scale statistical analysis, structure determines conduct which determines performance</p>
<p>“Strategy is to create a situation where a resource position makes it difficult for others to catch up”</p>	<p>Wernerfelt (1984:173)</p>	<p>Unique skills and resources create competitive advantage resource based</p>	<p>Descriptive, inductive case studies on single firms or industry</p>

Table 1. Continued

Strategy definition	Article	Strategy Perspective	Methodology/theories
"Strategy is the positioning and relating of the firm to its environment in a way which will assure its continued success and make it secure from surprises"	Ansoff (1984:49)	External positioning	Inductive Case
"Strategy is defined as orienting 'metaphors' or frames of reference that allow the organisation and its environment to be understood by organisational stakeholders. On this basis, stakeholders are motivated to believe and to act in ways that are expected to produce favourable results for the organisation"	Chaffe (1985:93)	Integrative, emphasis on the need to form social contracts	Similarities to systems theory
"The essence of strategy thus becomes the purposeful management of change so that the firm can achieve competitive advantages in every business in which it is engaged ... the recipients of the firm's actions are the wide constituency of stakeholders"	(Hax and Majluf, 1988:102).	Internal and external	Adaptive
"Strategy is a plan, ploy, pattern, perspective or position"	Mintzberg and Quinn (1991:12)	Emergent patterns, Multifaceted	Phenomenological
"Strategy is a set of discourses and practices which transform managers and employees alike into subjects who secure their sense of purpose and reality by formulating, evaluating and conducting strategy"	Knights and Morgan (1991:252)	Strategy as discourse through which understanding of the organisation is achieved.	Critical cognitive view
"The essence of strategy is not doing something better than your competitors but doing something different –choosing a unique and reliable position that is rooted in systems of activity that are difficult for others to match"	Porter (1996:68)	External	Economic
"Strategy is the purposeful change in a human activity system required in order to move from one state to another"	Rose and Elphick (2002:53)	Systemic change	Soft System Methodology/ Action research
"Strategy is a social practice, in which strategic discourse (including the discourse of strategic decisions) provides the loose coupling that mediates between cognition and action in the structuring of change processes"	Hendry (2000:968)	Dynamic character of strategies and the role of groups and individuals	Activity theory

The evolution of strategy is compared by Hoskisson et al (1999) to the swinging of a theoretical and methodological pendulum. Early definitions and development concentrate on strategy as a tool to provide direction and coordination to the internal resource allocation process of large organisations. In the late 1970s increased economic turbulence as well as strong market orientation of the 1980s placed competition and competitive advantage at the centre of strategy. This signalled a swing to industrial economics and the importance of positioning the firm's capabilities relative to opportunities in the external environment. In the 1990s increasing volatility of markets, the pace of technological change and changes in customer behaviour placed a premium on the internal capabilities needed to meet these challenges. A rich understanding of the resources and competencies of the organisation were necessary to produce a viable strategy (Ferlie, 2002).

Much of the academic literature of the last 40 years has tended to generate and or support the orthodoxy in which strategy is perceived as a set of rational scientific methods based on economic theory for managing organisational complexity in an ever changing environment. The major thrust of this content orientated research has been to identify linkages among environmental, corporate or business-unit decisions and economic performance. In the 1970s and 1980s the limitations of purely rational approaches to strategy process were exposed as a result of implementation problems (Mintzberg et al, 1998). The impact of power, politics and culture on these disembodied views challenges the rational orthodoxy in terms of management and action. In order to uncover the managerial activities in strategy creation, empirical, behavioural and process based interpretations need to be considered, besides more conceptual and economic focused ones (Rumelt et al, 1991). Mintzberg (1989) argues that the strategy process is much more like a craft activity than an exercise in rational analysis. Implicitly managers seem to play an important role in the social practice of strategy. The nature of the strategy process is also shaped by the organisational context (Pettigrew, 1985). The evolution and development of strategy has generally been viewed in terms of content, context and process and these conceptual constructs are now used to further analyse strategy.



### 2.3 Strategy Content

Strategy research is dominated by theoretical and empirical work in strategy content (Rajagopalan et al, 1993). Strategy content research is concerned with the outcome of strategy, the major thrust of which has been to identify linkages among environmental conditions, corporate or business-unit strategic decisions, and economic performance. Senior managers or individuals go through a decision-making process and propose actions to position the organisation favourably relative to its environment. The focus is the strategic decision itself. Such decisions may involve merger, acquisition, divestment strategies, portfolio management, entry and exit motility, product market differentiation, vertical integration and the alignment of firm strategies with environmental characteristics. Considerable theoretical and empirical work has been undertaken on these topics. Content research borrows concepts from organisational economics, micro and macro economics (Chakravarthy and Doz, 1992).

Fahey and Christensen (1986:168) define research on strategy content as “*embracing decisions about goals, scope, and/or competitive strategies of corporations or of one or more of their business units*”. They identified three major streams of content research:

- (1) Goal content research may focus on survival (or turnaround), economic performance, social conduct, and other fundamental positions or results, which the organisation has made commitments to achieve.
- (2) The scope of content research may address questions regarding diversification, vertical integration, geographic expansion, strategic alliances, and methods for changing scope, for example; internal growth acquisitions and divestments.
- (3) Competitive strategy content research may focus on strategic groups and industry segmentation, determinants of business-unit performance (of which market share has received particular attention), taxonomies of strategy types, stages of industry evolution, and signalling and competitive response.

Content research extends to the influence of a firm's access to resources on its performance. Apart from suggesting what the desired competitive position and resources are, content research does not describe how firms achieve and maintain such positioning through both deliberate and trial and error actions of organisational actors. The common framework that underlies most studies in strategy content asks the question:

*"If a manager finds conditions x, y and z then s/he is most likely to be more effective if s/he follows strategy 'A' than 'B'. The central research question is typically some variant of: What performance results arise from following specific strategies under different conditions"* (Fahey and Christensen, 1986:169).

Because strategy content questions emphasise the positioning of the firm with respect to its environment, strategy content studies typically examine external conditions, with less attention devoted to conditions internal to the firm. Two of the most influential research directions of strategy, industrial organisational economics (Porter, 1980, 1981) and the resource based view (Wernerfelt, 1984) established that strategy emerges from exploitation of industry structures and resource factors respectively. However, both these content views invoke arguments that seem to assume dynamic processes, but have fallen short of explaining these (Regnér, 2003).

## **2.4 Strategy Context**

The context of the organisation can have an impact on the process by which strategy decisions are made and their characteristics are influenced by environmental attributes such as uncertainty and complexity. Internal power structures, past performance, past strategies and the extent of organisational slack, all have a significant impact on the process. Because of these factors strategic decisions often follow different patterns in different organisations. Even within a single organisation, the process can vary across decisions because of differences in decision specific factors such as the impetus for the decision, the urgency associated with the decision, the degree of outcome uncertainty and the extent of resource commitment (Rajagoplan et al, 1993).

Pettigrew et al (1992b) describe the enabling and constraining influences of various features of context of the firm upon the content and process of strategy development. Outer context refers to the national, economic, political and social context of the organisation. Inner context, by contrast, refers to the ongoing strategy; structure, culture, management and political factors that help shape the processes through which ideas for change proceed. Pettigrew argues for research designs which can test how and why variations in context and process shape outcomes such as the pace of change and / or the performance of the firm (Pettigrew, 1992a). Pettigrew (1997:341) cautions

*“We cannot talk about process without also discussing human agency in context. Here the key starting point is that it is not just a question of nature or nurture or context or action, but context and action. Context is not just a stimulus environment but a nested arrangement of structures and processes where the subjective interpretations of actors perceiving, learning and remembering help shape process. Thus organisational processes are both constrained by features of context such as tradition and technological commitments and also shape contexts by, for example preserving or altering technological strategies or corporate cultures”.*

The strategy formulation literature suggests that rational decision processes are appropriate for organisations in stable environments but incremental approaches should be used in unstable environments (Anderson and Paine, 1975; Mintzberg, 1973; Nutt, 1976; Fredrickson and Mitchell, 1984). Implied in this view is the assumption that a comprehensive decision process will result in superior performance in an environment that can be well understood. A non comprehensive process, with its speed and flexibility, will have a similar effect in an unstable environment (Fredrickson, 1984). In fast changing or high velocity environments action may precede formulation (Brown and Eisenhardt, 1998). Implementation tactics such as low cost probes into the future or options dealing with experimental products allow firms to experiment, to learn what will work, in order to determine the direction with most promise (Brown and Eisenhardt, 1998).

### 2.4.1 The Public Sector

The public sector is often seen as an alien context where the ideas of strategic management could not apply (Ferlie, 2002). Public sector organisations are characterised by a distinct combination of weak and ambiguous goals; multiple stakeholders, high degrees of professionalisation and politization, very large organisational size, weak markets and few private property rights (Ferlie, 2002). In its adoption of corporate strategy, and its experience of its limitations, the public sector mirrored rather than contradicted that of the private sector (Ferlie, 2002). In the 1980's and 1990's, much of the strategy literature was uni-directional and flowed from the private sector to the public sector. The public sector; however, has failed to learn and has often recycled corporate strategy techniques, which are badly flawed (Green, 1998).

Recently there is increased use of strategy models and language within public organisations. This shift reflects the changed nature of senior managerial tasks within a profoundly restructured public sector (Ferlie, 2002). However, there are contextual differences between public and private organisations. Public sector managers place much more emphasis than those in private sector organisations on the requirement to comply with guidelines handed down by political masters. Johnson and Scholes (2001:17) call this the enforced choice dimension where: *“There is less exposure to market pressures, a greater need to conform to statutory and other formal regulations, responsibility of managers to different stakeholders, greater emphasis on net public welfare and in some cases different core objectives”*

Process-based models of strategy have analytic resonance in many public sector settings that often display:

*“A high degree of politicisation and of political behaviour; multiple stakeholders that engage in bargaining behaviour to form dominant coalitions; vague and multiple objectives that are reinterpreted at a local level; the lack of strong market pressures that can drive change; and the limited power of the top echelons to impose direction”* Ferlie (2002:290).

The growth of new public management<sup>3</sup> has also resulted in highly professionalised public sector organisations. Within such organisations real power lies not with managers but with a college of senior professionals.

#### **2.4.2 Levels of Strategy**

Strategies exist at a number of hierarchical levels in an organisation (Johnson and Scholes, 1988). Corporate level strategy is concerned with what types of businesses the company as a whole should be in and with the development and coordination of that portfolio of businesses. Corporate strategy is also likely to involve questions about the financial structure and coordination of the organisation as a whole.

A second business level or competitive strategy is concerned about how to compete in a particular market and is more likely to relate to a unit within the whole. A strategic business unit may be a division, product line or other profit centre planned independently from the other business units of the firm. The third level of strategy is at the level of functional or the operating divisions of the organisation which are concerned with how the different functions of the enterprise such as finance, operations, human resources and so on contribute to the implementation of the other higher levels of strategy.

These levels of strategy provide the framework for formulating shorter term plans and budgets against which the organisation can be controlled (Stacey, 1993). The key question remains as to how strategists at whatever level in private and public organisations undertake strategy. These are questions of strategy process to which we now turn.

---

<sup>3</sup> New Public Management is a management culture that emphasizes the centrality of the citizen or customer, as well as accountability for results. It also suggests structural choices that promote decentralized control through a wide variety of alternative service delivery mechanisms, including quasi-markets with public and private service providers competing for resources from policymakers and donors. There is also increased emphasis performance improvement (Hood, 1991).

## 2.5 Strategy Process Perspectives

The strategy process sub-field is concerned with how effective strategies are shaped and implemented within the organisation. According to Schendel (1992) shaping has to do with finding strategy, implementing has to do with developing the administrative processes necessary to use the strategy in guiding operations. Shaping strategy does not need to engage the entire organisation, although it may, but implementing strategy does require the entire organisation to be involved. Strategy process brought a new epistemological and methodological tradition into the field of strategic management (Pettigrew et al, 2001). Process research is research primarily focussed on the actions that lead to and support strategy. The strategy process includes the activities leading up to and supporting a choice of strategy (Huff and Reger, 1987). The process of crafting strategy (Mintzberg, 1987a) can be seen as a sequence of behaviours where decision makers scan the environment to gather data about important events and trends, then convert this data into information through interpretation systems (Daft and Weick, 1984), producing understandings of situations that serve as the basis for subsequent decision-making (Mintzberg et al, 1976), action (Dutton et al, 1983), and ultimately, performance (Thomas et al, 1993).

Much of the strategy process literature focuses on identifying the effects of various individual (Miller et al, 1982), group (Thomas and McDaniel, 1990), and organizational factors (Hall, 1984) on the strategy process. Some empirical research has sought to link the strategy process to performance, but the findings have generally been ambiguous. Process researchers have not generally included a strategy outcome in their studies. There is little agreement how to assess strategy and performance, as well as few theories linking strategy and performance constructs (Chan and Huff, 1992).

Research on strategy process has lagged behind research on strategy content. Progress has been modest and knowledge remains normative or descriptive and is largely untested (Fredrickson, 1983). Mintzberg et al (1998) identify ten different strategy process models. These may be divided into three prescriptive: design, planning, positioning and seven descriptive: entrepreneurial, cognitive, learning, power, cultural, environmental, configuration categories. The design school dominated the early years of strategy research, then planning in the 1970s, followed by positioning in the 1980s, which has lost some of its popularity but remains influential. From the 1990s onwards, the field became more eclectic,

with all other schools gaining in importance. This categorisation highlights that strategy process has evolved away from the rational model and prescriptive mode to a descriptive mode, with implications for management practice (Mintzberg and Lampel, 1999). While the prescriptive schools are clear and consistent, making the dissemination and adoption of their ideas into practice easier, the descriptive schools are fuller and richer, but are untidy, and *“can end up in tangled confusion, generating many contingencies and multiple perspectives that stymie application”* (Mintzberg and Lampel, 1999:29). Mintzberg and Lampel (1999:21) ask whether these perspectives represent fundamentally different processes of strategy making or different parts of the same process. *“In both cases, our answer is yes”*. They argue the dimensions of strategy represent a line of descent through the history of the field, but this may not be a descent by replacement. *“Older schools contribute to newer ones in complicated and often subterranean ways. They continue to live in practice, infiltrating newer frameworks under various guises”*. Each school; however, constrains the concept of strategy; we need to know how strategy formation that combines all these schools and more really works. What is required is improved practice not neater theory.

Strategy process research is diverse and cannot be contained within any single paradigm. It deals with the behavioural interactions of individuals, groups and or organisational units, within or between firms (Van de Ven, 1992). In strategy process research there is a subdivision of research concerned with choice processes or strategic decision-making and implementation processes or strategic change. The research literature on strategic decision-making is typically classified into three groups: linear or rational approaches, adaptive or incremental approaches and interpretive or cognitive approaches (Hendry, 2000).

### 2.5.1 Rationality

Most of the models of strategic decision-making are based on the principles of rational decision-making to solve problems (Camillus, 1982; Chakravarthy and White, 2001). From this perspective, strategic decisions are relatively unproblematic and ontologically straightforward; decisions are made intentionally and they are implemented. The proponents of the rational model see strategy consisting of integrated decisions, actions or plans that will set and achieve viable organisational goals. It uses a systematic environmental analysis, assessment of internal strengths and weaknesses, explicit goal setting, evaluation of alternative courses of action, and the development of a comprehensive plan to achieve the goals (Andrews, 1971; Ansoff, 1965; Hofer and Schendel, 1978; Porter, 1980). In the course of this process, managers capitalise on those future trends and events that are favourable and avoid or counteract those that are not. Because this model was developed primarily for profit-seeking businesses, two of its important measures of success are profit and productivity. The environment is taken to be relatively predictable or else the organisation is well insulated from the environment. The assumption is that any sources of irrationality are relatively minor and do not compromise the rational integrity of the process as a whole. The problem facing the practitioner is one of how best to eliminate or at least minimise the irrational element, so as to make the best possible intentional choices (Hendry, 2000). The conceptual tidiness of systematic rationality may provide a better vocabulary for communication within organisations than the more prescriptive models of decision-making (Huff and Regar, 1987). The practising manager, however, is not comfortable with this perspective.

The rational approach is based on two assumptions; first that there is ultimately one and only one best answer to any strategy question and second that implementation follows the discovery of strategy; that is action follows thinking. These strategic decisions or choices hopefully recognise and respond to the values of key executives and the priorities of those stakeholders affected by the performance of the organisation (Ansoff, 1965; Andrews 1971; Hofer and Schendel, 1978; Porter, 1980). Changes in strategy are mainly in response to opportunities or needs created by changes in the external environment. As a consequence of change in strategy, complementary new structures are devised. Managers are viewed as having an active role in pursuing strategic changes and exploring new administrative



structures. Managers take strategic decisions at face value, as the 'decisive' elements of an empirically observed rational process: at some point in the life history of a strategic change a decision or decisions are made that commit the organisation to proceed in a certain direction. Strategic decisions are often significant because of the amount of resources involved, they are unstructured in that the problems they solve involve multiple courses of action, each of which is hard to evaluate (Pennings et al, 1985).

The 'goal' characteristics of strategic decision processes have been questioned (Fredrickson, 1983). Instead of future desired states, goals may actually serve as a series of independent constraints imposed by coalition members during bargaining (Cyert and March, 1963, Simon, 1964). Committing to specific goals makes it difficult to shift direction and limit subordinates' perceptions of opportunities (Wrapp, 1967; Quinn, 1980). Also goals may provide a focal point to opposition and contribute to escalating commitment (Staw, 1976). In other words sticking to the plan limits the chances for creativity and change. Uncertainty is ignored or treated on the basis of probability. The allocation of responsibility for carrying out elements of the rational planning exercise is also a variable that can affect the outcome (Delbecq et al, 1975). Decision-making is represented as an explicit, rational process, enacted by a neutral decision-maker, which requires the organisation and processing of information. There are dangers in this view, if decision-making is thought of as value free, politically neutral and objectively rational, then organisational culture and history can be ignored. In complex organisations, 'rationality' lies in the eye of the beholder and personal values, relative power and group processes substantially influence or colour whatever rational point of view is adopted (Camillus, 1982).

### **2.5.2 Incrementalism**

Critics of rational approaches to strategy formation have consistently pointed to gaps between observed practice in organisations and the descriptive and normative theories of strategy development and implementation (Mintzberg, 1978; Quinn, 1980; Mintzberg and Waters, 1985). They argue that strategy formation is an emergent process, rather than a rational deliberate one; it involves small steps that provide information and new basis for action, which over time gradually foreclose alternative courses of action and limit what is possible. The assumptions of rationality are challenged by behavioural theory which argues

at best; individuals have cognitive limits which cause decision makers to adopt simplified models of the world, to limit search behaviour to incrementally different options and to accept the first satisfactory outcome. Strategy is no longer seen as just rationally intended purposeful thought undertaken by an organisational elite. This power behavioural definition of strategy contends there are multiple, possibly conflicting goal structures (Simon, 1976) and policy decisions, executive bargaining and negotiation (Wrapp, 1984), coalitions in management, politically motivated behaviour (Cyert and March, 1963) and muddling through among organisations (Lindbloem, 1959).

Simon (1957) uses an 'intelligence, design, choice' conceptual framework to understand such decision making and referred to this as 'bounded rationality'. In this model multiple goals exist and the desirability of any alternative action may have to be evaluated in terms of a number of criteria; for example, the goal of profit making might have to be reconciled with goals of social responsibility or internal harmony. The prime role of the decision-maker is one of 'satisficing', not necessarily attempting to achieve the greatest possible rewards but merely those which are good enough and acceptable within a given situation. In addition to problems with the cognitive capabilities of managers, the requirements of comprehensive analysis of rational decision processes may put a strain on other resources. For example, rational models assume that information will be available when needed but ignore the costs of obtaining it (Fredrickson and Mitchell, 1984). Even if an organisation has significant resources, attempting to be comprehensive in decision-making may result in "*achieving tomorrow's solution to yesterday's problem*" (Braybrooke and Lindblom, 1970:121). Mintzberg and Waters (1985) question whether strategic decision-making in firms is even boundedly rational. They argue strategy can emerge from the random actions of managers with some trial and error learning. Strategy definitions are reduced to a dichotomy of deliberate and emergent. A strategy is considered deliberate when its realisation matches the intended course of action, and emergent when the strategy is identified from the patterns or consistencies observed in past behaviour despite, or in the absence of intentions (Mintzberg and Waters, 1985; Mintzberg, 1994b). In other words strategy can only be discovered in retrospect.

To get the best out of strategic decision-making Quinn (1980) offers a compromise arguing that formal analytic thinking should be combined with behavioural aspects of management in an approach he calls logical incrementalism where:

*“Effective executives artfully blend formal analysis, behavioural techniques and power politics to bring about cohesive step by step movements towards ends which initially are broadly conceived, but which are constantly refined and reshaped as new information appears”* (Quinn, 1980:3).

In this model executives may be able to predict the broad direction, but not the precise nature, of the ultimate strategy that will result. Accordingly, top managers focus on identifying a broadly defined direction for the organisation, allowing details to emerge over time. The characterisation and description of strategy process in incrementalism is richer than that offered by bounded rationalism. There is an element of conscious, foresightful action autonomously constructed to achieve some goal or value that is shared by both processes (Pettigrew, 1985d). The incrementalist approach focuses on emergent strategies caricatured as organic (think-convince-try-argue-learn-think) while the rational planning approach can be caricatured as mechanistic (think then do) (De Wit, 1994).

Camillus (1982) proposed a framework for designing strategic planning that permits a symbiotic integration of rational strategic planning and logical incrementalism. This would allow both rational idealism and human considerations to be taken into account. In this framework a three dimensional matrix of analytical, interactive and temporal considerations are used to guide the design of the strategic planning process. The analytical dimension contains a formal, logical analytical framework; the interactive dimension examines the roles and interactions of the individuals, groups and committees and is substantially influenced by the organisational context. The temporal dimension of strategy has three aspects: duration, frequency and horizon. The horizon or length of time into the future that the strategic plan should embrace relates more to the output of the process or the content of the strategic plan than to the character of the process itself. The horizon of strategic plans is dependent on the strategy posture and operating characteristics of the organisation. The relationship of the planning horizon to the process of planning is not as significant or clear cut and the span or duration of rational planning has been a major concern to designers of

such systems (Camillus, 1982). The trade off between adequate time to carry out proper analysis on the one hand and the problem of maintaining momentum, reducing the likelihood of strategic assumptions becoming obsolete and minimising the direct and opportunity cost of executive time is also of concern. The cycle time of formal planning activities is important in reconciling rational planning and logical incrementalism.

*“Designers of formal systems implicitly assume strategic plans are constructed on an annual basis though reaping the benefits of strategy often requires lead times of several years, in the intervening periods annual, limited, incremental exercises should be undertaken” (Camillus 1982:280).*

Otherwise routine can also stifle creativity which is the essence of strategy (Camillus, 1975).

Power, politics and culture also provide a means for rational strategies to fall by the wayside as individuals and unified groups use their power to select organisational strategies that best serve them individually (Pettigrew, 1985b). Consciously self serving behaviours and associated processes such as withholding or distorting information, covert actions, agenda control, coalition building and incomplete enumeration of options often undermine strategy effectiveness (Chakravarthy and White, 2001). Also individuals and groups within an organisation may genuinely disagree, though this disagreement may not necessarily be based on narrow self interest (Allison, 1971). Disputes may be swayed by the preferences of the group with most power (Chakravarthy and White, 2001). Attention to the significance of the distribution and use of power as a shaper of decision and strategy outcomes is also apparent in a political and cultural view of process (Pettigrew, 1973, 1977).

Strategy may not necessarily be a question of decisions made by key executives. Allison (1971) argues that organisational inertia or politics may by themselves determine the actions taken by organisations. *“Politics are the observable, but often covert, actions by which executives enhance their power to influence a decision”* (Eisenhardt and Bourgeois, 1988:738). Actions include behind the scenes coalition formation, offline lobbying and co-optation attempts, withholding information, and controlling agendas (Pettigrew, 1973; Pfeffer, 1981). This contrasts with straight forward influence tactics of open and forthright discussion, with full sharing of information, in settings open to all decision makers (Eisenhardt and Bourgeois, 1988).

### 2.5.3 The Garbage Can

There may be special dynamics of strategy making within public sector organisations. The public sector is now highly professionalized with a number of well established professional groupings<sup>4</sup> (Mintzberg, 1989). At the most extreme these settings can be seen as ‘organized anarchies’ where serendipitous forms of decision-making predominate, the so called ‘garbage can’ (Cohen et al, 1972) model of decision-making.

*“Here organisation, group and individual interests are only partially understood and acted upon, actors walk in and out of decision processes, solutions are generated without reference to problems, and outcomes are not a direct consequence of process. Behaviour cannot be predicted by intention nor environmental constraint; instead decisions appear out of foggy emergent contexts when people, problems and solutions find themselves sharing the same bed” (Pettigrew, 1985d: 278).*

Rationality cannot guide action in this view, because rationality, goals and preferences are viewed as emerging from action rather than guiding action (Peffer, 1982). In the garbage can mode there are few ‘patterns’ to the decisions made; rather participants dip in and out of decision-making processes (Ferlie, 2002). Decision-making occurs with the random confluence of several relatively independent streams within an organisation of:

- Problems that require attention;
- Answers that are looking for a problem to address;
- Participants who are able to devote time and energy to a particular problem; and
- Choice opportunities where a decision is expected to be made (Cohen, et al 1972).

The garbage can model has been applied in many contexts and the theory probably applies to many organisations some of the time and some organisations most of the time (March and Olsen, 1989).

---

<sup>4</sup> These include for example in healthcare: clinicians, nurses, allied health professionals and social workers

#### 2.5.4 An Interpretive View

The role of cognition and culture in strategic decision making is emphasised in the interpretive approach to researching strategy. The primary focus of such an interpretive approach is less prescription for making better strategy than an investigation and unravelling of the forces at work in actual decision making situations. At the individual level, cognitive limits cause decision makers to adopt simplified models of the world, to limit search behaviour to incrementally different options, and to accept the first satisfactory outcome. Individuals rely on mental models or cognitive maps to organise issues and events into manageable sets of categories. The basis for strategic success or failure is the microcosm of the decision makers: their inner model of reality, their set of assumptions that structure their understanding of the unfolding business environment and factors critical to success (Mason and Mitroff, 1981). Little attention has been paid in the literature to the way in which managers make sense of the world within which they interact, and the manner in which shared beliefs affect what they do. This may be due to a lack of suitable frameworks which surface and accommodate such views, rather than managers' inability to recognise alternative perspectives (Mason and Mitroff, 1981). The idea of a shared framework provides a strong conceptual foundation for strategic activities to happen. Simon (1993:141) contends:

*“A central idea (call it a ‘mission’ or ‘a company goal’ or ‘basic principles’), embedded in many heads where it is evoked on the occasion of decisions, is more crucial than an elaborate written list of things that are supposed to happen”*

An alternative explanation of the actions of organizational participants in dealing with complex problem solving situations is therefore provided in terms of the cognitive maps of managers and how these maps are related to their perceptions of their environment and to possible strategic responses (Johnston, 1988). Central to the interpretation of environmental factors and alternative strategic responses, is the paradigm<sup>5</sup> of the organisation. The paradigm of the organisation serves to filter signals about the various factors such as the environment, organisational capabilities, management and leadership style and can be considered to be both a device for interpretation and for influencing actions. The interpretive

---

<sup>5</sup> The paradigm is the set of beliefs and assumptions held relatively commonly through the organisation, taken for granted and discernible in the stories and explanations of the manager (Johnston, 1988).

perspective also helps us understand how strategic decisions may be created not only retrospectively but also in advance of any commitment to action (Hendry, 2000). However, the interpretive perspective lacks a conceptualisation that takes account of the practitioner's experience of intentional decision making as an instrumental aspect of strategy process (Hendry, 2000). Chakravarthy and Doz (1992) recommend that future research in this subfield should be more holistic, emphasize more teamwork and focus more on corporate managers.

### **2.5.5 Problems of Implementation**

Strategic analysis and choice are of little value to an organisation unless the proposals are capable of being implemented. Despite the significance of the implementation process relatively little research attention has been directed to the area (Schwenk and Dalton, 1991; Noble, 1999). Strategy often does not have the impact expected as it moves into implementation and the initial momentum is lost before expected benefits are realised. This failure to implement strategy is often a result of senior management trying to use the organisation's existing systems and structures, its 'status quo', to change the 'status quo' (Pelligrinelli and Bowman, 1994). The phenomenon predominantly addressed is a change in the intended results of an organisation's united efforts. It embraces the total process of such a change from the early discontent with the way things are going to vigorous effort directed toward a revised set of desired outcomes (Newman, 1985). Strategic thrusts that require new ways of making and implementing decisions are highly likely to fail due to the difficulty of changing the ingrained behaviour of individuals in the organisation. To implement change and sustain it requires explicit consideration and development of new ways of dealing with the cultural and organisational obstacles to change that are present in almost every organisation.

Case studies, consultants' experiences and anecdotes are often the basis for models on how to implement strategy. One of the popular prescriptions for implementation is the McKinsey 7-S framework (Waterman and Peters, 1982). The seven elements of strategic fit found in the framework are: strategy, structure, style, staff, skills, shared values (or superordinate goals), and systems. The framework is a pedagogically orientated guide that focuses attention on elements that must be considered when implementing strategy. These seven elements are similar to the concerns of Chandler's (1962) structure follows strategy finding -

that the many elements of structure need lines of communication and authority between the different administrative offices and officers as well as the information and data that move between these channels. These are essential to assure the effective co-ordination, appraisal, and planning necessary in carrying out the basic goals and policies in knitting together the total resources of the enterprise. These resources are the familiar money, materials, machinery and functional human resources. Other sets of prescriptions for strategy implementation (Falkenberg, 2002) focus on the 'how to' implementation processes necessary to:

- Create a shared vision;
- Communicate;
- Create ownership;
- Empower;
- Gain political support;
- Create a sense of urgency;
- Involve management; and
- Anchor the new strategy

While it is useful to have a checklist of elements that need to be considered in implementing a strategy, the checklist does not tell us which of the elements are important in a given situation nor suggest any sequencing (Falkenberg, 2002). The logic of the strategy may be to change organisational routines but these may define the work patterns of a significant number of people. Attempts to change strategy may fail because its implementation tries to be accommodated within existing routines (Johnson and Scholes, 1988).



### 2.5.6 Implementation and Change

Pettigrew (1990) contends that the complexities of strategy process should be approached using a conceptual vocabulary leaning more heavily on 'change' than on 'choice' or 'decision', on the grounds that these constructs tend to impose artificial limitations on the data sets chosen for analysis and to privilege 'front-end' choices over equally important on-going change and adaptation processes. Also Hendry (2000:960) notes that:

*"As individuals we are always making 'decisions' in our minds, but in many cases these are no more than transient and provisional intentions, without any corresponding commitment. The same is true of organisations, in which decisions are constantly being made, remade, amended and countermanded. Sometimes such decisions result in action, in the form of a commitment of resources, sometimes they do not. Sometimes it is the commitment of resources that results in a decision"*

Strategy making is a dynamic process associated with usually significant and discontinuous change (Mintzberg, 1994a). All strategic change processes share several characteristics. They are longitudinal and dynamic, designed to capture action as it unfolds, with three components always present: a set of starting conditions, a functional end point and an emergent process of change (Van de Ven and Huber, 1990). Studies of change have focused on four broad areas: creation, growth, transformation and decline. Ultimately, the choice is between traditional Darwinian theories and those based on a newer, punctuated equilibrium framework as to whether change processes proceed through incremental steps or through alternating periods of stability and change (Garvin, 1998).

The increasing pace of change and complexity of operation leads us to recognise change as an on-going; dynamic journey, not a discrete event shifting from one unfrozen state to another frozen state (Van de Ven and Poole, 1995). Under these conditions, it is more productive to view change as nested sequences of events that unfold over time in the development of individual, organisation and industries. Van de Ven and Poole (1995) identified four ideal theories that are often used to explain how and why organisational changes unfold: life cycle, teleology, dialectics and evolution. These four theories represent

different sequences of change events that are driven by different conceptual motors and operate at different organisational levels.

- A life cycle model depicts the process of change in an entity as progressing through a necessary sequence of stages;
- A teleological model views development as a cycle of goal formulation, implementation, evaluation, and modification of goals based on what was learned by the entity;
- A dialectical model of development sees conflicts emerge between entities espousing opposing thesis and antithesis that collide to produce a synthesis, which in time becomes the thesis of the next cycle of dialectical progression. Confrontation and conflict between opposing entities generate this cycle; and
- An evolutionary model of development, which consists of a repetitive sequence of variation, selection and retention events among entities in a designated population. Competition for scarce environmental resources between entities inhabiting a population generates this evolutionary cycle.

Noble (1999) argues that the important general dimensions of strategy implementation are structural dimensions and interpersonal process dimensions. Managers make changes to formal structural elements of the organisation such as roles, reporting relationships, and control mechanisms in order to enact strategic decisions. In addition to these formal factors, a range of interpersonal and cognitive factors may also become important as managers strive to interpret and respond to a strategic initiative (Skivington and Daft, 1991). The underlying causes of implementation problems are seldom deficiencies with the planning process or analytical approach. Instead they are human problems which have as their source the nature of human beings (Abell and Hammond, 1979).

### 2.5.7 Strategic Action and Learning

According to the rational approach to strategy making, decisions precede action. With incrementalism instead of formulating strategy in advance, it was found useful to take interim decisions that could be changed if necessary. The organisation's strategy was shaped by these incremental decisions. Action theorists reject the assumption that strategic actions are necessarily the outcome of attempts at rational choice. Brunsson (1982) found that decision processes served not so much to choose actions as to motivate and mobilise resources for actions that had already in effect been chosen and suggested that from an action perspective this was understandable. For managers seeking to make things happen, a rational decision-making process is not always the best way forward. Although strategy making is usually portrayed in dichotomous terms: rational versus incremental, or formulation versus implementation, the interchangeable nature of decision and action have led researchers to question the appropriateness of the formulation - implementation dichotomy. Thought cannot be disconnected from action (Mintzberg, 1994a, Pettigrew et al, 2001).

Mintzberg and Waters (1985) and Starbuck (1983,1985) argue that organisations should be seen primarily as generators of action, and that strategic actions are often created in advance of the decisions by which they are justified. The concept of decision therefore is a distraction that gets in the way of research into strategy processes by diverting attention away from empirically identifiable actions and encouraging an over rationalistic, theory laden interpretation of the empirical data. The interpretive perspective can help to understand how strategic decisions may be created not only retrospectively but also in advance of any commitment to action. Decisions are therefore 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 (Giddens, 1991; Chia, 1994) or to the uncertainties with which managers are characteristically faced (Spender, 1989). Intimately connected to the creation and maintenance of meaning and structure in organisations, strategic decision-making cannot always await consensus, commitment or visible action. When strategies cease to carry conviction, the decision complexes associated with them cease to be effective carriers of meaning, and new

rationalisations of the world in the form of new decisions, however provisional must be constructed in their place (Hendry, 2000).

Pettigrew (1985a, 1985b) makes clear from his own studies of contextualisation that managerial action is fundamentally located in differential perception and understanding of intra organisational and socio-economic context, and that context is not just something that should be understood but often requires to be mobilised to create practical effects. Strategic action is rarely a simple sequence of first decision then action. Rather strategies evolve as a result of a process that has three elements: the formulation of a vision; action based on that vision; and interpretation and reflection based on the action and its outcome. Strategic change is inherently not so much an analytical deductive process as an open-ended, inductive, synthetic process (Norman, 1985).

The quality of an individual strategic action and series of strategic moves over time is a function of how well the organisation has learned to identify and respond to new situations and to take a proactive position regarding its environment. High learning capability then is an underlying variable explaining performance in strategic action (Norman, 1985). Strategy formulation and implementation become not only a vehicle for defining where the business is going but also a new management process that encourages organisational learning and learning how to learn (Argyris, 1985).

## **2.6 Holistic Views**

Mintzberg and Lampel (1999:29) argue in strategy “*we should concern ourselves with process and content, statics and dynamics, constraints and inspiration, the cognitive and collective, the planned and the learned, the economic and the political...to strategy formation as a whole*”. Several authors have advocated explicitly the desirability of combining different modes of strategy making either sequentially (Allison, 1971) or simultaneously (Mintzberg, 1973). Chaffee (1985) went beyond this to contend that there might be a hierarchy of strategy making types, where each successive level of strategy making incorporates those that are less complex. Building upon Boulding’s (1956) hierarchical framework of systems, Chaffee argues that the linear (rational) mode of strategy making constitutes the first level, followed by the adaptive (incremental) mode, and finally, the interpretive mode. The models constitute a series of stages through which the

organisation itself moves over time as it becomes more sophisticated and adept at strategic management. Organisations start with financial and forecast-based planning (linear model), then shift to strategic analysis (adaptive model), and finally achieve strategic management (interpretive model) as they become strategically adept (Gluck et al, 1982). Rather than rational versus incremental, formulation or implementation, it may be more valid to think of organisations as entities capable of developing resources and skills in multiple strategy making process models (Hart and Banbury, 1994). Although understanding of the strategy process has improved through these distinctions and perspectives, advice to strategists on the ways and means they can improve their ability to make strategy has not kept pace (Laljani, 2005).

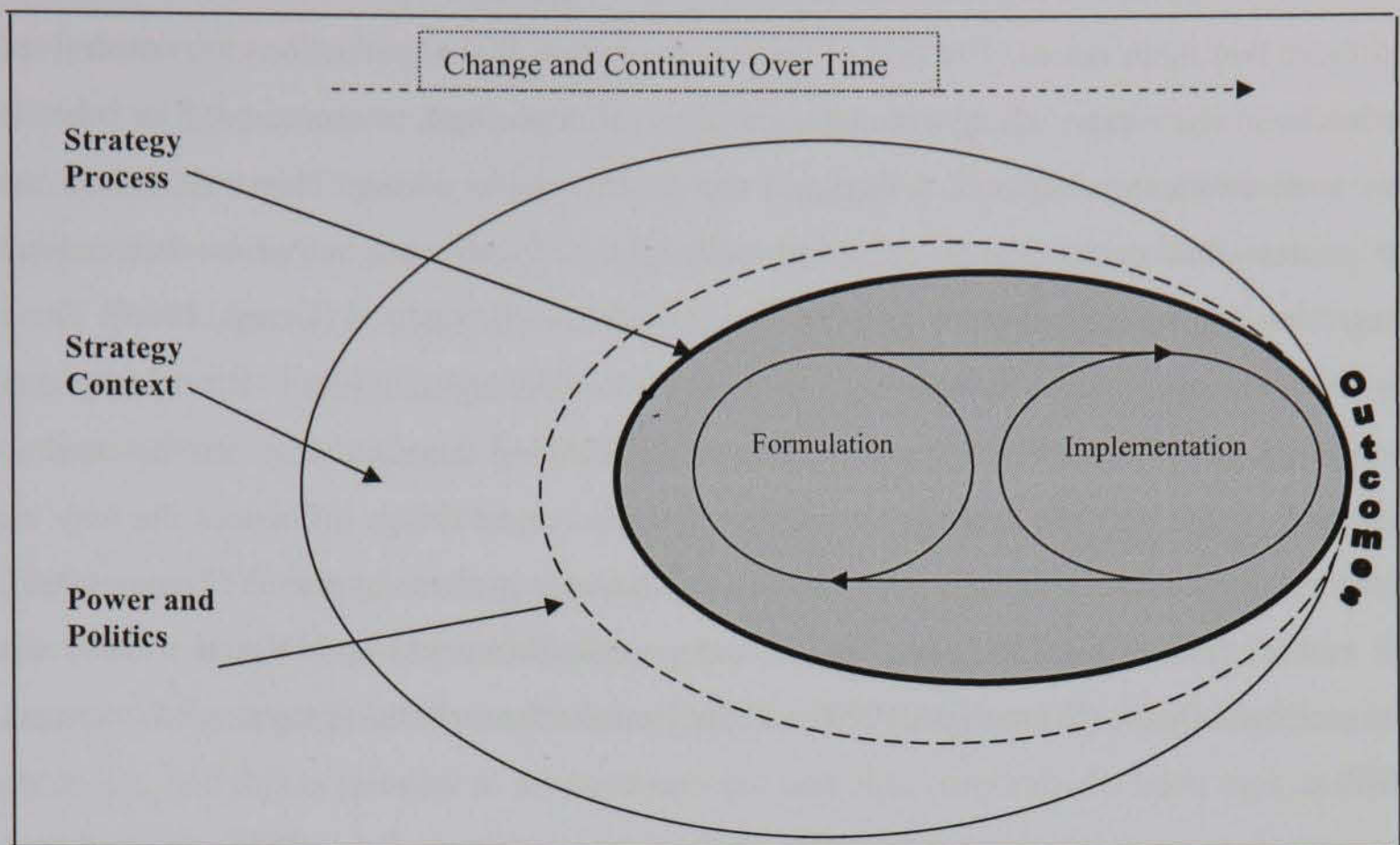
Hax and Majluf (1988) and Pettigrew (1992a) contend that the sharp distinction between context, content and process appears more of an analytical hindrance than a help.

*“Certainly in the analysis of strategic change there seems to be strong advantages not only from linking process to content but also from exploring simultaneously the links between the contexts, content and process of change together with their interconnections through time... For the moment it should be clear that in the conduct of strategy process research, the what and the how, the content and process are best regarded as inseparable”* (Pettigrew, 1992a: 7).

In part this disconnect is due to the complexity of the strategy process (Chakravarthy and White, 2001). Knowledge of strategic processes is normative or descriptive and remains untested (Fredrickson and Mitchell, 1984). A new approach to strategy process was articulated and developed at Warwick Business School by Pettigrew et al (1992b). This combined the context, process and content of strategy (change) with longitudinal data collected at firm, sector and economic levels of analysis. In doing so Pettigrew et al (2001:13) contend that:

*“The old dichotomies of strategy process and content and formulation and implementation have withered away and a new impetus has been given to time, agency and dynamics in addressing important issues to do with the strategic development of the firm alongside processes of choice and change”*. Recognizing these issues Pettigrew (2003) proposes a holistic image of strategy, which is illustrated in Figure 2.

Figure 2. Strategy in Flight (Pettigrew, 2003)



The link between formulation and implementation is not unilinear or simple; rather they form the interrelated parts of the strategy process. This process cannot be properly understood unless one understands the context within which the process has emerged and this context cannot be properly understood unless one studies it over time. In human organisations the past projects the present toward the future in a particular way making some outcomes more likely than others. Because the past can be interpreted in many different ways and future outcomes are contested; the system in the present is subject to the use of power and politics in organisational settings (Pettigrew, 2003).

### 2.6.1 A Systems Perspective

The systems approach to strategy tries to embrace the multiple dimensions of strategy and addresses two main issues. The first of these is the notion that organisations are constrained by forces in their external environment, but also influence that environment. The other is how such interaction between a firm and the world outside occurs. This is based on the recognition that organisations represent collections of different activities that require integration and co-ordination for effective performance to be realised (Genus, 1995). There are different approaches to strategy making that utilise system ideas. Brocklesby and Cummings (2003) identify a number of systems thinking concepts that can be used to analyse how the way we organise or connect and disconnect things influences the way we make strategy and vice versa. These include the dynamic systems approach (Senge, 1990), the viable systems model (Beer, 1979), autopoiesis (Maturana and Varela, 1980) the resource based view (Wernerfelt, 1984) and the 'seven s framework' (Peters and Waterman, 1982).

From a systems perspective Rose and Elphick (2002) argue that it is more productive to think of strategic management as orthodoxy under sustained challenge. This orthodoxy is underpinned by two related but unacknowledged sets of assumptions: the first ontological and epistemological, the second (dependant on the first) concerning particular models of organisation and organisational governance. Both sets of assumptions are heavily challenged in the literature. The most basic assumptions of the strategy orthodoxy are readily discernible, if largely taken for granted; these are:

(1) Conventional social science assumptions (objectivist assumptions borrowed from natural science) about the acquisition, status and dispersal of knowledge; (Rose and Elphick, 2002).

(2) A particular view of organisation as the context for strategy. The organisation is here taken to be a discrete entity in a competitive environment, with a hierarchical chain of command embodied in a structure. Deliberate rational analysis is the basis of elite decision-making and there is a unitary, profit maximising goal. Historically, the view may be associated with post-war American theorists of the large corporation, and the functionalist social science paradigm of Burrell and Morgan (1979), (Rose and Elphick, 2002).

Instead Rose and Elphick (2002:53) describe a more general account of strategy consistent with soft systems thinking (Checkland, 1981; Checkland and Scholes, 1990):

*“In soft systems terms, strategy may be conceptualised as a process of imagining a human activity system in a significantly different state to that which is perceived at present and reflexively making judgements and taking actions consistent with the achievement of that state. Knowledge of the world is incomplete and subjective, so the process is iterative and evolving, and feedback from actions contributes to re-evaluation where appropriate. Social reality is too complex to know, but we have perceptions of parts of it”*

The notion of a human activity system is the focus for analysis, not the organisation; therefore it is not bound by conventional assumptions about organisations. It follows that anyone who acts purposefully in a social setting in which they have some influence can be a strategist, and this is relevant to all managers not just elite corporate decision makers (Rose and Elphick, 2002). Information is required to inform the human activity system and to make judgements on its progress towards a changed state. Soft systems offer the opportunity to theorise strategy with different philosophical assumptions, and without limiting models of organisation. This they argue may be a vein of strategy theory exhibiting more resonance with practitioners' experiences, and in consequence, wider applicability. Visualisation of strategy in systems terms as part of a chaotic system suggests its future unfolds in a manner which depends on what it does, what other systems constituting its environments do and upon chance (Stacey, 1993).



## 2.6.2 Strategizing

In the mid-90s, a new strategy research school, strategy as practice, emerged to explore strategy as a social phenomenon, to investigate how the practitioners of strategy really act and interact (Whittington 1996). Researchers argue that static nouns of strategy and organisation are no longer appropriate in a world of continuous change. Instead, the verbs such as strategizing and organizing are needed to capture the new dynamic (Whittington, 1996; Chakravarthy and White, 2001; Cannella et al, 2001). Alongside the established fields of strategy context, process and content has emerged a practice perspective (Whittington, 2002). The practice perspective engages reciprocally with the established fields and addresses key questions such as who strategists are, what strategists do, how they do it, what influences the work of strategizing, and what are the consequences of strategizing activity (Jarzabkowski, 2004).

The 'practice' approach draws on many of the insights of the strategy process school, but returns to the managerial level, concerned with how strategists '*strategize*' (Whittington, 1996:732). Whittington (2002) presents an integrated model of practice that includes three inter-linked concepts: practitioners, practices, and praxis. Practitioners are the doers of strategy, the strategists. Practices are the tools of strategy, the 'done thing', in both the sense of accepted as legitimate and the sense of well practised through repeated doing in the past. Praxis is what practitioners actually do, the real work of strategizing. What sets it apart from the sub-fields of strategy content and process particularly is its relative indifference to the performance of the firm as a whole. The focus up to this point has been mainly with uncovering the empirical richness of types of strategy praxis (Samra-Fredericks, 2000; Jarzabkowski and Wilson, 2002). This area of research accumulates a sensitive appreciation of what is involved in praxis, and the stimulus of productive reflection on their own praxis by practitioners (Scon, 1993). A longer term ambition for this research may be to establish patterns of praxis and from there link these to organisational performance (Whittington, 2002).

This activity based view of strategy proposes that value lies increasingly in the micro-activities of managers and others in organisations, and seeks to understand organisations' strategies and processes, and what is actually done there and by whom. The focus is on the

practices and actions that make strategy happen (Johnston et al, 2003). Studying strategy as a social practice, taking strategists and their work seriously is a long overdue research theme in strategy which fits well with the qualitative research traditions in European management research and the bigger theme of strategy process research (Whittington, 2002). The practice approach moves away from the study of firm assets, technologies, and practices as disembodied and asocial activities to examining them as richly interactive and contextually situated social behaviours. More recently, these concepts are reflected in a call for more research into strategy as practice, and that we take seriously the issue of strategy as social action (Hendry, 2000; Whittington, 1996; 2002). Although the macro view of strategy influenced by economic theory has been useful, much of that literature leaves the manager bereft of insights, let alone guidelines for action (Johnston et al, 2003).

### **2.6.3 Strategists**

The concept of strategy carries several connotations. Its roots in military tradition indicate innovative leadership and bold visions (Smits et al, 1997). Implementation problems suggest that the extent and type of involvement of organisational members in the strategy-making process is a critical dimension of strategy (Hart, 1992). Studying the role of top executives has been a historical topic of interest in the management literature (Hoskisson et al, 1999). Over ninety years ago Fayol (1916) proposed the major managerial actions as planning, organising, coordinating, commanding, and controlling. These activities have been reproduced more or less in more recent investigations of management activity (Kotter, 1982; Currie and Glover, 1999). The 'Harvard School' of the early sixties and seventies emphasised the importance of top management in influencing strategy. This theme was essentially lost for twenty years as more techno-economic factors such as product life cycles, market share, experience curves and portfolio matrices and industry analysis came to the fore (Hambrick, 1989). However,

*"In the last decade the people leading organisations are again becoming part of the theoretical formulations of strategy, partly as a counter-reaction to the rise of the economics based view of strategy. There was an assumption in this view of strategy that managers were fully competent with the 'economic stuff' and could therefore arrive at the*

*'right' strategic solution - organisations had become disembodied by the academic community". (Hambrick and Frederickson, 2001:37)*

Compared to research in the context, process, and content dimensions of strategy the role of top management in strategy is relatively diffuse and uncharted (Hambrick, 1989). Hambrick (1989) argues it should be an integral part of the field of strategy. Top management's job is to establish and convey 'organisational meaning' and maintain institutional integrity (Barnard, 1938; Selznick, 1957). Hambrick (1989:6) defines the area as strategic leadership research which:

*"Focuses on the people who have overall responsibility for an organisation – the characteristics of those people, what they do, and how they do it. The people who are the subjects of strategic leadership research can be individual executives, top management teams or other governance bodies such as boards of directors".*

Strategic leadership refers to the creation of an overall sense of purpose and direction which guide integrated strategy formulation and implementation in organisations (Hosmer, 1982). The strategic leader is concerned with aligning the organisation with current and expected external and internal spheres. They are embedded in ambiguity; complexity and information overload and are multifunctional. This means that the strategic leader has a complex integrative task, and also means subordinate managers typically possess greater expertise about the components of the organisation than does the strategic leader (Hambrick, 1989).

Multiple streams of literature exist which produce competing or overlapping typologies for the role of senior management in the strategy process. These show that individuals and groups assume a variety of postures and roles in strategy making. Top management discretion varies widely from very little to a great deal and is a function of the task environment, internal organisational features and managerial characteristics (Hambrick and Finkelstein, 1987). In the rational model strategy making is a conscious, controlled process that is centralized at the very top of the organisation. The strategic situation is analyzed, alternatives considered and the appropriate course of strategic action decided upon. Strategies are deliberate, fully formed, and ready to be implemented. The top manager is the

'commander' (Hart, 1992) and organisational members are the 'good soldiers' who execute the strategy as it is articulated by the top (Mintzberg and Waters, 1982).

The behavioural literature suggests a more limited and less encompassing role for top managers in the strategy-making process. It challenges both the cognitive and motivational assumptions inherent in the rational model and suggests that organisational members play a significant role in the process (Mintzberg, 1973; 1978, Mintzberg and Waters, 1982; Kotter, 1982; Stewart, 1991). The roles and interactions of the possible participants in the strategy process are both intrinsic and fundamental to the logical incremental point view of the strategy process (Camillus, 1982). An appreciation of the importance of group processes, relative power and personal values involves the recognition that interactions-their nature, form and identities of individuals (Guth and Tagiuri, 1965; Delbecq et al, 1975) are the key to understanding and influencing strategic planning processes (Camillus, 1982).

Strategy is not just the preserve of top management. Researchers have noted the increasing trend towards wider involvement of organisational members in strategic concerns due to difficulties in strategy implementation and increasing rates of environmental change (Ansoff, 1979; Hart, 1992; Mintzberg, 1994a). Middle managers can contribute to strategy in many ways related to strategy formulation; for example, in initiating projects spurring innovation, and reformulating strategy as it moves through the organisation (Falkenberg, 2002). They are also in a unique position to visualise, as well as implement change because they are closest to the daily operations and customers (Quy Nguyen, 2001). Middle managers can become 'entrepreneurs', where they are expected to behave autonomously and pursue new initiatives (Burgelman, 1983).

Ericson, Melander and Melin (2001) suggest that the role of the strategist varies depending upon the theoretical perspective, and offer the following typology:

- The *missing strategist* - particularly in the rational/analytical processes. In spite of their rational and analytical abilities their contributions to the strategy process remains unacknowledged;
- The *great strategist* – here the importance is highly recognised, and the role is often inspirational, motivational and visionary;

- The *coalition view* - here the strategist is a gestalt, rather than a single individual, typically made up of the top management group or other coalitions of stakeholders. Here networking and politicking are important means to achieve ends in the strategy formation process; and
- The *invisible strategist* – an institutional force such as culture, rather than one or more key actors exercise the dominating influence on the strategy process.

The most prominent strategy-making model in the literature is the Bower-Burgelman model (Burgelman, 1983, 1994, 1996; Noda and Bower, 1996). Burgelman (1983) investigated the nature of the strategic process and found most strategic activities are induced by the firm's current concept of corporate strategy, but also emerging are some autonomous strategic activities, that is, activities that fall outside the scope of the current concept of strategy. He also found that the corporate context within which the strategic process takes place encompasses two distinct, selective processes: structural context determination and strategic context determination.

*“Structural context determination is a broad envelope concept used to denote the various administrative mechanisms that corporate management can manipulate to change the perceived interests of the strategic actors in the organisation...it reflects the efforts of corporate management to fine-tune the selective effects of the administrative arrangements so as to keep (or bring) the strategic proposal generating process in line with current concept of strategy”* Burgelman (1983:66).

This suggests that the process of developing initiatives in a large, complex organisation can be explained in terms of four interlocking processes: definition, impetus, setting the structural context, and setting the strategic context. A definition process is a *“cognitive process in which technological and market forces, initially ill defined, are communicated to the organisation”* (Noda and Bower, 1996:160). The impetus process is a *“largely socio-political process by which these strategic initiatives are continually championed by front-line managers, and are adopted and brokered by middle managers”* (Noda and Bower, 1996:160).

The setting up of the structural context, which is the role of the top team, shapes the strategic development of the firm. The structural context includes various organisational and

administrative mechanisms such as organisational architecture (Noda and Bower, 1996). The setting of the strategic context is a political process through which middle managers delineate in concrete terms the content of new fields of business development and attempt to convince top managers that the current concept of strategy needs to be changed (Noda and Bower, 1996).

In a similar vein, Bartlett and Ghoshal (1993; 1997) identify three types of processes that shape the development of the firm. They argue that strategic development is the result of iteration and co-operation among three core processes. The first is the entrepreneurial process, by which the frontline creates and pursues opportunities. The second is the integration process, by which the middle managers link dispersed knowledge and skills across the firm's unit. The third is focused primarily around the creation of an overarching corporate purpose and ambition.

Menuhin and Magee (2001) criticise these models in overlooking the existence of routines within the organisation for strategy on the basis of its own particular history. They argue every organisation develops for itself its own 'theory' of strategy making. The way in which top managers interact to arrive at shared understandings that bring out meaning, purpose and direction for the entire organisation characterises the essence of strategy process (Noda and Bower, 1996). There is a continuing practice within strategy process research of prescribing before describing, of giving normative advice before empirical evidence supports it (Huff and Reger, 1987). Whatever the intent of top management, a firm's actual strategy often emerges from a combination of accident and entrenched slow changing routines of the organisation's middles (Mintzberg, 1978, Whittington, 2001).

Hart (1992) sought to integrate the range of conceptualisations described in the above literature into a framework. The integrative framework took a 'systems' view of strategy making by focusing on the role of interrelationships between top managers and organisational members in strategy making. This facilitated the identification of five different processes or 'modes' of strategy making and these are shown in Figure 3. Each mode reflects a pattern of interaction between the roles performed by the top managers and organisational members and represents a resource or skill set available to the firm. Together, the five modes: Command, Symbolic, Rational, Transactive, and Generative, embody those

patterns of action routines which reflect the nature of the strategy process (Nelson and Winter, 1982; Hart and Banbury, 1994).

Figure 3. An integrative framework of strategy making processes (Hart, 1992)

Descriptors	Command	Symbolic	Rational	Transactive	Generative
Style	<i>Imperial</i> Strategy driven by leader or small top team	<i>Cultural</i> Strategy driven by mission and a vision of the future	<i>Analytical</i> Strategy driven by formal structure and planning systems	<i>Procedural</i> Strategy driven by internal process and mutual adjustment	<i>Organic</i> Strategy driven by organisational actors initiative
Role of top management	<i>Commander</i> provide direction	<i>Coach</i> motivate and inspire	<i>Boss</i> evaluate and control	<i>Facilitator</i> empower and enable	<i>Sponsor</i> endorse and sponsor
Role of Organisational members	<i>Soldier</i> obey orders	<i>Player</i> respond to challenge	<i>Subordinate</i> follow the system	<i>Participant</i> learn and improve	<i>Entrepreneur</i> experiment and take risks



Pennings et al (1985) suggest that a managed strategic process can perhaps better be illustrated by a spiral where top management, over time, cycle through various phases of formulation and implementation, moving from the general to the specific, from determining direction to gaining supportive action. The process begins with problem sensing, which is triggered by an opportunity, problem or crisis (Mintzberg et al, 1976; Mason and Mitroff, 1981). At this point the decision-making group usually has little understanding of the decision situation that it faces or the route to a solution. Individuals may have only a vague idea of possible solutions and how they might be evaluated. This is decision-making under ambiguity - "a wicked problem" (Mason and Mitroff, 1981) characterised by novelty, complexity and open endedness (Mintzberg et al, 1976).

Top managers, basically, are strategies in action whose fundamental strategic premises are unlikely to change. It therefore is not surprising that corporate management focuses on the manipulation of the structural context to keep strategy behaviour in line with the current concept of strategy. The current concept of strategy is deeply ingrained in corporate management; its capacity to deal with the substantive issues pertaining to new technological and market developments can be expected to be low (Burgelman, 1983).

Much of the management literature has developed with the private sector manager in mind. Executive activity has received considerably less systematic attention in the public sector. Much of what has been written on management since Fayol (1949) consists of speculation regarding what managers and their subordinates say they do, could do or should do. Relatively little of this information is empirically based on studies of managerial job activities or pertains to top executives (Lau et al, 1980).

Based on the structured observation of the work of five chief executives Mintzberg (1973) described ten major working roles performed by managers. Mintzberg used Sarbin and Allen's (1968) definition of a role as an organised set of behaviours belonging to an identifiable person or position. The ten managerial roles were grouped into three broad categories as shown in figure 4.

**Figure 4. Managerial Roles (Mintzberg, 1973)**

<b>Interpersonal</b>	<b>Informational</b>	<b>Decisional</b>
<input type="checkbox"/> Figurehead	<input type="checkbox"/> Monitor	<input type="checkbox"/> Entrepreneur
<input type="checkbox"/> Leader	<input type="checkbox"/> Disseminator	<input type="checkbox"/> Disturbance handler
<input type="checkbox"/> Liason	<input type="checkbox"/> Spokesperson	<input type="checkbox"/> Resource allocator
		<input type="checkbox"/> Negotiator

Both public and private sector executives perform similar activities in terms of complexity, job content and roles; and public sector executives engage in activities that correspond to Mintzberg's managerial role descriptions, and the major role functions are similar in both sectors (Lau et al, 1980). Mintzberg assumed that although managers may affect how a particular role was performed, they were not at liberty to decide whether or not it was performed. Fondas and Stewart (1994) argue these roles are excessively broad and that the questionnaires used to generate the roles are response-leading and heavily influenced by the cultural demands of the organisation (Fondas and Stewart, 1994).

Top managers are embedded in a situation of ambiguity and complexity, and often experience information overload. In such circumstances, the decision maker's personal frame of reference, experiences, education, functional background, and other personal attributes have significant effects on their decisions and actions (March and Simon, 1958). Strategic planning is often nothing but a metaphor employed by top management in order to *legitimize* emergent decisions and actions (Gioia and Chittipeddi, 1991) or is a form of rhetoric for *justifying* and giving meaning to the constant stream of decisions in organizations (Eccles and Nohria, 1992). The notion that management represents a homogeneous group of people, who unproblematically share common goals and work cohesively to-ward them is challenged by Ketchen et al (1996). Rather they reveal a process within which managers; not only attempt to shape events, but also shape

themselves and their prospects, deploy power within their own management constituency against each other, as well as collectively against other constituencies, and resist the initiatives of other managers they see as threatening to their interests. Managers enact varied roles and clarity is now needed on exactly what a role is.

#### 2.6.4 Role Concepts

Social role is a well-worn term in the sociological literature, although not uncontested in its meaning (Neiman & Hughes, 1951; Jackson, 1972, Turner, 1986; Heiss, 1990). Researchers have used it to refer to an actor's social position, behaviour, and expectations for behaviour. Despite its vagueness and inconsistencies, its importance is noted by Katz and Kahn (1966:171):

*"The concept of a role may be critical to a systemic understanding of organizations. It [the concept, role] is at once the building block of social systems and the summation of requirements with which the system confronts the individual member".*

Role concepts provide a potentially useful theoretical framework for advancing research on managerial jobs and behaviour (Hales, 1986). Role analysts are concerned not with the individual, but the individual enacting his or her bundle of obligatory activity (Goffman, 1961). The historical ambiguity plagues much of the role literature and shows evidence of doing the same in management studies (Fondas and Stewart, 1994). A substantial body of literature concerning role theory has focused on managerial jobs and behaviour (Fondas and Stewart, 1994; Kotter, 1982, Martinko and Gardner, 1990) instead of the 'role' of managers per se (Rodham, 2000). The conceptualisation of a role involves a dynamic interaction between the role incumbent under observation and the role sets; different people with whom the role incumbent interacts and who hold expectations about the incumbents role and their performance in that role. (Rodham, 2000). If individuals do not give clear understanding on their role they run the risk of either confusing, or antagonizing, those with whom they come in contact, or, more often, of being stuck with a stereotype which they did not want (Handy, 1985).

## 2.7 Conclusions

Private and public sector organisations, their management consultants and academics have become involved in constituting the discourse of strategy. Strategy is researched from a number of different perspectives and dimensions which have produced an array of competing and overlapping theories and definitions. Associated empirical work has covered such a wide range of considerations that little cumulative knowledge has resulted (Hart, 1992). Prahalad and Hamel (1994) describe strategy as a field of study that has fallen on hard times. What began in the 1960's as rather simple concepts of strategy intended to give insight into the phenomena described in cases have evolved into a serious and somewhat elusive search for intellectual foundations with explanatory and predictive power (Rumelt et al, 1994).

Although separating process, content and context provide a useful frame to explore strategy they are not the 'elements' of strategy, but its 'dimensions' (DeWit and Meyer, 1994). Strategy is fraught with analytical distinctions that isolate phenomena that in reality are highly interdependent. Strategy content research describes attractive destinations, but does not explain how to get there. The task of strategy process researchers is to understand the journey (Chakravarthy and White, 2001). The foundations of strategy process research are built on the rational model, which calls for comprehensive analysis prior to decision. Behavioural theory sees individuals as boundedly rational who cannot shift through all possible solutions. The rational view of strategy process is rejected by those who argue it is characteristically fragmented, evolutionary and intuitive (Mintzberg and Quinn, 1991). Strategies develop somewhere on a continuum between full intention to pure emergence despite, or in the absence of, intention (Mintzberg and Walters, 1985). Its recognition as a process suggests that it can be impacted by a number of social, political and cultural factors even by chance. Strategy process research has provided rich descriptions, methodological overviews and typologies that describe strategy choice and action involving a variety of actors and contextual influences (Pettigrew, 1985a). However, the character, details and dynamics of the strategy process remain ill defined. Many of the findings are descriptive, and do not lend themselves easily to application in practice by strategists. There are significant gaps, both in theory and practice in our understanding of

the strategy process and how it can be better managed to produce desired strategic outcomes.

As well as going places strategy involves getting things done (Wilson and Jarzabkowski, 2004). Alongside the established strategy dimensions an emerging strategy as practice perspective has the possibility of bridging the diverse knowledge requirements (Johnston et al, 2003; Whittington et al, 2004). It emphasises the activities, practices and social interactions of strategists and also stresses the relationships to macro levels of analysis and strategy outcomes (Johnston et al, 2003). Strategy is an immensely complex process involving the most sophisticated, subtle and at times subconscious of human cognitive and social processes (Mintzberg, 1994a). The process through which strategies are shaped, implemented and changed remains ill understood (Chakravarthy, 2003).

Public sector settings offer rich research sites for contemporary themes within the strategy literature (Ferlie, 2002). Research on strategy predates that on IS strategy; concepts from the strategy field are carried into and strongly influence IS strategy. There are currently major empirical gaps in our knowledge of how current public sector organisations undertake IS strategy and the actions of strategists, in particular the pivotal role of the CIO in this process. In order to address this question this chapter has presented a review of the parent strategy field, in particular strategy process which is necessary to set the scene and provide a critical lens for an exploration of the IS strategy literature.

## CHAPTER 3.0

### THE NATURE OF INFORMATION SYSTEMS STRATEGY

#### 3.1 Introduction

This chapter surveys the IS strategy landscape using the conceptual map of context, process and content provided by the parent business strategy field and revealed in chapter 2. Before this terrain can be explored the imprecision surrounding the terms information system and information system strategy need to be clarified. This definitional confusion is in part due to the relatively recent emergence of IS as an academic discipline and the tendency for practice to outstrip theory. A stance is taken regarding the meaning and interpretation of the terms IS and IS strategy. The evolution of IS strategy is then shown to have fragmented from its early concerns with improving operational efficiency to framing a context through which organisational change unfolds.

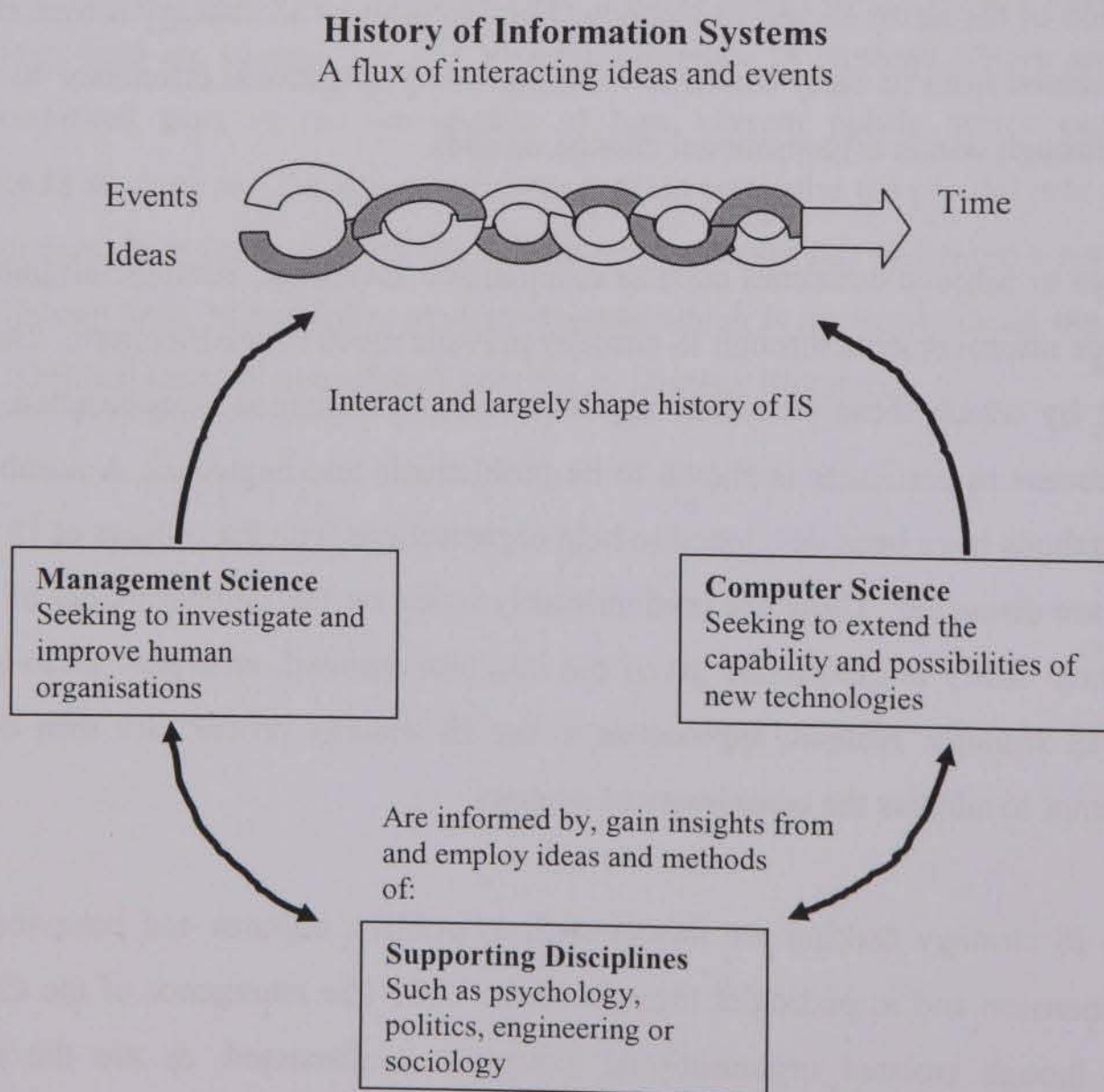
Imperatives to achieve outcomes such as competitive advantage, strategic alignment and performance improvements through IS strategy pervade much of the literature. The means and extent by which these outcomes are achieved and sustained is questioned. The IS strategy process in particular is shown to be problematic and neglected. A number of IS strategy methods have been developed to help organisations with the process of IS strategy and these are discussed. These are predominantly based on the rational model of strategy making, their utility is questioned given the multidimensional, emergent socio-technical nature of IS strategy. Holistic approaches to the IS strategy process are then described which attempt to address the complexity of strategy.

Central to IS strategy making are factors such as politics, cultures and behaviours - the human dimension and in particular the role of the CIO. The emergence of the CIO as an important though isolated organisational executive is discussed, as are the recurrent process problems that seem to impede the execution of their role. It is these problems which are at the very heart of strategy making.

### 3.2 Characterising Information Systems

In comparison with strategy, IS is a comparatively young academic and practical endeavour, suffering from fragmentation and pockets of inquiry (Swanson and Ramiller, 1993). Hirschheim and Boland (1989) argue that the IS field is a combination of two primary fields, computer science and management, with a large number of supporting disciplines such as psychology, sociology, statistics, political science, economics, philosophy and mathematics. Lewis (1994), adopting Vickers's (1983) view of history as a 'two stranded rope of events and ideas' shows the history of IS created by the concerns of the primary disciplines of management science and computer science, each drawing at times inspiration and insight from many disciplines as shown in Figure 5.

**Figure 5. The History of Information Systems (Lewis, 1994)**



The different reference disciplines in IS discourse reflects that IS still lacks a solid intellectual centre (King, 1993). The lack of an underlying paradigm, the multidisciplinary nature of IS and the rate of technological and organisational change all contribute to confusion around IS terminology and nomenclature. Boaden and Lockett (1991) found in practice that terms such as information technology (IT), information systems (IS) and information management (IM) were used by different organisations to refer to essentially the same thing, with no apparent consistency of use. Examination of the literature shows that many academics are just as inconsistent in their use of terminology (Boaden and Lockett, 1991). No one set of definitions has emerged as widely accepted. The IS field is in an early stage of development, plagued by conceptual inexactitude and methodological disagreement. It has been called a fragmented adhocracy (Hirschheim and Klein, 2003). The characteristics of a fragmented adhocracy according to Whitley (1984) are:

- weak barriers to entry in the field;
- standards that can be affected by amateurs;
- ‘common sense’ language (rather than well defined terms);
- fluid reputations often based on narrowly specific work; and
- personal, weakly co-ordinated research agendas.

King (1993) points out, IS, as currently conceptualised, is probably not even a field, but rather an intellectual convocation that arose from the confluence of interests among individuals from many fields who continue to pledge allegiance to those fields through useful ties of various kinds. Further semantic difficulties with IS arise from imprecision with the terms ‘information’ and ‘systems’ themselves. Much of the literature on IS contains little on the nature of information (Galliers, 1987). Liebenau and Backhouse, (1990) argue that it is important at least to identify the following elements in information:

*“Information cannot exist independently of the receiving person who gives it meaning and somehow acts upon it. That action usually includes analysis or at least interpretation and the differences between data and information must be preserved, at least in so far as information is data arranged in a meaningful way for some perceived purpose”.* (Liebenau and Backhouse, 1990:3)



The importance of the link between information and organisational action is emphasised by Checkland and Scholes (1990:5) who contend:

*“Organised provision of information in organisations is always in principle linked to action; to deciding to do things, doing them; observing and recording the results - and if necessary modifying the deciding, doing and recording. From these considerations (that information is data to which meaning has been attached) has been attributed in a particular context, and that information serves action”.*

Like information the term ‘system’ has also slipped into everyday language. The distinctive new idea which system theorists proposed was that of using the concept of ‘a system’ as the basis for making sense of some part of the real world. The system concept, it is argued, can provide the basis for a holistic approach to analysis which was not solely concerned with the nature of the individual problem components but also with their organisation and the relationships between them (Checkland and Scholes, 1990).

A debate which is fundamental to the understanding of IS strategy is how information technology and IS should be viewed. The early introduction of computers in the 1970’s was mainly confined to the automation of existing and pre-computer processes in the workplace. Since that time there have been many changes in what organisations seek to achieve with IT. While technological capabilities have increased, managers whose primary concern is with the contribution IT makes to organisational performance, find technology alone insufficient to address their concerns. The distinction between information technologies and IS is usefully made by Angell and Smithson (1991:12)

*“Computer systems consist of the complex interconnection of numerous hardware and software components, which are primarily formal, deterministic systems, such that a given input will always result in a particular output. A computer system is a mere sub assembly of an organisational information system, which will also include the users, their information, policies, procedures and organisational structures. Information systems are social systems whose behaviour is heavily influenced by the goals, values and beliefs of individuals and groups as well as by the performance of the technology.”*

The term 'information system' addresses information technologies in their social context. For the purpose of this thesis, IS is taken to include the hardware and software components which go to make up information and communication technologies and the social system which orchestrates the organized provision of information - the two forming a socio-technical system (Emery and Trist, 1960). The context, process and content of IS strategy should therefore focus equally on both the human and technical concerns.

### **3.3 Interpretations of IS Strategy**

The uncertainties surrounding information, systems and strategy manifest themselves in a thicket of jargon, terms and acronyms throughout the theoretical and practical literature used to describe IS strategy. Reponen (1993b) identified some of the following distinct terms: information systems strategy (IS strategy), (Pyburn, 1983; Earl, 1988), information systems planning (ISP), (Galliers, 1987; Fitzgerald, 1993), information systems strategic planning (ISSP) (King, 1988), strategic information systems planning (SISP), (Lederer and Sethi, 1988; Earl, 1990) and IT planning (Byrd et al, 1995). Fitzgerald (1993: 336) reiterates that: *"There is no consensus over the meanings of its major terms rather a semantic jungle and worse exists."*

The acronyms usually refer to the overall planning of IS in organisation though this is not always the case. Table 2 shows some of the definitions of IS strategy over the last forty years.

**Table 2. Definitions of IS Strategy**

IS Strategy Definitions	Reference
"Involves management decision making in three areas: establishing computer planning objectives on the basis of corporate goals; determining corporate policy for growth, resource commitment, and the management organisation for computer systems; appraising the company's current position with respect to computer systems development"	Kriebal (1968:12)
"Is concerned primarily with the relationship between IS and the rest of the firm, and the communication between the senior IS manager and the top management team"	Pyburn (1983:3)
"The stream of organised activities directed to-ward recognising opportunities for the use of IT, determining the resources requirements to exploit these opportunities, and developing strategies and action plans for realising these opportunities and meeting the resource needs"	Boynton and Zmud (1987:59)
"The process of identifying the computer based applications that will assist an organisation in executing its business plans and realising its business goals"	Lederer and Sethi (1988:446)
"Brings together the business aims of the company, an understanding of the information needed to support those aims, and the implementation of computer systems to provide that information. It is a plan for the development of systems to-ward some future vision of the role of IS in the organisation".	Wilson (1989:246)
"A long term set of guidelines for directing, implementing and supervising information resource management"	Reponen (1993a: 29)
"The identification of prioritised IS that are efficient, effective and or strategic in nature together with the necessary resources, management of change considerations, control procedures and organisational structures to implement these IS"	Baker (1995:62)
"The continuous review of computer technology, applications and management structure to ensure that the current and anticipated information and process needs of the organisation are met in a way that provides an acceptable return on investment, is sensitive to the dynamic politics and culture of the organisation and is aware of the sociological environment within which the organisation exists"	McBride (1998:10)
"The process of identifying a portfolio of computer-based applications to be implemented, which is both highly aligned with corporate strategy and has the ability to create an advantage over competitors"	Doherty et al (1999:265)
"Refers to both 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 (2005:762)

Defining IS strategy often depends on how the outcome of the IS process is viewed for the organisation concerned. IS strategy can identify the most desirable IS in which to invest (Henderson and Sifonis, 1988), help an organisation use its IS to carry out its existing business strategies (Hartog and Herbert, 1986), define new business strategies, technology policies and architectures (Porter, 1985; Earl, 1993), and help align its IS with its business strategy (King, 1985). It has also been recognised that the IS strategy process can impact the business strategy process, in addition to its supportive or reactive role (Galliers, 1987; 1988; Jarvenpaa and Ives, 1990). The normative expectations from the IS strategy process range from the specification and prioritisation of future systems to supporting and shaping the corporate business plans (Ein-Dor and Segev, 1978). Earl (1989) found that UK companies quote any one or more of the following reasons for embarking on IS strategy formulation exercises:

- Sector exploitation of IT is posing strategic threats and opportunities;
- The need to align investment in IS and IT with business needs;
- The desire to gain competitive advantage from IS and IT; and
- The restructuring of the IT function and elevation of IT activities.

IS strategy has also been described as a managerial process for integrating IS considerations into the corporate planning process, linking or aligning the application of IS to business goals and determining information requirements to help meet an organisation's short and long term goals, (Earl, 1989; Ward et al, 1990; Galliers, 1991; Teo and King, 1997). Earl (1989) further distinguishes between an:

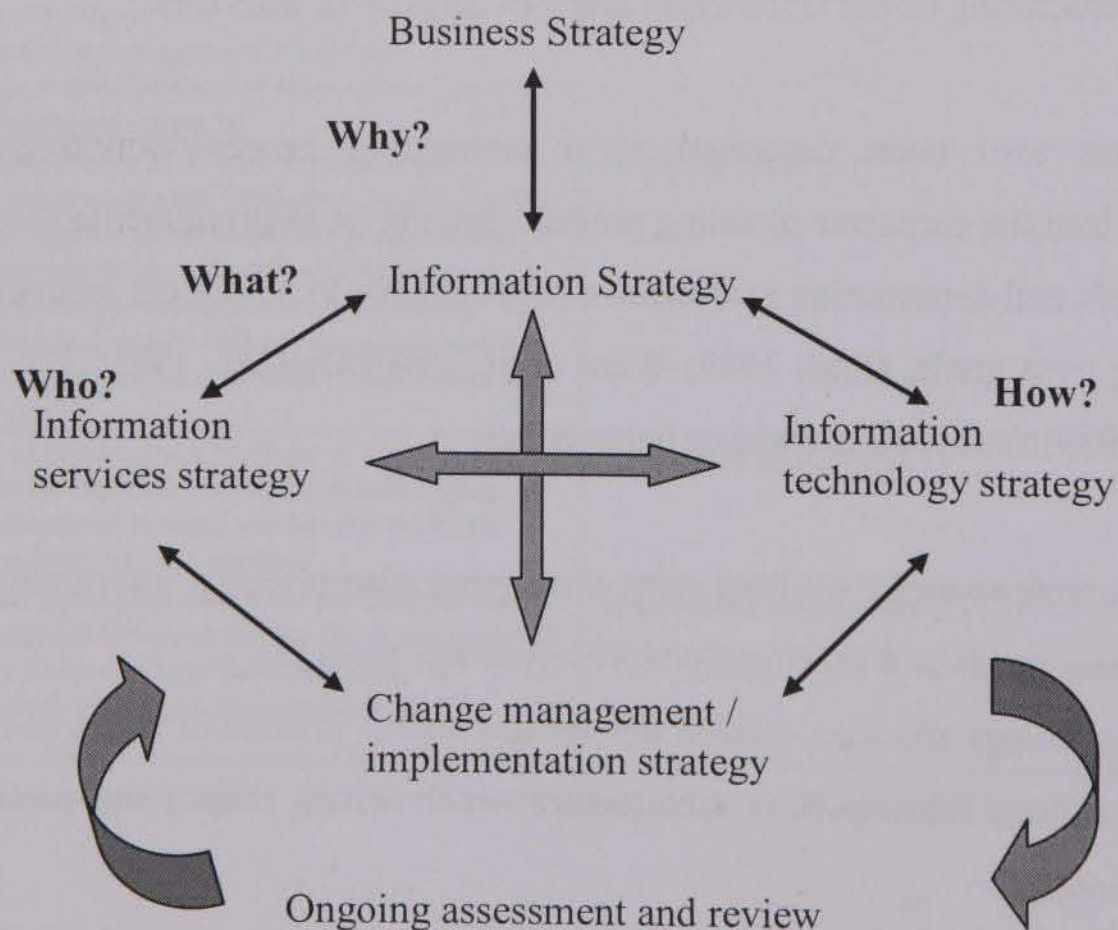
*Information systems strategy* - a long term directional plan aligning information systems (IS) with business needs and seeking strategic advantage from IT;

*Information technology strategy* - which determines how it is done in terms of technology policies; a technology framework or architecture which drives, shapes and controls the IT infrastructure and;

*Information management strategy* – which identifies the policies, procedures and aims; it is the management framework which guides how the organisation should run its IS/IT activities.

Earl's definitions establish IS strategy as very much a business management issue, the IT strategy lies for the most part within the domain of the IT function. The latter is concerned with alternative technological solutions (alternative 'hows') to support 'the what' of business needs, thereby allowing IT to be better aligned with the business. Galliers (1991, 1999) building on Earl's earlier work proposes that a 'who' be added relating to the information services strategy –the organisational arrangements for the provision of IS related services. The information strategy might also usefully identify information that could question the taken-for-granted assumptions on which the business strategy was based 'the why'. In addition, the need for an implementation and change management strategy as an integral part of the overall IS strategy, and for on-going evaluation and review is recognised. The latter would provide feedback as to the impact of past strategic decisions (as against expected outcomes) and the identification of emergent strategies. These components of IS strategy are shown in Figure 6.

**Figure 6. The Components of Information Systems Strategy (Galliers, 2004).**



Each component of IS strategy is mutually dependent on each other. Galliers (2004) further develops an exploration strategy (more bottom up) which is inherently dynamic, open and emergent for example in promoting communities of practice and an exploitation strategy (more top-down) which represents the deliberate and codified dimension of IT in the form of rules and procedures.

*“If one takes a socio-technical perspective of IS (that is a more holistic stance), it can be argued that IS are as much concerned with human activity and organisation as they are with technology - if not more so” (Checkland, 1981, Land and Hirschheim, 1983).*

It is these human activities enacted in a particular context that are absent from the somewhat abstract and stale debates concerning the definitions and contents of IS strategy. For the purposes of this thesis the terminology used will be Information System Strategy (IS strategy), it is considered socio-technical phenomena. A continuous purposeful human activity to establish a role for IS to the benefit of the organisation (Pyburn, 1983).

Although IS strategy is beset by problems it can help organisations use IS to implement business strategies and reach business goals and create new business strategies. The quality of the IS strategy process itself can significantly influence the contribution IS makes to organisational performance (Lederer and Sethi, 1992). The propensity of IT to offer new ways of doing things, the rate of technical change and the possibility of greater returns for fewer resources are powerful motivations. Yet this tendency has contributed to IS strategy practice racing ahead of equivalent theory and this is manifest in its fragmented history and evolution, to which we now turn.

### **3.4 A Fragmented Evolution**

In the 1960's IT was perceived as a rational problem-solving tool for operational data processing (Kreibal, 1968). Early attempts at IS strategy were driven by efficiency issues such as cost, investment appraisals or technology improvements and often involved the automation of existing manual and pre-computer mechanical processes. The development of a schedule for IS was generally based on user demand and financial justification. The early IS strategy literature concentrated on this application development portfolio

(McFarlan, 1971) and has been described as the operational or data processing era (Wiseman, 1985; Rockart, 1988; Ward et al, 1990). By the late 1970's IT managers were using IS strategy as a means to involve users and senior executives; to forecast resource requirements, allocate resources and to find opportunities to improve performance (McLean and Snodden, 1977). There was also an increasing realization that IS contributes to the effectiveness of organisations and therefore IS strategy should integrate with organisational strategy (King, 1978).

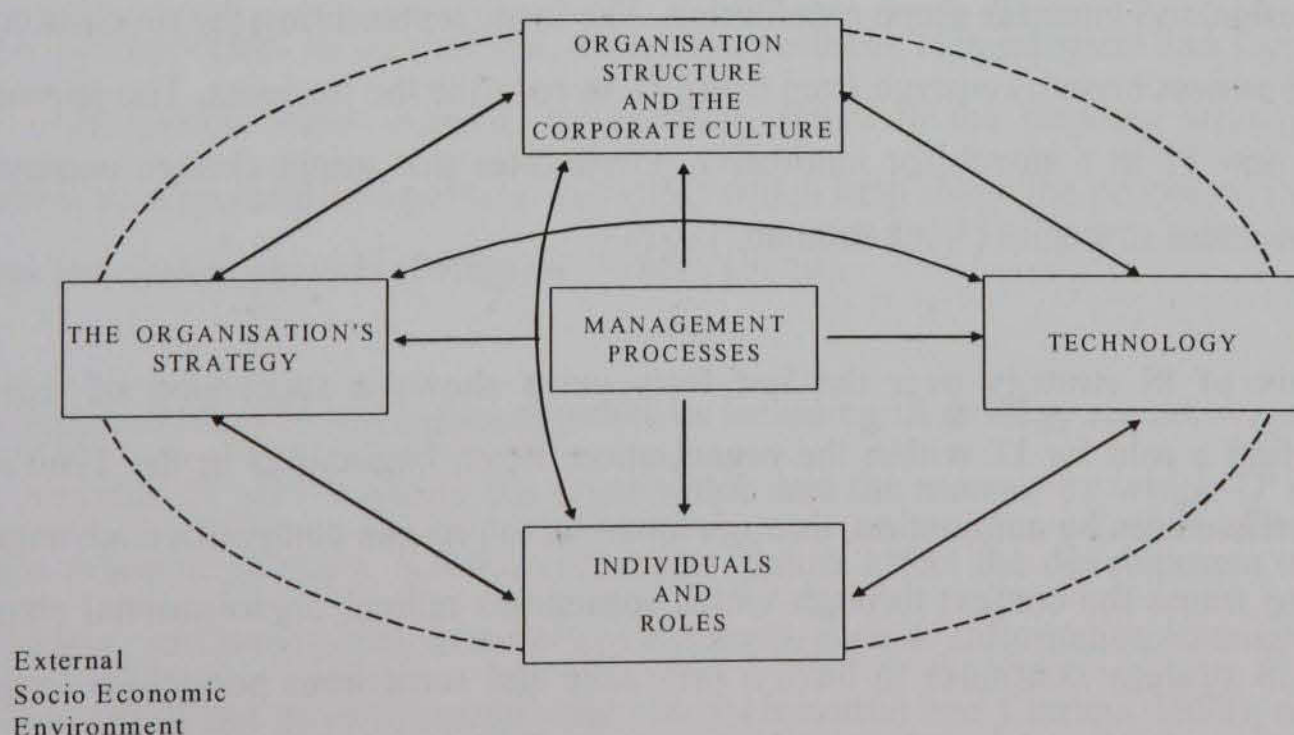
From the 1980's onward IS strategy focused on identifying information requirements to increase the effectiveness of management and was categorised as the management information systems (MIS) era (Wiseman, 1985, Rockart, 1988; Ward et al, 1990). As technologies infused into organisations, academics and practitioners focused increasingly on the role of IT as a competitive weapon that could be used to out-perform rivals. The term "strategic information systems" (Rackoff et al, 1985) emerged in the mid 1980's. These were new types of IS that might yield competitive advantage over rival organisations or transform the firm or industry in which an organisation competed. Emphasis was placed on systems that could support or shape the competitive strategy of an organisation (Wiseman, 1985). Such systems should therefore be the active concern of top management (Doyle, 1991). The process of identifying these systems was strategic IS planning (SISP). The potential for using IT to affect the competitive capability of an organisation became well established in the 1980's (Hochstrasser and Griffiths, 1991). An alternative, which seeks to identify strategic opportunities for the firm by applying IT to optimise business performance in new areas also emerged (Vitale et al, 1986). Collectively this was known as the strategic information system era (Ward et al, 1990). Central to this perspective is the concept of information as a key strategic resource, and a major consideration is that a detailed strategic plan should be produced, closely integrated or aligned with the business plan. Ward et al (1990) emphasise the cumulative nature of the data processing, MIS and strategic information systems eras and note how the terminologies from each of the eras have accumulated into a somewhat eclectic mix.

Much of the work on the strategic impacts of IT, despite dramatic references to strategic tools and competitive weapons, makes little or no use of bodies of theory related to either strategy or competition (Reponen, 1993a). The use of IT as a competitive weapon has

become a cliché and the approaches lack understanding of the issues that determine the influence of IT on a particular organisation and the processes that will allow smooth co-ordination of technology and corporate strategy (Bakos and Treacy 1986). Sustaining competitive advantage requires the ability to consistently deploy IT faster, cheaper, and more effectively than ones' competitors (Ross et al, 1996) in environments that are subject to continuous change (Grover and Segars, 2005).

The 1990's highlighted the role of IT in delivering strategic change through fundamental business transformation (Keen, 1991; Scott-Morton, 1991; Parker, 1996). The management of IT related change emerged as a significant challenge of IS strategy. A major motivation for undertaking IS strategy is to facilitate and respond to change, therefore the relationship between change and IS strategy is important (McBride, 1998). One of the findings of the 'MIT<sup>6</sup> Management in the 1990's programme' was that IT is a critical enabler of the recreation and re-definition of the organisation in changing environments (Scott-Morton, 1991). IS strategy can therefore be used as an opportunity for change in organisations, whether or not technology is actually central to the delivery of benefits sought. The factors influencing strategic goals such as strategy, structure, management processes, individuals and roles and technology are shown in Figure 7.

**Figure 7. A Conceptual Model of Technology Impact (Scott-Morton, 1991)**



<sup>6</sup> Massachusetts Institute of Technology



The argument is that an organisation follows three steps; first it develops its strategy, then it designs the structure to support the strategy; and finally, to implement the complete design it builds new management processes, aligns IT, and ensures that appropriate roles are created and individuals are trained (Sauer and Yetton, 1997). Although all the elements of the model are shown as interdependent, *"in practice most who use it are wedded to the dominant paradigm, which states that IT must be aligned to the established strategy-structure fit"* (Sauer and Yetton, 1997:36). The MIT 90's framework, assumes a firm's business strategy drives subsequent alignment of structure, management processes, individual skills, roles and technology.

The MIT90's programme at the Sloan School of Management at MIT also witnessed the birth of business process reengineering (BPR) as an adaptation of the value chain popularised by Porter and Millar (1983). These are activities conducted by an organisation, which add value to a particular product or service as it progresses from its initial stage toward final product delivery. BPR asserts that process is more important than structure (form follows function) and is aimed at radical rather than incremental organisational improvement of operational effectiveness. IT is an enabler for BPR because IT supports data flows and is orientated towards function. Five levels of IT induced business reconfiguration are described by Venkatraman (1991). The degree of transformation and the ensuing benefits increasing as organisations progressed through the five levels: localised exploitation, internal integration, business process redesign, and business network redesign and business scope redefinition. The latter representing the revolutionary stage when business benefits emerge from using IT to redefine the business. The approach investigates new IT in a search for innovative possibilities that might change current or create new business strategies (Venkatraman, 1991).

The evolution of IS strategy over the last forty years shows a succession of worthy attempts to find a role for IT within the organisation. From beginnings in the 1960's to eradicate inefficiencies by automation, through attempts to provide competitive advantage, to a means to frame the context through which sometimes radical organisational change can unfold, IS strategy continues to have a pervasive and sometimes pernicious impact. The proliferation of internet based computing, outsourcing, personal computers, and user applications have tended to push developmental activities of IS strategy outside the

exclusive domain of professional IS groups, creating challenges that did not exist when IS strategy was first conceived (Grover and Segars, 2005). The development of the internet has introduced concepts such as e-commerce and e-business and a flurry of activity as organisations try to comprehend the strategic implications for their organisations. Porter (2001); however, exhorts business leaders to abandon 'e everything strategies' and return to the fundamentals of strategy.

A review of the IS strategy literature by Huff and Reger (1987) shows that previous research has mirrored the three conceptual constructs or dimensions of content, process and context introduced in chapter two. Studies concentrate on identifying factors which contribute to successful and unsuccessful IS strategy (context); providing normative and descriptive models for undertaking IS strategy (process) and evaluating the services or outcomes achieved through the selection and implementation of IS strategy (content) (Das et al, 1991). These strategy dimensions are now used as a prism to juxtapose and interpret further the IS strategy literature.

### **3.5 The Context of IS Strategy**

The context refers to those facts and conditions which are not part of the IS strategy content itself, nor of the IS strategy process, but can or should influence either of those. The context of strategy refers to impinging factors inside and outside the organisation. The outer context refers to the national, economic, political, technological and social context of the organisation. Inner context, by contrast, refers to the ongoing strategy; structure, culture, management and political activities which help shape the processes through which ideas for change proceed (Pettigrew, 1985a; 1985b).

An organisation's IT management practices including IS strategy are contingent upon both the role that IT serves within the organisation and the manner by which IT resources are made available to users. Several contingent factors affect the development of IS strategy including: attributes of the external environment, such as information intensity (Porter and Millar, 1985) and environmental uncertainty (Johnston and Carrico, 1988); organisational attributes such as its size, (Jarvenpaa and Ives, 1991) the sector to which it belongs, (Earl, 1989) its degree of centralisation (Sabherwal and King, 1992); and attributes of the IS

function, such as its size and level of maturity (Benbasat et al, 1980; Sabherwal and Tsoumpas, 1993). As the environment changes, IT management practices also change (Boynton and Zmud, 1987). These differences are intensified by cultural and national traits (Doyle, 1991, Grover et al, 1994). Organisations must therefore tailor their IS strategy process to meet the characteristics of their organisation (Segars et al, 1998; Doherty, 1999). Doherty et al (1999) reviewed the IS strategy literature and found the following factors related to the success of the IS strategy process:

- The need to align the corporate objectives with IS strategy (Henderson and Venkatraman, 1993);
- The underlying motivation for the initialisation of the planning process (Banker et al., 1990, cited in Doherty et al, 1999);
- The level of maturity of the organisation (Doll and Torkzadeh, 1987);
- The methodology used in developing the IS plan (Lederer and Sethi, 1988, Bergeon et al., 1991);
- The framework used for setting IT investment priorities (Burch, 1990, cited in Doherty et al, 1999);
- The measure of effectiveness used for the IS department (Clark, 1992, cited in Doherty et al, 1999); and
- Preparation of an implementation plan is critical to meeting IS strategy objectives (Lederer and Sethi, 1996).

A major contextual weakness of existing IS strategy research is its applicability in organisations which are not market-orientated such as not for profit enterprises, professional associations, government and public sector agencies. Yet such organisations are often the largest consumers of IT products and services (Caudle and Marchand, 1990; U.S. General Accounting Office, 1992).

### 3.6 The Content of IS Strategy

As with the parent strategy field there is a proliferation of published research on the content (the 'what' aspects of a firm's possible choices and actions) of IS strategy. These include integrative reviews, theoretical frameworks, scholarly analyses, and empirical investigations. The content describes the subject areas or issues for which the IS strategy is meant to provide solutions or directions. The main aspects of content are scope, objectives, architecture, rules and plans (Earl, 1989). Such studies have been important in defining concepts such as missions, goals, and strategies and how they should be identified and incorporated into the strategic plan for IS. Even for research in which the primary objective has been to prescribe a methodology for conducting strategic planning, substantial emphasis is still placed on the planning content (Segars et al, 1998). Flynn and Golenieska (1993) identified the following outputs as components of IS strategy:

- Organisational objectives and activities;
- Information architecture;
- Application portfolio (the set of required applications);
- Portfolio priorities (prioritised applications);
- IS management strategy (structure and activities for the IT management function to deliver the benefits promised in the plan);
- IT strategy (technological infrastructure in terms of hardware, software and telecommunications); and
- Individual project plans.

Goodhue et al (1992) identify five general outcomes of strategic data planning as:

- Implementation of integrated systems across the organisation;
- Data architecture - the desired level of data integration (definition and value consistency) in all future system development and maintenance activities, a framework of standards and guidelines within which new systems will be designed;
- Identifying systems priorities - high payoff applications are targeted, identify and prioritise these applications;
- Creatively rethinking business processes allowing innovation and streamlining; and

- Education and communication needed between business and IS managers in linking IS strategy with business strategy.

There is a gap between these outcomes and the results organisations are experiencing. Goodhue et al (1992) argue that the mental models used to understand strategic data planning may be missing some critical aspect (because of gaps between expectations and outcomes), richer models are therefore needed of the IS strategy process. There are difficulties inherent in converting the language of the business into the language of the technology. The processes by which the outcomes are achieved are not articulated.

Performance improvement is a key element in IS strategy studies though the relationship is complex (Chan and Huff, 1992). IS are believed to have the ability to influence organisational performance in a variety of ways. In the private sector this is measured through improved sales revenue, market share, return on investment (ROI), or customer satisfaction. In strategic business planning contexts, objective measures of performance, such as financial indices have not proved to be useful, as IS strategy is only one of a large number of determinants of business success (Pearce et al, 1987). It has been demonstrated that there are advantages in using well-defined subjective measures of performance (Venkatraman and Ramanujam, 1987). IS strategy can be expected to confer many benefits of a tangible and intangible nature (Venkatraman and Ramanujam, 1987). Although frameworks for the evaluation of specific IS strategy systems have been developed, empirical research on performance across organisations is sparse (Premkumar and King, 1994). One of the reasons for the lack of progress is the situational nature of strategy making it difficult to generalise propositions. Research on IS strategy has not adequately addressed the performance of planning systems. Venkatraman and Ramanujam (1987) argue that appropriate operationalisation of the theoretical construct of planning system success is necessary for theory development and testing in strategic planning systems. In the absence of an acceptable measure of the construct of IS system planning success, any attempts to justify the importance of IS strategy and the resources devoted to it, can at best, be weak efforts lacking substantive support (Raghunathan and Raghunathan, 1994). Measuring the effectiveness of IS strategy is problematic and is related to the difficulties of evaluating strategies in general.

Unlike business, public sector organisations operate under political and public scrutiny that often mandate agency goals, determine operating constraints and critically the level of funding available (Clarke, 1994). The most distinct difference in IS strategy in the private sector is the pursuit of strategic competitive advantage and the safeguarding of IT as a proprietary strategic asset (Caudle et al, 1991). In the public sector IT is public property, not a resource to be protected and exploited for competitive advantage (Bajjalay, 1998). Public agencies can use IS strategy to achieve cooperative advantage: sharing information across organisational boundaries to achieve consequential outcomes and as a means to address the demand for more and better services in the face of continually declining resources (Andersen et al., 1994). Public sector managers are encouraged to share information with other agencies, conversely in the private sector CIOs are rewarded for making proprietary use of IT to improve competitive advantage and contribute to the bottom line (Dufner et al, 2002). There is; however, limited empirical evidence that documents either the use or the value of IS strategy within the public sector (Clarke, 1994; Bajjalay, 1998; Dufner et al, 2002).

Earl (1993) investigated the objectives for IS strategy in organisations and found three dominant objectives; the search for competitive advantage, aligning IS with business needs, and the third most important objective for IS strategy was obtaining management commitment to the process.

### **3.6.1 Competitive Advantage**

The original concept of formal IS strategy evolved during the 1980s and built heavily on the work of Porter (1980) on competitive forces and competitive strategies, derived from the industrial economics view of strategy. Porter argues a worthwhile strategy should permit an organisation to do one or more of the following: erect barriers against potential new entrants, change the balance of power in supplier relationships in favour of the organisation, increase switching costs for customers, and change the basis of competition among rivals in the firm's favour. IT is used to favourably influence these five economic forces described by Porter. In addition, Porter defined three generic competitive strategies which firms can undertake:

- (1) Cost / leadership - where the firm sets out to become the low cost producer in its industry;
- (2) Differentiation – where the firm seeks to be unique in its industry along some dimensions; and
- (3) Focus – where the firm sets out to be best in a segment or group of segments. This model was further complemented with the information intensity matrix and the value chain model (Porter and Millar, 1985).

The value chain framework is used for identifying opportunities for competitive advantage. It is a form of business activity analysis, another way of decomposing a complex enterprise into its component parts for analysis and eventual derivation of IS. The value chain is based on a process view of organisation and how the value chain activities are carried out determines costs and affects profit. The value chain of the firm does not exist in isolation; it exists as part of an industry value system, or a set of value chains that eventually link from the source of raw material of a product to the eventual consumption of the product (Clarke, 1994). Porter and Millar (1985) then propose the use of an information intensity matrix to evaluate the information intensity of the value chain against that of the product. They argue that IT will play a strategic role in an industry that is characterised by high information intensity in both the value chain and the product.

There were criticisms that Porter's model was naïve and represented a broad-brush approach to the nuances that can be important in driving competitive advantage (Miron et al, 1988). Value chain activities are also often submerged within the organisation and the model is better suited to manufacturing than service industries. It is also too linear, too unidirectional and too sequential. The majority of strategic IS are initially developed in response to internal efficiency needs. The literature tends to focus on a one-off initial evaluation of IT for competitive purposes without addressing how it could be incorporated into the overall strategic planning process of the organisation.

Since the mid 1980's the volume of research on competitive advantage has decreased. Researchers are now interested in the risks associated with IS strategy and in the fact that the competitive benefits attributed to strategic IS implementation appear mostly to be of a

transitory nature. More usually the firm's competitive position is not enhanced and the outcomes of IS strategy are disappointing. Much of the literature on competitive IS is criticised as being anecdotal, information on the leading cases became available only several years afterwards (Vitale et al, 1985; Clarke, 1994). Many of the well documented IS strategy projects which provided competitive advantage such as Baxter's 'ASAP', McKeeson's 'Economost', American Airline's 'SABRE' and the French Videotex system, 'Teletel', also highlight the role of chance, serendipity, trial and error, or even gross negligence in shaping the systems that have, but only after the fact, become successful examples of strategic IS development, implementation and use (Ciborra and Jelassi, 1994).

### **3.6.2 The Alignment Allegory**

From the eighties onward the significant challenge for IS strategists was how best to re-conceptualise the role of IT in business or more precisely how to align IS and business strategies (Venkatraman, 1991). The implications for organisational performance of such alignment have been empirically demonstrated (Chan and Huff, 1993; Sabherwal and Kirs, 1994, Ciborra, 1997). The need to align IS strategy to business strategy is almost a truism, repeatedly recognized (King, 1978; Galliers 1987,1991; Chan and Huff, 1993; Sabherwal and Kirs, 1994; Earl, 1996) and regarded as focal to the theory and practice of IS strategy (Galliers and Newell, 2003). Instead of relying on strategy processes that are loosely coupled to performance, strategic alignment involves configuring the organisation so that IT is strategically, structurally and managerially aligned to the business strategy, structure and management processes.

The skills and knowledge used for aligning IT with business strategy are believed to be the most crucial requirements for the IS profession. Aligning IS strategy with business strategy and obtaining business benefits are frequently identified as the most significant strategic concern of the IT function and it seems likely that this problem will continue to grow (Earl, 1990; Flynn and Goleniewska, 1993, NCC, 2002; Tallon and Kraemer, 2003). Linking IS plans with the organisation's strategy and integrating technologies are common concerns in public sector organisations. The benefits from IT are not being realised in public organisations because of the inability to achieve strategic alignment. (Caudle et al, 1991; Willcocks, 1992). For IS and business strategy alignment to occur, managers must



intertwine technology and business processes (Keen, 1993), a task that Chan (2002) suggests is daunting.

In practice the linkage between the business and IS strategies is not well established (Baets, 1992; Chan et al, 1997). *“Perhaps more fundamentally the messiness of everyday reality shows no observable alignment, nor measurable fit, because strategy is ‘de facto bricolage’, while the technology is mostly ‘out of control’”* (Ciborra, 1997:69). There are a number of problems that make the alignment of IS strategy with business strategy problematic these include: organisational structural difficulties, communication problems between management and IT people and the highly contingent use of strategy (Burn, 1993). Tallon and Kraemer (2003) argue alignment problems are a consequence of ‘technology shortfall’ and ‘strategy shortfall’; the former arises when an organisation’s IT capability fails to provide adequate support for its business strategy, consequently the organization is held in check by its IT capability. Strategy shortfall arises when an organisation’s business strategy fails to take full advantage of the existing IT capability.

The IS strategy literature with few exceptions treats alignment as an outcome or end state (Brown and Magill, 1994; Sabherwal et al, 2001). One exception is Henderson and Venkatraman (1993) who suggest strategic alignment is not an event but a process of continuous adaptation and change that focuses on the organisation’s ongoing efforts to establish and maintain a series of interdependent relationships between business and IS strategy. Alignment can be examined in terms of a one way relationship where business strategy influence IS strategy, a two-way relationship where the two influence each other and an integrated relationship where both business and IS strategies are developed concurrently (Sabherwal et al, 2001; Teo and Ang, 2001). Alignment is still a much misconstrued concept. It is typically characterised as a fit between the business and IT, but the processes involved in achieving and sustaining that fit are not included in the characterisation.

*“Consequently, it is too readily assumed that alignment implies a relatively permanent relationship that should remain in equilibrium - yet in a changing world maintaining equilibrium requires immediate compensating change to balance external perturbation. In reality alignment is a balancing act in which perturbation creates swings, which subsequently have to be corrected”* (Sauer and Yetton, 1997:56)

Reich and Benbasat (1996) examined the linking mechanism between IS and business strategies and recognised this consisted both of an intellectual and a social dimension. The intellectual dimension refers to methods and techniques used, while the social dimension refers to factors such as who is involved, and in what ways. They identified five major factors that influence the social dimension of IT alignment: shared domain knowledge between business and IT executives, IT implementation success, communication between business and IT executives, connections between business and IT planning processes, and strategic business plans (Reich and Benbasat, 2000). The importance of the social dimension of alignment is also supported by Chan (2002) where:

*“Focusing on aligning the formal organisation structure may focus on means, not ends - an investment in a more transient form of alignment – because managers are responsible for both ensuring that the required work gets done (a formal element) and predicting how individuals will be affected by decision and how they will respond (informal elements)”* (Chan, 2002:109).

The complex nature of alignment mirrors the generally increasing complexity of organisations. Alignment is best described not as a uni-dimensional phenomenon but as a superset of multiple, simultaneous component alignments that bring together an organisation’s structure, strategy and culture at multiple (IT, business unit, and corporate) levels, with all their inherent demands (Chan, 2002).

Achieving this alignment congruence is becoming increasingly problematic (Sauer and Yetton 1997; Hackney and Little, 1999). Rapidly changing business contexts and technological developments such as ‘e-commerce’ are inhibiting long, complex planning processes used in more stable environments. With the advent of inter-organisational systems, and ‘e’ commerce, questions of alignment of IS strategy issues go beyond internal alignment and IS strategy issues alone (Galliers, 1999). As organisations enter an era of information superhighways, expanded ‘e’ commerce and ‘virtualness’, executives increasingly realize that in addition to business strategy influencing IT, IT now also influences business strategy (Rockart et al, 1996).

Despite the recognition of its importance, there has been little research on the dynamics of alignment (Sabherwal, et al, 2001). The management practices (or alignment mechanisms)

that move the organisation to an aligned state are not well articulated (Henderson and Venkatraman, 1989). Ciborra (1997) criticises strategic alignment research that in reality measures theoretical and artificial constructs. *“The abstract models proposed are not rooted in the empirical everyday practice of managers and organisations”* (Ciborra, 2001:29).

By the end of the 1990's scholars of strategic alignment suggest that the two-way link between business and IT strategies is an 'old question' since the term alignment describes a static equilibrium. Instead strategy is what emerges from the actual implementation process which may be characterised by deviations, surprises and conflicts (Ciborra, 2000). IS are also pervasive in most organisations and therefore are synonymous with the business, making alignment irrelevant, or even an illusion (Smaczny, 2001). While there is little agreement on conceptualising alignment and its research basis, the literature does regularly lament the paucity of studies that assess how organisations carry out alignment in practice (Avison et al, 2004). The role of organisational actors in this process is increasingly both central to the concept yet unresearched.

### **3.7 The Process of IS Strategy**

A process perspective captures the 'how' of IS strategy (Sabherwal and King, 1995). An understanding of process provides executives with insights into the strengths and weaknesses of various facets of the IS strategy. Mentzas (1997) describes the IS strategy process as a set of seemingly rational phases and the specific tasks within each. They represent the components of the strategy process, with each having its own objectives, participants, preconditions, products and techniques. Table 3 shows the IS strategy phases and tasks.

**Table 3. IS Strategy Phases and Tasks (Newkirk and Lederer, 2006).**

<b>Phases</b>	<b>Tasks</b>
Strategic Awareness (i.e., planning the IS strategy process)	Determining key strategy issues Defining strategy objectives Organising the strategy team (s) Obtaining top management commitment
Situation analysis (i.e., analyzing the current environment)	Analyzing current business systems Analyzing current organizational systems Analyzing current IS Analyzing the current external business environment Analyzing the current external environment
Strategy conception (i.e., conceiving strategy alternatives)	Identifying major IT objectives Identifying opportunities for improvement Evaluating opportunities for improvement Identifying high level IT strategies
Strategy formulation (i.e. selecting strategy)	Identifying new business processes Identifying new IT architectures Identifying specific new projects Identifying priorities for new projects
Strategy implementation planning (i.e., planning strategy implementation)	Defining a change management approach Define action plan Evaluate action plan Define follow-up and control procedure

Newkirk and Lederer (2006) argue that the extent to which an organisation carries out these IS strategy phases and tasks may be used to assess the extent of the usefulness of IS strategy to the business. Despite the potential for the IS strategy process to influence business strategy there has been little explicit research on the process through which managers undertake these phases and tasks that provide strategic benefits (Pyburn, 1983). Consequently, several divergent views exist about this process, including it is: a planned process, a process that ignores formal planning methodologies, an incremental process and an accidental process (Ciborra, 1994, Sambamurthy and Chin, 1994, Sabherwal and King, 1995).

### 3.7.1 IS Strategy Methods

A strong tendency exists within the IS research literature to conceptualise the process of IS strategy by choice of known methodology (Lederer and Sethi, 1988). Much of the descriptive research concentrates on the identification of the problems and issues surrounding IS strategy which leads to normative recommendations in terms of methods to help organisations in the formulation of their IS strategy (Baker, 1995). The choice of IS strategy methodology is a critical IS strategy issue on the IS agenda, providing as it does the organisational setting in which IS decisions are made (Lederer and Sethi, 1988). Throughout the 1980's and early 1990's numerous approaches were documented to facilitate IS strategy development and implementation. These structured methodologies attempt to overcome the difficulties larger organisations had in formulating IS strategies. They are also used to aid IS management in engaging with senior management in the IS strategy process. As organisations increase in size and complexity and the number of IS grows, more formal IS strategy processes help ensure the broad based dialogue that is essential to the development of an integrated vision for IS (Pyburn, 1983).

A number of methods were developed by academics and consultants in an attempt to clarify and simplify the necessary steps in IS strategy. These include; IBM's Business System Planning (IBM, 1984), Anderson Consulting's Method/1 (Lederer and Samela, 1996), Earl's multiple methodology (1989), Information Engineering (Martin and Leben, 1989), Critical Success Factors (Rockart, 1979), Gibson and Nolan's (1974) Stages of Growth of Model, and McFarland and McKenney's strategic grid (McFarland and McKenney, 1982; McFarland, 1984), Wiseman's (1985, 1988) Strategic impact and option generator, the Strategic Opportunities Matrix (Benjamin et al, 1984) and Kovacevic and Majluf's (1993) Six-Stage Method. This list is by no means exhaustive; Earl (1989) identified 15 methods applicable to IS strategy. Many of the methods for formulating IS strategies rely on the rational analytical task of deriving IS strategies from business plans (Doyle, 1991; Lederer and Samela, 1996). There is a focus on formulation rather than implementation (Baker, 1995). The main activities covered by rational methods to IS strategy according to Flynn and Goleniewska (1993) are:

- Consider organisational goals and strategies and the business and IT aims;
- Assess the current set of IS;
- Identify the information needs of business processes;
- Evaluate the external competitive environment (business threats and opportunities and competitors' use of IT);
- Assess the external technological environment (technological trends);
- Agree system priorities concerning old and new systems and systems under development;
- Provide individual project planning so that each project has clearly identified factors such as timetable, budget and personnel;
- Involve users in the planning process; and
- Gain top management support and commitment.

The variety of IS strategy frameworks incorporate both business driven and creative approaches in the search for significant opportunities for gaining benefit from IT. The language and concepts associated with IS strategy research include 'top-down' (Ward, et al, 1990), 'Middle out' (Henderson and Sifonis, 1988), 'eclectic' (Sullivan, 1985) and 'multiple methods' (Earl, 1989). The multiple methods approach to IS strategy attempts to relate IT investments to the direction of the organisation and its key needs. The key components of this process are: clarification of the business needs and strategy in information terms – 'top down', evaluation of current IS provision and use – 'bottom up', innovation of new strategic opportunities afforded by IT – 'inside out' (Earl, 1989). The 'top down' strategy is often not successful according to Vitale (1985) because overall strategy does not exist, strategists are uninformed about IS technology and the length of time needed to implement strategies often is out of step with environmental changes. Vitale argues that an adaptive model of strategy is more appropriate than a 'top down' approach. Here continuous adaptation deals with evolution and incremental change (Quinn, 1980; Hart and Quinn, 1993).

IS strategy methods typically only focus on the technique, procedure or methodology employed (Earl, 1993). Consequently, methods are not sufficient for directing the application of IS as they often overlook process concerns, such as the need for line management participation or the importance of implementation to IS strategy. The unique

social characteristics of individual organisations may also make rigid adherence to a particular method or technique problematic (Doherty et al, 1999).

Hidding (2001) distinguished between two high level categories of IT strategy methods: 'static' and 'dynamic'. 'Dynamic models explicitly incorporate change and/or dynamics of competition, whereas 'static' models incorporate neither. Porter's models (five forces and the value chain system) and the competitive fit models such as the 'seven s' framework (Cash and Konsynski, 1985), the MIT '90's and the strategic alignment model (Henderson and Venkatraman, 1993) are static models. In these models of fit - the logic says 'the better the fit, the better the firm's performance'. Static strategy thinking explores mostly cross sectional relations; it takes snapshots at a point in time (Hidding, 1999). Competition in the information age requires dynamic models. Business changes rapidly and IT increases change and competitive dynamics, models of IS strategy that take into account the dynamics and speed of change are required. The resource-based theory of the firm represents such a dynamic view and has been extended to IS strategy (Hidding, 1999).

Resource-based theory views the firm as a set of resources, which includes tangible or intangible assets, capabilities or skills. Competitive advantage accrues when resources are unique to a firm and difficult for a competitor to replicate. Hidding (1999) describes the key IT related resources as: capital to invest in IT, proprietary IT, information itself, capabilities regarding IT (technical or management), or information resources that are complementary to unique non-IT resources. Other dynamic models include scenario analysis (Clemons, 1996), increasing returns (Brian, 1994) and sustainability analysis, a new paradigm that Hidding (1999) argues incorporates competitive dynamics and the speed of change. Using work based on agency theory and transaction-cost economics, variations in IS strategy phenomena are linked to the incentives managers face rather than general environmental, organisational and managerial factors addressed in the other models. IS strategy methods of the past are too static for formulating IS strategy in the new web based era. However, given the complexity of IS strategy issues in the strategy agenda and the broad (inter) organisational implications that the new web based systems often have, relying on a totally informal and incremental strategy process involves risk as well (Samela and Spil, 2002).

IS strategy formulation has been the focus of many changing views over the last 30 years and can be expressed as a phased theory of evolution (Burn, 1993). Burn identified six planning phases for organisational strategies and linked these to phases of IS strategy, these are shown in Table 4.

**Table 4. IS Strategy Formulation Models (After Burn, 1993)**

Strategic Planning Phase	Organisational	Information Systems Strategy Phase
Phase 1	Functional	Stage of Growth (Nolan, 1979)
Phase 2	Business Planning	Business Systems Planning (BSP), (IBM, 1984)
Phase 3	Portfolio Approach	Portfolio Analysis, Critical Success Factors (CSF), (McFarlan and McKenny, 1982), (Rockhart, 1979)
Phase 4	Competitive Analysis	Customer Resource Life Cycle, Value Chain, (Ives and Learmonth, 1984), (Porter, 1980,1985)
Phase 5	Incrementalism	Contingency Approaches (Nolan, 1984, Hirschheim et al, 1988, Earl, 1989)
Phase 6	Contextual (holistic)	Socio-technical, Systems thinking (Galliers, 1991,1992 Rose and Elphick, 2002)

These organisational strategies are:

*Functional (Long term planning)* - a functionally based plan covering several years into the future, the focus was highly prescriptive and top down (Andrews, 1980; Ansoff, 1965) analogous to Nolan's stages of growth model (Gibson and Nolan 1974, 1979)

*Business planning* - organisations requiring several hierarchically related and mutually supporting strategies, the formulation of a corporate plan with top down guidance and bottom up plans at divisional and functional levels (Lorange and Vancil, 1977). IBM's Business Systems Planning (Hogbin and Thomas, 1994) assumes that IS resources will fulfil its appropriate role in a firm if organisational strategy is used as the basis for developing IS strategy. This was later extended to include the reverse also, that not only



should business strategy determine IS resource planning, but IS resources should be considered for their potential impact on business strategy.

*The portfolio approach* - here the organisation is viewed as a series of separate strategic business units having largely independent, products, markets and missions. These are viewed in terms of their needs and growth potential (Henderson, 1978 cited in Burn, 1993). For example, McFarland's Portfolio Approach (McFarlan 1984), and Rockart's Critical Success Factors (Rockart 1979).

*The competitive approach* - here the emphasis is on the competitive position of the firm in the context of the industry infrastructure, later reduced to three basic alternatives: cost leadership, differentiation and focus. Value-chain analysis is used to identify the steps by which an organisation adds value to its products or services (Porter, 1980, 1985). For example, Porter and Millar's Value-Chain Analysis (Porter 1980, Porter and Millar 1985). The most frequently cited framework for the use of IT is Porter's (1980, 1985) competitive framework.

*Incremental planning* - incorporation into the formal strategic process of elements from the behavioural school or power-behaviour (Quinn, 1978) approach to strategy. Here the focus is on the social context rather than the analytic process. These views support a coalition view of goal formation and an organisational environment where social/political behaviour is clearly representative of organisational decision making. For example contingency approaches (Nolan, 1984; Mumford et al, 1988 and Earl, 1989).

*Holistic planning* - strategy formulation is seen as a plan, ploy, pattern, position and perspective (Mintzberg, 1978) which captures both the component parts of the strategy as well as the context. As the organisational context changes in a deliberate or emergent fashion, so the approach to strategy changes (Miles and Snow, 1983; Quinn, 1985; Pettigrew, 1985a). For example socio-technical and systems thinking (Galliers, 1992)

Empirical studies of the efficacy of IS strategy in the private sector have suggested that the rational, formal planning models assumed predominantly by theory, are often not those used most in practice (Earl, 1993; Hann and Weber, 1996). Despite the proliferation of IS

strategy methods there is varying evidence of their would be practitioners. A substantial survey by Premkumar and King (1992) into IS strategy practices found that although most organisations had some form of IS strategy there was wide variation among the practices used. The majority of firms studied use their own 'in house' IS strategy method rather than any documented academic or consultancy based approach. One of the main reasons in house methods are used is to simplify the IS strategy process and to construct an approach that fits with their organisational constraints and capabilities, (Reponen, 1994). The situational nature of strategy also makes it difficult to apply off the shelf methods in organisations with different contexts. A significant number of firms opt not to develop a formal IS strategy at all (Gottshalk, 1998). Organisations therefore seem to rely on a continuous and largely informal process with personal input from various levels (Smits et al, 1997). When asked to summarise their approach to IS strategy and identify which applications to develop in the long run managers:

*"Usually recounted a rich history of initiatives, events, crises, techniques, organisational changes, successes and failures all interwoven in a context of how IS resources have been managed"* (Camillus and Lederer, 1985:6).

Methods are seen as having only a minor role in IS strategy, the process is usually informal and relies on the ability of key managers to include the right people and conduct the right analysis (Salmela and Spil, 2002). Wilson (1989) recognises the inadequacies of existing IS strategy frameworks arguing that in reality strategy formulation in many organisations does not take place in a rational analytical way, nor do they plan for IS, let alone incorporate any competitive considerations into their strategy process. In addition managers often experience considerable difficulties in implementing the strategies they have formulated (Galliers, 2004). In the conventional approaches to IS strategy, the strategist is regarded as an independent observer who can exercise judgement disconnecting themselves from the entangled everyday reality of the organisation (Ciborra and Jelassi, 1994). Also that:

*"when evaluating strengths and weaknesses of the organisation, or the critical success factors, it is assumed that the strategist can think and make choices outside of the influence*

*of frames of reference, cultural biases, paralysing double binds, or ingrained, routinised ways of acting, behaving and thinking" (Ciborra, 1994:4)*

The IS strategy process according to Galliers (1991) should not be seen as a rational formal process rather that it should try to capture creative, intuitive thinking. One of the reasons IS strategy efforts fall short of what is considered to be good practice is due to an overemphasis on what might be described as the technical aspects rather than human social and organisational considerations.

In public sector organisations in particular the rational model of strategic decision making has significant weaknesses (Johnson and Scholes, 2001). There is evidence that strategy is emergent (Mintzberg and Waters, 1985; Earl, 1996) often serendipitous (Hamel and Prahalad, 1994, Ciborra and Jelassi, 1994) and continually changing (Camillus and Lederer, 1985; Pettigrew, 1985c; Hamel, 1996). There can also be a significant amount of politics in the strategy and IS strategy processes (Waema and Walsham, 1990; Wilson 1989; Lacity and Hirschheim 1995), lack of involvement of senior management (Earl, 1993), communication problems between those involved (Burn, 1993; Ward and Peppard, 1996) and unanticipated consequences (Brown and Eisenhardt, 1995). The key IS strategy process concerns are lack of line management participation, poor IS-user relationships, inadequate user awareness and education, low management ownership of the philosophy and practice of IS strategy and managers particularly vocal about the management and enactment of IS strategy methods and procedures and whether they fit the organisational context (Earl, 1993).

Critics of IS strategy maintain that the dominance of a structured strategy process is questionable in an era where uncertainty and flexibility predominate and the articulation of the strategy intent is difficult (Ciborra, 1997). The limitations of rational strategies that resulted need to be replaced by informal and incremental planning to ensure flexibility, creativity and strategic thinking to comprise emergent strategies as well as planned strategies. However, the methods used to facilitate incremental IS strategy are few, not detailed enough and not comprehensive (Salmela and Spil, 2002). The creation of IS strategy is a human process where methods or techniques have only a supportive role. Frameworks only address known problems, not uncover new ones. There is also the danger

that frameworks can become cages expressing a dominant worldview or the conventional wisdom of the dominant group (Doyle, 1991). Those who promote or adhere to methodologies have a view from the high ground and tend to ignore what goes on in the daily swamp: the fluid territory of actual projects and everyday life where such an unfolding takes place in organisations (Ciborra, 2000 citing Schön, 1983)

### 3.7.2 Holistic Views

Earl (1993) argues that IS strategy requires a holistic or interdependent view, that methods may be necessary but they could fail if the process factors receive no attention and if implementation plans and decisions are not incorporated into the strategic planning cycle. An IS strategy approach comprising of a mix of procedures, techniques, user-IS interactions, special analysis, and random discoveries, is a more balanced way of viewing the application of IS strategy. Although there are few investigations of these phenomena, Earl (1993) identified five common approaches to IS strategy. An approach is not a technique, nor an explicit study or formal codified routine implied by past accounts and studies of IS strategy. Elements of an approach can be seen as nature and place of method, the attention to and type of process and the focus on and probability of implementation. The IS strategy approaches Earl identified in a study of 27 firms were:

*Business led-* where business plans are used to identify where IS are required, here responsibility lies with the senior IS executive who presents the plan to the board for approval;

*Method driven* -where the best formal IS strategy method available is applied. The senior IS executive believes management will not think about IS needs and opportunities without it. The underlying business strategy may be deficient, practitioners may not be skilled in the use of the IS strategy method and IT sponsored methodologies may not be owned by the business at large. Management consultants often become the main drivers of the IS strategy.

*Technological-* where computer aided systems engineering tools are used to build a datalogical model of the organisation from which maps activities, processes and data flows of the business are detailed;

*Administrative* – replicates the normal resource allocation procedure, wider management planning and control procedures were expected to achieve IS strategy aims through formal procedures for allocating resources. IS development proposals are submitted to business units or departments to committees who examined proposals; and

*Organisational* - here decisions are made; there is a team approach to business issues that are addressed in a partnership approach to IS planning. The organisational approach is regarded as the most successful because the focus is on themes in one or two areas rather than a large portfolio or blueprint of potential applications. Decisions are made through continuous integration between the IS function and organisation. The emphasis here is on process, especially management understanding and involvement. The IS strategy method is used often as a process enabler rather than as means of analytical investigation. Organisational learning is also important. There is collective learning across the organisation, organisational instruments such as teams, task forces and workshops are used to tackle business problems, the IS function works in close partnership with the rest of the organisation especially in having IS managers on teams. IS strategy is neither special nor abnormal, rather part of the normal business planning process and IS strategies emerge from on-going organisational processes. IS decisions are made all the time at any time (Earl, 1993). The emphasis of the organisational approach is on process and implementability. The six features of the approach are:

*Focus on themes* - to increase chances of implementation, concentrate on one or two business themes at a time, rather than developing a large application portfolio or blueprints;

*Evolutionary change* - attempt change in small steps, implementing IS strategy incrementally reduces risk, small changes add up;

*Teamwork* - make considerable use of multidisciplinary teams. The IS department need to be members of all the teams that matter in the organisation. Such as management teams, task forces, improvement groups and IS project teams;

*Education* - raise awareness through educational events;

*Devolution of the IS function* - in the organisational approach the IS management and development are decentralised; and

*Eclectic use of methods* - the organisational approach is not driven by methods and techniques but does use them, whichever technique is appropriate in each particular instance, sometimes more than one.

Doherty et al, (1999) verifying and building on Earl's (1993) classification of IS approaches, found four distinct approaches to IS strategy, derived using cluster analysis, which bear strong similarities to the taxonomy put forward by Earl (1993). The fourth cluster was sufficiently distinctive to be labelled the 'systematic approach' suggesting an approach that was explicit, expansive and rigorous. Baker (1995) sees similarities between the organisational approach identified by Earl (1993) and the concept of the learning organisation (Argyris and Schön, 1978; Senge, 1990) emphasising the importance of feedback in assessing IS strategy (Baker, 1995). More recently the importance of IS strategy for organisational learning has been recognised (Audy, 2000). A participative, proactive, inside out, learning based method is something that is needed in the IS strategy field (Reponen, 1994; Huysmann, Fisher, Heng, 1994).

Sabherwal and King (1995) identified five alternative decision making processes in IS strategy, namely; planned, provincial, incremental, fluid and political. *Planned* IS decisions involve planning methods and a dominance of top management during the decision making process. Top management addresses major problems, relates these to business goals and tries to control the process. In *provincial* IS decisions, the IS department has greater influence, the process is somewhat shortsighted and makes little use of formal IS planning methodologies. *Incremental* IS decisions encounter greater delays and take longer. They are driven more by short-term goals and internal forces, and can be interrupted for various reasons. *Fluid* IS decisions are made quickly, incrementalism is reduced due to reconsiderations and the reduction in time needed for problem and information search. *Political* decisions involve more politics and internal resistance than the other processes and face considerable internal influence. Top management often plays the role of project champion in this process, helping to overcome internal resistance encountered along the way. Sabherwal and King (1995) found no one process universally

applicable; rather the process depended on individual contingent circumstances and organisational circumstances.

The difficulties apparent with the IS strategy process and specifically the ability to align it with business strategy emphasize the multi-dimensional nature of IS strategy. A planning system was initially defined in the strategy literature by Lorange and Vancil (1977) and Fredrickson (1984) and more recently in IS literature by Lederer and Sethi (1996) as an emergent pattern of process dimensions (or characteristics) that organises and co-ordinates the activities of the managers who accomplish the planning. IT planning<sup>7</sup> systems are collections of structures, processes, procedures and routines employed by organisations to manage the conduct of their planning actions and behaviour (Sambamurthy et al, 1993). Within the IS literature, variations among patterns of process characteristics and therefore differences in strategic planning systems have been noted (Segars and Grover, 1999). Rather than focus on the content of IS strategy, Segars et al (1998) conceptualised the planning activities as systems of behaviours, agendas and process dimensions. These process dimensions are:

*Comprehensiveness* - the extent of solution search, the emphasis placed on being comprehensive in making and integrating decisions including canvassing a range of alternatives, surveying a full range of objectives, weighing up costs and benefits;

*Formalisation* - the existence of policies, rules and procedures to guide the planning process;

*Focus* – the balance between creativity and control inherent in the strategic planning system. This distinction is described as the trade off between innovative and integrative orientations. The former looks for opportunities and threats in the environment and responds in novel ways to competitive pressures. Conversely the latter focuses on control provided through resource allocation, and cost performance measures;

*Flow* - top-down or bottom-up, the roles played by corporate and divisional managers in the initiation of the planning process;

---

<sup>7</sup> IT planning is the term used by Sambamurthy et al (1993) instead of IS strategy

*Participation* - Refers to the breadth of involvement in IS strategy, organisations vary in the numbers, functional representation and the degree of lateral communication in the strategy process; and

*Consistency* - the frequency of planning cycles and the frequency of evaluation or revision of strategic choices.

These process dimensions are related to managerial values, beliefs and experiences regarding strategic planning and therefore represent a planning infrastructure upon which tools, techniques and methodologies are adopted, modified or scuttled (Segars et al, 1998). The dimensions also offer insights into how planning occurs across varying organisational and environmental contexts. Planning is also an activity that requires management. Systems for planning must be designed, evaluated, and refined such that the overall activity of planning does not become dysfunctional. This 'meta-planning' can be characterised by three distinct, yet interdependent, sub-processes of analysis, design, and evaluation. Analysis is the process of assessing both the environmental and organisational context to determine the fit of the existing planning system with competitive needs. Design is the process of structuring the desired system of planning and formulating strategies for conversion of the existing planning system. Evaluation is the process of assessing the performance of the planning system. (Segars et al, 1998). A central theme throughout these studies as well as studies in strategic management is that:

*"Process characteristics of the planning system should be structured or internally coaligned such that the system as a whole is greater than the sum of its individual parts"*  
(Segars, 1998:306)

Additional insights into the holistic nature and effectiveness of IS strategy can be gained through the theoretical development and operationalisation of process dimensions that may capture institutionalised attitudes and beliefs about strategic planning. Planning systems that exhibit process characteristics of both rationality and adaptability tend to be more successful (Segars, 1998; Segars and Grover, 1999).



Han and Weber (1996) see two problems with prior IS strategy research. First, it is primarily prescriptive in nature; it proposes normative models of IS strategy. It assumes implicitly that variations in IS strategy practice arise because organisations lack knowledge or competence with respect to IS strategy. Second, it often does not provide a cohesive account of the variety of IS strategy behaviours we might observe in organisations. It describes what organisations should be doing with respect to IS strategy practices, but it does not facilitate our understanding of what organisations are doing. Pyburn (1983) researching the IS strategy practices in organisations found three broad approaches:

- Personal-informal - characterised by an IS manager whose primary interactions with senior management were verbal and informal, liaising through participation with line managers;
- Personal-formal- relies on informal relationships but formal discussions were well defined in meetings and presentations; and
- Written-formal - relies heavily on a rational approach, the schedule, procedures, and documents of a formal, corporate-mandated process between IS and senior management.

The research literature provides the CIO with little guidance on 'how' to actually perform IS strategy tasks. Most authors present block diagrams and discussions of 'what' should be done: for example, 'determine business objectives'; 'assess current applications and new technologies'.

*"While important, these mandates leave open such process questions as who must be involved, what should each participant contribute, which forum is the most appropriate, what time horizon is best, how much time and effort should be committed to planning and how formally should it be specified"* (Pyburn, 1983:3).

Formal-rational IS strategies have a tendency to become fixed in time and unresponsive to new situations. It is important to treat and research IS strategy as a holistic, social and political process in a constantly changing complex environment. Changing organisations need cultural adaptation to the change; therefore incremental and cultural approaches to IS strategy are useful (Waema and Walsham, 1990a). McBride (1998) recommends an

approach to IS strategy that is continuous and emerging rather than episodic and fixed which explicitly addresses the social and human nature of IS strategy. IS strategy needs a new direction, a dynamic interpretive sociological approach which incorporates evolutionary, processual and systemic dimensions (McBride, 1998).

### 3.7.3 The Human Dimension

Alongside the context, process and content dimensions of strategy it is the human activity system (Checkland, 1981) of behavioural, cognitive, social and cultural actions and interactions that create, implement and maintain IS strategy as an organisational issue. IS strategy is conceptualised as an emergent social process in which individuals select and communicate ideas, concepts and plans. These embody particular views of the way the world is or should be and their communication through language is inextricably interlinked to the maintenance and change of power relations between the parties involved in the acts of communication (Walsham, 1994). Ruohonen (1991) contends that organisational, cultural and political factors affect and even destroy IS strategy activities. Humans enact past events and actions in order to give meaning to the present and to speculate and make plans for the future. The IS strategists are implicated in changes in cultural and political attitudes at that level, and are therefore agents for broader social change. The politics of information has been highlighted by Keen (1993) as a major difficulty in the UK NHS becoming an information and knowledge based organisation. Davenport et al (1992) argues the rhetoric and technology of IT management has outpaced the ability of people to understanding and agree what information they need and then to share it, "*despite 40 years of the information revolution in business most managers still tell us they cannot get the information they need to run their own units or functions.*" (Davenport et al, 1992:52).

An organisation's IT management practices including IS strategy are contingent upon both the role that IT serves within the organisation and the manner by which IT resources are made available to users. These contextual factors comprise the organisation's internal environment. As the environment changes, IT management practices and research efforts also change (Boynton and Zmud, 1987). Nolan (1979) stresses that management needs to determine the role of IS within the organisation prior to developing an effective IS strategy. The type of IS strategy undertaken by an organization will vary depending on the

particular stage in the life cycle of the IS function (Nolan, 1979). Nolan argued organisations mature through six stages in the management and use of IS; initiation, contagion, control, integration, data administration and maturity. Research by Burn (1993) also supports the theory that different stages of growth in the use and development of IS require different approaches to IS strategy, and that different approaches to strategy are favoured by different organisational configurations. Galliers and Sutherland (1991) synthesised Earl's (1989) planning model with Nolan's (1984) 6 stage model to produce a '7s' model for analysing the interacting management attributes, some of which have cultural dimensions such as strategy, structure style, skills, staff, super ordinate goals and shared values. They conclude that these attributes needed to change as organisations become more dependent on its IT systems and are more mature in their IS strategy.

The IS strategy process is also complicated and influenced by diverse groups including senior management, users and vendors (Sabherwal and King, 1995) IS strategy is an extended process that requires the participation of top management, user management and IS management. IS strategies are more likely to be successful with the full support of the CEO. Feeney et al (1992) found the most important attribute of a successful CEO-CIO relationship was a shared vision of the role of IT as an agent of organisational transformation. CIOs that are predominantly task and problem-orientated, detailed, analytical and deductive may have difficulties communicating with CEO's whose strengths lie in understanding the overall business and the linkages and interrelationships between businesses. The importance of users in IS strategy is widely accepted. Their operational, process and business change knowledge is considered an important part of the IS strategy process (Flynn and Golenieska, 1993; Basu et al, 2002). The IS strategy steering committee is a representative team from across the organisation who are entrusted with linking IS strategy with business strategy through setting a strategic direction that matches corporate concerns with technological potential and builds commitment to policies (Karimi et al, 2000).

Although desirable the lack of management commitment remains the principal problem in the IS strategy process. It is not clear why top management does not become involved in IS strategy. One of the difficulties encountered is convincing top management of the strategic potential of IT. This may be due to a lack of awareness and involvement with IS in their

early careers, as a result senior management see a strictly operational use for IT linked with efficiency. There is also a credibility gap and fear of failure (Lederer and Mendelow, 1988). Previous experience of IT systems that fail to live up to expectations in terms of benefits, costs and implementation schedules colours their perceptions. Lederer and Mendelow, (1988) suggest that education of top management is needed to address these IS strategy issues.

Improving IS strategy is still an important management issue (Lederer and Mendelow, 1987; Lederer and Sethi, 1996; Reich and Benbasat, 1996; Gottschalk, 1999). Better understanding of the IS strategy process is necessary because without a well characterised and understood process; successful outcomes could be a matter of chance. IT serves an increasingly important role in many organizations in facilitating the introduction of new products or services and the improvement of operational or managerial work processes. The successful application of IT in such endeavours is inextricably linked with the effective management of a number of processes associated with the planning for, acquisition of, and implementation of an organization's portfolio of IT (Zmud, 1984; Kwon and Zmud, 1987; Cooper and Zmud, 1990).

IS strategy literature depicts top management as playing a critical role in the IS strategy process. IS strategy should be the concern of the business executive not just the CIO (Earl, 1989). Not only is top management a participant in the process, they also act almost continuously as approver of the process. This is done to increase the chances of successful implementation of the strategy, and suggests that implementation may be valued more than the planning process itself (Raghunathan, and King, 1988). McKenney and Copeland (1995) profiled the critical role of senior leadership in facilitating the use of IT in firms historically regarded for their IT innovation success. Effective relationships, dialogue and knowledge sharing between CIOs, their staff and senior business managers, are important in assimilating IT into the business (Keen, 1991, Mata et al, 1995, Armstrong and Sambamurthy, 1999). Research on IT in the public sector indicates management and strategy for IT are performed lower in the hierarchies of public organisations (Bretschneider, 1990; Caudle et al, 1991; Rocheleau and Wu, 2002) and this can be explained by the differences in public and private organisations (Dufner et al, 2002). Although it has been argued that IS strategy should be the concern of the business

executive (Earl, 1989), the CIO is still typically seen as the most knowledgeable person to assess and undertake IS strategy (Premkumar and King, 1992).

#### **3.7.4 The Dilemma of the CIO**

The pervasive impact of information technologies in organisational life has seen a corresponding rise of the senior IT executive in the corporate hierarchy (Hayley, 1989). The title 'Chief Information Officer' was originally defined and described by Synott and Gruber (1981). They argue that the power of computing should be applied to management rather than clerical operations and this demanded a new kind of computer department that performed an information resource management function. The CIO, or senior executive responsible for establishing corporate information policy, standards and management control over all corporate information resources would head this department.

The CIO role emerged in the 1970's, driven in part by two requirements (Gottschalk, 1999). First, accountability is increased making a single executive responsible for the organisation's information processing needs (Jones and Arnett, 1994). Second, the CIO position facilitates the closing of the 'gap' between organisational and IS strategies which is a primary business concern (Stephens et al, 1992). Although initially slow to spread, the title moved rapidly into vogue in the mid eighties reflected in and assisted by the glossy CIO magazine published in the United States. The main theme was the CIO should think as a corporate leader first and technician second or not at all.

Despite increased interest (Earl and Feeney, 1994, Brown et al, 1996; Armstrong and Sambamurthy, 1999) little empirical research on the role of the CIO has been undertaken (Ives and Olsen, 1981; Gottschalk, 1999, 2000, 2002). Few articles provide data to support the inferences which are drawn and the conclusions which are reached (Brumm, 1988). Isolated CIO profiles, although interesting to read, do not paint a picture of an emerging situation, and in fact, may paint the wrong picture. IS strategy is a key activity undertaken by organisations to manage and control their investment in IT and one of the main concerns of IS executives (Applegate and Elam, 1992; Stephens, 1995; Watson et al, 1997). When top management teams do not possess a high degree of strategic IT knowledge they usually abdicate key IT initiatives such as IS strategy to their CIO or IS

department even though such conditions could impair the effectiveness of IT (Keen, 1991; Clegg 1996). Despite the wide variety of IS strategy approaches it is the CIO that is most likely to initiate IS strategy, though almost all planning takes place with user involvement (Flynn and Goleniewska, 1993).

Armstrong and Sambamurthy (1999) argue that CIOs with high levels of business and IT knowledge will be perceived as valuable players and be more easily accepted by the senior management team. They found that enterprise-level IT assimilation is influenced by three different factors: the knowledge of senior leadership, the knowledge of line management and IS staff, and the sophistication of IT infrastructures. According to Earl (1989) the role that IT plays in the organisation will determine the type of CIO needed to manage their IT functions. Where IT plays a 'support' role (McFarland, 1984), it may be acceptable to have a CIO interacting primarily only within the IT department. Unlike most other corporate executives, the CIO still has significant operational responsibilities to maintain and enhance technical infrastructures such as data-centre operations, network availability, help-desk service, and systems development. In addition CIOs have been given increasing responsibilities for business change and business strategy making (Earl, 2000). The CIO should participate in strategy issues but also manage implementation issues on a more detailed level (Lepore, 2000).

Most of our existing knowledge about what CIOs do comes from practitioner sources. Very little academic research has been done to understand the IS strategy and the constraints that CIOs are currently dealing with and what this critical group will be struggling with in the future (Reich and Nelson, 2003). The CIO operates as an executive rather than a functional manager, and often reports to either the CEO or one of the CEO's direct reports and is concerned with wider issues than most other managers (Jordan, 1993, Stephens, 1995; Gottschalk, 1999). The strategic role of the CIO is becoming more complex (Robson, 1997). This complexity is characterised as moving from an era where CIOs controlled information resources to an era when they must account for the growing user influence on investment decisions (Gottschalk, 1999).

CIOs are faced with a bewildering array of technological choices, a more literate and demanding user base and pressure from executive levels to justify the resources deployed in supporting organisational needs (Grover et al, 1998). In organisations where IT has a

'strategic orientation' and where it is critical in achieving corporate objectives, CIOs should have multidimensional roles. They should have business, strategic, and political skills and a conceptual and visionary mind (Karimi et al, 2001). As well as being a technology scanner, evaluator, and gatekeeper they must also master change and strategy making (Earl, 2000).

Although it was originally expected that the CIO would have high levels of influence within the organisation research indicates otherwise. CIOs lack strategic influence with top management and they lack operational and tactical influence with users (Grover et al, 1993). Indeed CIOs are viewed as outsiders by other top executives and the poor relation (Feeney et al, 1992; Enns et al, 1997, Katzenbach, 1997). These problems seem to indicate that, when compared with other senior executives, CIOs do not have the authority or ability to achieve the kind of changes that were promised when the position was initially proposed. A second and possibly related explanation is that CIOs are experiencing difficulties in what their role is (Grover, 1993; Ward and Peppard, 1996).

### **3.8 Conclusions**

IS strategy adopts much of its theory from the parent strategy field. A number of problematic issues concerning the IS strategy definition, formation and impacting factors are recognised in this chapter. They have contributed to the fragmented nature of IS strategy and impeded its epistemology. The supporting literature leans heavily on case studies, anecdotes, and conceptual frameworks, with insufficient empirical work and minimal synthesis of findings (Powell and Dent-Micallef, 1997). The IS strategy literature shows little cumulative theory building and normative work has generally preceded descriptive empirical work (Huff and Reger, 1987). There is also tendency for IS strategy practice to outpace theoretical development and for fads and fashions to take centre stage (Abrahamson, 1991; Galliers, 1999). Research is skewed toward content based studies which attempt to link IS strategy and organisational performance through competitive advantage, alignment with the business strategy and IT as a means to enable change. Examination of the process of IS strategy shows many of these claims to be exaggerated. Most of the methods and tools that attempt to facilitate the IS strategy process are based on the rational paradigm of strategy, the limitations of which are exposed when faced with

vagaries and complexities of human organisations. This poses a dilemma for the CIO expected to deliver an IS strategy.

IS strategy involves an ability to articulate and capture a diverse, fluid and informal set of organisational characteristics and processes which to date CIOs have regarded as functional, quantifiable and certain (Hackney and Little, 1999). The dynamic and holistic nature of IS strategy is increasingly recognised (McBride, 1998; Hackney and Little, 1999; Päivarinta, et al 2001 and Samela and Spil, 2002). This requires IS strategists to be involved and immersed in the day to day situations rather than standing aloof (Introna, 1997). The human mechanisms through which organisations can realise IS strategy to achieve repeated and sustained value have received scant attention (Peppard and Ward, 2004). In the broadest sense engaging with this dimension are questions of process; involving how things are done, rather than the content of ideas or policies (Garvin, 1998). A process enquiry into the role of the CIO in the IS strategy process that is empirically grounded in their everyday practice needs to be designed and how to go about this forms the basis of Chapter 4.





## CHAPTER 4

### A PROCESSUAL RESEARCH DESIGN

#### 4.1 Introduction

The aim of this research is to develop a context-based, process-oriented explanation and understanding of the role of the CIO in the IS strategy process, rather than an objective, static description expressed strictly in terms of causality (Boland, 1979; Chua, 1986; Orlikowski and Baroudi, 1991). Chapter 2 revealed strategy as a complex multi-dimensional phenomenon that can be illuminated by examining its individual and collective dimensions. The strategy process in particular remains ill understood. In Chapter 3 the IS strategy process is also shown to consist of multiple dimensions (Segars et al, 1998) that organize and coordinate the activities of managers (Lederer and Sethi, 1996).

The objective of this chapter is to design an approach to the enquiry that is philosophically and methodologically sound which will capture and illuminate the actions and interactions of the CIO in IS strategy as a multi-dimensional socio-technical process in context. Obtaining valid knowledge about the IS strategy domain requires an understanding of the philosophical underpinnings and the paradigms of inquiry available to IS researchers and these are discussed. The choice of research practices depends upon the questions that are asked, and the questions depend on their context (Nelson and Winter, 1982). Qualitative research methodologies are of particular value in situations when little is known about a domain, when the researcher suspects that the present knowledge or theories may be unclear, or when the research question pertains to understanding or describing a particular phenomenon or event about which little is known or understood (Field and Morse, 1985). An interpretive epistemology is therefore used to address the research question and the rationale for doing so is discussed.

An understanding of what process is and how to research process is central to the enquiry. A general discussion of the characteristics of process research as well as its relevance to answering the research question therefore takes place. Social processes such as IS strategy

are too complex, too relative and too elusive to be approached with explicit conceptual frames or standard instruments. Possible qualitative and processual research methods in IS which could be used to investigate the phenomena are reviewed. The absence of guiding investigations or theory implies the need for a loosely structured, emergent, inductively grounded approach to the research question (Glaser and Strauss, 1967; Urquhart, 2001). Possible means of collecting and analysing process data over time are explored. The rationale for the selection of the grounded theory methodology to undertake the investigation is then discussed.

## 4.2 Paradigms of Inquiry in IS Research

Philosophy plays an important role in IS research in clearing the ground and removing some of the impediments that lie in the way of knowledge. Reflecting on and explicitly stating the philosophical stance leads to a more consistent, rational and logical research process in IS (Walsham, 1995; Garcia and Quek, 1997). The literature on research approaches in IS is a broad and contentious one concerned with fundamental research philosophies that are often seen as dichotomous to each other. There are four contentious areas, ontology, epistemology, methodology and the nature of human beings (Flood and Carson, 1993).

Ontology is a theory associated with what the world is or contains. The ontology debate concerns the nature of reality and has two opposing extremes:

*Realism*: reality is external to the individual imposing itself on individual consciousness; it is given 'out there' and is of an objective nature; and

*Nominalism*: reality is a product of individual consciousness, a product of one's own mind or individual cognition.

Epistemology deals with two assumptions about the grounds of knowledge, how one might begin to understand the world and communicate this as knowledge to fellow human beings and ideas about what forms of valid knowledge can be obtained. There are two extremes of epistemological debate:

*Positivism* – knowledge is hard, real and capable of being transmitted in a tangible form; and

*Antipositivism* – knowledge is soft, more subjective, spiritual or even transcendental, based on experience, insight and essentially of a personal nature.

Related to ontology and epistemology is how we view the nature of human beings; there are two extremes:

*Determinism* – where human beings are mechanistic, determined by situations in the external world; human beings and their experiences are products of their environment and they are conditioned by external circumstances; and

*Voluntarism* – humans have a creative role and have free will; human beings create their environment and are voluntaristic.

Ontology, epistemology and our view of human beings directly influence the methodological approach that we adopt. Methodology is concerned with attempts to investigate and obtain knowledge about the world. *“It lacks the precision of a method or technique but is a firmer guide to action than a philosophy”* (Checkland, 1981:162).

There are other distinctions, which are commonly made. Research methods have variously been classified as objective versus subjective (Burrell and Morgan, 1979), as nomothetic versus idiographic (Luthans and Davis, 1982). The former aimed at prediction and control against those methods allowing explanation and understanding of the phenomena. Research can be undertaken from an outsider perspective (etic) versus an insider (emic) perspective. These dichotomies are not all at the same level of abstraction, as some are more overarching than others, and some are almost synonymous (Fitzgerald and Howcroft, 1998). However, all research involves the application of skills, knowledge and the person in a variety of different problems in varying contexts (Pettigrew, 1985c). There are three main epistemologies used in IS research, positivism, interpretivism and the critical perspective (Orlikowski and Baroudi, 1991; Klein and Myers, 1999). Some research studies combine research methods in one study called triangulation (Ragin 1987). Considerable controversy and debate continues to surround all these terms and therefore need to be considered more closely (Avison and Myers, 2002).

### 4.2.1 Positivism

Positivism is derived from the ontological basis of realism; meaning reality exists independent of the observer (Avison and Myers, 2002). Positivistic research methods were originally developed in the natural sciences to study natural phenomena. Such studies are premised on the existence of a priori fixed relationships within phenomena, which are typically investigated with structured instrumentation (Orlikowski and Baroudi, 1991). These assume an objective (hard) view of the external world. With this view it is appropriate to analyse relationships and regularities between the elements of which the world is composed; the concern is the identification of the elements and the way relationships can be expressed. The methodological issues are concepts themselves, their measurement and the identification of underlying themes. In essence there is a search for universal laws that govern the reality being observed. The methodologies used are based on systematic process and technique. These quantitative methods now well accepted in the social sciences include survey methods, laboratory experiments, formal methods and numerical methods such as mathematical modelling.

Exclusive reliance on statistical or experimental testing of hypotheses has been criticised in the social sciences (Burrell and Morgan 1979; Checkland, 1981; Mumford et al, 1985). Opponents argue that the quest for universal laws leads to a disregard for historical and contextual conditions as possible triggers of events or influences on human action. The goal of understanding a phenomenon from the point of view of the participants and its particular social and institutional context is largely lost when textual data are quantified (Kaplan and Maxwell, 1994). There are two main areas where the quantitative approach has difficulties. First, the assumption that only through statistical or experimental hypothesis testing will scientific progress be made. There are influential arguments for theory building through inductive qualitative research. Second, the reliance on experimental control, which stems from the goal of controlling experimenter bias by striving for objective measures of phenomena (Kaplan and Duchon, 1988). However, because the study of social systems involves so many uncontrolled and unidentified variables, methods for studying such closed systems do not apply as well in natural settings as in controlled ones. The stripping of context buys: "*objectivity and testability at the cost of deeper understanding of what is actually occurring*" (Kaplan and Duchon, 1988: 572).

Only if we have strong reason to suspect that the relationships underlying our phenomena of interest, interaction among IT and humans, are determinate and one dimensionally causal, can we utilise such positivist techniques with confidence (Orlikowski and Baroudi, 1991). There is no reason to suspect that this is the case with IT and human affairs (Markus and Robey, 1988). The design and use of IT in organisations, in particular, is intrinsically embedded in social contexts, marked by time, locale, politics and culture. Neglecting these influences may reveal an incomplete picture of IS phenomena (Orlikowski and Baroudi 1991).

#### **4.2.2 Interpretivism**

The interpretive approach considers the methods of natural science to be less appropriate where human beings are concerned, recognising that different stakeholders including the researcher will interpret a situation in different ways. Interpretivism asserts that reality, as well as our knowledge thereof, are social products and hence incapable of being understood independent of the social actors (including researchers) that construct and make sense of that reality (Orlikowski and Baroudi, 1991). The world is not conceived as a fixed constitution of objects, but rather as: *“an emergent social process- as an extension of human consciousness and subjective experience”* (Burrell and Morgan, 1979:253).

The philosophical basis of interpretive research relies on hermeneutics and phenomenology (Boland, 1985; Lee, 1991). Phenomenology as a term is somewhat ambiguous, the point of departure being that phenomena, the manifestations of our perceptions, are a result of conscious acts and not independently given. The reason we have a world is that our consciousness opens it up to us, makes it meaningful and discloses it. Hermeneutics does not aim to explain and predict but to understand and make sense of others actions and meanings (Myers and Avison, 2002). The aim of interpretive research is to understand how members of a social group, through their participation in social processes, enact their particular realities and endow them with meaning, and to show how these meanings, beliefs and intentions of the members help to constitute that social action. In studying people and organisations in depth, researchers use qualitative data in order to understand and explain the situation. Qualitative data sources include observation and participant observation in the field; interviews and questionnaires, documents, texts and researchers

impressions and reactions. Immersion in context is a hallmark of qualitative research methods and the interpretive perspective on the conduct of research.

Interpretive approaches to IS research argue that the scientific ethos is misplaced in social scientific enquiry because of:

- The *possibility* of many different interpretations of social phenomena;
- The impact of the social scientist on the social system being studied; and
- The problems associated with forecasting future events concerned with human activity given that there will always be a mixture of intended and unintended effects and the danger of self-fulfilling prophecies or the opposite (Checkland, 1981; Galliers, 1985).

Ontologically, interpretive research assumes that the social world is not 'given'; rather the social world is produced and reinforced by humans through their action and interaction. Organisations, groups and individuals do not exist apart from humans, and hence cannot be apprehended, characterised, and measured in some objective or universal way (Checkland 1981). Interpretive researchers attempt to understand the way others construe, conceptualise and understand events, concepts and categories, in part because these are assumed to influence individual's behaviour. While not positing conflict or contradiction as endemic to social systems, interpretive researchers recognise that as meanings are formed, transferred, and used they are also negotiated, and hence that interpretations of reality may shift over time as circumstances, objectives, and constituencies change (Orlikowski and Baroudi, 1991).

Social process can be usefully studied with an interpretive perspective, which is explicitly designed to capture complex, dynamic, social phenomena that are both context and time dependent. Interpretive methods of research in IS are: "*aimed at producing an understanding of the context of information systems and the process whereby the information system influences and is influenced by the context*" (Walsham, 1993: 43).

The interpretive epistemology has been subject to criticism (Berstein 1978, 1985, Burrell and Morgan 1979; Fay 1987). These counter-arguments suggest that interpretive research

does not examine conditions, often external, which give rise to certain meanings and experiences. That it omits to explain the unintended consequences of action that cannot be explained by reference to the intentions of the human actors concerned. Structural conflicts within society and organisations are not addressed and it ignores contradictions which may be endemic to social systems (Orlikowski and Baroudi, 1991). The interpretive perspective, therefore, cannot account for situations where participants' accounts of actions and intentions are inconsistent with their actual behaviour, and hence it cannot discern or analyse the means by which actors may be blinkered in their self-understanding and limited in their social interactions. This research perspective also neglects to explain historical change; that is how a particular social order came into being and how it is likely to vary over time (Orlikowski and Baroudi, 1991).

### **4.2.3 Critical Research Philosophy**

The critical research perspective offers a different view of the world than those of the positive or interpretive perspectives. It alerts us to the reality of the interdependence of parts with the whole, and that organisations cannot be studied in isolation of the industry, society, and nation within which they operate, and which they in part constitute (Orlikowski and Baroudi, 1991). The central idea within critical philosophy is the belief that social reality is historically constituted, and hence that human beings, organisations, and societies are not confined to existing in a particular state. *“Everything possesses an unfulfilled potentiality, and people, by recognising these possibilities, can act to change their material and social circumstances”* (Chua 1986:619).

An important objective of critical research is to create awareness and understanding of the various forms of social domination such as those enacted by prevailing systems of economic, political and cultural authority. Social reality is historically constituted, produced and reproduced by humans, but also as possessing objective properties which tend to dominate human experience (Bhaskar, 1991). Because of the dialectical understanding of elements and the whole, as well as the belief in human potentiality, the critical research philosophy emphasizes the processual development of phenomena. Although people can consciously act to change their social and economic circumstances, critical researchers argue that their ability to do so is constrained by various forms of



social, cultural and political domination (Avison and Myers, 2002). Critical realism can be useful as the underpinning philosophy in the IS and management sciences (Mingers, 2000; Dobson, 2002).

#### **4.2.4 Paradigmatic Relationships**

Traditionally, the relationship between alternative paradigms is conceived as being one of the following: dominance, synthesis, incommensurability, eclecticism or pluralism (Morgan, 1983). Historically one can discern tension and a degree of antagonism towards the application of positivism in the social sciences. This has given rise to 'paradigm wars' fought by the adherents of positivism against those from other paradigms (Hirschheim and Klein, 2003 citing Tashakkori and Teddlie, 1998). These disputes were recast by Landry and Banville (1992) into three types of researchers each with their own outlook on the appropriateness of each paradigm. Firstly, 'navigators', who support the dominant orthodoxy with epistemological roots in logical positivism. The second type are concerned with the acceptance of IS as a scientific discipline rather than a specific paradigm. Although recognising several competing paradigms they cluster around positivism. Lastly, the 'knights of change' that maintain reality is multifaceted and forged from the interpretations and interactions of individual actors. They also believe that no single research approach can fully capture the richness and complexity of what we experience and call for methodological pluralism in IS research.

#### **4.3 Rationale for an Interpretive Paradigm**

In this section the selection and justification of the interpretive paradigm as the theoretical perspective is discussed. A review of the IS strategy literature did not uncover a theory for the role of the CIO in the IS strategy process in healthcare organisations that could provide the necessary understanding and explanation of this phenomena. Theory, according to Morse (1994:25):

*"provides the best comprehensive, coherent and simplest model for linking diverse and related facts in a useful and pragmatic way. It is a way of revealing the obvious, the implicit, the unrecognised and the unknown. Theorising is the process of constructing*

*alternative explanations until a "best fit" that explains the data most simply is obtained. This involves asking questions of the data that will create links to established theory"*

The terminology relevant to the construction of the social research process is far from consistent in the research literature and social science texts. In order to overcome this confusion Crotty (1998) suggests an approach to the research process that involves the posing and answering of four associated questions:

1. What theoretical perspective lies behind the methodology in question?
2. What epistemology informs this theoretical perspective?
3. What methods do we propose to use? and
4. What methodology governs our choice and use of method?

In order to carry out the research design the essential linkage between ontology, epistemology, theoretical perspective and the methodology and methods within the study must also be maintained. The theoretical perspective used to underpin the research is based on the view that IS are socio-technical systems whose behaviour is heavily influenced by the goals, values and beliefs of individuals and groups as well as by the performance of the technology. *"As such the behaviour of IS is not deterministic and does not fit into any formal algorithmic representation"* (Angell and Smithson, 1991:12). Accompanying this complex view comes greater imprecision and the potential for multiple interpretations of the same phenomenon.

The research therefore takes an interpretive or constructivist ontology and an interpretive epistemology (Khazanchi and Munkvold, 2003). From an ontological perspective interpretivists dispute such positivist notions as a single reality or the existence of immutable natural laws and the concept of cause and effect and explore the *'multiple realities constructed by human beings'* (Guba and Lincoln, 1989:64). The theoretical approach adopted by the research treats organisations as socially constructed phenomena (Berger and Luckmann, 1967) which are analysed as systems of shared meaning sustained through social, political and symbolic processes (Pfeffer, 1981; Smircich and Stubbart, 1985). This concept of organisations permits focus on social processes of communication, networking and negotiation by means of which actors develop shared narrative

understandings, and assists in examining patterns of power and defence and especially the means by which power may be exercised, maintained and enhanced (Brown, 1998). This is in contrast to the heavily criticised mechanistic views of work, organisation and IT (Lyytinen and Ngwenjama, 1992).

The nature of the research problem should be the most significant influence on the choice of a research methodology (Trauth, 2001). The researcher's task is to investigate the socially constructed meanings that form the participants' realities and the behaviours that flow from those meanings. In other words I want to know how they understand and act within their worlds (Milliken and Schreiber, 2001). This necessitates an interpretive epistemology. The goal of understanding a phenomenon from the point of view of the participants and its particular social and institutional context is largely lost when textual data are quantified (Kaplan and Maxwell, 1994).

An etic research perspective begins with formal constructs and aims to select empirical indicators to represent these constructs. Rather than obtaining an etic or detached outside observer's view, the research is undertaken from an emic perspective. This provides an account of the activities of the CIOs in terms meaningful to the actors which are revealed after they have been analysed. I collect data from the viewpoint of CIOs engaged in the behaviour under investigation, with the aim of producing analyses that the participants find meaningful or appropriate. The aim is to try and see the role of the CIO in the IS strategy process as the informants do.

The degree of uncertainty and lack of understanding surrounding the phenomenon under study is an important factor in the choice of research methods. The intent is to find, analyse and define the activities, actions and interactions of the CIO in the IS strategy process. There is very little published work to date which attempts to describe interpretations of the way IS strategy forms in practice, or which discusses the discourse of the activities of the CIO in IS strategy as a topic of importance in itself.

Qualitative research places emphasis on processes and meanings that are not rigorously examined or measured in terms of quantity, amount, intensity or frequency (Denzin and Lincoln, 1994). Researchers in this area refer to the use of inductive, hypothesis generation

methodologies. The basic thrust of a qualitative approach is that of interpretation of action, events and perspective through the eyes of those being investigated. There is an increasing acceptance of interpretivism as a basis for IS investigations (Walsham, 1995; Klein and Myers, 1999). An interpretive study will be used as the means to develop a novel theory of the role of the CIO in the IS strategy process in public healthcare organisations.

According to Avison and Fitzgerald (1991) the following research methods may be appropriate to IS: conceptual study, mathematical modelling, laboratory experiment, field experiment, surveys, case studies, phenomenological research, antipositivism, hermeneutics and action research. These different methods can be characterised into positivist or interpretivist using the metatheoretical assumptions shown in Table 5.

**Table 5. Metatheoretical Assumptions of Positivism and Interpretivism (Weber, 2004)**

<b>Metatheoretical Assumptions About</b>	<b>Positivism</b>	<b>Interpretivism</b>
Ontology	Person (researcher) and reality (object) are separate.	Person (researcher) and reality are inseparable from the experiences we have about our lives (lifeworld).
Epistemology	Objective reality exists beyond the human mind	Knowledge of the world is intentionally constituted through a person's lived experience.
Research Object	Research object has inherent qualities that exist independently of the researcher	Research object is interpreted in light of meaning structure of person's (researcher's) lived experience.
Method	Statistics, content analysis, surveys, mathematical modelling, laboratory experiment	Hermeneutics, phenomenology, antipositivism and action research
Theory of Truth	Correspondence theory of truth: one to one mapping between research statements and reality	Truth as intentional fulfilment: interpretations of research object match lived experience of object
Validity	Certainty: data truly measures reality	Defensible knowledge claims
Reliability	Replicability: research results can be reproduced	Interpretive awareness: researchers recognise and address implications of their subjectivity.

Qualitative research is a set of interpretive practices, which does not privilege any single methodology. The objective of methodology is to help us understand, in the broadest terms possible, not the products of scientific enquiry but the process itself.

*“It is the study – the description, the explanation, and the justification of the methods, and not the methods themselves. Methods are therefore techniques sufficiently general to be common to all sciences, or a significant part of them... thus, methods include such procedures as forming concepts and hypotheses, making observations and measurements and making predictions”* (Khazanchi and Munkvold, 2000:36 citing Kaplan 1964).

Methodology provides the link between epistemology and the conduct of the research. The methodological challenge of understanding the human dimension of the IS strategy process and in particular the role of the CIO concentrates on a search for the explanation and understanding of what is unique and particular to the individual rather than what is general and universal - the ways in which CIOs create, modify and interpret the world they find themselves. A methodology is therefore needed which can inductively generate a theory to explain the activities of the CIO in the strategy process from the researcher's interpretive theoretical stance. In other words it is important to have methodologies that will analyse these process questions. However, before the methodology and methods can be selected understanding of what process is and how one might investigate process is needed.

#### **4.4 Defining Process**

There are different definitions of process depending on the purpose, research approach and even the environment in question. Processes are often named by the goals they accomplish, for example, “order fulfilment” or “product development” (Malone et al, 1999, cited in Crowston, 2000). The goal identifies the desired result or output of the process, or the set of constraints the process satisfies, which is necessary to link organizational outcomes (Cyert and March, 1963, Simon, 1964). In the broadest sense, processes can be defined as collections of tasks and activities that together transform inputs into outputs (Garvin, 1998). Most process studies describe, analyse and explain the what, why and how of some sequence of individual and collective action (Pettigrew, 1997). Pettigrew defines process more sharply as:

*“a sequence of individual and collective events, actions and activities unfolding over time in context...most process studies are preoccupied with describing, analysing and explaining the what, why and how of some sequence of individual and collective action. The driving assumption behind process thinking is that social reality is not a steady state. It is a dynamic process”* (Pettigrew, 1997:338).

The definition of process as a sequence of events over time suggests that the basic unit of analysis in process research has to be the event (Peterson, 1988). Abbot (1990) makes a distinction between events and occurrences, with events being seen as conceptual and occurrences being seen as observed.

Intuitively we recognise a variety of individual and group processes. A process approach is basically to employ processes and their frameworks to describe, explain, understand and alter behaviour. The business process concept has strong roots in industrial engineering (IE) and its subfield of process engineering (Sakamoto, 1989). Process concepts are also key in operational research (OR) and operations management (OM). There is not a single correct view of the process in question rather many potentially valid different views of the process. Instead of arguing whichever model chosen is a true representation of the process, the description is viewed as a discursive product, that is, as an artefact, with an owner, customer and actor(s) (Checkland, 1981, 1990). The process approach holds the promise of providing an underlying conceptual toolbox by means of which to integrate the many theoretical perspectives and topic areas (MacKenzie, 2000).

The past decade has seen a growth in the use of process thinking in management and organization studies. A survey of subject areas within management by Dibben and Smallman (2005) shows conceptually rich uses of process thinking in addressing managerial decision making (citing Chia, 1994), organization theory (citing Chia, 1996a, 1999; Linstead, 2002; Tsoukas and Chia 2002) and management learning (citing Chia and Morgen, 1996), leadership (citing Wood, 2002) and strategy (citing Styrhe 2002). Having defined process; an understanding of the nature of process enquiry and how one might undertake it is now necessary.

## 4.5 The Nature of Process Inquiry

Process research is concerned with understanding how things evolve over time and why they evolve in this way. Process data therefore consists largely of accounts about what happened and who did what when – that is, events, activities, and choices ordered over time. Mohr (1982) distinguishes between ‘process theory’ and ‘variance theory’. Process theory provides explanations in terms of the events leading to an outcome. Variance theory attempts to explain the variation in dependent variables by studying its association with one or more independent variables. An analogy is made between the difference between black and white photography and colour cinematography. Process provides an insight into dynamic organisational life. Process research draws attention to the dynamic nature of contextual variables, as well as the interactions between them. It therefore has a better chance at identifying cause and effect chains. Variance models are generally static, frequently ignore complex interrelationships between explanatory variables and have great difficulty with causality (Langley and Truax, 1994). Process studies address questions that cannot be answered by variance research such as: “*What is the typical sequence of events followed as an organisation moves from situation A to situation B*” (Langley and Truax, 1994:646).

Langley (1999) identifies the following characteristics that make process data difficult to analyse:

- They deal with sequences of events which as conceptual entities researchers are less familiar with;
- They often involve multiple levels and units of analysis whose boundaries are ambiguous; and
- Their temporal embeddedness often varies in terms of precision, duration and relevance.

Despite the apparent temporal precision indicated by the ‘word’ event, there are also different levels of events. An event may include a bad year, a merger, a decision, a meeting, a conversation or handshake (Langley, 1999). Van de Ven (1992:169) argues that process is often used in three ways in the research literature:

- As a logic used to explain a causal relationship in a variance theory;
- As a category of concepts that refer to activities of individuals or organisations; and
- As a sequence of events that describe how things change over time.

Of these three only the third explicitly and directly observes the process in action and thereby is able to describe and account for how some entity or issue develops and changes over time.

The focus on process increases the need for collection of longitudinal data over periods of real and retrospective time (Pettigrew, 1985c), for in depth studies rather than cross sectional research (Monge, 1990). This trend is important because it has the potential to improve fundamental knowledge about organisations, yet few theories have been developed that meet the requirements of dynamic or process theories. This is because organisational and social sciences generally lack the conceptual tools to develop dynamic theory (Pettigrew, 1985c). In process research we need conceptual frameworks that deal with context, incidents, activities, actions, sequences and time, all in a way that is dynamic. Processual analysis centres on decoupling, classifying and recombining data to develop, redefine and create concepts which enable the presentation of new accounts (Hinings, 1997). The driving assumption behind process thinking is that social reality is not a steady state but is a dynamic process (Pettigrew, 1997).

Fundamental to the notion of a processual analysis is that an organisation may be explored as a continuing system, with a past, a present and a future. The process itself is seen as a continuous, independent, sequence of actions and events which is being used to explain the origins, continuance, and outcomes of some phenomena.

*“At the level of the actor the language of process is characterised in terms of the verb forms, interacting, acting, reacting, responding and adapting; while at the system level, the interest is in emerging, elaborating, mobilizing, continuing, changing, dissolving and transforming. The focus is on the language systems of becoming rather than being; of actors and systems in motion”* (Pettigrew, 1985c: 66).



There are at least two requirements for process theory. First, the theoretical language has to incorporate some form of agency because process is driven by action (Pettigrew, 1997; Poole, Van de Ven et al, 2000). Second, a process motor or mechanism that generates events and drives the process onwards needs to be specified (Van de Ven, 1992; Van de Ven and Poole, 1995). A good process theory describes, at least in broad outline, plausible time parameters associated with continuity and change within and between the phenomena of interest.

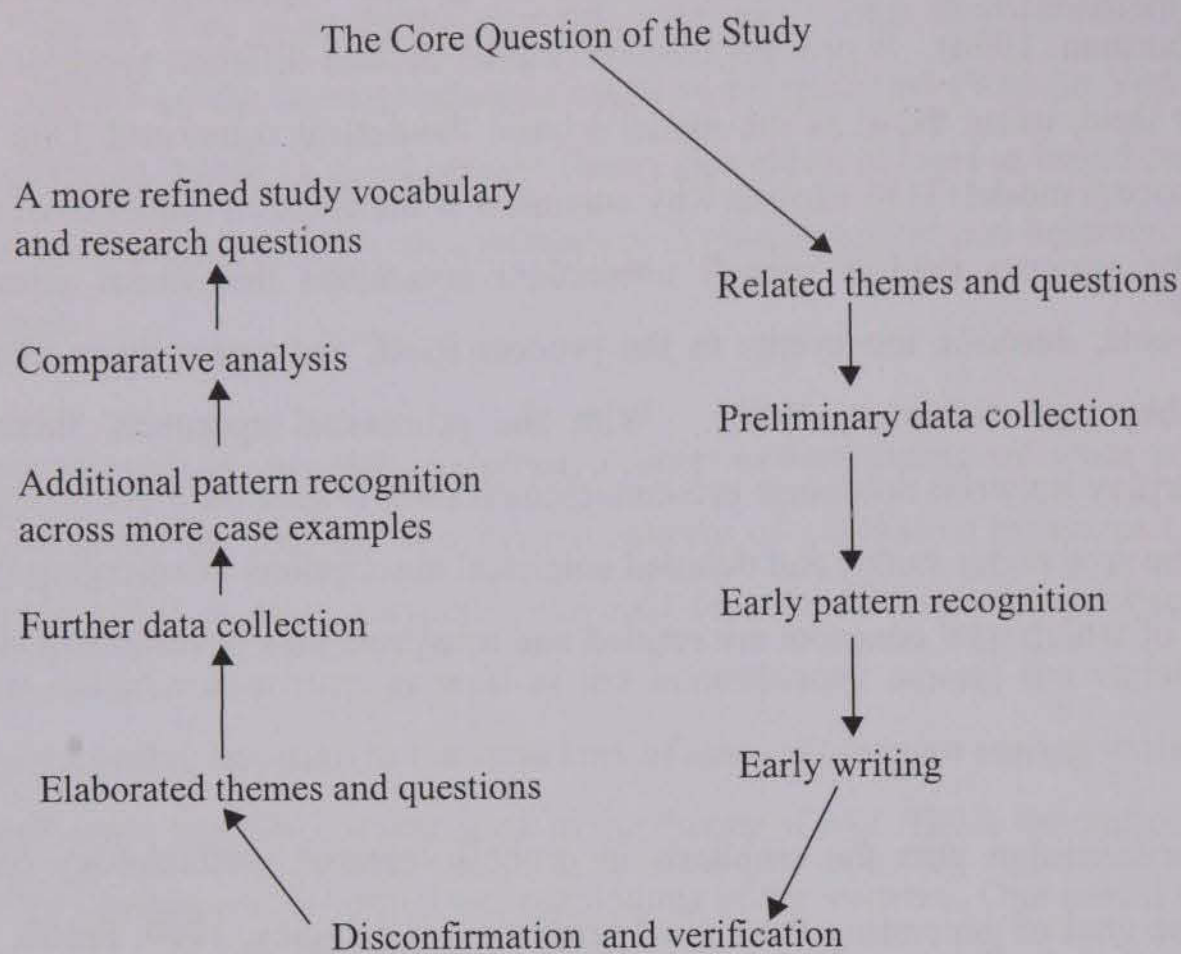
Process research is complex, requiring a deep understanding of what is going on and therefore cannot be reduced to a limited number of qualitative measures (Dawson, 1997; Pettigrew, 1997). A process hypothesis would describe the expected or observed behaviour of each variable over time as well as the interrelations among the variables over time. Paying particular attention to the time lags of causal influence among variables and to the feedback loops specified or emerging in the theory, if any. These theoretical specifications would be summarised in formal representations of the systems. One useful formalisation is a set of dynamic equations. Data would be collected in longitudinal designs that filled the requirements of the theory. The theory would indicate the number of times the data would be collected, the length of the interval between collections and the overall duration of the research. The set of relations obtained in the longitudinal data would be tested against the system of equations that formally represents the theory, thereby determining the robustness of the theory. If the data supported the theory the system of equations could be used with the longitudinal data to forecast the behaviour of the dynamic processes under investigation (Monge, 1990).

Two classes of process theories exist in organisation science according to Monge (1990). Those which conceptualise phenomena as recurring patterns in a cycle and those that conceptualise the processes as a sequence of events or stages. When studying a process from the latter perspective, important considerations include the identification of stages in the sequence and the specification of the conditions of movement from one stage to the next. Most process research follows what Miles and Huberman (1994) call the conceptualist approach, in which the researcher develops a model deductively based on extant literature and then tries to confirm and refine the model based on data from the field (Shaw and Jarvenpaa, 1997). The conceptual framework is the researcher's representation

of the conceptual structure brought to the research process. The framework may be formed by existing theory, the researcher's experience and the general objectives of the research (Miles and Huberman, 1994). A process research model defines different types of events that occur over time, using these as the model's basic theoretical constructs. One of the objectives of process models is to explain why outcomes at the end of a sequence of events occur. Typically, process models specify antecedent conditions that occur prior to a sequence of events, describe the events in the process itself, and relate those events to outcomes. (Robey and Newman, 1996). With the processual approach, there is a continuous interplay between academic pre-conceptualisation (based on a comprehensive knowledge of the area under study) and detailed empirical descriptions of emerging themes and topics, out of which new concepts are refined and interpretations developed (Dawson, 1997)

Inductive research design puts the emphasis in process research methodology on data analysis with the goal of generating theoretical propositions (Langley, 1999; Smith, 2002; Sminia, 2005). The outcome of an inductive research design can be either the construction of a specific story, a grounded theory, a visual map, or a predictive theory, depending on the type of sense making strategy deployed (Langley, 1999). There are descriptions of process research methodology that incorporate both induction and deduction. Pettigrew (1997) illustrates the overall iterating cycle of deduction and induction that is the real creative process of what he calls contextualist research and is shown in Figure 8.

**Figure 8. The Process Research Cycle (Pettigrew, 1997)**



The central features of contextualism according to Pettigrew (1985c) are:

- The mutual nature of enquiry;
- The notion that knowledge is created through a process of knowing;
- The importance of the situational and multifaceted character of meanings in research settings; and
- The holistic study of emergent processes in particular and changing contexts.

The practising manager and the contextualist both see the world of practice in terms of uncertainty, complexity, instability and uniqueness, and value conflict. Both maybe interested in the multiple meaning of events and the placement of acts in contexts; the recognition that situations of practice can be unique and that practice has to do with finding problems through detailed immersion in context as well as solving problems found. More explicit thinking and writing about the analytical and conceptual assumptions which underpin processual research is called for (Monge, 1990).

*“This is not an appeal for doctrinal orthodoxy, but a request for a language to guide discussions about strategy process and indeed, at the most practical level, for more knowledge about the process of studying process”* (Pettigrew, 1992a: 9).

Having defined process and described the purpose of process enquiry, the question now becomes how to undertake a process enquiry that reflects the interpretive ontological and epistemological assumptions stated in section 4.3.

#### **4.5.1 Researching Strategy Process**

The practice of processual research is best informed by a theory of method that clarifies and makes explicit the range of guiding assumptions shaping the conduct of the research. Pettigrew (1997) argues that strategy process research should be organised around five internally consistent guiding assumptions:

- Embeddedness, studying processes across a number of levels of analysis;
- Temporal interconnectedness, studying processes in past, present and future time;
- A role in explanation for context and actions;
- A search for holistic rather than linear explanations of process; and
- A need to link process analysis to the location and explanation of outcomes.

These are capable of supporting a wide range of the theoretical and empirical investigations and at the same time maintaining a sense of coherence in the overall approach and are expanded as follows:

##### Embeddedness

Trajectories of strategy processes are probabilistic and uncertain because of changing contexts and human action – context and action are inseparably intertwined. We cannot talk about process without also discussing human agency in context. There is recognition that there are processes at different levels of analysis and also multiple processes at the same level of analysis. A source of change is the asymmetries between levels of context, where these intertwined processes often have their own momentum, pace and trajectory (Pettigrew, 1997).

### Temporal Interconnectedness

Understanding the sequence and flow of events over time is a crucial requirement of the process scholar. Antecedent conditions shape the present and emerging future. There is no assumption of predetermined timetables, or ordered and inevitable sequences or stages (Pettigrew, 1997).

### A Role in Explanation for Context and Actions

Trajectories of strategy processes are probabilistic and uncertain because of changing contexts and human action. Context and human action are intertwined. Thus organisational processes are both constrained by features of context such as tradition and technological commitments and also shape contexts by, for example, preserving or altering technological strategies or corporate cultures. Pettigrew (1997:341) emphasises the importance of context in process research: "*Context is not just a stimulus environment but a nested arrangement of structures and processes where the subjective interpretations of actors perceiving, learning, and remembering help shape process*".

The contribution of structuration theory in superseding the dualism of structure and agency by creating a duality between the two also creates insight into the relationship between context and process (Giddens, 1979). This provides two processual building blocks. Firstly, structure and context are not conceptualised as barriers to action but as essentially involved in its production. And second, there is scope to demonstrate empirically how aspects of context can be mobilised by key actors as they seek strategic outcomes important to them. These theories belong to the dialectic family of process theories in the sense that they incorporate conflict and contradiction as the generative mechanism (Van de Ven, 1992; Van de Ven and Poole, 1995; Poole et al, 2000).

### The Search For Holistic Rather Than Linear Explanations Of Process.

This guiding assumption is an amalgam of the other three principles. The search is for multiple intersecting conditions which link features of context and process to certain outcomes (Pettigrew, 1997).

## The Ambition to Link the Analysis of Process to Outcomes

There are great advantages in having a clear outcome to explain in process research. Firstly the clear outcome both simplifies and complicates the study by providing a focal point for the investigation. Secondly, and crucially, there is the possibility to explore how and why variations in context and process shape variability in the observed outcomes across the comparative investigation (Pettigrew, 1997).

### **4.5.2 Utility of a Process View**

A process view of organisational phenomena offers several advantages. First, it provides a disaggregated model of the firm, but does so in ways that make the analysis of strategy implementation more tractable and explicit. Organisations may be described as complex social systems with widely distributed responsibility and resources; unilateral action is seldom sufficient getting things done, instead:

*“Managers face a range of challenges: how to get the organisation moving in the desired direction, how to gain the allegiance and support of critical individuals, and how to harmonize diverse interests and goals. In the broadest sense, these are questions of process: they involve how things are done, rather than the content or substance of ideas or policies”* (Garvin, 1998:43).

According to Orton (1997) good process research will combine rich theory with rich process data to create rich knowledge. Processual analysis focuses on decoupling, classifying and recombining data to develop, redefine and create concepts which enable the presentation of new post analytical accounts and descriptions (Hinings, 1997). In doing so it exposes the underlying mechanisms which drive processes. In this research it investigates the human experience of the CIO as they engage in the IS strategy process through actions and interaction in the context of healthcare organisations. Human experiences are complex and rich so qualitative research studies that focus on such experiences must provide contextual interpretation of the research results.

Process enquiry provides the means to develop conceptual frameworks that address strategy issues such as context, incidents, activities, actions, sequences and time all in a

way that reflects their dynamics (Hinings, 1997). Process also provides an active language to deal with these dynamics, the language is verbal and not numeric which captures 'reality in flight' and is grounded in action (Pettigrew, 1997). The language of business strategy has become locked into the vocabulary of static states when most practising managers are aware of the transient and emergent qualities of their espoused and realised strategies (Pettigrew and Webb, 1996). Process analysis provides holistic explanations of strategy phenomena and allows openness to intellectual possibilities. The explanations from process enquiry are accessible to practitioners (managers) and address their issues and problems in a way that they can understand. (Ferlie and McNulty, 1997). The latter is especially important given the perceived relevance gap between IS researchers in academia and practitioners such as CIOs (Sahay and Walsham, 1995; Benbasat and Zmud, 1999).

### **4.5.3 Process theories**

Process theories appear in organisation theory, strategic management, operations management, group dynamics and studies of managerial behaviour. There are at least two requirements for process. Firstly, the theoretical language has to incorporate some form of agency because process is driven by action (Pettigrew, 1997). It is therefore recommended that the theoretical constructs used in process research need to be based on verbs (Weick, 1979; Pettigrew et al., 2001). Secondly, a process motor or mechanism that generates events and drives the process onwards needs to be specified (Van de Ven, 1992; Van de Ven and Poole, 1995). At the centre of all dynamic analyses is the assessment of change over time (Kelly and McGrath, 1988). Van de Ven and Poole (1995:514) use a typology of four different ideal types of process theories or motors that explain the change behaviour in the organisation in a distinct manner: life cycle, evolutionary, dialectical and teleological. They suggest that these four basic theories (discussed in section 2.5.6) are adequate alone or combined to explain all specific theories of organisational change and development. The key metaphors of social change are therefore:

Life Cycle – Organic Growth;

Evolution – Competitive Survival;

Dialectic – Opposition, conflict; and

Teleology – Purposeful co-operation.

Each theory relies on a different motor of change, which can be mapped as a distinct action cycle. The theories also have a distinct set of assumptions about why change occurs, how the process unfolds, when change occurs and how long it takes, and the outcomes of change. Life-cycle models evolved from studies of child development and focus on stages of growth, organizational maturity, and organizational decline (Levy and Merry, 1986). Change is conceptualized as a natural part of human or organizational development. The main assumption underlying evolutionary theories is that change is a response to external circumstances, institutional variables, and the environment faced by each organization (Morgan, 1986). Social systems as diversified, interdependent, complex systems evolve naturally over time because of external demands (Morgan, 1986). Dialectical models characterize change as the result of clashing ideology or belief systems (Morgan, 1986). Conflict is seen as an inherent attribute of human interaction. Change processes are considered to be predominantly bargaining, consciousness-raising, persuasion, influence and power, and social movements (Bolman and Deal, 1991). Teleological theories or planned change models assume that organizations are purposeful and adaptive. Change occurs because leaders, change agents, and others see the necessity of change. The process for change is rational and linear, as in evolutionary models, but individual managers are much more instrumental to the process (Carnall, 1995).

However observed change and development processes in organisations are often more complex than any one of these theories suggests because conditions may exist to trigger interplay among several change motors and produce interdependent cycles of change (Van de Ven and Poole, 1995). Social-cognition models describe change as being tied to learning and mental processes such as sense making and mental models. Change occurs because individuals see a need to grow, learn, and change their behaviour. In cultural models, change occurs naturally as a response to alterations in the human environment; cultures are always changing (Morgan, 1986).



#### 4.5.4 Process Theories in IS

Despite calls for more research on process models they are underrepresented in IS research (Markus and Robey, 1988; Monge 1990; Orlikowski and Baroudi 1991; Shaw and Jarvenpaa, 1997), IS researchers tend to study variance models that explain the variability of a dependent variable based on its correlation with one or more independent variables. Process research models; however, can be:

*“valuable aids in understanding issues pertaining to designing and implementing information systems, assessing their impacts, and anticipating and managing the processes of change associated with them”* (Kaplan, 1991:593).

Shaw and Jarvenpaa, (1997) developed a process-variance typology or taxonomy of process research models<sup>8</sup> to use as a conceptual tool to classify empirical IS research and provide insights for other process researchers. They argue that the process-variance distinction made by Mohr (1982) represents extremes or ideal types which researchers rarely build and study. A process model attempts to explain the occurrence of an outcome by identifying the events that preceded it (Shaw and Jarvenpaa, 1997). The two essential characteristics of such models are concepts and relationships and are the basis by which Shaw and Jarvenpaa (1997) differentiate their typology. The concepts in a variance model are variables that can take on multiple values, often labelled as independent or dependent variables. In contrast, *“the concepts in a process model are events or possibly states”* (Shaw and Jarvenpaa, 1997:73). There are three dimensions; concepts, sequential and predictability that emerge from the process-variance dichotomy which reveals eighteen distinct types of models, ranging from pure variance to pure process research models.

There are three distinct values that the concepts dimension of the typology can assume. In the first instance concepts can be defined as events, which would be consistent with a pure process model. The second instance concepts can be defined as variables, as in a pure variance model. A mixture of variables and events would be classified as a hybrid model. The second dimension for distinguishing models is the temporal and sequential relationship of the concepts. In process models events are sequential; one event occurs

---

<sup>8</sup> Lave and March (1975:3) define a model as *“a simplified picture of part of the real world”*

after another. A sequential relationship is temporal because there is some time between the occurrences of events. However, a temporal relationship need not be sequential (Shaw and Jarvenpaa, 1997). The third dimension is based on the predictability of the relationship between concepts. The path between one event and the next in a process model is probabilistic or subject to random forces which may cause the path to deviate. The relationship between variables in a variance model is not affected by random forces so is consistent over time. The relationship is predictable. Shaw and Jarvenpaa, (1997) argue that a wide range of IS questions can be addressed through the study of process or hybrid models, and these questions can be focused at any level of analysis; however, not all research questions are amenable to process investigation.

Most IS process research follows a conceptualist approach, in which the researcher develops a model deductively based on extant literature and then tries to confirm and refine the model based on data from the field (Miles and Huberman, 1994). The value of specifying constructs prior to collecting data in case study research has been emphasised by Eisenhardt (1989). The conceptualist approach strengthens then empirical grounding of the resulting theory and provides the researcher with some framework for collecting and interpreting data (Shaw and Jarvenpaa, 1997). The emphasis is on understanding process rather than a priori theory. The resulting model can be validated using qualitative data (Markus 1983, Orlikowski 1993; Newman and Sabherwal, 1996). Other researchers have used quantitative data (DeSanctis et al, 1991; Soh et al, 1994) and argue that process models can be built or tested with either quantitative or qualitative data (Shaw and Jarvenpaa, 1997).

Newman and Robey (1992) constructed a process model using episodes and encounters involving users and analysts in IS development. This theory portrays IS development as a dynamic social process that is simultaneously constrained by past experience and capable of constructing new patterns of interaction. The model they developed facilitated taking different perspectives to enrich the understanding of the process of system development. The process model aids in the empirical detection of repeating patterns of social activity, and its value is largely independent of a researcher's theoretical preferences. Newman and Robey (1992) argue there is a need for theories about social processes to address the question of persistence and change in patterns of social action. Although the outcomes of

social processes are largely indeterminate, it is a practical necessity to gain greater understanding of processes so that counterproductive patterns can be changed.

Brown (1998) constructed and analysed three groups of narratives in an attempt to illustrate how those groups involved in an IT implementation in a hospital sought to retrospectively justify and make sense of events in ways that legitimated their actions and protected their interests. The focus on narrative is valuable as it encourages an interpretive stance that reflects on the meanings in the text. The analysis of group narrative also incorporates plurivocal understandings of actions and events and a means by which multiple meanings can more easily be read back into ethnography (Brown, 1998).

In an inductive study of the adoption and use of computerised systems engineering tools or CASE tools, Orlikowski (1993) used grounded theory to provide a focus on contextual and processual elements as well as the action of key players associated with organisational change. The process theory developed showed that the intentions and actions of key players, the change process they enact as well as the social context into which the tools are introduced critically influence what changes are associated with case tools. This relationship may not have been evident without the use of a process model describing this change.

Waema and Walsham (1990) used a contextualist approach (Pettigrew, 1985c) as a processual and multilevel lens to examine IS strategy formulation in a bank. First of all they examined the ways in which the history and context of the case study both enabled and constrained the strategy formation process. Secondly, they present a socio-political analysis of the process itself and trace the perceptions and sources of power of key actors in the process. The case study and subsequent analysis provided general support for the multiple perspectives approach to the analysis of technology planning and adoption as it emphasises the importance of organisational and personal perspectives in addition to technical perspectives.

Process theories of IS such as those discussed provide a link between the activities of individuals and organisational impacts of IS. An examination of process is therefore an important precursor to addressing successful outcomes for the implementation of IS.

(Crowston, 2000). Many researchers have searched often in vain for the significant return on investment for large sums invested in IS; however, evidence of significant increases in productivity is elusive (Brynjolfsson, 1994). Understanding the linkage between process and outcomes is important for those that design, build, manage IS as well as those who undertake strategy (Kaplan, 1991). However, before such a linkage can be established the process itself needs to be researched and understood.

#### **4.6 Process Research Methods**

Early process theories are usually based on mathematical models (Poole, 1981) or verbal and linguistic analysis (Weick, 1987). Quantitative techniques prominent in articles in the 1960's and 1970's (such as regression analysis, univariate and multivariate techniques, path analysis and structural equation modelling) were developed motivated by the desire to use techniques that would generate valid causal inferences from static correlational data acquired in cross sectional design. In the 1980's alternative perspectives emerged which changed the emphasis from causal inferences of variables to focus on dynamic processes. From the variables paradigm and its preoccupation with theorizing about individual causes, research attempts to theorize about patterns of forces shaping the character of the process and its outcome (Pettigrew, 1997). Process research is about continuity and change over time requiring a deep understanding of the action and interactions of human agents. Process research is now normally seen as employing qualitative methods. However, quantitative modes of process research are also available based on the quantitative coding of events to create a database that can be analysed numerically (Calnan and Ferlie, 2003). A variety of different process methods are commonly used such as ethnography; case studies; action research and the grounded theory method and these need to be examined as to their suitability in addressing the research question.

#### 4.6.1 Ethnography

The ethnographic approach is fundamentally that of anthropology and allows the researcher to use the socially acquired and shared knowledge available to the participants to account for the observed patterns of human activity. The focus is on the manner in which people interact and collaborate in observable and regular ways. Typically such process studies involve intensive study and immersion in a well defined locality involving direct participation with members of the organisation in their activities (Gill and Johnson, 1991). The ethnographic approach is concerned with descriptions of social patterns. The researcher learns from others about their customs, beliefs, behaviour and social organisation. The prevailing method of access is participant observation, through watching, in-depth interviews documented not only in the form of memos but also photographs, films and tape recordings. Traditional survey methods such as questionnaires together with the study of archival material are also used (Gummesson, 2000). There are concerns that prolonged immersion in the daily lives of the organisations concerned can actually disturb the processes being observed (Gummesson, 2000). Few ethnographers would claim that it is possible to completely eliminate subjects' reactivity to the researchers' personal qualities or techniques. It takes considerable time to become accepted as a member of the organisation and to be able to understand what is happening. In practice we may be limited to observations of specific aspects of certain selected fragments of a complicated process (Gummesson, 2000). A further weakness is that in large complicated public organisations such as healthcare the requirements of ethnography, in particular can be daunting.

#### 4.6.2 Case Studies

There is some debate as to whether the case study approach should be categorised as 'scientific' or whether it falls within the 'intepretivist' label (Galliers, 1992a). The case study is a popular qualitative research methodology in the IS field (Orlikowski and Baroudi, 1991) and is appropriate when one wants to explore a process (Creswell, 1994). Case study research is defined by Yin (1994:14) as "*an empirical inquiry that investigates a contemporary phenomenon with its real-life context, especially when the boundaries between phenomenon and context are not clearly evident*". This method is particularly well suited to IS research, since the object is the study of IS in organisations, and the subject

concentrates on the organisational rather than the technical issues. The strength of the case study approach is that it enables the capture of 'reality' in detail.

Robey and Newman (1996) used the case study method in conjunction with a process model in order to examine the process of IS development. They note that advantages of case methods include rich description and an appreciation of the social context in which the events occur. However, weaknesses include that its application is usually restricted to a single event/organisation, and the difficulty in acquiring similar data from a statistically meaningful number of similar organisations leading to problems of generalisations from individual case studies (Galliers 1992a, citing Spencer and Dale, 1979).

A case study approach is ideally suited for areas where knowledge building is in its formative stages with few prior studies to build on, and for sticky practice based problems where the experiences of the actors involved and the context of action are critical (Benbasat et al, 1987). Although case studies may be used for theory testing (Lee 1989, Yin 1984), case methods are most useful for gaining detailed knowledge about a phenomenon for which theoretical propositions are not available (Eisenhardt, 1989). Walsham (1995) argues the most appropriate method for conducting empirical research in the interpretive tradition is the in depth case study. Such case studies will often be carried out longitudinally, namely over a reasonably long period with the opportunity to directly observe the unfolding events over time. This reduces problems due to different interpretations and the lack of control of individual variables which obscure cause and effect (Galliers, 1992a). Longitudinal research is often supplemented by detailed historical reconstruction of earlier periods. In addition, the method frequently involves the use of two or more case studies for comparison purposes. Pettigrew (1985c) argues that although case study approaches cannot offer generalisability in the statistical sense even single case studies are capable of developing and refining generalisable concepts and frames of reference. A single case study is particularly useful for identifying processes, because it enables researchers to get closer to the action than would be otherwise possible in multiple research settings. Case studies are a pragmatic vehicle for studying organizational phenomena in real time.

### **4.6.3 Action Research**

In action research the researcher knows their presence will affect the situation they are researching and associate themselves with the practical outcomes of the research in addition to seeking to identify theoretical outcomes (Galliers, 1992a). There is collaboration with the researcher and the researched in a mutually acceptable ethical framework. Action research may have a fluid or rigorous structure. Baskerville and Wood-Harper (1998) distinguish between iterative process models, where action and problem diagnosis activities alternate until sufficient improvement is obtained and linear process models where a set of steps such as analysis, fact-finding, conceptualisation, planning, implementation and evaluation are followed. Research goals may vary between organisational development goals, system design goals and individual learning or theory development goals. None of these goals are mutually exclusive. One key dimension to action research is the role of theory (Baskerville and Pries-Heje, 1999). At the beginning of the research, existing theory is used as a foundation upon which to plan and take action. Following the evaluation of the outcomes of each cycle, this theoretical framework may be reinforced, withdrawn or modified to reflect the realities of action taking. It is this evolution of theory that constitutes the scientific contribution of action research (Baskerville and Pries-Heje, 1999).

The advantages of this form of research include very practical benefits that are likely to accrue to client organisations as a result and that researcher's biases are made clear in undertaking the research (Galliers 1992a citing White, 1985).

### **4.6.4 Grounded Theory**

Grounded theory emphasises the discovery process in theory development as opposed to logical elaboration, which uses pre-established theoretical frameworks for guidance (Charmaz, 1994). Grounded theories are inductively discovered by careful collection and analysis of empirical data. The grounded theory seeks to understand and explain human experience in the context of subjective and holistic experience. The research process itself may be thought of as a social process and through our social interactions with research participants we construct knowledge and begin to understand their lives. The grounded

theory method has clearly defined units of analysis that support rigorous techniques for expressing and justifying theory. It is a highly collaborative process where data collection, analysis and theory formulation are held in a clear reciprocal relationship (Baskerville and Pries-Heje, 1999). Grounded theory is most powerful at understanding micro-level processes of the interpretations and emotions of different individuals or groups living through the same processes rather than the more broad macroscopic processes that occur one at a time over long periods (Langley, 1999).

#### **4.6.5 Challenges of Data Collection**

Processual research focuses the collection of data over periods of real and retrospective time, in a number of ways; these include direct observation, interviewing and using archival data (Dawson, 1997). Process research requires multiple observations on the same entity. Who or what to observe especially when the phenomena of interest are human processes creates problems pertaining to the effects this has on the people involved. A number of solutions have been proposed, such as institutionalising the data collection process as an inherent part of work and taking unobtrusive measures. Another solution has been to draw random samples from organisations without replacement until everyone in the firm is sampled and then repeat the sampling frame as necessary (Monge, 1990). In process data it is often impossible to collect all the items that make up the process. What you collect is a specific sample of incidents that is collected from the process. Certain phenomena will; however, tend to be absent from a systematic list of ordered incidents. The data collection therefore needs to be iterative in the sense that one has to go back to informants as ideas develop and new leads and information sources open up (Hinings, 1997).

Incidents consist of an action or an actor doing something. The basic form a recorded incident takes is a combination of a subject and a verb phrase. Depending on the research question that has been formulated and the data needed for subsequent coding different kinds of additional data can be recorded as part of a single incident (Sminia, 2005). When collecting process data the researcher attempts to document as completely as possible the sequence to the process studied. However, this can be difficult unless the process is highly circumscribed.



Historically participant observation has been the classic approach, but this can be difficult especially if the researcher cannot for various reasons immerse themselves in the phenomena being studied (Dawson, 1997). Undertaking observation of CIOs engaging in IS strategy in healthcare threw up a number of practical challenges. In particular gaining and maintaining access to all the activities of the CIO in the IS strategy process in different healthcare organisations over a prolonged period of time. There are also ethical challenges of direct surveillance of an emergent social process such as IS strategy by a researcher (also a CIO working in another healthcare organisation). There are also issues with lack of visibility of infrequent events and some events not being visible to the researcher. There are further difficulties with when to start and when to finish observing the CIOs in the IS strategy process, decisions about the duration of the observation were governed by time and constraints. The length of the observation period can be specified by making an informed judgement about the length of time over which the process under investigation takes place. However, the IS strategy process is a continuous feature on the CIO's agenda (Smits et al, 1997; McBride, 1998). Schwenk (1985 cited by Golden, 1992) cautions against researchers relying on observation of processes alone where process could be viewed as quasi-random simply because they lack the knowledge about the organisation necessary to find the order that exists in its decision processes. Morse (2000) argues that observational data are 'snapshots' of a process, field notes record short periods of observations rather than a continuous overview of a process.

Participant observation has been overtaken by semi-structured interviews as the primary instrument of data collection in process research; together with direct observation, archival research and documentary analysis (Hinings, 1997). A significant amount of strategy process research uses retrospective reports (Mintzberg et al, 1976; Eisenhardt and Bourgeois, 1988). The reliance on retrospective reports results from the researcher's inability to gain access to organisations to take multiple measures over time. However, despite the popularity of retrospective reports many researchers believe that the problems associated with informant fallibility strongly influence these reports (Golden, 1992; 1997). The primary problem is that key informants may not be able to accurately recall the past which may result in inappropriate rationalisations, over simplifications, faulty post hoc attributions and simple lapses of memory (Miller et al, 1997). This is exacerbated if key informants try to present a socially desirable image of themselves and their organisation

(Golden, 1992). In order to address these weaknesses a number of strategies can be employed (Golden, 1992; Miller et al, 1997):

- Utilize more than one informant per organisation to allow the information provided by the informant to be checked against information provided by other informants;
- Researchers should ask about simple facts or concrete events rather than past opinions and beliefs. Questions about abstract concepts and opinions pose complex, ambiguous judgement tasks for respondents;
- Researchers should not ask informants to recall facts or events from the distant past; and
- Researchers should motivate their informants through ensuring confidentiality, minimising the disruption, duration and inconvenience of data collection together with convincing explanations of the utility of the research.

Investigating processes such as strategy making the researcher often must combine historical data collected through the analysis of documents and retrospective interviews. The aim of most researchers is to obtain simultaneously broad (covering a wide variety of situations) and deep (to investigate the basis of the phenomena under scrutiny) data (Langley, 1999). However, such exhaustive examinations require time, skills and resources that individual researchers frequently lack (Miles, and Huberman, 1984). The choice of data collection methods therefore reflects trade-offs not only in the research design but also the active response to the opportunities and constraints that were apparent before and during the research.

In this research the researcher is a healthcare CIO, having both knowledge and experience of the history of the healthcare organisations which could be shared with the informants who worked there, as well as historical events which had meaning and symbolism in the organisation. A decision was made to make interviews the focus of the data collection and embed the above practices in the actual interviews. How this was achieved is further described in chapter 5.

#### 4.6.6 Data Analysis Strategies

Process data is eclectic, not only composed of discrete events; it also incorporates a variety of other types of qualitative and quantitative information. The complexity and ambiguity of the data make it difficult to analyse and to decide between what is relevant and what is not (Miles and Huberman, 1994). Understanding patterns in events is the key to developing process theory. The analysis of process data; therefore, requires a means of conceptualising events and of detecting patterns in them. The central challenge lies in moving from a shapeless data spaghetti to-ward some kind of theoretical understanding that does not betray the richness, dynamism, and complexity of the data but that is understandable and potentially useful to others (Langley, 1999). Although collecting and analysing data are modelled as separate stages, in practice they may be closely interrelated and may be viewed as overlapping (Eisenhardt, 1989) or even part of one activity (Marshall and Rossman, 1995). In terms of the practical research questions of gathering data, and sorting that data into broad categories for analysis, Pettigrew (1985:68) describes the following basic steps:

- Describe the process or processes under investigation, pragmatically it is important to be clear about when and why the process under investigation begins and ends;
- Expose in the above descriptions any variability or constancy between the processes;
- Begin the analysis of the above processes by using existing, or developing novel theories of process;
- Begin the task of pinpointing the levels of analysis in the context, and some of the categories or variables in those different levels of analysis;
- Begin the task of describing and analysing any variability across the contexts through which the processes are unfolding, seeking also to describe and analyse trends and developments in the various contexts through time;
- Consider the alternative criteria which can be used to judge the outcome of the process under study; and
- The key to the analysis lies in positing and establishing relationships and variability between context, process and outcome.

The analysis of process data requires a means of conceptualising events and finding patterns among them (Langley, 1999). The patterns could be repeated interactions among actors, explanations that the actors offer, or reoccurring sequences of events such as cycles or spirals (Masuch, 1985; Woiceshyn, 1991; Ropo and Hunt, 1996). Processual research is often iterative and lengthy; the researcher goes from the original data to a comprehensive description of the process studied, to the theoretical explanation and back again in order to refine the description and explanation and to validate it by actual raw data (Weick, 1989). Each iteration usually refines the description and explanation further, spiralling between concretes (the data) and abstractions (explanations) to-ward a deeper understanding of the phenomena under study (Woiceshyn, 1997).

Pettigrew (1997) argues that outcome questions are important in research on process and “*the irreducible purpose of a processual analysis remains to account for and explain the what, why and how of the links between context process and outcomes*” (Pettigrew, 1997:340). These require that research designs build in outline comparators such as the differential pace of change, high and low performers or fast and slow change processes. Dawson (1997) cautions that to accurately predict the process and outcomes of large scale change is to foresee the future – something which is beyond the scope of processual research. This type of research can question many of the taken-for-granted assumptions about change and allow issues to be surfaced that previously had remained hidden.

From reviews of the pertinent literature and experience Langley (1999) describes seven strategies for sense making from process research. The term sense making is used by Langley (1999) to imply that a variety of ‘senses’ or theoretical understandings may legitimately emerge from the same data. Each strategy provides an anchor point that helps structure the material and address the complexity of the data (Langley, 1999). They are further analysed in terms of their capacity to generate theory that is accurate, parsimonious, general and useful. There are also tradeoffs that need to be made in the seven sense making strategies as regards accuracy, generality and simplicity (Weick, 1979). Each strategy tends to favour different types of process understanding. Some strategies are orientated more toward the meaning of process while others are more concerned with prediction (Langley, 1999). Pozzebon and Pinsonneault, (2001) further differentiate these sense making strategies into three groups (i) grounding, (ii) organising and (iii) replicating. The sense

making strategies and their relative data needs, in terms of depth of process detail and breadth of the number of cases, as well as the extent to which each strategy deals with the characteristics of process data are summarised in Table 6.

**Table 6. Sense Making Strategies (After Langley, 1999; and Pozzebon and Pinsonneault, 2001)**

Strategy	Key Anchor Points	Specific Data Needs	“Good theory” dimensions of Weick (1979)	Form of Sense Making
<b>Grounding</b>				
<i>Strategies</i>				
Grounded Theory Strategy	Incidents (units of text), categories	Needs detail on many similar incidences. Could be different processes or individual analysis of one case	High accuracy, moderate simplicity. May be difficult to go from substantive theory to a more general level	Meanings, patterns
Alternate Templates Strategy	Theories	One case enough. Degrees of freedom come from multiple templates	Each theory can be simple and general	Mechanisms
<b>Organising</b>				
<i>Strategies</i>				
Narrative Strategy	Time	One or a few cases. Can be helped by comparison	High accuracy, low simplicity and generality	Stories, meanings
Visual mapping strategy	Events, orderings	Needs several cases in moderate level of detail to begin generating patterns (5-10 or more)	Moderate levels of accuracy, simplicity and generality	Patterns
<b>Replicating</b>				
<i>Strategies</i>				
Temporal Bracketing Strategy	Phases	One or two detailed cases is sufficient if processes have several phases used for replication	Accuracy depends on adequacy of temporal decomposition. Moderate simplicity and generality	Mechanisms
Quantification Strategy	Events, outcomes	Needs many similar events for statistical analysis: one or a few dense cases	High simplicity, potentially high generality, modest accuracy	Patterns
Synthetic Strategy	Processes (eg, decisions, change efforts, new products)	Needs enough cases (5+) to generate convincing relationships. Moderate level of detail needed for internal validity	Modest accuracy. Can produce simple and moderately general theories	Prediction

Depending on which type of sense making is applied in process studies the product of data collection and analysis in an inductive research design can be any of the following approaches to theorizing:

The construction of a detailed story or narrative from the data. The plot is not intrinsic to the event but imposed on the events by the author (White, 1973 cited in Langley, 1999). This plot arises from creating, clarifying, sustaining and modifying our version of reality (Brown, 1998). These descriptive narratives are the traditional tool of the ethnographer and they play a key role in studies of cultural change (Van Maanan, 1983; Langley, 1999). Narrative can be used for different purposes depending on the objectives of the researcher. It can provide a chronology for subsequent analysis or be the main product of the research. The aim is to achieve understanding of organisational phenomena not through formal propositions but by providing '*vicarious experience*' of a real setting in all its richness and complexity (Lincoln and Guba, 1985:359).

A grounded theory is delivered which involves the systematic comparison of small units of data (incidents) and the gradual construction of a system of categories of the phenomena being observed. These categories may have sub categories and associated dimensions and properties, which are gradually elaborated and refined as specific incidents are examined, systematically coded, and compared. As the categories are developed the researcher deliberately seeks out data that will enable verification of the properties of emerging category systems. The analysis should eventually result in the identification of a small number of 'core categories', which serve to tightly integrate all the theoretical concepts into a coherent whole, firmly rooted (grounded) in the original evidence (Langley, 1999).

Process data can also be analysed through visual mapping or graphical representation. This strategy allows the presentation of large quantities of information in relatively little space, and they can be useful tools for the development and verification of theoretical ideas (Langley, 1999). The two essential characteristics of models are concepts and relationships. Such models are not a theory but an intermediary step between the raw data and a more abstract conceptualisation. To elicit a more general understanding several such representations could be compared to look for common sequences of events and common progressions in sources of influence. To elaborate a more general theory one might

compare and integrate several such causal maps (Langley, 1999). The range of possibilities for mapping depends on the researcher's objectives and creativity (Newman and Robey, 1992).

In generating predictive theory through a synthetic strategy the researcher takes the process as a whole as a unit of analysis and attempts to construct global measures from the detailed event data to describe it. The researcher then uses these measures to compare different processes and to identify regularities that will form the basis of a predictive theory relating holistic process characteristics to other variables such as outcomes and contexts. When this strategy is used, the original process data are transformed from stories composed of 'events' to 'variables' that synthesize their critical components. The emerging models are 'variance theories' not 'process theories' (Eisenhardt and Bourgeois, 1988; Eisenhardt, 1989; Bryson and Bromiley 1993, cited in Langley, 1999).

Using the alternate templates strategy the researcher proposes several alternative interpretations of the same events based on different, but internally coherent sets of a priori theoretical premises. The extent to which each theoretical template contributes to a satisfactory explanation is then assessed. This strategy draws theory from outside the data and is essentially deductive. The different interpretations are less like true tests of theory and more like alternate complementary readings that focus on different variables and levels of analysis and reveal different types of dynamics (Langley, 1999).

Temporal decomposition offers further opportunities for structuring process analysis and sense making. It permits the constitution of comparative units of analysis for the exploration and replication of theoretical ideas. This can be particularly useful if there is some likelihood that feedback mechanisms, mutual shaping, or multidirectional causality will be incorporated into the theorization (Langley, 1999). The strategy is called "bracketing" in reference to Giddens's (1984) structuration theory.

#### 4.7 Making Methodological Choices

The connections between the collection and analysis of data and the development of theory is a step that transcends any deliberate sense-making that the researcher might apply which relies on the insight, imagination and interpretation of the researcher to produce synthesis (Langley, 1999). The research needs guidance when facing difficult decisions or overwhelmed by the volume of data likely to be accumulated in qualitative research. Although case studies and ethnography could provide needed insight this would be at great cost in terms of the researcher's time. Methods have been suggested for performing a case study research (Yin, 1984) and building theories from case studies (Eisenhard, 1989). Inducing theory from qualitative data is adaptive and highly iterative; neither of these methods suggests the complexity arising from the improvisation and opportunism required when investigating a poorly understood problem (Carroll and Swatman, 2000). The role of the CIO in the IS strategy process in this research is such a problem. There are also practical difficulties of immersion in context, ethnography could not provide the breadth of data that would be acquired across many CIOs.

Although sharing practice is about sharing know how, this is hard to share in any way than through practice itself (Balogun et al, 2003). Action research; however, encourages intervention in the research through real-time involvement. Although there can be different aims as indicated in section 4.5.3, the starting point is an existing theory or framework of ideas that can be applied through a methodology in an area of application. The outcomes include learning in all three areas and improvement in the problem situation for the problem owner (Checkland and Scholes, 1990). However, there was no existing theory on which to build. There were also ethical issues of intervening in the CIOs' practices across a number of organisations. Many action research projects are disengaged before general conclusions are reached. Others last for considerable periods of time and become as time consuming as ethnographic studies, if not more demanding (Balogun et al, 2003). Crucially, despite the critical importance of theory evolution to the scientific rigor of action research, little attention has been devoted to the exact processes by which such theories are cyclically developed during the course of action research (Baskerville and Pries-Heje, 1999).



Like most qualitative research, grounded theory is implicitly longitudinal, an essential characteristic when examining strategizing (Balogun et al, 2003). The focus of the research is on the unfolding of the social process associated with the activities of the CIO in context. Grounded theory research findings are applicable only to the substantive settings, and because they are implicitly longitudinal they have much in common with case study research. One of the ways of making a process more readily identifiable is to use data that are continuous over time. Unstructured retrospective interviews in which participants tell their stories about an event from beginning to end are a natural foundation on which researchers may identify processes (Morse, 2000). Grounded theorising is well suited to capturing the interpretive experiences of managers and developing theoretical propositions from them. It facilitates comparison across sites and data can be collected at multiple organisational levels (Balogun et al, 2003). Grounded theory is also appropriate when the research focus is explanatory, contextual and process orientated (Eisenhardt, 1989), it has also been used in recent IS research (Urquhart, 1997; Galal 2001). A deeper consideration of the ontological and epistemological basis of the grounded theory methodology is now required to further consider its suitability to investigate the role of the CIO in the IS strategy process in public healthcare organisations.

#### **4.8 The Grounded Theory Methodology**

The grounded theory methodology (GTM) appeared as a counter to the prevailing practice in social science research of focusing on the testing and verification of existing theories rather than the generation of new ones. The originators of GTM, sociologists Glaser and Strauss (1967) believed that theories should be grounded in data from the field, not based on an a priori theoretical orientation. They contend that generating new theories from data in a reliable and systematic way is just as important as verifying existing ones. They also stress that the quality and validity of a theory cannot be divorced from the way it is generated. The way we answer the ontological question then shapes our answer to the epistemological question which then shapes our answer to the methodological question (Annells, 1996).

GTM emerged from the symbolic interaction tradition of social psychology and sociology (Chenitz and Swanson, 1986). Symbolic interactionism is both a theory about human behaviour and an approach to inquiring about human conduct and group behaviour which

assumes that human action depends upon the meanings that people ascribe to their situations (Charmaz, 1990). It is a micro-sociological theory as it does not deal with larger questions concerning the shape of society; it tackles the question of the individual in society and the relationships between individual perceptions, collective action, and society (Annells, 1996). As such:

*“It is imperative that the philosophical basis of grounded theory method should be considered and evaluated for congruence with the inquiry paradigm to which the research subscribes, or at least to which he or she has a comfortable ‘fit’ personally”* (Annells, 1996: 380).

Bryant (2003) sees a consistent positivist strand running through the grounded theory literature from the 1960's to the present and that the principles and its characterisation of scientific discovery are completely in tune with the standard positivist orthodoxy of the 1960's. This he argues may have been understandable in the 1960's when GTM first appeared; but is less tenable in recent years without at least engaging with the critiques of positivism. Charmaz (2000) also distinguishes between objectivist and constructivist or interpretive concepts of the GTM. The objectivist view assumes the reality of an external world, takes for granted a neutral observer, and views categories as derived from data. In recent years positivism has been extensively critiqued in the IS literature. The constructivist or interpretive paradigm of inquiry perceives the nature of reality as a local and specific mental construction formed by a person and many constructions exist regarding perceived reality.

*“Therefore, the knower is subjectively and interactively linked in relationship to what can be known. Methodologically, the researcher engages in an enquiry process that creates knowledge through interpreted constructions dialectically transacted, thus aiming for more informed and sophisticated consensus constructions to provide a reconstructive understanding of a phenomenon”* Annells (1996:385).

With GTM the answers to these ontological, epistemological and methodological questions are ambivalent; more over, they have shifted over time (Dey, 1999). The issue of whether grounded theory has evolved or eroded because of this is a matter of ideology (Stern,

1994). The originators of GTM diverge in their views with Glaser's claim of grounded theory that theory "really exists in the data" against Strauss and Corbin's later insistence that reality "*cannot actually be known, but is always interpreted*" (Annells, 1996: 385). Gasson (2002) summarises the divergence as a conflict between whether the work should be defended from a positivist or interpretive perspective. There is a growing use of qualitative methods in IS. There is also a growing appreciation of the social nature of IS, which has led to increasing emphasis on human interpretation and meaning (Howcroft and Hughes, 1999).

#### **4.8.1 Interpretive Grounded Theory**

It is important to distinguish between the terms 'grounded theory' and 'the grounded theory method'. A grounded theory is a theory that has been generated or discovered according to the principles set out by Glaser and Strauss (1967). Methodology provides the link between epistemology and the conduct of the research. The GTM refers to the principles and procedures followed to arrive at a grounded theory. The social phenomenon under investigation in this thesis is the role of the CIO in the IS strategy process in public healthcare organisations. It focuses on the meaning and understanding of this practice rather than objective truth, and was therefore inclined towards an interpretive approach to grounded theory (Charmaz, 2000). Bryant (2003) argues GTM is particularly suited to IS research, where it proceeds from an anti-positivist orientation that sees truth as socially constructed and sustained and where representation is viewed as distributed, systems phenomena. It is an effective and appropriate way of researching emerging phenomena in its own organisational and human context (Van de Ven and Poole, 1989).

#### 4.8.2 Rationale for Selecting GTM

The potential strength of any approach depends on how the researcher attends to the potential weaknesses of the method. Thus a clear research design should be established in order to clarify how the research was carried out; how the data was collected, how theory and empirical data were linked, and how the conclusions were reached. At the beginning of this research there was no theoretical structure for the role of the CIO in the IS strategy process to interpret data. I therefore need to build theory by engaging with the data and attempting to understand it. Deductive approaches; however, work in the opposite direction, here established theory imposes itself on the data. It provides a framework for interpretation. Deductive approaches lend themselves predominantly to quantitative data and theory testing. In process research it would seem that an inductive research design is to be preferred over a deductive design (Langley, 1999; Smith 2002,), putting the emphasis in research method on data analysis with the goal of generating theoretical propositions.

GTM is aimed at discovering theory. The theory that is derived from GTM is typically a substantive mid-range theory. That is, it is usually focused on a behavioural concept or an interesting behavioural phenomenon (Morse, 2001). The understanding of processes, strategies, types and the like is its purpose. People, places and events are seen as the agents that carry processes, reveal strategies and indicate types (Glaser, 1978). It is an inductive, theory discovery methodology that allows the researcher to develop a theoretical account of the general features of a topic while simultaneously grounding the account in empirical observations or data (Martin and Turner, 1986). It promotes the development of theoretical accounts which conform closely to the situations being observed, so that the theory is likely to be intelligible to and usable by those in the situations observed, and is open to comment and correction by them (Turner, 1983). In contrast to quantitative methods, in which the researcher is the expert, in GTM the researcher defers to the experience of the participant, who has experience with the phenomenon of study. Although the grounded theory researcher carefully examines and considers the participants' expressed meanings he/she assumes final responsibility for their interpretation. The findings reflect the theoretical formulation. It can also contribute to practice by providing 'conceptual grab' to knowledgeable people in the substantive area, providing a superior understanding of their

own situation (Martin and Turner, 1986; Glaser, 1998). The method also values the professional experience of the researcher (Glaser, 1998; Urquhart, 2001).

Strategy, being an elusive concept, (Ansoff 1987; Mintzberg and Quinn, 1991), requires empirical investigation to gain a deeper insight of the phenomenon and the meaning it has for those who experience it. Such an investigation lends itself to the grounded theory style of inquiry. The GTM seemed particularly useful here given the nature of the role of the CIO and its high levels of complexity, uncertainty and instability as both a reason of the lack of extant theory, and strong rationale to try to develop theory which explains and illuminates the praxis of CIOs in IS strategy. GTM allows a focus on contextual and processual elements as well as the action of the key participants associated with the IS strategy process, elements that would be lost if the study relied on variance models and cross sectional, quantitative data (Orlikowski, 1993).

The method uses primarily but not exclusively qualitative data (Gasson, 2002). Underlying grounded theory research is the assumption that all of the concepts that pertain to the phenomena have not been identified or the relationships between the concepts are not well understood or conceptually developed (Strauss and Corbin, 1990). In IS research it is mainly used within an interpretive context (Toraskar, 1991; Orlikowski, 1993; Urquhart, 1999, 2000, 2001; Baskerville and Pries-Heje, 1999; Trauth, 2000) although more positivist studies (Adams and Sasse, 1999) have been undertaken. The method draws from the positivist approach by systematic and rigorous coding processes which help to eliminate speculative unfounded assumptions (Strauss and Corbin, 1990; 1998). *“Grounded theory is discovered, developed and provisionally verified through systematic data collection and analysis of data pertaining to the phenomenon”* (Strauss and Corbin, 1990:23). It is a general style of doing analysis which does not depend on particular disciplinary perspectives (Strauss, 1987) and therefore would seem to lend itself to IS research which can be described as a hybrid discipline (Urquhart, 2000).

A major premise of grounded theory is that to produce accurate and useful results, the complexities of the organizational context have to be incorporated into an understanding of the phenomenon, rather than be simplified or ignored (Martin and Turner, 1986; Pettigrew, 1990). A grounded theory identifies the key constructs, or categories of a phenomenon,

their relationships, and the context and process. *“Grounded theory facilitates the generation of theories of process, sequence, and change pertaining to organizations, positions, and social interaction”* (Glaser and Strauss, 1967:114).

The characteristics of grounded theory, inductive, contextual, and processual fit with the interpretive (Orlikowski, 1993) rather than positivist orientation of this research (Orlikowski, 1993). The methodology of grounded theory is iterative, requiring a steady movement between concept and data, as well as comparative, requiring a constant comparison across types of evidence to control the conceptual level and scope of the emerging theory.

*“This provides an opportunity to examine continuous processes in context in order to draw out the significance of various levels of analysis and thereby reveal the multiple sources of loops of causation and connectivity so crucial to identifying and explaining patterns in the process of change”* (Pettigrew, 1989:14)

This research takes the view that grounded theory is best regarded as a general theory of scientific method concerned with the detection and explanation of social phenomena. To this end, GTM is reconstructed as a problem-orientated endeavour in which theories are abductively generated from robust data patterns, elaborated through the construction of plausible models, and justified in terms of their explanatory coherence. The theories developed through the method are interpretations made from given perspectives as adopted by a researcher who needs to remain open to the essential provisional character of every theory (O’Callaghan, 1996). The qualitative nature of the paradigm focuses on the search for meaning and understanding to build innovative theory and not universal laws.

The theory discovery process requires a different logic to that which drives deductive studies. In verificational studies there is a linear movement from question development, sample selection, data collection to data analysis. Once analysts have established their theoretical framework, they know what questions to ask, whom to ask them of, and generally, when they are going to analyse the data. In grounded theory; however, these stages occur simultaneously, so questions are constantly changing, the sample selection is unpredictable, and analysis is constant throughout. Grounded theorists want to understand

how informants see the world. They want to know how they define the problem and how they seek to resolve it. The theory emerges through a tight connection between data and emergent theory. The data drives the emergent theory, but the emergent theory also drives the data collection. As the theory becomes more refined so does the data collection. The resultant theory is never really finished, rather it needs constant minor modification as new data emerges (Yee, 2001).

The GTM was chosen as an inductive, processual and grounded approach to investigating the research question. It provides the researcher with a structured method of making sure that the emerging theory is closely tied to and consistent with the empirical data. Effective use can be made of researcher time as it collects, organizes and analyses large and varied amounts of evidence over time, it is implicitly longitudinal.

#### **4.8.3 Literature and the Grounded Theory Method**

My own experience as a CIO encountering the practical problems of implementing IS strategy in a large healthcare organisation led me to first explore extensively the existing IS strategy literature for answers. The absence of existing theory, concerns about the role of the CIO in the IS strategy process and the stagnation in much of the IS strategy literature in turn compelled me to examine the general business strategy literature for clarity. In particular to find out more about strategy process and how I might answer the research question. For Glaser (1978), prior understanding should be based on the general problem area, reading very widely to alert or sensitise one to a wide range of possibilities; learning not to know is crucial to maintaining sensitivity to the data. It was with some concern and after a year of reading that I realised I may have compromised my ability to undertake GTM.

Glaser and Strauss, originators of GTM advise that the usual literature review should be omitted in favour of direct investigation of the phenomenon of concern. Glaser (especially 1978) recommends reading widely while avoiding the literature most closely related to what you are researching. The concern is that your reading may otherwise constrain your use of the method. It also helps to ensure that data analysis is based on the data and that pre-existing constructs do not shape the subsequent theory formation. Grounded theorists

should formulate their own interpretations and not be influenced by existing work. It was with some relief that I found the first of the contradictions and controversies in the use of GTM. Schrieber (2001) cautions few researchers approach a topic without some past experience or interest in it, nor can they unlearn or erase from their consciousness what is already known. Indeed she argues there are benefits in undertaking a literature review:

*“Conducting a formal literature review, the researcher can fully explicate many of the existing conceptualisations and sensitising concepts of the phenomenon under study and subject them to constant comparison with the data. Thus, the researcher uses constant comparison to scrutinise the literature for its fit with emerging concepts and theory to better ensure the rigor of the findings (Schreiber, 2001:58).*

The literature reviews in chapters two and three provide a means to locate the research within the relevant fields of literature. The reviews also provide reassurance that there was no existing theory that addressed the research question.

In the later stages of GTM the emerging theory reveals new findings which must be interpreted and explained using the relevant literature. This is the nature of grounded theory where reading and integrating literature is regarded as an important part of theory development (Charmaz, 1990). Literature is accessed as it becomes relevant. Agreements and disagreement between the emerging theory and the literature are explored in order to extend the theory so that it makes sense of both the data from the research and the data from the literature. The relevant literature may not be accessed previously, rather once a substantive theory emerges it must be compared with a more focused set of literature (Urquhart, 2000).



#### 4.8.4 Researcher-Practitioner Bias

In interpretive research the researcher is the primary means for gathering and analysing data, therefore the researcher can never assume a value neutral stance in the relationship between theory and practice, and is always implicated in the phenomena being studied (Orlikowski and Baroudi, 1991). Throughout the period of the research the researcher was working as a healthcare CIO. There was danger that my potential biases, preconceptions, values, experiences and judgements in this role and of the IS strategy process itself may influence the research. It was therefore important I remain aware of the dangers of possible effects on the research of sharing the same or different interpretive schema or paradigm as the interviewees. Guba and Lincoln (1981) argue that one means of protecting against these biases is by being alert to your subjective lens through conscious recognition and explicit statements in the research reports. Recording such biases reduces the potential affects of such bias and makes it easier for those evaluating the research to assess its objectivity. Appendix 1 summarises some key experiences and prior views and beliefs in an attempt to expose potential areas of bias. Such continuous self examination is not in the sense of bracketing or setting aside the researcher's ideas, but of bringing awareness, and examining closely, those ideas that may impact on the analysis and findings of the research (Mallory, 2001).

Although being a CIO might be considered a limitation of this research it is also responsible for generating richness in the analysis of the data. I was academically and professionally interested in the research and its outcomes. Having worked as a healthcare CIO for a number of years I had a good appreciation of the cultures and sub cultures within such organisations. I understood fully the terminology used by CIOs which provided me with a context within which conceptualisation of the data could take place. GTM also provides a means to deal with my experience, controlling the risk of introducing bias into the study. This control is achieved through a key step in the GTM, the constant comparative method, which compels the researcher to state their assumptions and their own knowledge as data in the form of memos, diagrams and self interview and compare these with data from the study. The constant comparison of incidents then validates, modifies, or rejects the expert researchers' observations (Fernandez, 2004).

According to Strauss and Corbin (1990) an advantage of practitioners who enquire into issues related to their own professional practice is that of increased depth, and the possibility to challenge data uncovered with a critical eye. In this way it can represent a source of theoretical sensitivity, the ability to generate concepts from data (Strauss and Corbin, 1990). Several researchers have undertaken grounded theory doctoral theses in organisation or industry sectors in which they work (Kriflic, 2002). This provided further encouragement and momentum to use the approach. I had no experience of GTM prior to this research and there is a shortage of literature in the form of practical guidance on the 'how to' of grounded theory (Urquart, 2001). Grounded theory studies also constitute a minority group within IS research. Glaser (1998) suggests that researchers should stop talking about GTM and get on with doing it. I decided to learn by doing and entered the world of grounded theory.

#### **4.9 Conclusions**

In this chapter the links between ontology, epistemology, methodology and method are discussed. These are important and need to be observed when generating a grounded theory in order that research rigour is maintained. Methodology is how the inquirer should go about finding out whatever he or she believes can be known. It provides guiding principles that help inform decisions about procedure and research strategy.

The primary laboratory for IS research is the organisation, where the development and use of technical artefacts can be studied in-context and the resulting research findings used to inform both the practice and theory of IS. However, in conducting in-context research it is possible for researchers to find themselves caught in an uncomfortable space, falling between research traditions that have different notions of relevance and rigor as well as different research methods (Braa and Vidgen, 1997). Answering the research question requires capturing the interpretive experiences of CIOs in the IS strategy process over time and in context. The nature of the CIO role and its concomitant high levels of complexity and uncertainty is both a cause of the lack of extant theory and a strong reason to develop theory which matches their practice.

Process studies are concerned with describing, analysing and explaining the what, why and how of some sequence of individual and collective action over time. The study of events and activities over time are crucial in any process analysis (Pettigrew, 1997). To understand how and why events and activities play out over time, we must examine them directly. Opening the boundaries of strategy process research to integrate practitioners is a way to increase the relevance, diversity and applicability of the research (Pettigrew et al, 2001a). Examination of the various means of making sense from process data found the GTM to be an appropriate research tool to investigate and elucidate understanding of the practice of CIOs in the IS strategy process. The research is aimed at understanding and meaning rather than objective truth; GTM was therefore undertaken using an interpretive ontology and an interpretative epistemology (Charmaz, 2000). In the following chapter I describe the practice of the grounded theory methodology in the research process, the actions I took and the new appreciations reached.

## CHAPTER 5

### THE GROUNDED THEORY METHOD IN PRACTICE

#### 5.1 Introduction

A review of the IS strategy literature in chapter three showed that no previous theory exists which accounts for the role of the CIO in the IS strategy process. Chapter four discussed the paradigms of enquiry appropriate for researching the IS domain and possible strategies for investigating process. The grounded theory and method of Glaser and Strauss (1967) was shown as appropriate to answering the research question and developing a theory for the role of the CIO in the IS strategy process. This chapter discusses how the research was carried out in practice using interpretive or constructivist GTM.

The chapter is mainly descriptive, outlining the practical aspects of data collection and analysis in GTM. I present my actual experiences of the research process as opposed to the ones I may have anticipated or would have preferred, going beyond description of analytical method and elaborating via reflection in action (Norton, 1999 citing Cocklin, 1993). I describe in detail what I did and how I did it. The purpose is to prepare the reader for the findings that follow in chapter six and provide a general framework from which one can judge the quality of the research itself. I expose the mechanics of the grounded theory research process and the use of memos and diagramming as essential aides to the coding of themes, as well as the abstractions and explanations which facilitate the emerging theory. The use of ideal types (Weber, 1962) to elaborate the structuring and development of the data into the theoretical explanatory typology is also discussed. Throughout the chapter I endeavour to let the reader see not only how I did things but also why I did things. I also reflect on the rigour of the research and the validity of the findings. This is especially important in qualitative research to enable the reader to evaluate issues of reliability, validity and generalisability – after all the reader is part of the construction. I reflect on those features of the methodology that I found challenging as a novice user. In particular the schism that emerged between its founders Glaser and Strauss that led to two

substantially different approaches to the use of the GTM. The chapter closes by reflecting on the use interpretive GTM in practice (Charmaz, 2000; Bryant, 2002, 2003).

## 5.2 Data Collection

The mantra in grounded theory is everything is data. By starting with data from the lived experience of the research participants the researcher can, from the beginning of the study attend to how informants construct their worlds (Charmaz, 1990). In process research, data is collected in the form of incidents. An incident consists of an action or an actor doing something. This means that the basic form a recorded incident takes is similar to a combination of a subject and verb phrase, where possible a time reference is recorded with every incident. In the case of process data, it is often impossible to collect all the incidents that make up the process. What you end up with is a specific sample of incidents that is collected from the process in context.

Direct observation of the CIO engaging in the IS strategy process as a data collection method was not feasible in this process research because of the large number of individual incidents that would have to be recorded throughout the IS strategy process. Also, recording the role of the CIO in the IS strategy process in a number of organisations would be a daunting task for the observer to keep up with and would require prolonged immersion in the field. This would require extensive participant observation and is not adopted. It may even be unnecessary as IS strategies tend to remain stable over a long period of time (Waema, 1990). There are also possible sources of systematic error, if you are sensed by a social system, you are part of it, and when you are part of it you affect it (Van de Ven and Huber, 1990). In this case there were also issues of confidentiality and inhibition as a fellow healthcare CIO observing other CIOs in practice. I therefore decided to collect data retrospectively from the following main sources, interviews and IS strategy documentation. These were also used to provide an account of the IS strategy process and activities of the CIO in and responding to these events. The CIOs were asked about their current IS strategy process. Interviewing is often used as a data collection method in process research (Dawson, 1997, Leonard-Barton, 1990). The subsequent interviews are aimed at capturing what happened, when it happened, why it happened, how things happened and what the consequences were (Siminia, 2005).

### 5.2.1 Selecting the Data Sources

The CIO was selected as the most appropriate person to interview. Participants were selected that had knowledge of the domain under study, as they are able to “*tell a lot and give the researcher a feeling for the main concerns*” (Glaser, 2001:181). Morse (2000a) advises that only those who have the most experience of the social process under investigation. From the researcher’s own experience of healthcare organisations and the academic literature CIOs are the most knowledgeable about the IS management practices of their organisation (Premkumar and King, 1992; Grover et al, 1993; Earl and Feeney, 2000, Broadbent and Kitzis, 2005). The research relies on the attitudes, beliefs and perceptions of the CIOs interviewed (Bajjalay, 1998), which facilitates understanding and meaning rather than generalising findings to a specific population (Riley, 1996).

Sampling is as much an issue in process research as in social survey-based studies (Calnan and Ferlie, 2003). The size of the population cannot be established a priori (Morse, 2000a), and much depends on the scope and complexity of the study. The units of analysis are not predetermined and are not known until the data analysis begins. The scope and complexity of the study, the quality of the data obtained, how reflective and forthcoming the informants are, and other parameters such as the type of healthcare organisation (acute, community or health board) were also taken into account in selecting informants (Schreiber, 2001). The research takes place using data and informants from healthcare organisations in a region of the United Kingdom NHS, the Northern Ireland Department of Health, Social Services and Public Safety (DHSSPS). A further discussion of the context and findings takes place in chapter six.

In collecting the research data there is a trade off between the breadth versus the depth of data obtained. I decided to focus on the CIO’s perspective of the IS strategy process interviewing as many as indicated by the GTM data analysis. To guard against self reporting members of the SMT to whom the CIO reported were also interviewed. These participants provided an opportunity to confirm or disconfirm what the CIOs were telling me. A deeper view of the phenomenon may have been obtained by collecting data from other possible participants such as senior functional and clinical peers of the CIO, IT staff reporting to the CIO, vendors and users of the IS strategy. This approach would, however,

significantly increased the number of interviews within each participating organisation at the expense of greater breadth in terms of the number of CIOs that could be interviewed across a greater number of organisations.

The first phase of interviews was undertaken over a consecutive six-month period from February 2003 to September 2003. The criteria for inclusion into the interview schedule were that the healthcare organisation had an established IT/IS department with a CIO or senior IS/IT executive that is responsible for the formulation and implementation of IS strategy. Eighteen CIOs were contacted by a phone call and asked would they be willing to participate in the study. Follow up emails were sent to arrange suitable meeting times. Of the eighteen CIOs approached twelve were interviewed. In order to reduce the effects of self reporting, members of the executive team with line management responsibility for the senior IT executive were also interviewed as:

*“Multiple informants offer the researcher an even deeper trade off of breadth versus depth of understanding of processes and outcomes of cases, the chance to test (not just to develop) hypotheses, and a good picture of locally grounded causality”* (Miles and Huberman, 1994:26)

Care was taken to acknowledge the existence of multiple perspectives, which is an important issue for interpretive research (Checkland, 1981; Klein and Myers, 1999). Interviewing directors to whom the CIO reported allowed sensitivity to the possibility of different accounts of ‘reality’. Four directors interviewed in the first phase of research were Directors of Business and Planning (two), a Director of Clinical Services and a Director of Information and Planning, all had line management responsibility for their senior IS executive or CIO. In order to minimise the effects research biases could have on the interpretation of the data my assumptions and frameworks are made explicit. The research takes an interpretive stance, that the phenomenon cannot be defined objectively, according to a set of absolute criteria, but must be defined from a specified point of view, in this case the CIO. According to interpretive grounded theory, knowledge is seen as actively and socially constructed with meanings of existence only relevant to an experiential world (Goulding, 1998).

In all sixteen informants (twelve CIOs and four Directors) from twelve Northern Ireland DHSSPS healthcare organisations agreed to take part in semi structured interviews. These were followed by a second phase of nine interviews guided by the emerging theory. Appendix 2 shows the list of all the informants, their job titles and organisations that were interviewed in the course of the research. Throughout the interviews the experience of CIOs as practitioners was an important source of information, which could provide insight into the complexities and interactions experienced in their practice. All the CIOs with one exception had over ten years experience in the role and were from Acute hospital Trusts, Primary care Trusts and Health boards. The CIOs in the different healthcare organisations were used as informants to trace the IS strategy process and articulate their role in shaping this process. I explained at the start of the interviews what I was doing and why. The conduct of the interviews acknowledged that those taking part in the research were knowing participants. This awareness provided a source of data and questions based on reciprocal understanding and added a dimension of meaningful research involving human actors which requires the full understanding and cooperation of the participants (Lincoln and Guba, 1985). The informant was encouraged to say if there were any questions concerning the strategy process that they did not recall. The importance and personal relevance of IS strategy to CIOs as a 'high profile activity', their high involvement both behaviourally and cognitively ensured clear recollection of their actions (Golden, 1992).

There was a degree of reciprocity that derived from the interviewer also being a CIO and a commitment to maintain the integrity of the informants' experience of their actions in the IS strategy process. I was careful not to affect the participants' interpretations of questions, nor lead them in a response. Interviews lasted from one hour to over two hours though typically lasting 90 minutes. Schreiber (2001) advises novices in GTM to develop either a draft interview schedule or a list of topics to be covered to provide a quick reference and initial guide to data collection. In early interviews I relied on semi-structured general questions designed to try and capture the experiences of the interviewees from their perspective. The questions were derived from reading the IS strategy literature and ideas or hunches I had concerning the role of the CIO in the IS strategy process. There was no direct correlation between these questions and the theory that emerged. Rather they were used to frame the questioning in order to get the interview dialogue underway. I was careful not to impose the schedule structure on the answers to ensure the quality of the data



obtained. Once the participant explained the full story in their own words, probe questions (“anything else”) were asked. I also checked the interview schedule to see if anything had been missed. This approach prevents the researcher from foreclosing on the participant’s reality in favour of his or her own anticipated agenda (Schreiber, 2001).

I often knew the informants in a professional capacity that helped to facilitate access to the informants, their organisations and insights. When there was any confusion or ambiguity over what was said during the interviews this was followed up by a phone call or email as soon as possible afterwards. I also had the opportunity to use informal discussions and conversations at regional meetings of CIOs from healthcare Trusts to raise again any issues I needed clarified. As the interviews progressed, the questions evolved to provide uniform prompts to ensure consistency, with increased experience more open-ended interviews were adopted to encourage participants to talk freely and openly (Gioia and Thomas, 1996), reflecting upon the issues they perceived as important (Langley, 1999). In the subsequent interviews the original interview schedule was abandoned. I was confident I could follow the activities of the CIO in the IS strategy process on the basis of the theory that was emerging. The ability to do this also increases the likelihood that the data comes from the informants’ experiences, not from the structured questions I ask. The researcher draws key questions from the data analysis to promote theory development. This free report format allowed informants to talk as little or as much as they liked about a topic and helps ensure greater accuracy of interview data (Miller et al, 1997).

Although retrospective interviews can suffer from problems of self-justification and errors of recall, these can be minimised if the process is important to or closely involves the interviewee in the process, or the process occurred recently (Glick et al, 1990). The questions were content guided based on the emergent theory’s categories as the research generates properties of those categories. After the analysis of the first few interviews the questions began to change to start verifying and saturating categories and filling conceptual gaps until the emergent theory I developed became the guide. Throughout I interpret the meanings, experiences, events and reality of the phenomena under study.

### 5.2.2 Secondary Data

Two major regional strategy documents covering the periods 1997-2002 and 2002-2007 were also analysed. In addition the researcher had access to the data from correspondence, minutes of strategy meetings, workshops, strategy reports and documentation of both these regional strategies that were examined<sup>9</sup>. Other strategy documentation was also used; all these sources are shown in Appendix 3. The variety of sources is designed to counteract the bias potentially resulting from relying on a single data source (Eisenhardt, 1989), particularly where retrospective analysis is involved (Golden, 1997). Multiple sources also furnish the breadth of information needed to develop a relatively holistic picture of strategy as practice (Jick, 1979; Pettigrew, 1990; Jarzabkowski, 2003). Good grounded theories are built on a variety of data sources and perspectives on the topic, but the choice of data source is determined and directed by the emerging theory (Schreiber, 2001).

### 5.2.3 Recording the Data

My first approaches to CIOs indicated an unwillingness to have the interviews taped. Yet, taping and transcribing interviews is almost a dogma in qualitative research. However, Glaser (1998) argues against taping, suggesting time could be better spent doing twice as many interviews, and subjecting them to data analysis. Grounded theory moves quickly when the researcher delimits data by field-noting interviews and soon after generates concepts that fit with data, are relevant and work in explaining what participants are doing to resolve their main concern. In GTM taping can even be counterproductive since you are not looking for details in the data, but major patterns of behaviour that repeat themselves. Grounded theory is not a descriptive method aimed at verifying details but the goal is to generate theoretical concepts from the data (Glaser, 2001).

My experience and knowledge of public healthcare organisations indicated that in exploring sensitive areas, the respondents might only say what you want to hear or what is appropriate to say, and off-the-record data would be more valuable. I was still concerned

---

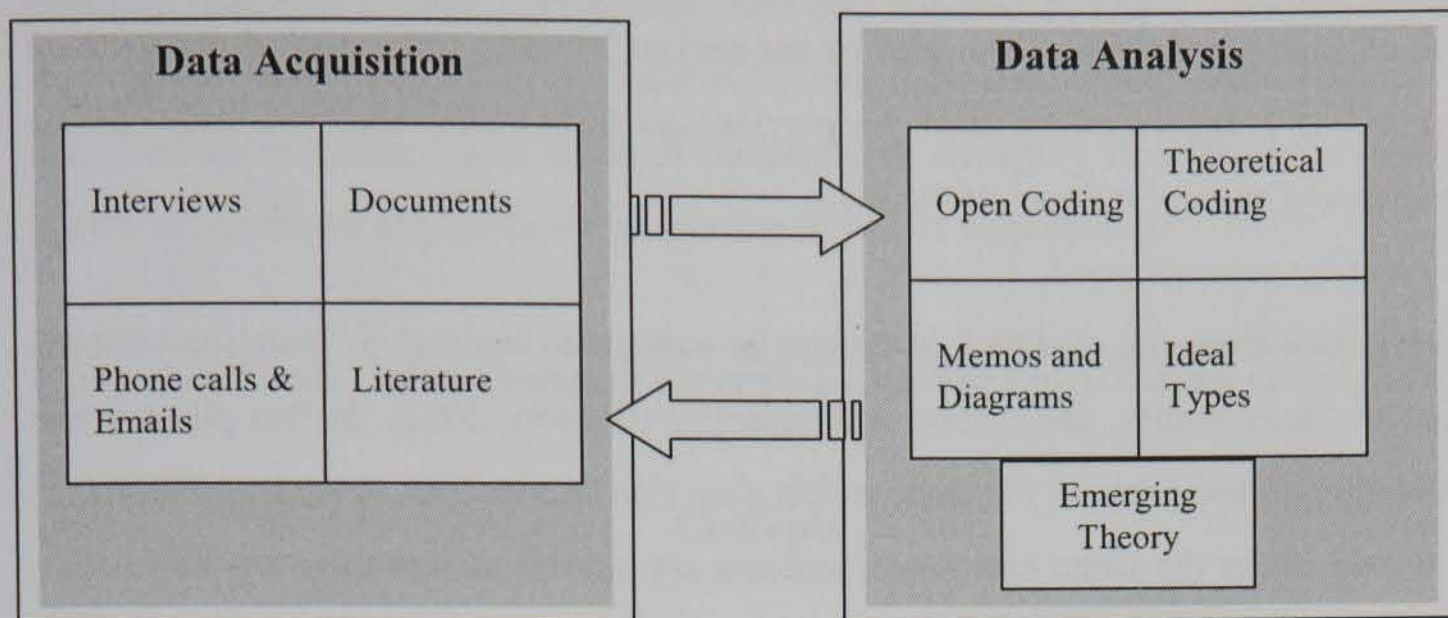
<sup>9</sup> The researcher was seconded along with colleagues in 1996-1997 to produce this regional IS strategy 'Growing not Building' see Appendix 3

about missing key elements of what was being said while I took notes of responses to questions. Glaser (1998) advises if you don't get the participants' responses and meanings right first not to worry, if these are really meaningful for the theory then the "missed" data will repeat itself in subsequent interviews. If it does not repeat itself, then the missed data is not part of a main pattern, and only a particularity. I had relatively easy access to the informants, so interviews were often followed up by phone calls and emails to resolve any issues not clear during the note taking and these too were subject to data analysis. Taking notes also encourage me to listen intently to the conversations and become deeply immersed in the data.

### **5.3 Data Analysis**

The purpose of grounded theory is to account for a pattern of behaviour that is relevant and problematic for those involved (Glaser, 1978). By analysing these patterns researchers can derive theory that is empirically valid (Glaser and Strauss, 1967; Martin and Turner, 1986). This is so because the theory building process is so intimately tied with evidence it is very likely that the resultant theory will be consistent with empirical observation (Eisenhardt, 1989). GTM theory involves simultaneous data collection and several phases of analysis performed in systematic steps. One of the distinguishing features of GTM is the manner in which the data collected is analysed. For analysis to proceed, the researcher must develop a facility for discerning abstractions in the material collected and for processing these abstractions at several levels of generality. It is also important to foster an ability to use what might be called "creative theoretical imagination". In Glaserian GTM discussed in section 5.3.3, there are two main coding stages, open or substantive coding and theoretical and or selective coding. The coding stages do not necessarily occur sequentially but each overlaps with the other and iterates throughout the research (Fernandez, 2004). Figure 9 gives a schematic overview of the data collection and analysis process in GTM. The coding stages are supported throughout with memos and diagrams to assist in the development of the emerging theory. Each of these steps is now discussed in more detail, where feasible illustrating from practice how they were accomplished.

**Figure 9. Iterative Data Collection and Analysis Activities (After Fernandez, 2004)**



### 5.3.1 Open coding

Open coding begins with a line by line examination of the data, allocating codes to words or groups of words. This phase of coding is about using the data to generate conceptual labels and categories for use in theory building. A concept is a labelled phenomenon, an abstract representation of an object, action/ interaction, or event that is significant in the data. The purpose is to expose theoretical possibilities in the data. I found it helpful to call this level one coding (Schreiber, 2001). Using only concepts or categories generated by the data ensures that they are grounded in the data, and that any concepts to be used in the theory have earned their conceptual status (Punch, 1998).

During the interviews notes were taken down the left side of the divided field notebook page. As soon as possible after the interview the data was coded on the right hand side of the page. The notes of the interviews were carefully examined selecting phrases, words and paragraphs that contain a unit of meaning. These were marked with a highlighter and transcribed onto the right hand side of the field notebook, the notes or transcripts are conceptualized line by line. In open coding, incidents or events are labelled and grouped together via constant comparison to form categories and properties. A category is a cluster of coded data (Stern, 1994) reflecting a type of concept (Glaser, 1992). A property is a type of concept that is a conceptual characteristic of a category, thus at a lower level than a category. A property is a concept of a concept (Glaser, 1992). Codes and categories are selected by the researchers' interpretations of the data; emergence is the process by which

codes and categories of the theory fit the data, not the process of fitting the data to predetermined codes and categories. Open or substantive coding is conceptualizing on the first level of abstraction. Where the goal of the analyst in open coding is *'to generate an emergent set of categories and their properties which fit, work and are relevant for integrating into a theory'* (Glaser, 1978:56).

Coding classifies elements of data into themes or categories looking for patterns between categories of commonality, association and causality (Gasson, 2002). In this phase I was conceptualising all incidents in the data, which gave rise to concepts. A series of incidents may be united under the same category. Incidents are similar in that they can be lumped together, but they may be different in that they represent divergent aspects of a given concept. Such divergent aspects are referred to as properties. The theory is delimited as I compare incident with incident and or incident with concept (Glaser, 1992). Appendix 4 shows an excerpt from the original open coding of interview notes.

In the beginning of a study everything is coded in order to find out about the problem and how it is being resolved. In GTM, it is necessary to delineate and specify the criteria used when approaching the transcribed interview data (Glaser, 1978; Strauss, 1987, Strauss and Corbin, 1990). The criteria built into my thinking were made explicit by asking questions such as:

- What is happening in the data?
- What does the action in the data represent?
- Is the conceptual label or code part of the informant's vocabulary?
- In what context is the code/ action used?
- Is the code related to another conceptual label or code?
- Is the code encompassed by a broader code?
- Are there codes that reflect similar patterns?

Conceptualization consists of isolating those concepts, which are the basic elements or rudiments of the future theory (Strauss and Corbin, 1990). The process of open coding leads to lists of coded concepts as the data collection and analysis progresses. Existing codes are used where possible, only adding new codes when new information not

previously uncovered appears in the data. As more data was collected the open coding concepts began to emerge. Eventually, over one hundred concepts emerged from sixteen first phase interviews that I undertook and analysed along with the IS strategy documentation. Examples of some of the concepts emerging from the interview data are shown in Figure 10 and further concepts are shown in Appendix 5.

**Figure 10. Examples of Concepts Emerging from the Open coding of the data**

Data	Concepts
Interviews	“Networking, forming relationships”
Strategy Documentation	“Managing relationships”
Phone Calls	“Networking with proactive staff”
Emails	“Giving impetus to users”
	“Using a champion”
	“Linking SMT with middle level staff”
	“Facilitating understanding and acceptance of ICT”
	“Establishing an IT steering group”
	“Documenting the IS strategy process”
	“Developing IS strategy from an information perspective”
	“Formulating the IS strategy”
	“Capturing a realistic, feasible vision”

### **5.3.2 Comparison and Conceptualization**

Grounded theory is the generation of emergent conceptualisations of data into integrated patterns, which are denoted by categories and their properties. This is achieved through the rigorous steps of grounded theory woven together by the constant comparison process (Glaser, 2002). The constant comparative method is central to the data analysis in generating grounded theory (Glaser and Strauss, 1967). Using this method, all codes are compared repeatedly within and between each other until the basic properties of a category or construct are defined. The researcher must continually ask whether the analysis of new data provides similar themes and categories to previous data, or whether patterns emerge. Constant comparison requires continual research into the meaning of the developing categories by further data collection and analysis. It is a process of looking for patterns in the data and then conceptualising them. Conceptualisation consists of isolating those concepts that are the most basic elements or rudiments of the future theory. Each property or quality of the phenomenon finds its place in the wider conceptual structure that will itself be a part of a specific category. As such every element of empirical data can be located and systematized with the categories.

### **5.3.3 Methodological Schisms**

I noted early on in the literature on grounded theory that there was an apparent schism between the originators of grounded theory (Stern, 1994; Kendall, 1999). This led to a dilemma at the beginning of the first phase of data analysis as to which version of GTM to use to analyse the data; the Glaserian or Straussian? The nature of the divergence is important for those seeking to use the method and indeed helped eventually to improve my understanding of GTM.

The fundamental differences between Glaser's and Strauss's approaches to GTM is that the Straussian approach proposes the utilisation of an additional coding paradigm called axial coding as an organising scheme to put the data back together again after open coding in new ways by making connections between categories and subcategories. This is done, Strauss and Corbin (1990) argue, through conceptual elaboration of categories by means of a coding paradigm denoting causal conditions, context, action/interactional strategies, and

consequences. I began using Strauss's version of the method at the start of the data analysis. The preliminary attempts to analyse the first interview using open and axial coding did not flow easily. I found constrained by the rules and procedures for conducting Straussian grounded theory. The data did not easily fit with their axial coding paradigm, it seemed formulaic and mechanistic.

Referring back to the literature Glaser takes exception to the guidelines systematically outlined by Strauss and Corbin (1990) in their text concerning the *modus operandi* they recommend for open, axial and selective coding strategies. In Glaser's view, this process can all too easily result in researchers missing the relevance of the data by forcing it into a preconceived framework. He believes that Strauss and Corbin's overemphasis on extracting detail from the data by means of a pre structured framework yields full conceptual description at the expense of theory development or generation. The Glaserian approach to grounded theory emphasises coding as a process of combining "*the analyst's scholarly knowledge and their research knowledge of the substantive field*" (Glaser 1978:70). It has to be realised ad hoc, which means that it has often to be conducted on the basis of a more or less implicit theoretical background knowledge (Kelle, 2005). Although the differences between these approaches may initially seem overstated or somewhat petty to readers of Glaser's text, they are paramount to an understanding of grounded theory and may have profound effects on how researchers conceptualize and operationalize the method.

The central differences between Glaser's and Strauss's versions of GTM hinges on both epistemological and methodological differences between these approaches. Glaser may be more deeply committed to principles and practices ordinarily associated with what can be loosely described as the qualitative paradigm. He seems to view the GTM as a more *laissez-faire* type of an operation which is inherently flexible and guided primarily by informants and their socially-constructed realities. To him, the informant's world should emerge naturally from the analysis with little effort or detailed attention to process on the part of the researcher. The constant comparative method can be used to produce either conceptualisations or rich descriptive accounts. The conceptualisation versus description debate is at the heart of the difference between Glaserian and Straussian approaches to grounded theory. While accepting the validity of the two approaches the discrepancies between them are substantial; especially in the use of Strauss and Corbin's 'axial coding'



(Glaser, 1992; Kendall, 1999) and the form and nature of the theoretical outcome (Straussian full description versus Glaserian abstract conceptualisation).

The main objective of my research was to generate a theory for the role of the CIO in the IS strategy process that accounts for the pattern of activities which explains the main concern of the participants which is relevant and problematic for those involved. The aim is not to produce full conceptual description, but rather of building a substantive theory to explain a pattern of activities. *"The Glaserian version of grounded theory generates theory from data which is relevant to the context and concerns of practitioners in the area and as a consequence is more likely to be intelligible to, and useable by, those in the situations observed"* (Locke, 2001:95). I thought my interpretive ontology and epistemology were compatible with GTM as described by Glaser. It was with some surprise that I read a comparatively recent article by Glaser (2002) well into my data analysis that attacked the notion of 'constructivist (or interpretive) grounded theory' warning of the dangers of *"forcing constructivist interpretations on the data in grounded theory which ultimately erodes grounded theory"* (Glaser, 2002:8). In a repost to this attack Bryant (2003) cogently argues that Glaser's response to an interpretive view of grounded theory indicates a position uninformed by what are now acknowledged to be key arguments about science, claims to knowledge, and representation that must be taken into account. Charmaz (2000) distinguishes between objectivist and constructivist concepts of the grounded theory. The latter *"recognizes that the viewer creates the data and ensuing analysis through interaction with the viewed"* (Charmaz, 2000:523) and therefore *"we can use grounded theory methods as flexible, heuristic strategies rather than formulaic procedures"* (Charmaz, 2003:25).

According to Bryant (2002) the problem with GTM in its standard forms, whether Glaser or Strauss, is that the method is offered in terms of both a qualitative interpretive one, and a good scientific one. Unfortunately the latter aspect of the grounded theory method has 'emerged' rather more strongly than the former, and it has done so in the guise of scientism and positivism. This obliterates the point that research involves researchers with their own assumptions, cultural backgrounds and so on. It is better to admit this and seek to explicate the process as one of dialogue rather than as some form of dispassionate engagement

(Bryant, 2002). Somewhat reassured I continued gathering and analysing the data using interpretive GTM.

#### **5.3.4 Memos and Diagrams**

In each of the coding stages I periodically stopped coding and recorded memos of my ideas. Recording memos helps elicit possible conflicts in the researcher's thinking and, more importantly helps to reveal theoretical ideas of the researcher, with the added advantage that these ideas are grounded in the data (Glaser and Strauss, 1967). In GTM memoing is the ongoing process of making notes of ideas and questions that occur to the analyst during the process of data collection and analysis, the grounded theorist uses memos for three purposes (Schreiber, 2001):

- To make explicit the researcher's pre-existing assumptions;
- To record methodological decisions; and
- To speculate and analyse the data.

Memos are used to augment the data with analytical ideas and as the primary record of data analysis. Glaser suggests they are the core stage of GTM (Glaser, 1998). They are the theorizing write-up of ideas about substantive codes and their theoretically coded relationships as they emerge during coding, collecting and analyzing data, and during memoing (Glaser, 1998). Memoing is also important in the early open coding phase of a grounded theory. They are important tools to both refine and keep track of ideas that develop when you compare incidents to incidents and then concepts to concepts in the evolving theory. Memos are used to keep track of insights and analytical ideas as they occur to the researcher during the data collection and analysis (Chiovitti and Piran, 2003). Memoing works as an accumulation of written ideas into a repository of ideas about concepts and how they relate to each other. This repository contains rich parts of what will later be the written theory. After each interview I recorded ideas and thoughts about the ongoing study, I maintained an awareness of the serendipity of the method that is also necessary to achieve good results. Explaining the researcher's own constructions of the phenomenon and acknowledging how these affected the inquiry is important in enhancing credibility. Appendix 6 shows an example of the memos used in this research. In memos I

develop ideas about naming concepts and relating them to each other. Relationships between concepts were conceptualised in diagrams or figures or whatever made the ideas flow, and generates comparative power.

I found diagramming an invaluable tool to help reflect on and understand the relationships between and among emerging concepts and categories. Network diagrams were used to articulate emergent theoretical concepts, so making them accessible for fitting with new data (Gasson, 2002). These diagrams are models that make explicit the relationship between various higher order categories, categories and category-properties. Network diagrams allowed me to develop, hierarchical and non hierarchical models that explain the data and make these models explicit to the reader and to the researcher (Gasson, 2002). Over 100 network diagrams were drawn and redrawn using Microsoft Powerpoint of the emerging categories, incidents and properties, arising from the interview notes and strategy documentation. I found these diagrams of considerable value to visualise and map the abstraction and conceptualisation of the data. Appendix 7 shows an example of a network diagram used to develop concepts and categories.

Other conceptual diagrams were used to more clearly show the holistic patterns emerging out of the data and which allowed the abstraction of the categories of activities which were subsequently labelled as roles. Appendix 8 shows an example of similar concepts coalescing into a conceptual category. By drawing and re-drawing diagrams, the researcher can stand back and conceptualise the full theory, which can then be checked again against the data. Describing how the findings emerged is an essential part of rigorous research. Categories were formed from the accounts of the participants in the study in the light of my own value systems, experiences and knowledge. These categories formed patterns that were subsequently labelled as emerging CIO roles, which were elaborated in the theoretical coding stage described in section 5.3.9. My research was based on the accounts of 'reality' of those interviewed and the secondary data sources that were used. These in turn were subjected to my own interpretation; knowledge creation is created through the interaction of the researcher and the researched (Norton, 1999).

### 5.3.5 Theoretical Sampling

In the GTM the progress of the research is governed by theoretical sampling. Theoretical sampling is defined as data gathering driven by concepts derived from the evolving theory and based on the concepts of making comparisons (Strauss and Corbin, 1998). This means that rather than predetermining the characteristics and size of the sample, the developing theory directs the researcher to new informants and appropriate locations. The GTM approach advocates the use of multiple data sources converging on the same phenomenon.

*“In theoretical sampling, no one kind of data on a category nor technique for data collection is necessarily appropriate. Different kinds of data give the analyst different views we have called slices of data, while the researcher may use one technique of data collection primarily, theoretical sampling for saturation of a category allows a multifaceted investigation, in which there are no limits to the techniques of data collection, the way they are used, or the types of data acquired”* (Glaser and Strauss, 1967:65)

In theoretical sampling, the investigator simultaneously collects, codes and analyses data and decides what subsequent data to collect in order to develop theory as it emerges. The researcher sets aside theoretical ideas to allow a substantive theory to emerge. The purpose is to gather data that will maximize opportunities to discover variation among concepts and to saturate categories in terms of their properties and dimensions (Mellion and Tovin, 2002). I also deliberately sought and coded data that contradicted what I was finding in the data analysis. Sampling continues until nothing new is being said about the concepts under exploration, and the collected data have reached saturation point (Glaser and Strauss, 1967; Cutcliffe, 2000).

The data was subjected to a rigorous process of classification and connection. The data collected from the informants was richer than the written IS strategy documentation and other secondary data. The latter lacked the processual depth of the activities produced by human actions in the strategy process. In comparison the IS strategy documents were static lists of programmes of work that needed to be undertaken in order to enable the development of services and as such did not capture the subtleties of the IS strategy process or how to implement these programmes. The human dimension was absent.

### 5.3.6 Theoretical Sensitivity

Theoretical sensitivity is another way the researcher guards against potential biases that can be a threat to the rigor of the study. *“Theoretical sensitivity is the ability of the researcher to think inductively and move from the particular (data) to the general or the abstract –in other words to generate concepts. It is the ability to see relevant data and abstract significant categories from the scrutiny of the data”* (Glaser and Strauss, 1967:3). The concept of theoretical sensitivity is not converted into clear cut methodological rules in GTM (Kelle, 2005). The researcher explicates their background knowledge, not to isolate it from the study, but with the specific intention of bringing it into the analysis to see if the data are supportive or not. All possible explanations for what one sees in the data must be attended to particularly in the light of data that disconfirm or refute an emerging hypothesis (Schrieber, 2001).

### 5.3.7 Theoretical Sorting

Sorting memos and diagrams is the key to formulate the theory for presentation to others. Sorting puts fractured data back together and the researcher will soon happily discover that everything fits somewhere (Glaser, 1978). Sorting is done on the conceptual level and not on the data level. The core variables are guiding the sorting, and different theoretical codes emerge and are used in the process. Theoretical codes integrate the theory by weaving the fractured concepts into hypotheses that work together in a theory explaining the main problem of the participants. Writing up the sorted memo piles and diagrams follows after sorting, and at this stage the theory is closer to the written grounded theory product. The different categories are now related to each other and the core variable. The theoretical density must be balanced so concepts are mixed with description in words, tables, or figures.

Many qualitative researchers use computer assisted qualitative data analysis software to automate and speed up the coding process and provide a more complex way of looking at the patterns in the data and provide a formal structure for writing and storing memos to develop the analysis and allow more conceptual and theoretical thinking about the data (Barry, 1998). There are many criticisms and worries concerning using software in the

literature. There are concerns that it distances the researcher from the data (Weaver and Atkinson, 1994 cited in Barry, 1998); that it leads to qualitative data being analysed quantitatively (Mason, 1996, cited in Barry, 1998); and to increasing the homogeneity in data analysis (Caffey et al, 1996 cited in Barry, 1998). I decided that I would analyse the data without computerised support except for the cutting and pasting of MS word for memos and the versatility provided by the drawing and diagramming facilities of MS PowerPoint.

### **5.3.8 Theoretical Saturation**

The number of informants that need to be interviewed depends on when the coding becomes theoretically saturated. Saturation is considered the point in the research where collecting additional data seems counterproductive in that it does not add that much more explanation (Strauss and Corbin, 1998). As new data were compared with previous data, different levels of the theory became theoretically saturated. Care was taken to be responsive to the data, to seek disconfirming evidence and explanations for exceptions to the emerging theory. Theoretical saturation is established when concepts began to appear frequently in findings. Concepts started to occur regularly in interviews with the CIOs, they are often first issues that arise in conversations (Riley, 1996). After sixteen interviews with informants, iterative analysis through coding and supporting memos and network diagrams revealed findings that were conceptual, similar and repetitive, sampling was suspended; saturation had been reached.

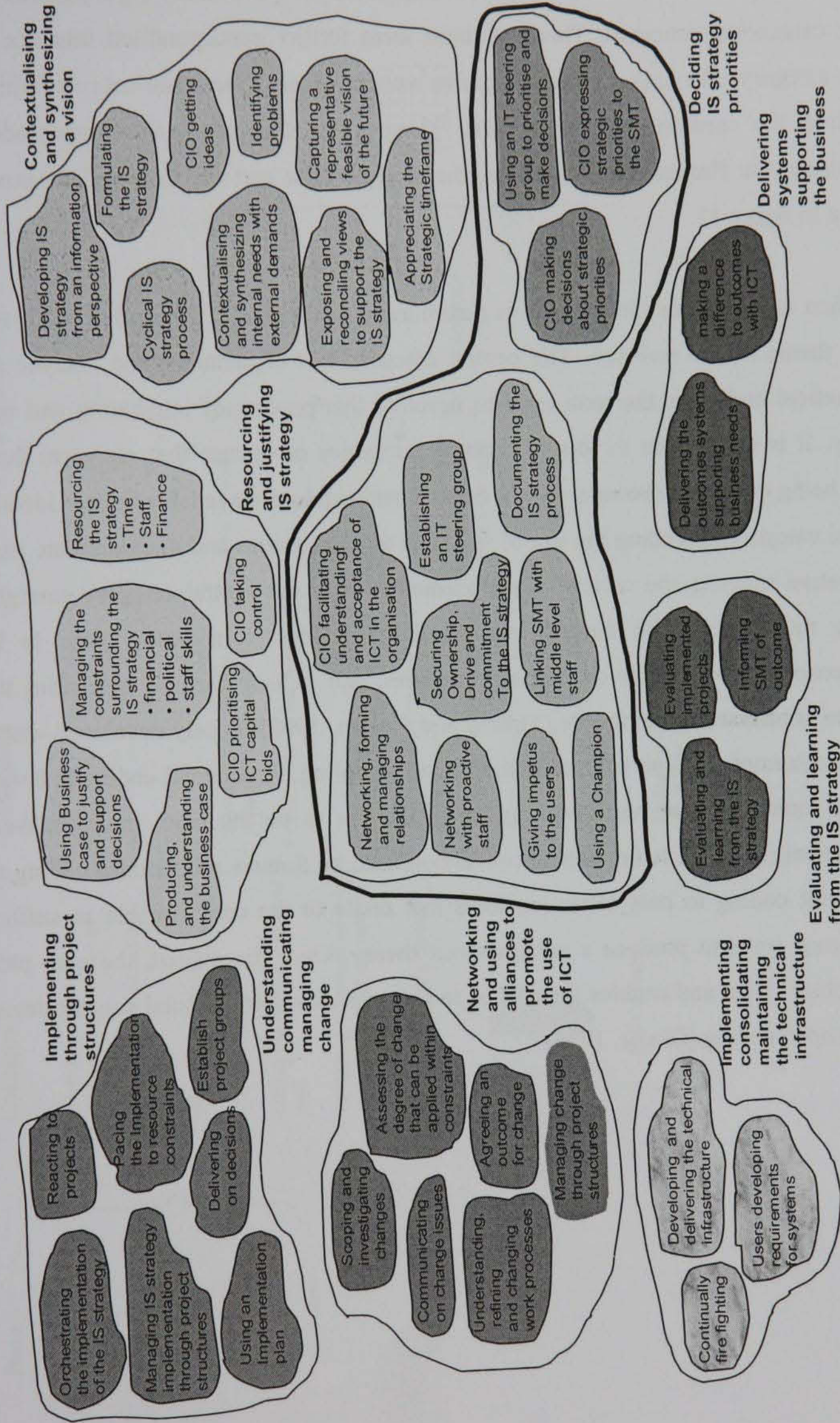
*“The criterion for judging when to stop sampling the different groups pertinent to a category is the category’s theoretical saturation. Saturation occurs when no additional data are found where by the researcher can develop properties of the category”* (Glaser and Strauss, 1967:61).

Saturation is not descriptive repetitiveness, nor the descriptive capture of seeing the same pattern over and over again in different incidents. Categories should not have just one incident, one incident or impression does not make a pattern. Categories must be verified by constant comparison showing a pattern (Glaser, 2001).

### 5.3.9 Theoretical Coding

As the number of concepts emerging out of the open coding phase proliferates, a second level of theoretical coding is started when the researcher starts to notice similarities in the concepts identified. In practical terms I compared incident with incident (and incidents with concepts) in the data, by looking for patterns indicating similarities and differences between incidents. It is here that network diagrams were particularly useful in clustering similar concepts. This is the creative core of the research process and facilitates the direct application of both the intellect and the imagination to the demanding process of interpreting qualitative research data (Turner, 1983). Concepts relating to individual phenomena are grouped in larger sets located on the higher level of generality of structures called categories. Theoretical coding involves the interpretation of data, the linking of substantive codes theoretically and the development of conceptual categories. Categories emerge through the comparison of incidents, and properties of categories emerge through further comparisons. Each category becomes conceptually separate when it is given a specific name that expresses the general idea about its content. The categories are collections of loosely cohesive codes pertaining to the role of the CIO in the IS strategy process. The research draws on a higher level of abstraction than the substantive codes of the data, in order to develop conceptual categories which serve to group the individual concepts derived from open coding (Norton, 1999). A number of abstracted patterns of categories emerged from aggregation of the concepts emerging in the open coding phase described in section 5.5.1., this is shown diagrammatically as a conceptual model in figure 11.

Figure 11. Patterns of Concepts Coalescing into Categories

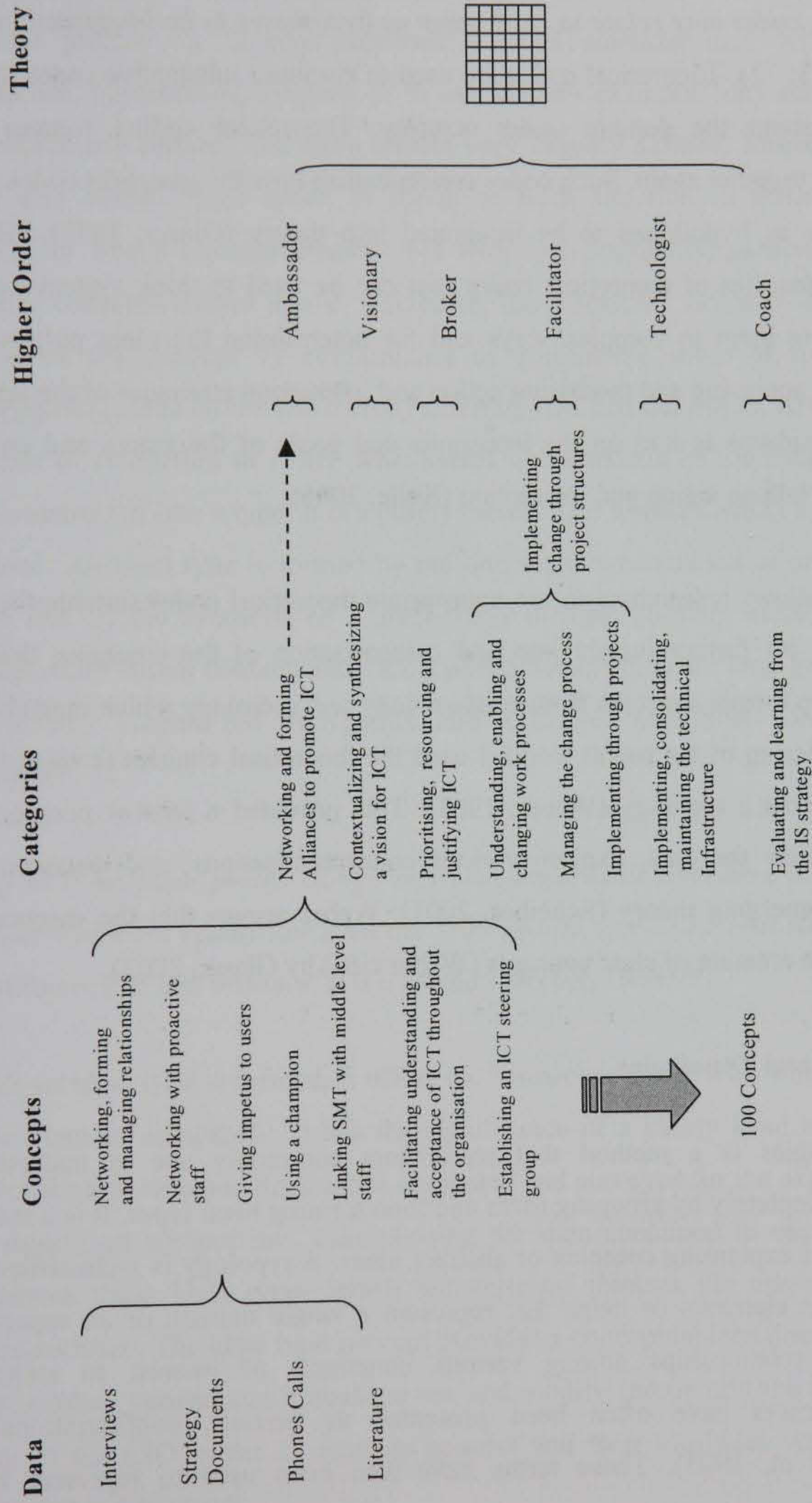




The patterns are named by constantly trying to fit words to them to best capture their meaning (Glaser, 2002). Out of over 100 hundred concepts initially eight patterns (higher order categories) emerged. Three of these were further conceptualised into one higher order category. The higher order categories were labelled as metaphorical roles which best captured the meaning of the pattern. These were designated the Ambassador, the Visionary, the Broker, the Facilitator, the Technologist and the Coach. This process is shown in figure 12.

The first step in theory integration is determining the central category that represents the main theme of the research. The central category has explanatory and analytic power. Theoretical coding is the term used to describe this process of integrating and refining theory. It is undertaken to identify central categories or themes that represent the main ideas being conveyed (Strauss, 1998). Several techniques are available to help identify the central category, including the use of storyline writing, memo and diagrammatic analysis, integrative analysis and review of the literature. Once the central category emerges, the theory must be refined through reviewing for internal consistency, gaps in logics, supplementing any poorly developed categories, and reducing excess categories that do little to contribute to the theory (Strauss and Corbin, 1998). Poorly developed categories can be saturated through additional theoretical sampling. Theoretical coding is done after having found the core variable or what is thought to be the core, the tentative core. Theoretical (selective is the coding convention used by Strauss and Corbin) coding means to delimit coding to only those variables that relate to the core variable in sufficiently significant ways to produce a parsimonious theory. Once discovered, the core provides conceptual vision and enables the analyst to see a focus within the total context developed during open coding (Glaser, 1978).

Figure 12. The Progress of Theoretical Coding From Concepts to Theory



Substantive codes are developed ad hoc during the open coding phase (the first stage of the coding process) and relate to the empirical substance of the research domain (Kelle, 2005). *“Theoretical codes which researchers always have to have at their disposal conceptualise how the substantive codes may relate to each other as hypotheses to be integrated into a theory”* (Glaser 1978: 72). Theoretical codes are used to combine substantive codes into a theoretical model about the domain under scrutiny. Theoretical coding weaves the fractured story back together again. Such codes conceptualise how the emergent codes may relate to each other as hypotheses to be integrated into theory (Glaser, 1978). Glaser identifies eighteen families of theoretical codes that can be used to think systematically about data and relate them in complex ways and for determining the main purpose of theory construction: analysing and modelling action and interaction strategies of the actors. Thereby, special emphasis is laid on the intentions and goals of the actors and on the process character of human action and interaction (Kelle, 2005).

Theoretical coding allows researchers to use appropriate theoretical codes suitable for the data under scrutiny for further insight into and categorisation of the emerging theory. Theoretical codes are formal concepts from epistemology and sociology which make basic claims about the ordering of the social world. I used the theoretical concept (code) of the ideal type expressed as a typology (Weber, 1962). This provided a lens or perspective through which to view the data, explore various conceptualisations, and discover the dimensions of the emerging theory (Scheiber, 2001). Weber argues that the essence of social theory is in the creation of clear concepts (Weber cited by Glaser, 2002).

### **5.3.10 Ideal Types and Typologies**

Constructing typologies is a method that researchers commonly use to understand phenomena more completely by grouping ideas and then forming ideal types. It is a means of understanding and explaining complex or abstract ideas. A typology is a classification scheme that contains elements or items that represent a single domain or an aspect of organisations. The relationships among various constructs of interest to strategic management researchers have often been presented as gestalts, configurations or archetypes (Dess et al, 1993). These terms have also been used to represent both taxonomies and typologies.

Ideal types are used to bring out the salient aspects of the CIO role domains by emphasizing the essence of the concept. The ideal type is an 'idea' of a phenomenon, a conceptualization of a given phenomenon or a situation. It is a 'conceptual construct', a 'mental picture', a 'mental construct'. Social sciences deal with phenomena like capitalism, bureaucracy, religion, or to use Weber's example, 'city economy', 'handicraft' or 'capitalistic culture', but these remain very vaguely defined. Moreover, their meanings may also change from epoch to epoch or from situation to situation which leads to ambiguity. Social sciences cannot work with such ambiguity, particularly in terms of the generic concepts named above. Therefore, the researcher needs to bring out the salient points of the concept by emphasizing or eliminating some of its elements or even exaggerating some others and thereby offering a unified definition. Aron (1970) calls this a process of stylization in which what seems characteristic of the phenomenon is retained and constructed into a type. It is a purely mental drill through which a concept comes to be defined. An ideal type is formed by the one-sided accentuation of one or more points of view and by the synthesis of a great many diffuse, discrete, more or less present and occasionally absent concrete individual phenomena, which are arranged according to those one-sidedly emphasized viewpoints into a unified analytical construct. This mental construct

*"(in) its conceptual purity, cannot be found empirically anywhere in reality. Indeed, it is neither historical reality nor even the 'true' reality, nor can a real situation or action can be subsumed as one instance, it is a utopia" (Weber, 1949:90).*

Once an ideal type is formed, it offers the researcher a tool with which a real situation or action can be compared. It has the significance of a purely ideal limiting concept with which the real situation or action is compared and surveyed for the explication of certain of its significant components. Summarising the data contained in each sampling category generates these ideal types which are enriched through the use of their attributes or characteristics. The ideal type concept provides a conceptual lens through which I view the data, explore various conceptualisations, and modify and delimit the theory. A typology of roles of the CIO in the IS strategy process and their attributes was constructed and is presented in Chapter 6.

### 5.3.11 Re-Entering the Field

What distinguishes GTM from other qualitative methodologies is the constant comparative method, data collection and data analysis are iterative and overlapping which in turn enables the researcher to modify the emerging theory should further data be gathered (Glaser, 1978, 2002; Charmaz, 2000). This “*not only gives the researcher a head start in analysis, but more importantly allows the researcher to take advantage of flexible data collection*” (Eisenhardt, 1988:539). The emerging typology of roles was further refined through a second phase of re-interviews with nine CIOs to validate the roles and refine the activities. Appendix 2 highlights the informants in the second phase of interviews. The informants were chosen on the basis of the outcomes of the first phase of interviews. I endeavoured to capture views of those CIOs that offered rich insights into their role in the IS strategy process and as well as others who were less convincing (Pettigrew, 1990).

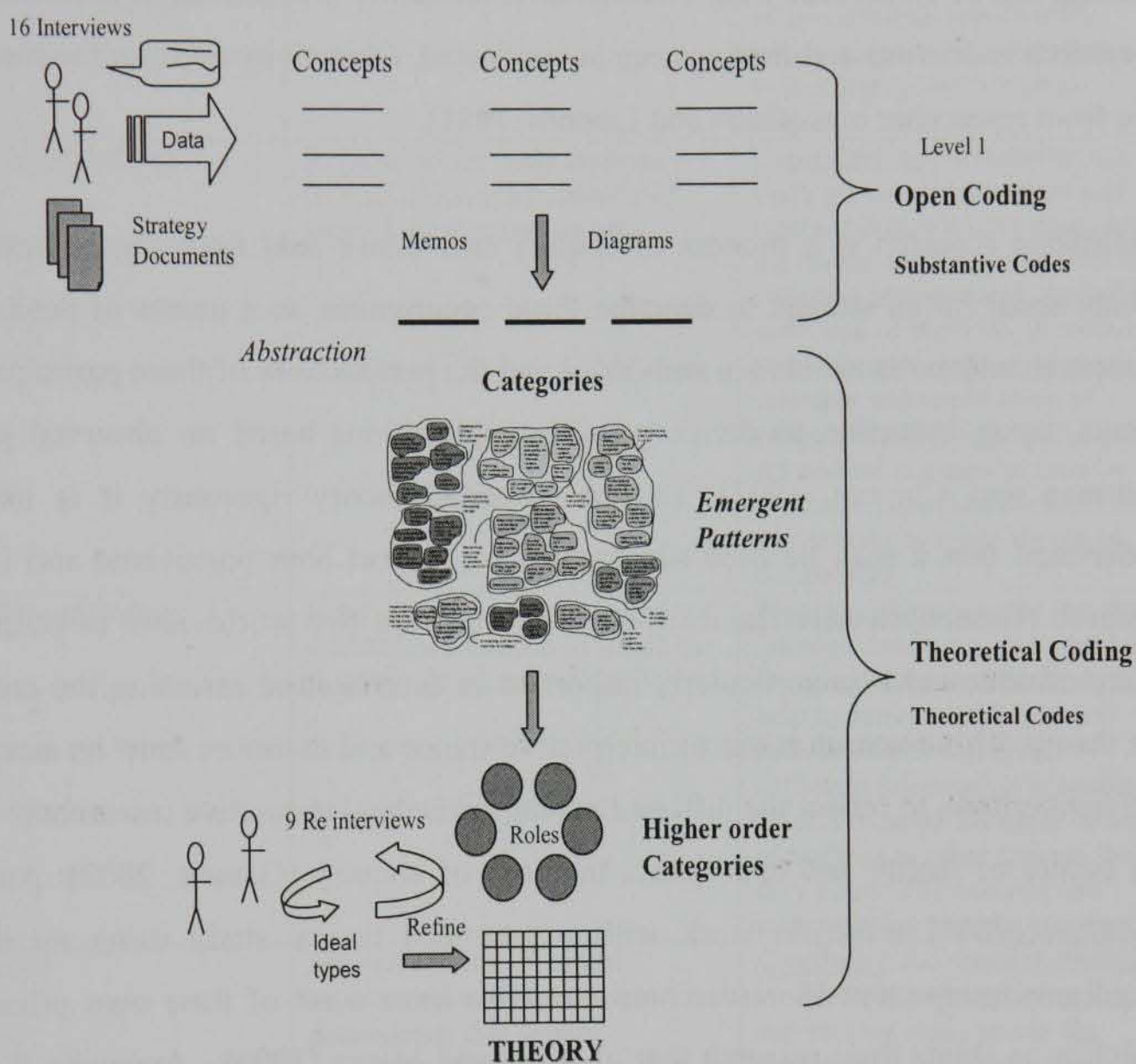
The questions asked of the informants in the second phase changed to start verifying and saturating categories and filling any conceptual gaps in the emergent theory. The GTM is based on exchanges in which the interviewees can talk back, clarify, and explain their points (Rubin and Rubin, 1995). I then interpret again the meanings, experiences, events and reality of the activities of the CIOs in the IS strategy process. The questions asked of the CIOs were now content guided based on the emergent theory's categories as the research generates properties of those categories.

### 5.3.12 Delimiting and Writing the Theory

Delimiting the theory occurs at two levels that is the theory and the categories. The theory firstly solidifies, meaning that major modifications in the theory, as more data is coded, become fewer and fewer. At this stage reduction of the theory is also possible. This means that the researcher may actually discover underlying uniformities in the original sets of categories and their properties. Theory can then be reformulated with a smaller set of concepts. Grounded theory is multivariate; it happens sequentially, subsequently, simultaneously, serendipitously and scheduled (Glaser, 1998). The content of the roles theory emerged out of the diagrams and memos that I developed which helped to collate

and develop each category. A summary of the coding stages of the interpretive grounded theory is show in figure 13.

**Figure13. Summary of the Coding Stages for Interpretive Grounded Theory**



## 5.4 Validity and Reliability

If the findings of this research are to be credible and usable their validity and reliability must be established. In quantitative research the criteria for assessing the rigour or trustworthiness of research have traditionally included internal and external validity, reliability, and objectivity (Guba and Lincoln, 1981). Validity refers to the extent to which findings can be considered true. Traditionally, reliability is described as the extent to which a research endeavour and findings can be replicated. Objectivity requires the research to be free from researcher bias (Guba and Lincoln, 1981).

Qualitative research is a process of enquiry that draws data from the context in which events occur, in an attempt to describe these occurrences, as a means of determining the process in which the events are embedded and the perspectives of those participating in the events, using induction to derive possible explanations based on observed phenomena (Gorman and Clayton, 1997). To use grounded theory rigorously it is important to understand that it may be used successfully to support both positivistic and interpretive research (Gasson, 2002). The distinction between the two worldviews of positivism and interpretive research is particularly important in deriving and assessing the credibility of the theory. This research takes an interpretive stance and therefore must be assessed using different criteria to reflect the different assumptions that interpretive researchers hold about the nature of reality and appropriate methods of enquiry (Gasson, 2002). According to Urquhart (2001) these do work with a grounded theory study using an interpretive paradigm. Interpretive IS researchers now also have a set of their own principles with which to evaluate their research that of Klein and Myers (1999). Appendix 9 shows this research mapped onto these principles.

Lincoln and Guba (1985; 2000) developed alternative criteria for rigour and quality that paralleled those of quantitative methods. These are confirmability and authenticity, dependability, transferability and credibility. Table 7 summarises these alternative interpretive criteria against their positivistic counterparts.

**Table 7. Quality and Rigour Related to the Stages of a Theory-Building Research Life Cycle (After Gasson, 2002; Merriam, 2002).**

Issue of Concern	Positivist Worldview	Interpretive Worldview
<i>Representativeness of findings</i>	Objectivity: findings are free from researcher bias.	<u>Confirmability</u> : conclusions depend on subjects and conditions of the study, rather than the researcher. Findings based on the researcher's critical self reflection of assumptions, worldviews, biases, theoretical orientations, values and epistemological stances.
<i>Reproducibility of findings</i>	Reliability: the study findings can be replicated, independently of context, time or researcher	<u>Dependability/Auditability</u> : the study process is consistent and reasonably stable over time. Are the results consistent with the data collected and analysed. A visible audit trail of methods, procedures, and decisions made; the sample selection and explanation of categories used. If the participants are studied at a similar time by researchers the data obtained and interpretations made should be comparable
<i>Generalizability of findings</i>	External validity: the researcher establishes a domain in which the findings are generalizable.	<u>Transferability</u> : how far can the findings/conclusions be transferred to other contexts and how do they help to derive useful theories? Rich description provides sufficient information to enable readers to judge the applicability of findings to other settings that they know. The analysis and interpretation must be convincing
<i>Rigor of method</i>	Internal validity: A causal relationship is established, to demonstrate that certain conditions lead to other conditions, often by "triangulation" of findings	<u>Credibility</u> : the research findings are credible and consistent to the subjects we study and to the readers. For authenticity, our findings should be related to significant elements in the research context/situation. The findings are congruent with what is being observed.



### **5.4.1 Confirmability and Authenticity**

The concept that there has to be a way of studying human action in the IS strategy process which would generate objective results is rejected by the interpretive stance used in the research. The alternative is to ensure that results, accepted as the subjective knowledge of the researcher, can be traced back to the original data of the research. They are not therefore merely a product of the researchers' assumptions, theoretical proclivities and research interests (Charmaz, 1995). This is done through an audit trail. Throughout the research I endeavoured to be reflective. Reflexivity in the research process refers not only to conscious consideration of how the research process is proceeding but also to the reshaping of the research process in response to reflective learning (Ristock and Pennell, 1996 cited in Gasson, 2002).

There are two elements to reflexivity that are relevant in this research: first; self awareness as part of the social context, affecting the phenomena under observation, second; self awareness as someone who applies biases, prejudices, cognitive filtering and bounded rationality to the collection, analysis and interpretation of data (Gasson, 2002). I endeavour to minimize the effect these 'distortions' have on my interpretations of data by making my assumptions and frameworks explicit (Gasson, 2002). The research was undertaken from an interpretive stance, using my experiences and knowledge as a public healthcare CIO. I describe in detail the methods and procedures used in undertaking the research and show the sequence from the selection of the informants to the collection and analysis of the data. The number of informants was dictated by the data analysis of previous interviews using theoretical sampling and saturation. I also highlight, reflect upon and acknowledge the problems in the process.

### **5.4.2 Dependability**

Dependability is established by the 'audit trail' and this can be followed to examine the research process. The research design is congruent with the research question and my own role as a public healthcare CIO is made explicit and utmost care is taken with the 'quality control' aspects of the research. I specify how and why the participants in the research were selected. The results of the research are therefore consistent with the data collected.

The criteria built into my thinking when analysing the data were specified by delineating standard questions consistently applied in grounded theory as described in section 5.3.1. Analytical constructs are clearly specified and data was collected from a number of different sources (Miles and Huberman, 1994). Appropriate GTM procedures have been followed such as constant comparison, memo writing and diagramming, theoretical sampling, sorting and saturation. Theoretical coding allowed the roles of the CIO to emerge and the concept of ideal types was used to enrich the roles and their attributes through a typology. As new models and conceptualisations emerged I memoed, documented and diagrammed. Where new data was required I theoretically sampled in order to provide comparisons with the emerging constructs. Subjectivity as Gasson (2002:23) notes “*does yield wonderful insights but we must acknowledge where our insights come from, rather than issuing the grounded theory mantra that everything comes from data*”. Although replication of the findings may be impossible, if researchers study the same community of research participants at a similar time, the data sets obtained by these researchers and their interpretation should be largely comparable to my own.

### **5.4.3 Transferability**

The aim of an interpretivist enquiry is to allow for transferability of the findings rather than wholesale generalisations of these findings. Detailed descriptions of the CIO roles elaborated through theoretical coding and the construction of ideal types provide sufficient detail to enable readers to judge the applicability of the typology to other settings. The second phase of interviews showed that the findings were consistent with the CIOs’ own experiences of their role in the IS strategy process. The processes and outcomes of the research described in the following chapter are generic enough to be applicable in other public sector settings. It also suggests settings such as the private sector where the findings could be further tested (Miles and Huberman, 1994). Highlighting similarities between the findings of the research and previous theoretical constructs in the literature also helps to assess the transferability of the findings to other contexts.

Reporting the theory without stating the level of theory generated, leaves the reader insufficiently informed about the scope of the theory and impedes an assessment of transferability (Chiovitti and Piran, 2003). Grounded theory has been described variously

as '*substantive theory*' (Strauss and Corbin, 1990:74; Dey, 1999:210), '*middle range theory*' (Creswell, 2002:452; Charmaz, 2000, 2003) and '*process theory*' (Denzin and Lincoln, 2003). The aims of this grounded theory study is to produce a middle range, rather than a formal or grand theory of the role of the CIO in the IS strategy process. The theory developed is considered to be substantive theory because "*it is an abstract explanation or understanding of a process about a substantive topic grounded in the data*" (Creswell, 2002:452) and "*evolved from the study of a phenomena situated in a particular situational context*" (Strauss and Corbin, 1990:174). In this research the particular situational context was the IS strategy process in public healthcare organisations in Northern Ireland and the specific phenomena the role of the CIO in this process.

#### **5.4.4 Credibility**

The findings of the research are credible through the collection of sufficient data as indicated by theoretical sampling and saturation. The participants in the research guide the inquiry process through theoretical sampling and a second phase of interviews to assess and confirm the theoretical concepts that were emerging. The concepts and categories reflect the language and expressions used by the participants. When describing the IS strategy process the informants introduced concepts such as "using a champion", "having a vision", and "prioritising projects". Appendix 10 shows how the emerging concepts and categories influenced the interview guide. The theoretical construction of the roles was checked and verified through direct questioning against the participants' meanings of the phenomenon especially through the second phase of interviews (Chiovitti and Piran, 2003). In this way the informants were invited to refine, develop and revise the emerging theoretical structure. The emergent theory "rang true" when presented to the informants and made sense of their role in the IS strategy process. The categories of the theory fit the data and are not forced, or selected to fit pre-conceived or pre-existing categories, or discarded in favour of keeping an extant theory intact (Glaser, 1978). I sought out negative instances that challenged the emerging theory and demanded its reformulation when necessary (Merriam, 2002).

The results of GTM are not reporting of facts but probability statements about the relationship between concepts, or an integrated set of conceptual hypotheses developed

from empirical data (Glaser, 1998). Validity in its traditional sense is consequently not an issue in grounded theory, which instead should be judged by fit, workability, relevance, and modifiability (Glaser, 1978; 1992; 1998).

- Fit – is concerned with how closely concepts fit with the incidents they are representing, and this is related to how thoroughly the constant comparison of incidents to concepts was done;
- Workability – the theory should explain what is happening, predict what will happen, and interpret what is happening;
- Relevance – it deals with the real concern of participants, evokes “grab” (captures the attention) and is not only of academic interest; and
- Modifiability – the theory can be altered when new relevant data is compared to existing data.

A grounded theory is never right or wrong, it just has more or less fit, relevance, workability and modifiability (Glaser, 1992). The quality of the final product arising from the GTM is directly dependent upon the quality of the research worker’s understanding of the phenomena under investigation than is the case with many other approaches to research (Turner, 1983). The research used the GTM to capture the activities and their social meanings of the CIO in the IS strategy process in public healthcare organisations. By choosing the ontological and epistemological stance of interpretivism the research acknowledged that the aspects of the phenomena under investigation are too complex to define and measure with standard instruments. The intrinsic differences between positivism and interpretivism make it impossible to judge one paradigm by the criteria established to judge the rigour of the other. Throughout I have endeavoured to provide understanding of how I arrived at my findings at all stages of the research process and to show what sensitised me to examine certain patterns in the data. To ensure dependable and authentic findings, I need to establish clear and repeatable procedures for the way that I have carried out the research (Gasson, 2002). The complete stages in the interpretive grounded theory process used in this research are shown in Figure 14.

**Figure 14. Summarising All the Stages in the Grounded Theory Research Process (Adapted from Pandit, 1996)**

Stage in the Research Process	Grounded Theory Stage
<p>Review literature in IS and business strategy</p> <p>Select sample, those CIOs with credible and authentic experiences of the IS strategy process</p> <p><b>Data Collection Phase</b></p> <ul style="list-style-type: none"> <li>• Historical IS strategy documents 1998-2007 [Retrospective IS strategy process]</li> <li>• Semi structured interviews with 16 CIOs or equivalent [Retrospective IS strategy process]</li> <li>• Emails</li> <li>• Phone calls</li> </ul> <p>To identify: Sequence of events and activities in the IS strategy process over time Activities, actions and behaviours the CIO undertakes in this process</p> <p>Revise documents used and structure of interview based on findings from first phase interviews.</p>	<p><b>Data Analysis</b></p> <p><b>Open Coding</b></p> <p>Labelling concepts that represent discrete happenings and other instances of the phenomena</p> <ul style="list-style-type: none"> <li>→ Identify themes; careful observation and recording of what is there</li> <li>→ Grouping and classifying concepts into categories</li> <li>→ Identify properties: Attributes or characteristics pertaining to a category</li> <li>→ Identify the dimensions of properties along a continuum where possible</li> <li>→ Constant comparison of new data</li> <li>→ Explore the relationship between substantive categories, incidents and properties</li> </ul>
<p>Memoing to:</p> <ul style="list-style-type: none"> <li>• Provide on-going record of theory development</li> <li>• Record important decisions about theoretical sampling</li> <li>• Record shifts in interview questions</li> </ul> <p>Diagrams to:</p> <ul style="list-style-type: none"> <li>• Network diagrams articulate emergent theoretical concepts, re-draw with new data</li> <li>• Make explicit the relationship between various higher order categories, categories and category-properties.</li> </ul> <p><b>Repeat Data Collection Phase</b></p> <p>To meet theoretical Sampling Requirements for literal and theoretical replication across cases to confirm, extend and sharpen theoretical framework</p> <ul style="list-style-type: none"> <li>• Re-interview looking for agreement and disagreement with nine CIOs</li> </ul>	<p><b>Coding Theoretically</b></p> <ul style="list-style-type: none"> <li>→ Interpret the data to establish patterns and conceptual categories</li> <li>→ Abstract significant categories</li> <li>→ Use theoretical coding (Weber's ideal type) to combine substantive codes into a theoretical model</li> <li>→ Use this formal concept which makes basic claims about the ordering of the social world</li> <li>→ Selective coding core categories, systematically relating it to other categories, validating those relationships and filling in categories that need further refinement and development</li> </ul>
<ul style="list-style-type: none"> <li>• After interviews develop a patterns of the core higher categories, categories and the researched dimensions</li> <li>• Continue memos on the relationship of the theory to the literature</li> </ul>	<ul style="list-style-type: none"> <li>→ A typology about the central phenomenon of the study</li> <li>→ Story Line: The researchers own conceptualisation of the story</li> <li>→ Core category: The central phenomena around which all other categories are integrated, the roles typology</li> </ul> <p>Compare emergent theory with relevant extant literature</p>

## 5.5 Reflections of GTM in Practice

The GTM approach allows a focus on contextual and processual elements as well as the actions of key actors associated with the IS strategy process. Nevertheless, in keeping with the interpretive, it is important to recognise that such enquiry is always context bound and facts should be viewed as both theory and value laden. The researcher approached the research problem with an interpretive theoretical perspective developed from their academic background and personal interests. Throughout my use of the constant comparison stage of GTM it felt very interpretive; an experience shared by Urquhart (2001). Other researchers could have a different basic belief system that will dictate their ontological and epistemological underpinnings that may in turn lead to different experiences. Rather than discovering a theory implying the existence of an objective world, I generated a theory reflecting a socially constructed world (Orton, 1997). Without a clear philosophical underpinning ambiguity and misunderstanding could quickly arise in the data collection and analysis.

Which version of GTM to use was also a problematic issue, which I believe, can only be resolved by starting to collect and analyse data. The Straussian method seemed too structured and restraining when I started to analyse the data yet this is the approach recommended for novice users. The coding, comparing, categorising and saturating had a positivistic, mechanical feel. This led me towards Glaser's method, however, Glaser abhors the interpretivist view of GTM. It was therefore neither Straussian nor Glaserian but a use of interpretive or constructivist GTM (Charmaz, 2000; Bryant, 2002; 2003). The research further legitimises and supports its use in this way. The previous experience of the researcher had as a CIO with the phenomena under study facilitated the use of GTM in an interpretive mode and this encouraged creativity and innovation in the process of developing the typology.

A review of the literature prior to data collection and analysis is rejected by Glaser (1992) because of the dangers of influencing the emerging theory. I would dispute this claim; rather where no existing literature exists about a phenomenon it is essential. Guba and Lincoln (1992:208) advise, "*Admitting tacit knowledge not only widens the investigators*

*ability to apprehend and adjust to phenomena in context, it also enables the emergence of theory that could not otherwise have been articulated”.*

The methodology provided a means of structuring and analysing a large amount of qualitative data. The systematic coding process helps eliminate speculative, unfounded assumptions. Memos and especially diagrams were important in supporting the analysis of data and capturing the holistic nature of the role of the CIO in the IS strategy process in a novel and creative way. The grounded theory presented in the typology meets the challenge of process researchers to find a way to present complex findings in a simple format (Orton, 1997). Those CIOs who took part in the second phase of interviews and were presented with the roles immediately understood the concepts and could identify with their own practice; most wanted a copy of the work.

There are criticisms that GTM it is not scientific (deductive) but based on superficial induction of collected data which introduces subjectivity into the research. However, Pigeon (1996) argues the emergence of theory results from constant interplay between the data and the researchers developing conceptualisations, between new ideas (deductive) and the researcher's experience (inductive). This weakness can only be addressed through clarity in the philosophical basis of the methodology, in this case an interpretive ontology and epistemology. Overall the methodological status of GTM remains unresolved and so schisms remain. The dangers of 'minus mentoring' where the researcher has no grounded theory expert close at hand and instead uses the literature to gain knowledge and understanding of the application of the methodology (Stern, 1994) also creates challenges. Learning GTM requires the researcher to engage with and become intimate with the data. There are no short cuts to doing this; computerised analysis of the data could create distance between the data and the researcher which may impede conceptualisation and abstraction.

The somewhat mechanistic application of inductive coding could be enriched by the use of multiple methods (Eisenhardt, 1989) such as hermeneutic analysis, discourse analysis, soft systems conceptual models, process modelling and inductive categorization (Gasson, 2002). The grounded theory framework imposes a discipline through the necessity to continually refer to data which resisted the use of autobiography and helped provide

sources of reflexivity (Lincoln and Guba, 2000). The use of the GTM in interpretive mode relies on the experience, values and skills of the researcher and it is the hermeneutic perspective that maintains the interpretive style rather than process of the method (Hughes and Jones, 2004).

The typology is grounded in data so it may be difficult to move from a substantive theory to a more general theory (Langley, 1999) because of the time and resources needed for conceptual abstraction of the substantive theory across multiple cases. The ultimate end of grounded theory research would be to generate formal theories, generalisable at an abstract level. However such a theory can only emerge from sufficient data analysis, in sufficient cases, for the researcher to be sure that they are not merely describing the case in a single situation (Gasson, 2002). Because the researcher saturates themselves with the data it is important that they have enthusiasm for the subject and preferably an empathy with the problem being researched. By the end of the data collection and analysis I could recall the detail and substance of all the interviews with the informants. The research question was not only academically interesting; it was also a problem in the researcher's own professional practice.

## **5.6 Conclusions**

The purpose of this chapter has been to make the research approach explicit. Theories generated from GTM are interpretations made from given perspectives as adopted or researched by researchers and are therefore fallible. Given the interpretive approach, two considerations are possibly more helpful in assessing grounded theory research and can be applied to this research (Henwood and Pidgeon, 1995). Firstly, what rhetorical power might this study have in persuading others concerned with the role of the CIO in the IS strategy process of its insightfulness? This will depend on a range of criteria from the design of the study and the range of sampling, as well as the clarity and coherence of the discourse used to present the findings. The second consideration of generativity – how this study might facilitate further research, is of crucial importance in locating the contributions of these findings to the current debates or lack of debate in this domain of inquiry. The more honest the researcher is in revealing his interpretive processes as well as contextual constraints of the study, the more fully the theory presented can guide ways forward for



future research (O'Callaghan, 1996). Rather than finding the definitive theory, here is a theory to stimulate further research in the generation of knowledge about the role of the CIO in the IS strategy process in public healthcare organisations.

The research is a process of engagement with actors in context, and the corollary that I am also an actor in context (s) – an active, participating observer who must be wary of cognitive and theoretical imperialism. The process of this research might not be one of establishing truth; but rather concerned with developing understanding and an insightful model for the role of the CIO in the IS strategy process (Bryant, 2002). The process involves coding strategies; the process of breaking down the data, primarily interviews, into distinct units of meaning which are labelled to generate concepts (Galal, 2001). These concepts are initially clustered into descriptive categories based on multiple indicators and instances. They are then re-evaluated for their interrelationships through a series of analytical steps and are gradually subsumed into higher order categories, which indicate an emergent theory that is further elaborated using ideal types. The six distinct higher order categories were labelled the Ambassador, the Visionary, the Broker, the Facilitator, the Technologist and the Coach. These are presented as a typology; it is to this we now turn, the results of the study and the final phase of GTM, comparison with the existing literature.

## CHAPTER 6

### THE ROLE OF THE CIO IN PRACTICE

#### 6.1 Introduction

This chapter describes the role of the CIO in the IS strategy process in public healthcare organisations as uncovered through the practice of interpretive GTM. The chapter begins by discussing the context of the research, healthcare organisations in the Northern Ireland Department of Health Social Services and Public Safety (DHSSPS), their ICT strategies and their CIOs. Using interpretive GTM described in chapter 5, six distinct roles emerged. These were designated the Ambassador, Visionary, Broker, Facilitator, Technologist and Coach. In order to enrich understanding of the activities that comprise the roles, attributes of focus, perspective, influence domain, decision trajectory, influencing activity, enactment and timing are derived from reflection on the findings of data analysis and through the existing strategy literature (Eisenhardt, 1989). The roles, attributes and constituent activities are then placed in a typology, which provides a valuable tool showing the complexity inherent in strategy phenomena (Dess et al, 1993). Instead of a story of rational calculation and analysis using IS strategy jargon, tools and practices, it shows the IS strategy process to be a dynamic process of social interactions and enactments that the CIO influences over time.

Rather than being intended as an objective description of what actually occurred in the organisations, the narrative makes explicit the shared perceptions of the activities of the informants, CIOs enacting the IS strategy process in public healthcare organisations. The roles in the typology are first presented individually by way of their attributes to provide structure to the activities comprising the role and increase understanding of the IS strategy process itself. Each discussion is supported by tabular examples of data sources, which show the enactment of the roles in practice. The voice of the CIOs is heard again through vignettes of how the distinct roles were undertaken fully in practice. This is contrasted with instances where the role was partially enacted by the CIOs, if at all.

An essential feature of the GTM is comparison of the emergent concepts, theory, or hypotheses with the extant literature (Eisenhardt, 1989). The place of the newly generated roles among the work of others who have previously written on the same or similar topics is then discussed (Brooks, 1998 cited in Kriflick, 2002). The juxtaposition of these roles individually and collectively with the relevant literature involves asking what is this similar to, what does it contradict, and why. Literature discussing similar findings is important as it ties together underlying similarities in phenomena not normally associated with each other. The result is often a theory with stronger internal validity, wider generalizability, and higher conceptual level. Comparison with conflicting literature builds internal validity, raises the theoretical level and sharpens construct definition (Eisenhardt, 1989). Collectively, the roles theory is then assessed as emergent patterns of social processes undertaken over time that the CIO enact to influence the choices and actions of those in the IS strategy process.

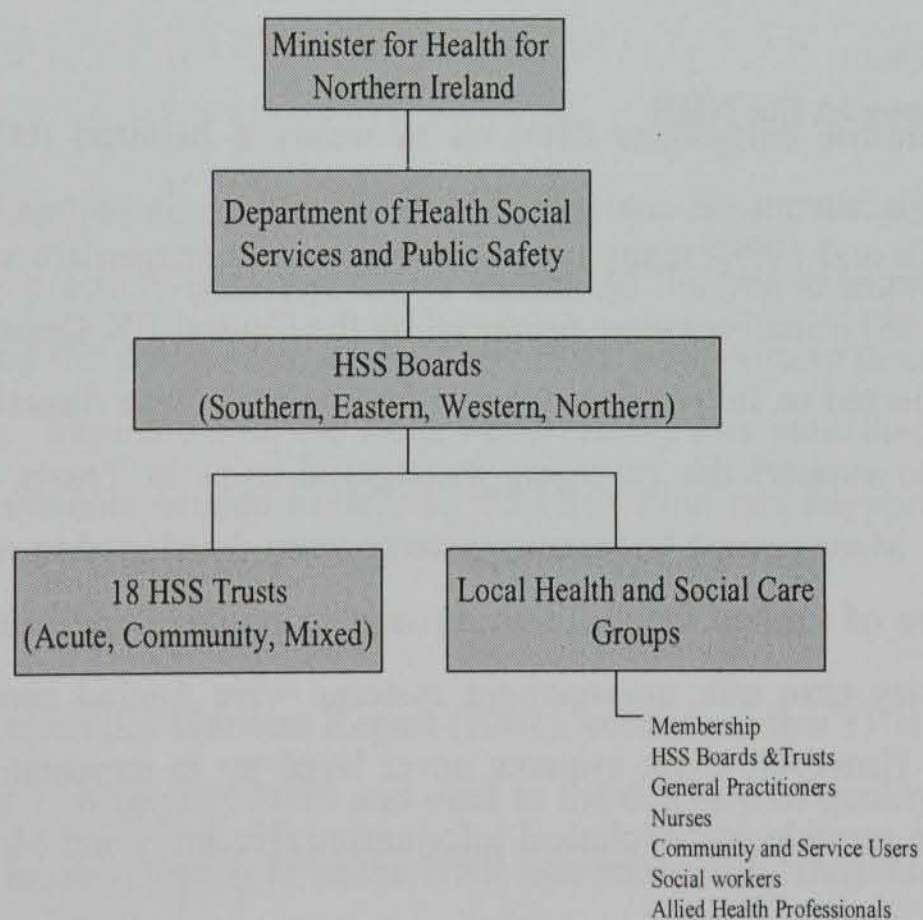
## **6.2 The Context: The Northern Ireland Department of Health, Social Services and Public Safety (DHSSPS)**

The National Health Service (NHS) in the UK provides healthcare free at the point of delivery, paid for through taxation and national insurance. The structure of the present day NHS emerged following the publication of a policy document in 1989 'Working for Patients' (Department of Health, 1989) by the then Conservative government. This signalled a structural change that would introduce a form of internal market into the NHS, with general practitioners able to hold independent budgets, hospitals and community units were able to become autonomous Trusts, as providers of health services. These services were purchased by regional and district health authorities (in Northern Ireland called health boards) on behalf of their local populations usually of 200-300,000 people. The internal market was created intending to make healthcare organisations more efficient in their use of resources and to improve their clinical and managerial performance. Within this context Trust managers, who in the past had a very operational focus, now had to think and act strategically for the first time; additionally, clinicians were drawn into management roles (Forbes, 2001). This situation persisted until the mid 1990s when successive labour governments signalled the demise of the internal market, to be replaced by a return to a more centralised command and control of the NHS.

The government's long-term strategy is to modernize the NHS. Their vision is for fast and convenient care delivered to a consistently high standard. Services should be available when people require them, tailored to their individual needs. The vision implies a new emphasis on team working and clinical networks across organisational boundaries. A major change management programme together with considerable sums of money will be needed to realise the vision. There is also to be a corresponding growth in performance management systems, national systems of audit, regulation and standard setting (McNulty and Ferlie, 2004).

In Northern Ireland, Health and Personal Social Services are provided as an integrated service within the UK NHS. The structure of the DHPSS in Northern Ireland is shown in Figure 15.

**Figure 15 Structure of the Northern Ireland Health Social Services and Public Safety**



There are 18 Health and Social Services acute, community and mixed Trusts who control their own budgets. Each of these is accountable directly to the Department of Health, Social Services and Public Safety (DHSSPS) and provides health and social services as commissioned by their respective Health and Social Service Boards and Local Health and Social Care Groups (LHSCGs). There are four health and social services boards (Eastern, Northern, Southern and Western) that are agents of the DHSSPS in planning, commissioning and purchasing services for the residents in their areas. The LHSCGs are Northern Ireland's newest arrangements for the provision of primary care services introduced to replace budget holding General Practitioners (GPs) in April 2002. All the Trusts now prepare individual Trust delivery plans in response to strategic priorities developed by the DHSSPS and enter into separate service and budget agreements with their respective commissioners setting out the nature and level of services to be provided by them. Essentially this arrangement constitutes the business strategy process of the Trusts. Monitoring the health and personal social services is the duty of the four Health and Social Service councils - one for each board area. The councils advise the public about services. They also advise on how services might be improved.

### **6.2.1 IS Strategy in the NHS**

During the 1980s and 1990s many central information management and technology (NHS terminology for IS) initiatives were produced by the Central UK Department of Health that Trusts were expected to follow. Resources often backed these directives for the purchase of specific IS to support the emerging managerial roles in Trusts operating within the internal market. Management budgeting systems were developed to relate costs to clinical activity but were of limited value. In an attempt to produce applications that would cost healthcare activity case mix management systems were funded centrally and rolled out across the UK. However, these systems never lived up to expectations, being generally seen as failing to provide useful clinical information (Hackney and McBride, 2002).

Many healthcare organisations also had little experience of developing IS strategies and implementing such IT systems. There was too much emphasis on financial and managerial data at the expense of systems supporting patient care. In 1992 a further information management and technology strategy was issued (NHS Executive, 1992). This proposed

fully integrated and shared hospital information systems (HIS), which were to be installed at hospitals to allow different IT systems to work together. After significant investment in several pilot sites with mixed success and much controversy, the strategy fizzled out. An emphasis on financial data still overshadowed clinical needs. The strategy was perceived to be centrally driven, financially motivated, technically orientated and impossible to implement at a local level without significant investment in resources.

In 1998 a seven year information strategy for the NHS, 'Information for Health' (NHS Executive, 1998) was introduced. This aimed to put change delivered by IT at the forefront of reforming and modernising the NHS. The purpose of the new information strategy<sup>10</sup> was to put in place over a number of years the people, the resources, the culture and the processes necessary to ensure that NHS clinicians and managers have the information needed to support the core purpose of the NHS, caring for individuals and improving health. It committed the NHS to lifelong electronic health records for all, with round the clock, on-line access to patient records and information about best clinical practice for all NHS clinicians.

The NHS Plan (2000) outlined a vision of an NHS redesigned around the patient. It proposed extensive changes across the NHS, outlining new means for delivering services and changes in work practices with significant additional funding to improve the delivery of services. Following the publication of the NHS Plan, a supporting document 'Building the Information Core: Implementing the NHS Plan' (2001) was published. It outlined the information and IT systems needed to deliver the NHS Plan and support patient-centred care.

An influential publication the Wanless Report (2002), confirmed that IT is a key piece of a fully modernised and 21st century NHS and vital to the delivery of quality patient care. A further new strategy for developing IT in the NHS was published. 'Delivering 21st Century IT Support for the NHS' laid out the first steps, including setting up a ministerial taskforce and recruiting a director general for the National Programme for Information Technology<sup>11</sup> (NpFIT) programme. This new approach it is hoped will significantly speed up the process

---

<sup>10</sup> The IM&T strategy was renamed Information Strategy to emphasise it was not technically driven

<sup>11</sup> A multi-billion pound project and the largest ever civilian IT project (Clark, 2005), later renamed Connecting for Health.

of getting modern IT in place and ensuring that IT both drives change and gets the best from the extra resources the NHS has been allocated. UK Government spending on IT is again under the microscope, with a new report from the Institute of Public Policy Research (Bend, 2004) highlighting significant failings in the multi-billion pound NpFIT programme. The report warns that the programme could be undermined by a failure to consult properly with medical professionals, a dearth of IT skills within the healthcare service and poor understanding of exactly what the health benefits are supposed to be.

### **6.2.2 ICT Strategy in the Northern Ireland DHSSPS**

In Northern Ireland, the DHSSPS broadly followed these UK policy developments from the emergence of Trusts to the recent vision for modernisation of services through information, communications and technology (ICT). The IS strategies formulated by the DHSSPS endorse the themes of the UK national IS strategies. In December 1990 a 'Regional Framework for Information' was produced. This document was superseded by 'The Strategic Planning Framework for the Development and Use of Information and Information Systems in the Health and Personal Social Services 1995-1998'. Both these strategies reflected the changing management arrangements within healthcare brought about by the internal market. The purpose of the latter regional framework was not to prescribe unnecessarily or to constrain any part of the DHSSPS in the development and use of information and IS, but to enable organisations to determine information needs and implement solutions to meet those needs in a cost effective manner. As a consequence of this framework a decision was made by the regional information steering committee (RISC) to develop IS strategies (frameworks) for the acute and community providers. The strategic framework for information services in the DHSSPS acute sector 1997-2002 was called 'Growing not building' and had the overall vision of the creation of scenarios to enable a patient focused integrated patient management system. The community strategy had a similar vision to produce a person centred information system. Underlying the vision was an IT architecture which supports and promotes best clinical practice and hence business management. The strategy paralleled the English vision espoused in the 'Information for Health strategy' published in 1998.

In July 2001 a new ICT strategy document for the DHSSPS was produced. The strategy vision used perspectives from the public, care professionals and the DHSSPS to develop a statement of how ICT should, in the future, make a vital contribution to modernising health and social care. The strategy vision describes health and social care supported by information about services, about each individual's care, about best practice, about performance - all securely stored and communicated using ICT and accessible to authorised users wherever and whenever it is needed. The strategy had two major, interlocking themes for ICT development: electronic care records and electronic care communications. In acute Trusts, hospital systems for patient administration, clinical specialties, pathology, radiology, accident and emergency as well as management functions were to be improved and integrated. In community Trusts, systems using person centred IS and general practice systems were also to be procured. Almost every contact with the DHSSPS involves communication between care professionals, between functions, between DHSSPS organisations, or with public and private sector bodies. The emphasis of the strategy is on these themes, but the importance of ICT as a means to access other information and the need to sustain and modernise services through ICT was ever present.

In response to the ICT Vision statement of 2001 and a number of consultation documents endorsing its contents, a further ICT strategy (programme) was published in March 2005. This latest ICT strategy reviews current ICT services and initiatives, describes the overall scope of the work required for implementation and proposes how this may be structured into a programme of prioritised work to modernise services. The proposed organisational arrangements to oversee the ICT programme, timescales and resource requirements are also put forward in line with the goals of the national strategy.

Each of the 18 NHS Trusts in Northern Ireland has a senior IS executive or CIO responsible for their local IS strategy and delivery of IT services. These individuals usually do not report directly to the CEO rather they report indirectly through another director. CIOs in Trusts develop their own local IS strategies using resources from within their own organisations and in the context of the programmes outlined in the DHSSPS Information, Communications and Technology (ICT) Strategy<sup>12</sup> (March 2005). Local strategies must

---

<sup>12</sup> Again it is interesting to note a change in terminology used by the NHS for IS strategy.



usually adhere to guidelines laid down in the regional ICT strategy. It is within this context that the CIO enacts their role in the IS strategy process.

### **6.3 Deriving the Role Attributes**

The typology is constructed using attributes or characteristics generic across the roles but with distinctive activities within each role. This provides a richer characterisation of the roles, the attributes are derived from the GTM data analysis and the literature. The role attributes are: focus, perspective, influence domain, decision trajectory, influencing activity, enactment and timing.

#### **6.3.1 Focus**

The focus represents a distinctive and unique overall activity to which the CIO attends during the IS strategy process through each of the six roles. It was uncovered as a higher order or central theme during the data analysis phase of the grounded theory. It is with this distinct focus in mind that the CIO undertakes the remaining activities in the role. The focus is the *modus operandi*. Collectively, the six foci encapsulated in the typology present a holistic view of the enactment of the IS strategy process.

#### **6.3.2 Perspective**

Each role embodies a particular unique perspective on the IS strategy process. This perspective provides a mental framework or cognitive filter, through which all the activities, which constitute the role, are interpreted and executed by the CIO in order to make them meaningful. It is a reference from to sense, measure or codify experience of the role. Perceptions of events within the roles are coloured by the set of experiences the CIOs already had, what Vicker's (1965) calls our 'appreciative setting'. This attribute corresponds with one of the senses of the *Weltanschauung* or Worldview concept (Checkland and Davies, 1986), which may include notions of values, ethical systems and beliefs (Rose and Elphick, 2002). For example, the activities in the Broker role are meaningful in execution of the role if interpreted from the perspective of acquisition of resources which will be needed to implement the IS strategy. The way the Broker

undertakes the activities in their role in the IS strategy process will be coloured by their previous experiences of access to resources.

### **6.3.3 Influencing Domain**

There are particular groups and individuals within the CIO's own organisation and externally who are important actors in the IS strategy process. The CIO interacts with these same people in order to influence their thinking and action. Each of the roles engages with these different influence domains during the IS strategy process. These actors have more organisational power and can assist the CIO by influencing others to support initiatives. Actors that are particularly useful include those that control or could provide access to resources such as the CEO, Chief Financial Officer (CFO), other members of the senior management team<sup>13</sup> (SMT) and key professional groups such as clinicians and nurses. Members of the SMT who determine the strategic direction, project leaders and teams responsible for implementation of the IS strategy are also important. Influence domains are not restricted to those in the organisational hierarchy; operational staff, line managers and users also need to be persuaded to be involved and support the IS strategy and are included in the domains.

### **6.3.4 Decision Trajectory**

Investigation of the strategy process literature in chapter two shows it characterised as a decision making process (formulation) that follows a particular direction (Quinn, 1980; Fredrickson, 1984) which is separated from the actual doing (implementation). There is an ever-present debate in the strategy making field between advocates of a rational (synoptic) deliberate view of strategy making and the proponents of an incremental emergent view of the process (Mintzberg, 1990a). The attribute decision trajectory is therefore used to show that the strategy process does not imply a single decision made at a particular point in time rather it could be numerous individual and collective decisions following a trajectory that may explicitly or implicitly emerge over time as actions. The division of strategy into

---

<sup>13</sup> The Senior Management Team is defined as the organisational collective consisting of the CEO, CFO, COO and other senior executives or professionals who are formal members of the senior management team (Hambrick and Mason, 1984)

formulation and implementation; however, is a construct that helps simplify perceived reality and as such is an important tool for developing the strategic process.

### **6.3.5 Influencing Activity**

Through the grounded theory analysis a further sub-core process of 'influencing' in the IS strategy process emerged as an important theme which interacted with activities of all the roles. The importance of the influencing process for the CIO was further corroborated by the literature (Yukl and Tracey, 1989, Eden, 1992; Saberwal and King, 1995). This portrays influencing as the activities undertaken by the CIO to convince other executives to allocate support, attention and resources to the IS strategy (Earl and Feeney, 1994; Maruca, 2000; Enns et al, 2001). Executive leadership is also described as a process of social influence (Applegate and Elam, 1992). The activities in the IS strategy process are influenced by different stakeholders including top management and IS management (Sabherwal and King; 1995). These decision episodes are a great deal more than determining what to do. They are also about activities for mobilizing support and creating commitment (Brunsson, 1989). To represent these activities influencing is included as an attribute.

### **6.3.6 Enactment**

The attribute enactment is used to characterise the actions required in order to perform the six roles in the IS strategy process. It is closely intertwined with the decision trajectory attribute. Both decision trajectory and enactment use the gerund form of the verb 'ing' to show action (Weick, 1979). One of the main early contributions of the process view of strategy was that strategy decisions (formulation) and actions (implementation) were not separate but rather coexisted in a mutually supportive inter-relationship (Wilson and Jarzabkowski, 2004). Action can precede decision (Norman, 1985, Mintzberg and Waters, 1990, Brown and Eisenhardt, 1998). Weick (1987) develops the idea that meaning and sense are produced through action, and that strategy acts merely as a guiding symbol. The positioning of the enactment attribute in the typology does not imply that it occurs after the decision trajectory attribute rather it represents actions as the tangible effect or outcome of enacting the role. The outcome is not produced as the end of a particular phase of the IS

strategy process, rather it represents a transition point at the leading edge of the decision action sequence of activities.

### **6.3.7 Timing**

Time is a fundamental medium of social life and a key referent in the social world. Individuals, groups, organisations and cultures develop predispositions in their perceptions of, reactions to and use of time (Van de Ven and Poole, 2005). Processual research has to take the social basis of time as an element in the theoretical approach and over what temporal dimension would one expect to see the process carried out. Definitions of strategy process reference the activities and patterns occurring to time (Monge, 1984, Van de Ven, 1992, Pettigrew, 1992a). This temporal dimension is often neglected in studies of the strategy process (Camillus, 1982; Adam 1990; Das et al, 1991, Galliers, 2004). Strategy practice by its very nature is subject to multiple kinds of temporal uncertainties and ambiguities (Johnson, et al 2003). The order of the roles and their attributes in the typology does not signify any temporal sequence; rather the roles are distinct sets of activities that unfold over time. The timing attribute characterises the importance of the temporal dimension for the roles in the IS strategy process. Differences in what that time period means to the organisational informants may also pose a threat to the validity of the research methods and findings (Cook and Campbell, 1979). The timing attribute reflects a socially constructed view of time that fits the context of the emergent process being examined. This attribute indicates the temporal orientation of the roles uncovered.

The roles of the CIO in the IS strategy process in public healthcare organisations are shown in Table 8.

**Table 8. A Typology of CIO Roles in the IS Strategy Process**

<i>Attribute</i>	<i>Role</i>	AMBASSADOR	VISIONARY	BROKER	FACILITATOR	TECHNOLOGIST	COACH
<b>Focus</b>		Relationships	Ideas	Resources	Change	Technology	Problems
<b>Perspective</b>		Socio-Political	Synthesis	Acquisition	Process	Innovate	Understand
<b>Influence Domain</b>		Constituents	Stakeholders	Patrons	Teams	Users	Owners
<b>Decision Trajectory</b>		Engaging	Communicating	Negotiating	Enabling	Collaborating	Resolving
<b>Influencing Activity</b>		Nurturing	Selling	Justifying	Motivating	Controlling	Educating
<b>Enactment</b>		Allying	Leading	Prioritising	Co-ordinating	Implementing	Learning
<b>Timing</b>		Continuously	Future	Cyclical	Phasing	Immediacy	Present

## 6.4 The Praxis and Theory of CIO Roles in the IS Strategy Process

In this section the roles are illuminated as undertaken in practice and supported by theory. Each role, its attributes and key tasks are first described collectively using some examples of data collected from all the informants which was compared and abstracted through the GTM. The voice of the CIO is then heard again through a series of practitioner vignettes of each role. These help the reader to see the social praxis of the CIOs as they enact the IS strategy process through the distinct roles. Examples are given where individual CIOs performed the role fully as presented in the typology and these are contrasted with examples of partial or no enactment. The roles are then compared to the extant literature. This phase of GTM represents the accessing of relevant literature. More focused reading only occurs when emergent theory is sufficiently developed to allow the literature to be used as additional data (Glaser, 1978).

### 6.4.1 The Ambassador in Practice

The Ambassador develops *relationships* using a *socio-political* perspective. Decisions are made to *engage* with key *constituents* with the requisite knowledge, power and authority to facilitate the IS strategy process. The Ambassador influences these relations by *nurturing* them formally and informally, maintaining them through regular contacts, mutual obligations and by building a reputation with key constituents. Once engaged, these relationships are used *allying* individuals, champions and coalitions to support the IS strategy process. This role is undertaken *continuously* throughout the IS strategy process.

The focus of the Ambassador role is *relationships*. These are developed with individuals and groups internal and external to the organisation. Internally the Ambassador uses these relationships to gain further insight and understanding of the business of the organisation. They also provide an opportunity for reciprocal understanding for those key constituencies outside of the IS function to gain insights into the use of technology. Relationships are developed at all levels of the organisation including the SMT as well as those professional and semi professional groups supporting and delivering healthcare. The Ambassador also engages with those at the 'coal face' including 'smart users'. The latter was a term used to describe technology literate individuals in the organisation that could provide operational

and strategic insight to the Ambassador. A key internal relationship for the Ambassador is with the CEO. The relationship with the CEO is used to arbitrate on difficult decisions, resolve political disputes or to acquire additional resources when other means fail.

The Ambassador uses a *socio-political* perspective to shape the development of their relationships. This perspective is needed to relate to and understand the different cultures and constituencies in the organisation and how to interact formally and informally with them. They are sensitive to the 'politics' of the organisation determining which individuals and groups have the knowledge, power and authority to support or hinder the IS strategy process. The Ambassador builds rapport and encourages trust with the influence domain; of *constituents* involved in, served by, or influential to, the IS strategy process. These are groups and individuals throughout the organisation at different levels as well as those external to the organisation.

The decision trajectory of the Ambassador role is *engaging*, determining which constituents can best facilitate the IS strategy process and building relations with them. This is achieved through formal means such as regular IS strategy meetings and IS strategy project structures. Informally the Ambassador uses social opportunities and informal contacts with the key groups and individuals to develop networks. Having access to, or being a member of the SMT, facilitates such contacts. External relationships are also important to the Ambassador. These include relations with vendors, policy makers outside the organisation, key staff in the DHSSPS, peers in other healthcare organisations as well as those organisations concerned with the totality of healthcare such as education, social services and public service organisations. Opportunities arise to engage with these groups at regional meetings, vendor demonstrations and through contributing to regional projects. When there is a meeting internal or external to the organisation the Ambassador makes sure they are represented. The Ambassador encourages their own staff to build networks and contacts throughout the organisation that become the 'eyes and ears' of the role. Through relationships with constituents the Ambassador identifies credible champions and allies for the IS strategy process. The Ambassador also gets the opportunity to know those who are antagonistic to IS strategy.

The Ambassador influences these relationships through *nurturing* them with appropriate care and attention. This is achieved by building a reputation with constituents throughout the organisation particularly the senior management team, professionals and users. Other means include furthering common interests of the Ambassador and their constituents through the development of mutual obligations. For example, small pieces of ICT work or projects are undertaken for key constituents in order to win support later on difficult IS strategy issues.

The enactment of the Ambassador role is *allying*, forming alliances and coalitions with the champions in the constituency. Champions are used by the role in a number of ways; to promote the aims of the IS strategy and the CIO, to share the risks of proposed projects, give impetus to users, to communicate with resisters, to lead projects and to help raise the profile of the CIO. Champions are also used to influence decision-making and those making decisions and as a means to mobilise like minded people in the organisation to support the IS strategy. Champions have credibility with their peers, are interested in technology and have the right profile to get support from colleagues. The timing of the role is not in discrete episodes rather it is enacted *continuously* throughout the IS strategy process. Table 9 shows the attributes of the Ambassador role using examples from the interviews with the informants, the codes following the quotes denote the informants' initials, which are decoded and identified in appendix 1.



Table 9. The Ambassador: Attributes and Key Activities with Examples from the Data

ATTRIBUTE	AMBASSADOR	KEY ACTIVITIES	EXAMPLES FROM THE DATA
<b>Focus</b>	Relationships	<ul style="list-style-type: none"> <li>Developing internal and external relations</li> <li>Focusing on key individuals and groups</li> <li>Increasing mutual understanding of business and IT</li> </ul>	<p>'I foster relationships with staff at all levels including those at the coalface'<sup>(WA)</sup></p> <p>'Links outside the organisation are important, we are a small community Trust, I look for return on partnerships with regional initiatives in education and housing'<sup>(DM)</sup></p> <p>'I build relationships with the Trust's staff - it helps them see IT as a support service'<sup>(WA)</sup></p> <p>'I informally seek out the key people, the CEO especially knows the issues'<sup>(RO)</sup></p> <p>'I identify key people that I need to work with throughout the organisation'<sup>(KOL)</sup></p> <p>'Project structures give me insight and allow me to liaise with the business side it's my network'<sup>(SB)</sup></p> <p>'ICT is everywhere I can use informal networks to find out what is going on in the business'<sup>(D'OL)</sup></p>
<b>Perspective</b>	Socio-Political	<ul style="list-style-type: none"> <li>Appreciating cultures (roles, norms, values)</li> <li>Understanding the politics, the basis of power and authority</li> <li>Build rapport and trust</li> </ul>	<p>'The culture in the organisation is still techno-phobic despite the investments made'<sup>(RO)</sup></p> <p>'Culturally there is a lack of trust of IT staff throughout the HPSS'<sup>(KOL)</sup></p> <p>'I bring ICT onto the agenda of the senior management team I use the power of these individuals'<sup>(BD)</sup></p> <p>'It's a matter of politics who gets what... I use the CEO to resolve political issues'<sup>(SS)</sup></p> <p>'Politics drive the strategy, what will it be, will it be shared, just for the hospital or is it outside'<sup>(ED)</sup></p> <p>'I have to be aware of people's egos especially consultants, I have to manage them'<sup>(DM)</sup></p> <p>'You have got to sound people out, get a common language, there is infighting between sides'<sup>(ED)</sup></p>
<b>Influence Domain</b>	Constituency	<ul style="list-style-type: none"> <li>Get to know individuals and groups involved</li> <li>Understand their influence</li> <li>Make contact with constituents</li> </ul>	<p>'I form links with education bodies, the public housing executive'<sup>(DM)</sup></p> <p>'I use my past experiences with groups and individuals to inform my future actions'<sup>(BD)</sup></p> <p>'I influence through my relationship with the members of the senior management team'<sup>(DM)</sup></p> <p>'I need to know who to speak to get decisions made'<sup>(ED)</sup></p> <p>'I meet with the department of health and suppliers and make and renew contacts'<sup>(BD)</sup></p> <p>'I put the necessary time in to build relationships'<sup>(KOL)</sup></p>
<b>Decision Trajectory</b>	Engaging	<ul style="list-style-type: none"> <li>Meeting formally and informally</li> <li>Assessing support for IS</li> <li>Identifying credible champions</li> </ul>	<p>'I have the ear of the top people, the senior managers, clinicians and suppliers I meet them at every opportunity'<sup>(BD)</sup></p> <p>'I use the informal network at one level to develop the IS strategy'<sup>(D'OL)</sup></p> <p>'I know who the supporters are and who will support me'<sup>(WA)</sup></p> <p>'I identify people I need to work with'<sup>(KOL)</sup></p> <p>'I informally seek out those key people that can give me support, like the CEO, Chairman, staff'<sup>(RO)</sup></p> <p>'I need a champion that is seen to lead the IS strategy, it's a given they must be respected'<sup>(TM)</sup></p> <p>'People in teams from users departments are used as champions, I select the smart users'<sup>(GI)</sup></p>
<b>Influencing Activity</b>	Nurturing	<ul style="list-style-type: none"> <li>Maintaining relationships</li> <li>Building a reputation</li> <li>Using mutual obligations</li> </ul>	<p>'I form good relationships over a period of time'<sup>(SH)</sup></p> <p>'Working in partnership with the public and private sectors, working with suppliers long term encouraging ownership and commitment, maintaining these relationships'<sup>(DHSSPS, 2002)</sup></p> <p>'If I help them with problems I know they will help me'<sup>(WA)</sup></p> <p>'I give them things, the clinicians... to get them on my side'<sup>(SB)</sup></p> <p>'I avoid confrontations, it's money in the bank doing favours, it's more votes to get stuff passed'<sup>(SH)</sup></p>
<b>Enactment</b>	Allying	<ul style="list-style-type: none"> <li>Communicating with detractors</li> <li>Mobilising champions</li> <li>Forming alliances</li> </ul>	<p>'I get to know the people that are negative, I know they will come round'<sup>(WA)</sup></p> <p>'I use champions to communicate with resistors'<sup>(IW)</sup></p> <p>'I use a champion to minimise risk and reduce the chances of failure'<sup>(BD)</sup></p> <p>'I make sure I get support from my allies prior to decision making'<sup>(D'OL)</sup></p> <p>'The allies I make are through good working practices'<sup>(SH)</sup></p> <p>'I use the CEO to arbitrate on project decisions if necessary'<sup>(SB)</sup></p>
<b>Timing</b>	Continuously	<ul style="list-style-type: none"> <li>The tasks are carried out throughout the IS strategy process</li> </ul>	<p>'I need the contacts and ability to influence them continuously'<sup>(D'OL)</sup></p> <p>'I raise the profile of the IS strategy for the organisation at every opportunity... I bring it closer to the people'<sup>(BD)</sup></p>

## Vignettes of Praxis

In this section the praxis of the CIO is further illuminated through short vignettes that describe how individual CIOs enacted the six roles in their organisations. CIOs do not enact all the roles equally; rather some are performed more comprehensively than others. Two examples are given, first is an exemplar where the CIO enacted the role comprehensively. Second and in contrast where there was partial or poor enactment of the role. With some roles more than two examples are used to show the variety of activities evident in the execution of the role.

### The Ambassador

The CIO previously reported to a functional director in the same organisation. Her integration as a Director into the structure of the senior management team (SMT) made IT more '*mainstream*' by permitting issues to be formally raised on the regular agenda of the top team. Being on the SMT really made a difference, she now felt she '*had the ear*' of the key functional and clinical directors. Her SMT status also facilitated more informal meetings and interactions with her colleagues such as the CEO, Clinical Director and CFO whose support were key in getting her ideas established and supported. Every formal and informal meeting was used to raise the profile and importance of IT as a means to support both the clinical and managerial functions. She used a '*jargon free*' non-technical language in order '*to get them on board*' so they would be supportive of the IS strategy. These discussions also provided a means for the CIO to gain a broader understanding of the business and to interpret what her colleagues' views were. Through these relationships other directors on the SMT could more readily discuss issues of concern. Every meeting was an opportunity to brief them as to current problems and new ideas she had for IT.

Previously, powerful senior professionals such as senior clinicians could make demands for software and hardware outside of the IS strategy and many discussions '*took place behind closed doors*'. Such tactics could now be neutralised through the formal business of the SMT. There was an awareness of the '*power*' the members of the SMT could bring to bear to get IS projects approved and funded. What were termed '*mental profiles*' were kept of her previous experiences of the SMT and other staff when implementing IS. There

were some senior clinical professionals in the Trust who were not comfortable using IT systems, they regarded this as a clerical task. Many of the more experienced medical and nursing staff were unsure how to use computers. Awareness of the receptivity of certain cultures to technologies and how previous IS strategies were supported was needed.

Relationship building extended to all levels of staff throughout the organisation. It was important that the CIO was approachable in order for her to find out what the main operational and strategic issues were throughout the hospital Trust; she encouraged her own staff to form their own networks.

*"I set up networks and develop relationships, I facilitate people to create networks I do subtle team building, it's important for those that resist change...I use covert exercises to build confidence, I have a mental profile of individuals and their past experiences with ICT projects"*

Relationships were built on trust and confidence, and showing that the IS strategy is supporting staff in their day-to-day work especially the clinicians. Those with concerns about using IT were brought along. The CIO set about improving technology skills of those senior executives and clinicians who needed to have credibility and confidence within the Trust when faced with IT.

*"I bring IT out to the clinical professionals, we launched an 'e' learning facility for those professionals such as nurses and doctors who did not have a desk, especially those working in the community. We've been running basic computer skills courses for three years ... these break down the barriers surrounding the use of IT".*

Relationships built with IT champions in the Trust were used to influence their peers. More IT capable clinician peers, linked through the subtle hand of the CIO, reassured clinicians with reservations about IT. These champions would also facilitate ownership and commitment to future IS strategy projects. Externally key IT decision makers at the DHSSPS were targeted and lobbied at regional meetings or informal lunches. It is here that informal intelligence could be gathered on what the regional imperatives for IT really were and whether regional funding was available to pursue a local project. The CIO would offer the Trust as a pilot site for any regional IT initiatives bringing both kudos and resources.

Project structures were used as the formal coordination and action mechanisms through which the benefits of her relationship building were apparent. It was important to have the *'right people or champions on appropriate project teams such as the new Accident and Emergency and Radiology systems to lead and ensure the right message got across'*. This was easier to facilitate if the CIO knew those staff members who could cooperate and collaborate in implementing the IS strategy. She thought that being female helped overcome the perceived limitations of some of her technical staff that were too *'bogged down in providing an operational service'* to take the time to nurture relationships. The CIO got to know her project managers and could use these relationships to formally and informally monitor the progress of projects. Special efforts were made to get to know those that were particularly negative, why they had these views and whether it was an underlying risk to the IT project. The Ambassador role was undertaken all the time and IS strategy making was a day to day activity not just reserved for the SMT.

In contrast, relationships were of less importance to our next CIO. Reporting to the CFO it was an *'uphill struggle'* to get IT moving within the Trust. There was an IS steering group chaired by an interested and enthusiastic CEO. The CIO attended and it was here that IS strategy business was done. However, there were problems with the effectiveness of this group and like many in the organisation the CIO was not convinced of its value.

*"The IS strategy group is not really a steering group, it's just a talking shop. It's useful in that it gives the impression there is a mechanism to IS strategy there but there is not. IT is complex and a lot of key people are excluded, it's not representative ...there is always a political leaning, the CEO is interested and enthusiastic but decisions are not made"*

The CIO's main interactions were with his line manager, the CFO. Approaches were made to the CFO for funding in order to *'push IT projects through no matter what'* these often came from other executives such as the Director of Nursing. IT projects were not prioritised and *'edicts'* were passed to the CIO and these had to be done outside of the IT steering group. There was no sense of actively building relationships at all levels of the organisation. Those relationships that were built were usually at the instigation of proactive users who had already started some IT work and had now contacted CIO. They were the champions and *'smart users'* that used their initiative through raising their own resources.

These could be clinicians who would develop an IT system or procure a product from a vendor that could address their individual needs. They effectively bypassed the IS strategy process and now required IT support. The CIO's colleagues in the organisation were '*not interested in the detail and the layers of bureaucracy*'. The organisation was heavily unionised and communications between the staff levels often broke down. This "*killed off champions*" and made the implementation of the IS strategy more difficult. Having a mix of staff on IT project teams and their ability to work in teams was important. The CIO's IT staff were always placed on the project teams '*and it was a matter of selling themselves to those teams and convincing team members of their importance*'. The CIO used argument and negotiation to tackle the leaders of project groups otherwise he would get the blame if the projects failed.

Reflecting on both CIOs' experiences shows a polarity in the enactment of the Ambassador role. Building relationships was a key focus for our first CIO; conversant and engaged with staff at all levels. She grew relationships, made allies and built a reputation with her peers. In contrast the second CIO placed less emphasis on relationships. He struggled with formal reporting structures and an ineffectual IT steering group. The CIO relied on his relationship with the CFO to authorise projects. However, he often ended up responding to IT initiatives that had been started without his knowledge or approval. Placing IT staff in key project roles in an effort to ensure projects were successful relied on their relationship building skills, often these were unsatisfactory and the CIO had to intervene himself to argue and negotiate projects along if there were problems – which there often were.

#### **6.4.2 The Ambassador and the Literature**

Relationships between the CIO and senior management provide a means to facilitate understanding of the business, as well as to encourage ownership, commitment to and participation in the IS strategy process (Enns et al, 2001). The Ambassador uses formal face to face meetings and IS strategy steering committees to provide integrative mechanisms to engage senior management in the IS strategy process. They are also opportunities to increase CIO's understanding and awareness of the business (Premkumar and King, 1994). The impact of IS strategy committees depends critically on the composition of their membership, the critical member is the CEO (Raghunathan and Raghunathan, 1994).

Relations with key individuals such as the CEO increase the Ambassador's understanding of the business and their positional power also provides a pressure point to get things done. For a CIO developing a deep understanding of the business can facilitate the effective use of IT (Rockart, 1995). CEO support is needed to give the IS strategy process credibility and to increase the chances of successful implementation (Aron and Blosch, 2004). The Ambassador uses his/her relationship with the CEO to resolve highly equivocal issues in the IS strategy process, although this tactic can cause consternation among other members of the executive team (Watson, 1990). Greater interactions between the CEO and CIO in different IT fora such as steering committees are shown to favourably influence the use of IT (Jarvenpaa and Ives, 1991).

The CIO's perceptions of key organisational issues are influenced by their relationship with the CEO (Watson, 1990). The success of the CEO / CIO relationship depends on there being a shared vision of the role of IT as an agent of transformation (Feeney et al, 1992). Relationships are also reciprocal in that they provide a means whereby the senior management team and staff groups outside IT can improve their knowledge of the application and use of technologies. Relationships also provide a mechanism for the Ambassador to link 'smart users' and their ideas to the senior management team. Stephens and Loughman (1994) found in a study of CIOs in five different types of organisations that face to face communications were important in bridging ideas from IT and the rest of the business. The frequency of communication between a CIO and their superior is often a matter of trust, based on length and quality of service, professional reputation, accessibility and communication style (Potter, 2003).

Ambassadors need to have a wide network of contacts inside their organisation as well as external communication networks, to help them find the right person(s) when trying to make things happen in the IS strategy process (Kotter, 1982). The most important choices managers make is the selection and maintenance of informal internal and external organisational contacts (Stewart, 1991; Workman, 1993). In the IS strategy process it is the relationships that are developed rather than just the contacts which make these choices important. Effective relationships, dialogue and knowledge sharing between CIOs, their staff and senior managers are important in assimilating IT into the business (Keen, 1991; Mata et al, 1995; Armstrong and Sambamurthy, 1999; Chan, 2002). IT assimilation refers

to the success achieved by organisations utilising the capabilities of IT to enhance their business performance (Armstrong and Sambamurthy, 1999). Developing good working relationships with peers is widely acknowledged as a necessary condition for the general success of CIOs (Henderson 1990; Keen 1991; Stephens et al, 1992, Earl 1993; Peppard and Ward, 1999, Earl and Feeney, 2000). Formal and informal networks and relationships can also impact business and IS strategy alignment (Agarwal and Sambamurthy, 2002; Chan, 2002; Weiss and Anderson, 2004). From the Ambassador's perspective effective organisational relationships, among partners, suppliers and customers need to be strategised, constructed and managed (Blosch, et al, 2003).

Healthcare organisations are highly politicised and healthcare management takes place within a politicised context. As well as being subject to governmental politics as organisations they consist of many different occupational and individual interest groups, with professional bodies protecting their preferences and interests (McNulty and Ferlie, 2004). CIOs need to know their organisations' histories, become politically astute and leverage their relationships with people to address problems and opportunities in the IS strategy process (Feld, 2003). The credibility of the IT department is influenced more by its relationship management and political adeptness than its ability to deliver a tangible product or service (Chatham and Patching, 2000).

The Ambassador reaches out at every opportunity to develop relationships with senior executives, line managers, and professional groups as well as key constituents external to the organisation. The onus is on the Ambassador to build strong relationships. These develop respect between organisational peers and permit the honest and open face-to-face interactions necessary to quickly and effectively establish direction and deal with problems. Comfortable and open relationships also allow functional executives and others to approach their CIO with concerns about proposed projects or problems with current operations in a problem solving rather than a confrontational attitude (Pyburn, 1983; DeLisi et al, 1998). The prominence of the Ambassador role supports findings by Earl (1989) and Datz (2003) that CIOs often do not have the quality relationships with the people that matter in the business. However, there is evidence that senior executives want closer relationships with CIOs (Delisi, et al, 1998).

Brown et al (1996) describe the formation of internal and external managerial linkages as 'IS partnering'. The research here suggests that within the context of public healthcare organisations IS partnering extends also to those that are 'at the coal face'. Strategic innovation increasingly involves managers at the periphery, rather than those at the centre (Johnston and Huff, 1997). Through the Ambassador role, CIOs shape the IS strategy process and overcome their relative lack of influence at the executive level. Enns et al (2001) suggests this lack of influence is due to a number of contextual factors, these include the relatively recent emergence of the CIO in organisations, failure of past projects jeopardising future projects and the perception of CIOs being too technically orientated and therefore having problems relating to other managers.

The Ambassador views their role in the IS strategy process through a socio-political lens. Engaging constituencies who through support, mutual obligations and influence, can provide assistance in the IS strategy process. Selection and deployment of champions and allies help the Ambassador expand or maintain control over organizational interest groups, enhance their own position, build a power base, and allow them to establish the right political connections (Pavett and Lau, 1983). The CIO's socio-political activity includes lobbying, coalition formation, conflict and bargaining around the IS strategy process (Narayanan and Fahey, 1982; Waema and Walsham, 1990; Flynn and Goleniewska, 1993).

Relationships provide an opportunity for the Ambassador to understand the business from different perspectives as well as to uncover champions and allies. Champions are used to create ownership, win over sceptics and lead IS projects. Because IT innovations in healthcare organisations are risky and consume significant organisational resources, they need champions and executive support (Schön, 1993; Coopriider and Victor, 1993; Boynton et al, 1994). Champions must be willing to put themselves on the line for an idea and use a variety of tactics in order to succeed to a degree that goes beyond the requirements of their job (Beath, 1991). Relationships also act as a sounding board for strategic ideas (Hart and Quinn, 1993). A characteristic of champions is their ability to develop creative responses to problems that confront them (Heng et al, 1999).

Nurturing relationships provides a means to influence the thinking and actions of constituents in the IS strategy process. Influence behaviours at the CIO's disposal include



coalition and consultation tactics used to convince executives of the potential strategic impact of IS (Lederer and Mendelow, 1988), also to gain acceptance of other executives (Stephens et al, 1992), to achieve a shared vision of IS's role in the organisation (Earl and Feeney 1994) and to manage impressions of the IS function (Fiegener and Coakley 1995). Mutual benefits, co-operation, trust and commitment are all important ingredients for building and sustaining relationships (Brown, et al 1996). In order to have credibility and build a reputation especially with the top team the Ambassador must maintain existing relationships and develop new relationships (Raghunathan and Raghunathan, 1989). These relationships also have to be managed and renewed if their value is not to decay (Markides, 2002).

The basis of the Ambassador's influence depends on mutually satisfactory exchanges that can build relationships. Cohen and Bradford (1989) argue that people are influential only if they can offer something that others need. What matters most in exchange situations is success in achieving task goals and success in improving the relationship so that the next interaction will be even more productive (Cohen and Bradford, 1989). Failure to treat other people as potential allies, to understand a potential ally's world, and to be self-aware are all factors that interfere with successful exchange. Approval of IS strategy projects have much to do with networks of trust: who knows whom; this was particularly important where personal appeal is needed. There is also evidence that the exchange behaviour ('you do something for me and I will do something for you') can be used to secure funding for IT infrastructure (Ross and Beath, 2002).

In their relationships CIOs have insights into the problems of the organisation but often not the authority to make decisions. The senior management team often have the authority but lack the insight into organisational problems amenable to IT. CIOs must be able to influence their peers in order to bring IS strategies to fruition (Enns et al, 2003) and enlist support from peer managers to indirectly present their views of IS to targets of influence (Fiegener and Coakley, 1995). CIOs, depending on their place in the organisational structure, need to apply upwards and lateral influence skills in order to convince their peers in other functional areas to commit to IS strategy initiatives (Maruca, 2000; Ross and Feeney, 2000). A mature relationship is a necessary precursor to being able to exert influence. Rational persuasion and personal appeal influence behaviours are likely to be

most effective when seeking commitment to IS strategy projects in cases where the CIO has an established relationship with a peer (Enns et al, 2003). One of the most important things that CIOs can learn is how much control and influence they can exercise over the systems of which they are a part and others of which they are not a part but with which they interact (Ackoff, 1993).

The Ambassador role supports Brown et al's (1996) view that the focus of IS leaders should be on co-operative, interpersonal relationships that are built and sustained outside of the traditional hierarchical reporting arrangements and outside of inter-organisational contractual arrangements. Building alliances with internal peers is critical for successful CIOs (Stephens, 1995). Strong working relationships build respect between organisational peers and permit the honest and open face-to-face interactions necessary to quickly and effectively establish direction and deal with problems (Delisi et al, 1998). Effective CIOs exhibit consultative behaviour to communicate key issues to others and to obtain commitment to the IS strategy (Lederer and Mendelow, 1988; Yukl and Tracey, 1992; Earl, 1993, Earl and Feeney, 1994; Reich and Benbasat, 1996). The IS strategy process is not a discrete event rather an on-going sequence of activities that require relationships to be continuously developed by the Ambassador. The pace of change collapses strategy making from the measured cycle of well-defined episodes into a much more continuous process (Brown and Eisenhardt, 1999).

The purpose of the Ambassador role is to develop, maintain and use relationships. These facilitate mutual understanding between IS and the business. These enable the Ambassador to engage with and influence a constituency of allies to support the IS strategy process. Relationships are based on their own credibility and ability to understand and interpret the needs of different constituents throughout the IS strategy process.

### 6.4.3 The Visionary in Practice

The purpose of the visionary role is to collate, synthesise and communicate their *ideas* on how to exploit IT. The visionary's interactions with and understanding of the internal and external context of their organisation permits his/her ideas to be *synthesised* into a viable course of action. *Communicating* and *selling* the resultant ideas through formal and informal channels to *stakeholders* in a way they can easily understand in order to receive endorsement for the IS strategy. The role is enacted by *leading* stakeholders through articulating, interpreting and persuading them to support the *future* vision.

The focus of the Visionary is *ideas* for the IS strategy. These are obtained from internal and external sources. Internally the contents of the business strategy, organisational information needs as well as their own knowledge and experience are used to formulate ideas. Externally, strategic directives must be undertaken to provide information needed to meet statutory targets set by the DHSSPS. A minority of the CIOs are directly involved in the business strategy process and are well positioned through interactions with the SMT to appreciate the main strategic and operational problems facing the organisation. The Visionary is receptive to innovative ideas from senior management, clinicians, IT staff and users as well as those outside the organisation such as suppliers, vendors and peers in other organisations. Ideas may be in the form of new technologies that may offer opportunities to deliver and support services in new ways or improve the existing technical infrastructure. The views of stakeholders regarding the ideas and the ensuing vision are sought to determine imperatives for the IS strategy. External awareness is needed of social, political and technical developments that unfold as well as the local, regional and national business and IS strategies.

The perspective that makes the activities in the Visionary role meaningful is *synthesis*; the ability to place ideas in the larger framework of internal and external contextual events and distil the essence of what is required. The Visionary uses their knowledge of the organisation's stakeholders to filter and ensure ownership of the ideas to be promoted in the vision. The ideas must be capable of being realised as projects within the constraints of the resources that are likely to be available and the receptivity of the stakeholders to the ideas. The ideas for the IS strategy put forward must be implementable to ensure unrealistic expectations are not raised that cannot be delivered.

The Visionary's influence domain are the *stakeholders* in the IS strategy process. A stakeholder is "any individual, group, organisation or institution that can affect as well as be affected by an individual's, group's, or institution's policy or policies" (Mitroff and Linstone, 1993:141). Influencing targets for the Visionary include the SMT; key professional groups such as clinicians and nurses, as well as vendors, existing and potential users of technologies and those outside the organisation who have a stake in the realisation of the vision.

The Visionary must decide how and to which stakeholders to begin *communicating* the IS strategy ideas encapsulated in the vision. This can be achieved through formal means such as meetings with key stakeholders, IS strategy steering committees, presentations and IS strategy documentation. Informal and formal channels are also used to interpret and re-enforce these ideas using language that is business orientated, non technical and accessible. Interpretation is necessary in order to share the ideas with the stakeholders in the IS strategy process and persuade them of their potential impact in business, not technical, terms.

The Visionary influences the stakeholders by actively *selling* the ideas for the IS strategy to stakeholders. Ideas must be promoted with confidence and enthusiasm as coherent, achievable and beneficial to the stakeholder and the organisation. The informal relationships the CIO establishes with the CEO, the rest of the SMT, professionals and users provide a number of channels to share ideas, increase understanding and pre-empt any adverse reaction or resistance to the proposals. Champions are also engaged to promote the ideas and influence the views of those unreceptive to the vision.

The enactment of the Visionary role is *leading*, articulating the vision and its constituent ideas as a plausible way forward for the use of IT. Persuading and seeking endorsement from key stakeholders who will support the vision into the future. This relies on the Visionary's ability to interact with stakeholders at all levels, to use a language that can make the IS strategy understood in non technical terms and provide projects within the vision that will meet in some way the needs of the stakeholders.

The timing attribute represents the notional point in the *future* into which the Visionary's ideas extend and are valid. There is variation as to what point this may be, yearly, two, three or five years were put forward. The strategic horizon of the vision is often restricted by the cyclical availability of resources. Budgets are often set at the beginning of the financial year. The Visionary must therefore re-evaluate their ideas in the light of new circumstances such as moratoriums on the use of resources or directives from the DHSSPS. Table 10 shows the attributes of the Visionary role using examples from the informants.

Table 10. The Visionary: Attributes and Key Activities with Examples from the Data

ATTRIBUTE	VISIONARY	KEY ACTIVITIES	EXAMPLES
<b>Focus</b>	Ideas	<ul style="list-style-type: none"> <li>• Surfacing ideas from all staff</li> <li>• Uncover views on ideas</li> <li>• Determine imperatives</li> </ul>	<p>'I look at the corporate objectives in the business plan, the key functions and the types of information they require to support them'.<sup>(MS)</sup></p> <p>'Ideas often come from outside agencies, I look at other hospitals and suppliers'.<sup>(D'OL)</sup></p> <p>'I listen formally and informally and become a sponge for the ideas that are emerging'.<sup>(BD)</sup></p> <p>'I engage with different user departments and identify themes and issues to be put on the table'.<sup>(CH)</sup></p> <p>'It is important to uncover different perspectives and try and accommodate them'.<sup>(ED)</sup></p> <p>'I have to build outside imperatives into the strategy, it's more reactive than proactive... making others' visions work in our context'.<sup>(GI)</sup></p>
<b>Perspective</b>	Synthesis	<ul style="list-style-type: none"> <li>• Acquire ownership</li> <li>• Measure the ideas against context</li> <li>• Assess feasibility of ideas</li> </ul>	<p>'The strategy is a political process, there are different views, time is needed to get buy in, there is infighting and lack of ownership'.<sup>(ED)</sup></p> <p>'There is an accepted way of doing things it's formal, conservative and controlled'.<sup>(WA)</sup></p> <p>'I use focus groups and workshops for key staff, I highlight issues and areas of interest though I need to edit and qualify the ideas'.<sup>(K'OL)</sup> 'I make sure that the vision matches the landscape'.<sup>(ED)</sup></p> <p>'I filter ideas for IS strategy projects and I anticipate what will have a chance of succeeding'.<sup>(SS)</sup></p>
<b>Influence Domain</b>	Stakeholders	<ul style="list-style-type: none"> <li>• Identifying stakeholders</li> <li>• Know relative power</li> <li>• Seek opportunities to engage</li> </ul>	<p>'I influence through the IT strategy group'.<sup>(WA)</sup></p> <p>'I lobby the CEO for support of future ICT developments'.<sup>(BD)</sup></p> <p>'I tip off the appropriate director or the CEO about an idea I have picked up from a smart user'.<sup>(DM)</sup></p> <p>'A credible medic is used as a champion it's almost a given they are groomed for the job'.<sup>(TM)</sup></p> <p>'I use the IT steering group as the focal point of decision making, I get the CEO to chair, and they are the final arbiter'.<sup>(SS)</sup></p>
<b>Decision Trajectory</b>	Communicating	<ul style="list-style-type: none"> <li>• Identify key recipients for the ideas</li> <li>• Establish formal and informal channels</li> <li>• Share and interpret the ideas</li> </ul>	<p>'I need to pull along the senior team'.<sup>(WA)</sup></p> <p>'I know from experience who will be interested in the IS strategy projects'.<sup>(SS)</sup></p> <p>'The IS strategy group provides a formal structure to engage people it's a focal point'.<sup>(SS)</sup></p> <p>'I use the IS strategy group as an information vehicle for the SMT'.<sup>(SH)</sup></p> <p>'I listen and interpret what others are saying for the SMT, I break the vision into chunks otherwise they are overwhelmed'.<sup>(BD)</sup></p>
<b>Influencing Activity</b>	Selling	<ul style="list-style-type: none"> <li>• Use champions to focus attention</li> <li>• Promote measured expectations</li> <li>• Persuade using a business perspective</li> </ul>	<p>'I bring the ideas to the IT steering group, it engages staff in the process gets them involved and interested'.<sup>(SS)</sup></p> <p>'I bring champions to the IT strategy board; they speak up for projects'.<sup>(SB)</sup></p> <p>'There is a danger if I oversell projects that I can't deliver... especially if I have to promote regional projects'.<sup>(GI)</sup></p> <p>'I ensure the strategy is not just an aspiration, the plans must deliver benefits to the business'.<sup>(MS)</sup></p> <p>'I talk to and sell the ideas to the senior management'.<sup>(SS)</sup></p> <p>'I sell the IS strategy ideas using a business perspective throughout the organisation'.<sup>(D'OL)</sup></p>
<b>Enactment</b>	Leading	<ul style="list-style-type: none"> <li>• Show and interpret the way forward</li> <li>• Reassure doubters</li> <li>• Seek endorsement</li> </ul>	<p>'I lead at Director level, I engage and enthuse... you need to be astute and use the politics'.<sup>(BD)</sup></p> <p>'Sometimes I need to dictate the vision and focus the senior team on a common endpoint'.<sup>(D'OL)</sup></p> <p>'I need to show people the benefits of the IS strategy or else they will get stressed, I reassure'.<sup>(RO)</sup></p> <p>'I have difficulties getting endorsement and support; I use champions to push agendas'.<sup>(KOL)</sup></p> <p>'I get ownership and commitment to the IS strategy from key groups'.<sup>(CH)</sup></p>
<b>Timing</b>	Future	<ul style="list-style-type: none"> <li>• Establish, review and amend strategic horizon</li> </ul>	<p>'Timescales are usually 3-5 years there is no control beyond this'.<sup>(TM)</sup></p> <p>'I need to have a vision with timescales'.<sup>(JW)</sup></p> <p>'The vision needs to be fluid and revised over time'.<sup>(BD)</sup></p> <p>'An annual IS work plan is submitted to the senior management team sometimes they jiggle the priorities'.<sup>(GI)</sup></p>

## Vignettes of Praxis: The Visionary

The exemplar CIO recognised that the IS strategy process should focus on producing innovative ideas for how IT could improve the delivery of services. He came up with these ideas. They came from what he could glean from the business strategy and in particular from the business plans of the clinical and functional directorates. It was his job to filter and shape the ideas otherwise they could be a distraction from his overall vision for IS. Although not directly involved in the production of the Trust's business strategy he talked to business and clinical managers about their priorities. He gained '*intelligence*' on what was happening both within the organisation but also outside. The Medical Director was very important; he had a view of the future, '*that the core of the business was improving health*'. He also was very interested in IT. This needed to be kept in mind when implementing the IS strategy. Other Directors were less interested in the CIO's vision for IS. The CIO tried to get them involved by aligning elements of the IS strategy vision to their own individual business priorities. Clinical systems were the focus of the vision, especially those needed for the new regional cancer centre which was the focus of much public attention. IT was supporting every area of the organisation that allowed the CIO to accumulate extensive knowledge of the Trust's business over time. He knew generally the important present and future issues for the functional and clinical directorates of the organisation.

Ideas also came from outside the organisation. Discussions with peers in other Trusts were also useful, as was talking to suppliers and going to conferences on IT. Irrespective of where the ideas came from he had to ensure that maximum value was derived from IS strategy with minimum use of resources. There was almost a two level vision, what was needed in the long term and what was needed to address day to day operational issues through a short term allocation of capital. His overall vision looked 3 or 4 years into the future. This was not definitive and he recognised was always subject to change but stakeholders needed to see an outcome from the investment in IT.

*"Sometimes I know the endpoint for the vision is not clear and will change, though I try and get people to focus on a common goal. This would be the requirement for better information at the point of patient care facilitated by IT"*.

Sometimes there was clear focus to what was required of the IS strategy, IT infrastructures were often *'must do projects'*, imperatives needed to keep the organisation working to prevent failures, such as improvements to networks and security.

*"We can have great ideas but sometimes the timing is not right. However, the day to day operational stuff often takes priority but my long term vision is three years down the line, especially with the cancer centre new build"*.

Grand visions were all very well but they needed to be realistic and achievable. *"I need to communicate the likely outcomes and at what costs"*. He got feedback from talking his ideas through with other key staff, Doctors, Nurses, people at the *'sharp end'*. Demands of external strategies needed to be anticipated so that he could adjust his own vision if necessary. Local ideas were often constrained by the regional demands of the DHSSPS strategy, *"there are always priorities for action and waiting list targets to be met, demands to introduce booking systems for GP access"*.

The CIO needed to *"gauge the reactions of the key players, persuade them to take up his ideas. Unless they could be sold to the organisation in terms that were understood they would be dumped"*. Informal opportunities were used to discuss ideas for the IS strategy with the key players, get feedback and alter his thinking if necessary. The CIO provided the leadership and drive for the IS strategy; he ensured that key individuals contributed to the vision and any obstacles they had could be overcome. If he needed help to get his ideas approved or additional support he could go to the CEO directly, who would intervene on CIO's behalf.

Our next CIO needed to provide a clear focus for the way forward with the IT<sup>14</sup> through the IT strategy. He did the *"IT operational strategy, it had to be transparent to justify expenditure and show the SMT what was being done for them and of course it had to fit with the Trust's strategy"*. The IT strategy also facilitated regional DHSSPS initiatives.

*"It shows where we are and where we want to be, I do this at the beginning of the year ... It's an operational rolling plan for IT, I discuss this with Directors and senior*

---

<sup>14</sup> It is interesting to note that the nomenclature of IT with its technical emphasis featured throughout with this CIO rather than IS and its social and technical connotations as discussed in chapter 3.



*management who review it, I prioritise what can be done on the basis of manpower. I tell them what I can do technically”.*

The CIO's aim was to promote IT as a support service, deciding what IT projects would be undertaken. He chaired the IT steering group. Up to ten IT projects would be prioritised and the CIO decided when and how he would undertake them. The IT steering group was used to discuss IT issues and projects on a monthly basis in order to give the steering group feedback. Only projects that could be easily implemented were selected. These were also for key people in the organisation such as the clinical directors. The IT projects would *“help these people to do their jobs”*. Favouring certain projects for these key individuals also ensured support for the CIO's somewhat narrow technical focus.

*“Having ideas is fine, unless there is an underlying operational strategy things don't work, its common sense, for example merging the voice and data network (VOIP), I put the bandwidth there - so it can be done – I got the idea for this at a conference. It's not a massive investment... the directors don't have a clue, I do it - they just see the outcome”.*

It was his own rather narrow technically focused IS strategy that was shared and endorsed. *“There is not an overarching point of view except - getting value for money...I buy HP kit because it has a good record, I need resilience, security and continuity”.*

In contrast to the first CIO limited emphasis was placed by the second on collecting and integrating ideas into an overall vision for the IS strategy. There was little attempt to share the subsequent vision, rather it was more important to get his ideas for the IS strategy endorsed. The SMT did not understand technology and he made little attempt to change this. Stakeholders were told what projects would be in the IS strategy and were encouraged to support them. These had just one aim, making efficiencies. The operational necessities took priority.

#### 6.4.4 Visionary and the Literature

Corporate visions are usually descriptions of what their executives would like their organisation to be at some time in the future, expressed in very general and non-operational terms. In the IS strategy process the vision is often represented by a list of ideas for projects rather than the shared, aspired state of the role that IT should play in the organisation (Zmud, 1988). As organisations increase in both size and complexity; however, and as their sophistication with IS grows, more formal planning processes help to ensure the kind of broad based dialogue that is essential to the development of an “*integrated vision for IS*” (Pyburn, 1983:11). The Visionary shows a degree of cautious restraint in the ideas for IT, so there are realistic prospects of delivery. Senior management have a tendency to remember failures and forget successes. Potter (2003) emphasises the importance of CIOs managing expectations through credibility, access to the most senior levels of staff and the extant formal procedures or specifying system expectations.

The Visionary acquires ideas from sources inside and outside the organisation. Internally they use their understanding of the business, its objectives and information needs to stimulate ideas for IT projects. The CIO must have the ability to use many sources including vendor contacts, professional relationships, smart users and a network of personal contacts to monitor the environment and pick up these weak signals (Mintzberg, 1971; Coulson-Thomas, 1991; Grover et al, 1993). Many ideas for the application of IS strategy and understanding of what is needed comes from the lower levels of the organisation rather than from the top (Earl and Feeney, 1994). Decisions about implementing innovations require significant levels of collaboration and partnership between IT and business executives (Agarwal and Sambamurthy, 2002). The CIO becomes one of the main drivers of the IS strategy process by recognizing the emerging capabilities and applications of IT and arguing their significance to the business. They absorb and filter ideas that arise through networks of relations and respond to issues uncovered with ideas for projects (Boynton and Zmud, 1987; Earl, 1988; Ross and Feeney, 2000).

Communicating the contents of the vision to key stakeholders through formal and informal channels as viable propositions is essential to actively promote the IS strategy to stakeholders and persuade them to support it (Runge, cited in Earl, 1988). It is important to translate this vision into a core set of concepts and priorities that will mobilise the

organisation into a “*cause worth fighting for*” (Hart and Quinn, 1993:550). The vision connotes institutional values and meanings, symbols, and images that shape members’ behaviours (Berger and Luckman, 1966; Collins and Porras 1991). Effective top managers should possess the ability to articulate an emotionally meaningful vision or mission (Katz and Khan, 1966). CIOs and their champions make a conscious effort, from the earliest stages, to move throughout the organisation getting support for their ideas (Heng et al, 1999). Without a challenging core mission and set of values understood by all employees, even the best technical or economic strategy will go unrealized (Hart and Quinn, 1993). Building coalitions and securing approval from all stakeholders is crucial to the success of IT projects as is gaining commitment and support from top management. A shared vision of the role of IS in business is an important determinant of IS strategy success (Earl and Feeney, 1994). Effective communication and shared vision among senior managers form a chain that impacts the overall success of the organisation (Reich and Benbasat, 1996).

The Visionary is mostly excluded from developing the corporate business vision, yet Ross and Feeney (2000) argue that CIOs should take increasing responsibility for defining the organisation’s strategic future through leading the executive team in developing their business vision that captures the opportunities provided by IT. It is also important IS strategy steering groups not isolate IT initiatives from the corporate vision (Reich and Benbasat, 2000). The Visionary uses their relationships to acquire as rich an understanding as possible of this future. The term ‘*visioning networks*’ is used by Agarwal and Sambamurthy (2002:5) to describe relationship networks among senior management and senior IT executives. Their purpose is to foster collaboration among these executives for articulating a strategic vision about the role and value of IT. They help top management teams describe their perspective on the role of IT, their strategic priorities for IT use, and the links they see between IT and drivers of business strategy.

The Visionary interprets the vision for the IS strategy with stakeholders in the IS strategy process. An important part of the CIO’s strategic role is to provide thought leadership to other top executives, making them aware of the potential for IS to support and enhance the strategy of the firm (Stephens et al, 1992; Earl and Feeney 1994). The Visionary endeavours to understand and mobilise the interests of the stakeholders. CIOs must influence stakeholders by leading in order to secure endorsement of the IS strategy (Feld,

2003). One of the most important determinants of managerial effectiveness is success in influencing people and developing their commitment to task objectives (Yukl and Treacey, 1989).

A new vision or mental model of the given business environment must be developed and communicated to others to gain their support. Over time these concepts are further refined and a language developed allowing communication and providing a basis for common understanding and meaning (Hill and Levenhagen, 1995). Visionary aspirations change continually, especially in response to unanticipated changes in their environments (Ackoff, 1993). Organisations must have adaptive planning processes that are constantly responding to organisational dynamics (Henderson, 2002).

Overall the Visionary is the figurehead and thought leader for the IS strategy process in the organisation. They collect, contextualise and synthesize ideas for IS from all levels within the organisation and externally to stakeholders of the IS strategy. The Visionary interprets, communicates and promotes a clear meaningful set of ideas formally and informally to stakeholders. They provide foresight, imagination and leadership for the IS strategy in the organisation by persuading stakeholders to support the future vision for IS.

#### **6.4.5 The Broker in Practice**

The Broker's purpose is to identify, acquire and mobilise the *resources* needed to formulate and implement the IS strategy. Resources are secured from *patrons*; these are individuals controlling or with influence over the *acquisition* and allocation of resources. Resources are secured through *negotiating* formally and informally. IS strategy projects are prioritised against the resources available, the capabilities, needs and the impact the proposed projects will have on the organisation. *Justifying* the *priorities* put forward by the Broker is undertaken through the production of formal business cases. The timing of the activities is *cyclical* when capital and revenue monies become available as part of the annual budgetary cycle.

The Broker focuses on the *resources* needed to formulate and implement the IS strategy. Outcomes of previous IS strategies are analysed and projects which failed to secure

resources but are still relevant are carried forward into the next IS strategy. The Broker knows in advance what resources the IS strategy will need and from previous budget allocations what finances and staff resources are likely to be available. The perspective through which the role is undertaken is *acquisition*, how best to meet the imperatives for finance, staffing, time and technologies (hardware, software and communications) to deliver the projects in the strategy. In order to obtain the resources the Broker identifies resource controllers or *patrons*. These are groups or individuals with the authority to allocate resources for IT within or outside the organisation. The Broker lobbies key figures such as the Director of Finance (DOF) or CFO who determines budget allocations, other members of the SMT, clinical professionals and especially the CEO. The Broker is aware of other means to obtain resources outside of the normal budget allocations. Funds could be made available from the DHSSPS to pilot a new application on behalf of the region. Many clinical departments had access to 'endowments and gifts monies' from individual and charity donations and these could support the IS strategy. The Broker would use this route if it was likely that the IS strategy resources would not be enough to undertake an important clinical IT project. *Negotiating* opportunities are used by the Broker to secure resources from all sources informally through using established contacts with patrons. Interactions with formal co-ordination mechanisms such as IS strategy steering committees are also used. The Broker discusses the risks and benefits of projects in a business orientated language. The IS strategy is approved in principle and successful business cases are used as final confirmation that resources are available to proceed with the individual projects. Direct appeals are made to the CEO for resources that cannot be obtained through existing formal channels. This mechanism is used infrequently as it can upset other patrons.

The influencing activity of the Broker role is *justifying* the resources needed for the delivery of the IS strategy. The Broker schedules the IS projects in the context of the organisation's overall business strategy. The projects within the IS strategy are justified informally through discussions with patrons. Through these the Broker can subtly reinforce the anticipated costs and benefits of the contents of the IS strategy. A presentation of the IS strategy to the IS steering committee provides a means for these arguments to be presented formally to the SMT. A business case is produced to document and formalise the justification for projects. Criteria predominantly based on quantitative

cost benefit analysis and qualitative measures are used to measure the anticipated gains against the risks and the usually financial savings to be made. The effects of business change are considered and these can be wider than the project costs. Business cases are developed by the prospective users with assistance from the Broker and provide a focus to discuss projects with *patrons*. The Broker presents the business cases formally to the IS strategy steering group or resource allocation committee for approval. Informal lobbying of patrons such as the CEO, CFO, the senior management team and clinical staff also occurs to give the Broker a sense of which IS projects are likely to receive commitment and support. This allows the Broker to redistribute any likely future resources to under funded projects. The Broker uses opportunities when there are technical failures to secure additional resources. By concentrating on the problems created by such failures puts pressure on the SMT to prevent a potential major interruption to clinical services supported by IT. These tactics may be as important as the formal business case as a means of securing resources and winning approval for projects. The business case can be used as a means to formally justify a decision that has already been made through the informal channels in order to follow 'correct' practice.

In the enactment of the role the Broker prioritises projects according to the resources made available by the patrons. It is not possible to implement all projects simultaneously, therefore the Broker must decide what resources to deploy when and for what project. Resources are experientially matched to organisational capabilities. The risks and benefits of the proposed projects are assessed by the Broker, as are the capabilities and skills of those expecting to benefit from the projects. *Prioritising* of projects is undertaken by the Broker, often using an IT steering group or resource allocation committee to discuss and ratify the choices made. Organisational politics can influence these choices. IS strategy projects are undertaken for influential groups as a means to win support for the IS strategy or assuage other demands. Instead of getting a new item of clinical equipment or an additional staffing resource an IT system will be implemented. The Broker endeavours to ensure equity of distribution of resources. The contents of the IS strategy are aimed at addressing the concerns of as many areas as possible. Those who benefit as a result of the current IS strategy may not do so well the next. The Broker can also prioritise in isolation from the IS strategy steering committee seeking only the resources to pursue their own technical projects. These are argued as essential to facilitating other organisational

projects. Resources are allocated to those projects thought most likely to be implemented successfully. If the context is not supportive to the project then it is unlikely the IT project will be implemented. The Broker is cautious not to support projects that are too complex to be implemented even if the funding is available. Often capital could be made available that could procure hardware and software but not the additional technical, change management and ongoing support necessary to implement and maintain the systems.

The timing of the role sees Broker activities undertaken cyclically, when resources become available for negotiation. In public healthcare organisations resources are linked to the annual budgetary cycle where capital and revenue allocations are made at the beginning of each financial year. The time-frame needed for the Broker to engage in their activities can become compressed should new resources become available or new priorities established. There may be opportunities for investment using surplus 'end of year' monies or projects that can be resourced by other means such as through regionally funded programmes or through resources obtained from charitable funds supporting healthcare. Attributes of the role using examples from the informants are shown in Table 11.

Table 11. The Broker: Attributes and Key Activities with Examples from the Data

ATTRIBUTE	BROKER	KEY ACTIVITIES	EXAMPLES
<b>Focus</b>	Resources	<ul style="list-style-type: none"> <li>Know current resources and projects</li> <li>Identify new resource needs</li> <li>Seek resources</li> </ul>	<p>'There is a list of schemes that I need to move on in year, any projects not approved roll over'.<sup>(RO)</sup></p> <p>'I know year to year the availability of capital resources and I also wait for opportunities for one off investment'.<sup>(CH)</sup></p> <p>'I match the resources that are needed to the requirements of the business'.<sup>(SB)</sup></p> <p>'The capital available is made known by the CFO, I bid for a proportion of this, it's horse trading, I have to go to the SMT every year and look for resources'.<sup>(GI)</sup></p>
<b>Perspective</b>	Acquisition	<ul style="list-style-type: none"> <li>Appreciate resource allocation mechanism</li> <li>Obtain resources</li> <li>Mobilise resources</li> </ul>	<p>'I make it my business to get involved in the Trust's strategic development plans, I can use slippage money, although there is never enough to make a difference, doctors and nurses will take it'.<sup>(RO)</sup></p> <p>'The IS strategy is developed really as a means of obtaining resources for ICT'.<sup>(CH)</sup></p> <p>'I anticipate external funding of IT projects as a means to shift resources about internally'.<sup>(D'OL)</sup></p> <p>'There is a resource plan that I develop to distribute resources, it's how the money will be spent'.<sup>(BD)</sup></p>
<b>Influence Domain</b>	Patrons	<ul style="list-style-type: none"> <li>Identify patrons</li> <li>Know their agendas</li> <li>Secure support</li> </ul>	<p>'The CEO must be on board, I make a joint approach with the DOF at a business level'.<sup>(CH)</sup></p> <p>'I make sure I get the financial support from the DOF, if its not there I find somebody with clout that can support me with resources'.<sup>(D'OL)</sup></p> <p>'I try and tailor projects towards the controllers of financial resources'.<sup>(MS)</sup></p> <p>'There is collective decision making on what IT can go forward depending on other pressures'.<sup>(RO)</sup></p> <p>'It's important to gather the information that will support the decision making in business terms'.<sup>(MS)</sup></p>
<b>Decision Trajectory</b>	Negotiating	<ul style="list-style-type: none"> <li>Use formal and informal means</li> <li>Reinforce project benefits and risks</li> <li>Lobby for resources needed</li> </ul>	<p>'I argue and negotiate for projects through the IT strategy steering group'.<sup>(W)</sup></p> <p>'I summarise the projects that fall out the business strategy for the IT strategy steering group'.<sup>(SB)</sup></p> <p>'I gather prospective costs for the IS strategy to test the sponsors resolve with the project'.<sup>(D'OL)</sup></p> <p>'It's useful to push for resources after there has been a technical failure'.<sup>(SB)</sup></p> <p>'I lobby the DOF, he is the key to the delivery of resources'.<sup>(BD)</sup></p> <p>'I lobby and negotiate with resource holders, they can be throughout the whole organisation'.<sup>(DM)</sup></p>
<b>Influencing Activity</b>	Justifying	<ul style="list-style-type: none"> <li>Seek informal approval</li> <li>Develop formal business case</li> <li>Seek approval of business case</li> </ul>	<p>'We need to convince the CEO of the benefits, that the projects will be self financing, I don't raise expectations that cannot be met, it's often difficult to describe IT benefits in business terms'.<sup>(HF)</sup></p> <p>'Business cases are often accepted and justified before the IT strategy group meets'.<sup>(WA)</sup></p> <p>'Business cases need to be made to the controllers of money'.<sup>(ED)</sup></p> <p>'I use the business case to justify and buy in resources for our IS capital resources committee'.<sup>(SB)</sup></p> <p>'I do business cases for projects over 5k and these must be ratified by the operational board'.<sup>(SH)</sup></p>
<b>Enactment</b>	Prioritising	<ul style="list-style-type: none"> <li>Match resources with capabilities and needs</li> <li>Assess equity of distribution against previous allocations</li> <li>Allocate resources for best outcomes</li> </ul>	<p>'I need to cut the cloth according to the budget that is there'.<sup>(DM)</sup></p> <p>'Priorities emerge through discussions with SMT, it's a mental slice up of the cake'.<sup>(K'OL)</sup></p> <p>'I try and influence and control what the strategic priorities are'.<sup>(WA)</sup></p> <p>'We try and ensure everyone gets a little bit of everything'.<sup>(SH)</sup></p> <p>'I have to move down the list of priorities and allocate the resources accordingly'.<sup>(CH)</sup></p> <p>'I prioritise projects on the basis of the staffing resources available and I target resources to projects I know can be easily delivered'.<sup>(SH)</sup></p>
<b>Timing</b>	Cyclical	<ul style="list-style-type: none"> <li>Understanding the timing of resource availability</li> </ul>	<p>'We don't commit resources for ICT beyond the annual cycle, sometimes slippage money is available at the end of the year'.<sup>(BD)</sup></p> <p>'Capital plans are agreed at the end of the last quarter of the financial year'.<sup>(DM)</sup></p> <p>'I deliver the ICT resources when I know there are capital monies available'.<sup>(RO)</sup></p> <p>'I need time to secure funds and staff, I agree capital resource plans in the last quarter of the previous financial year'.<sup>(K'OL)</sup></p>



## Vignettes of Praxis: The Broker

The exemplar CIO actively pursued resources to implement the IS strategy. This was “*his day to day work*”. He had a good idea what finances would be made available based on budget allocations from previous years, though there was some scope for negotiation. It was the IS strategy steering group consisting of the Trust’s Directors and chaired by the CEO that released the resources necessary to implement the IS strategy. The CIO prioritised IT projects including those carried over from the previous financial year, reviewed them with the Director of Business Planning and presented them to the IS strategy steering group for approval. This group prioritised IS projects from a list of approved business cases. The Broker made sure the business cases were always ready and circulated them prior to the steering group meeting. There were eight to ten IS strategy objectives which he actively promoted through these cases and informally to the SMT. All these projects supported the organisation’s goals and the regional objectives of the DHSSPS. Prior to the meeting of the IS steering group the CIO prepared well in advance, the business cases would contain all the proposed costs and benefits of the IT projects including any staffing issues or change management considerations. The CIO knew who the likely sponsors and benefactors of his IS strategies in the organisation were and he tried to shape their ideas. The CFO and CEO were particularly influential in the allocation of resources. He met with all those with an interest in the IS strategy.

*“I prepare for the IS steering group, I know in advance what they are looking for, I influence and control what they need, I meet with directors, clinicians, team leaders and section managers, they give me pointers. Business cases for new systems are justified and accepted before the IS steering group meeting”*

Before each meeting of the IS steering group the CEO met informally with the CIO and asked the CIO what the IT priorities were and the rationale for these choices, “*there was always the politics of who gets what*” that the CIO took into account. The CIO only chose projects that he could undertake with the resources available to him, these also had to produce identifiable benefits. These projects formed the basis of a capital programme for IT within the IS strategy which was then presented to the IS steering group for open discussion and ratification. They could always “*re-prioritise if necessary if something*

*urgent comes along*". This mechanism also prevented the clinicians *"running to the CEO"* and kept the CIO *"focused on what projects needed to be done"*. On the basis of this resources could be immediately mobilised and projects started. When underway the CIO made sure they stayed on the agenda of the IS strategy steering group and only resources approved and allocated by the steering group were used. This provided *"a resource spending limit which provided the CIO with some protection as he had to report on IT expenditure every 6 months"*. Where there were difficulties in prioritising clinical IT projects, the Clinical Director was asked for his opinions. His authority was then used as the basis for the decisions made should other clinicians query why a project was not undertaken. The CIO knew that some projects could be taken forward with *"year end money"<sup>15</sup>* and these IT projects could be incorporated into the IS strategy without having to refer to the IS strategy steering group. Unless this money was spent before the end of the financial year it would be lost. This would usually be allocated to infrastructure projects such as new PCs, security products, servers or network communications. The infrastructure had to be there before any software applications could be installed. The CIO also knew regional monies could be made available from the DHSSPS and prepared speculative bids and supporting business cases for these resources.

The next CIO in this vignette did not have a lot of time to reflect on what resources were required or how he should go about getting them. He looked at the profile of existing systems within the Trust and made decisions about what was needed. There were always financial constraints with his ideas for the IS strategy. He went for a few successes with systems and intuitively knew what fitted *"off the wall ideas that did not fit in with the regional strategy would not be resourced"*. There was an IS strategy steering group consisting of the CFO, the Director of Nursing, three clinical consultants and himself. They used the cost and benefit criteria in the business case to prioritise IT projects. Although the business case was used to decide formally on options, IS strategy projects often had to battle for funding against other medical projects. *"There was always a trade-off with resources for the IS strategy... it's horse trading between IT and other capital projects"*. However, any significant IT expenditure always had to be approved by the CFO and it was this director that really decided what would be spent on the IS strategy. Funding for smaller IT projects was usually available but the CIO had *"no time to explore funding*

---

<sup>15</sup> In NHS parlance, additional monies made available at before the end of the financial year

*for different technologies. I stick to what I know will be resourced*". Smaller IT projects were left exclusively to the CIO because these were more likely to be implemented. It was also difficult to get the funding for additional IT staff with the appropriate experience and skills to undertake larger projects.

#### **6.4.6 The Broker and the Literature**

The Broker actively seeks resources from patrons to implement the organisational vision for IT. An important objective of IS strategy is to ensure firm commitment of resources to implement the IS projects and to acquire the necessary IT resources and IS capabilities (Samela and Spil, 2002). The Broker negotiates resources from patrons with the power and authority to allocate budgets such as the CEO and Director of Finance. The CIO must decide how to allocate human, financial and information resources to deliver the IS strategy (Grover et al, 1993). They also have an important role in securing cooperation of diverse groups prior to implementation of the IS strategy. The CIO's ability to address organisational issues of culture, structure, governance, communication and conflict between stakeholders in IS affect the successful implementation of IT systems (Ward et al, 2005). A comparison by Stephens (1993) of the work activities of five CIOs with Mintzberg's (1975) study of managerial roles emphasises the overriding importance of the resource allocator role. The authority of this role acts as a lever for informal acceptance and opens channels of information which allows the CIO to participate in business strategy in a meaningful way (Stephens, 1993). The availability of resources for IS influences the IS strategy developed. Resources are central to the IS strategy process and need to be developed before identifying feasible tactics and strategies. Hayes (1985) argues that managers approach the problem of strategic planning the wrong way round; that it is more appropriate to develop resources and then identify tactics and strategies that are feasible.

In most cases the CIO determines the priority of projects or their prioritisation is endorsed by a steering committee representative of senior management. According to Overby and Varon, (2003) the only workable method of prioritising IT projects is to get business leaders to do it. Burn and Szeto (2000) argue that the role of top management should be a 'prioritizer', finding the best way to allocate resources within the organisation. Well prioritised IT projects are an important enabler of IS strategy and business strategy

alignment (Luftman and Brier, 1999). Previous studies on IS managerial political behaviour (Markus, 1983) and equity (Joshi, 1990) all reflect the importance and sensitivity to fairness in IS resource allocation decisions. CIOs effect proactive influence behaviours to convince other top managers to allocate attention and resources to IS strategy projects (Lederer and Mendelow, 1988; Rockart, 1988; Enns et al, 2003). There is evidence in this research of the CIO 'doing favours' in return for support with more difficult issues. The 'fixer' role of the CIO who has control over resources which are used to bargain with others and is required for successful IS project implementation is described by Keen (1991). Using informal channels to obtain resources often expose power struggles between cliques attempting to secure or defend resources (Dalton, 1959, cited in Hales, 1986). Formulating IS strategies and the management decision making processes for investment in IS; managing the organisational changes to deliver value, and the responsibility and accountabilities for realising the specific benefits articulated in business cases are not well defined. They involve the tacit collection of knowledge and synchronised independent behaviours to address tasks that often are context specific rather than performed to a predefined process (Peppard and Ward, 2004).

Brokers are social fixers, who use secondary resources such as information and contacts, to achieve their objectives (Boissevain, 1974). Belbin (1993) calls them resource investigators; they build their reputation through successful deals with patrons. The patron has control over primary resources, funds and people, which can be exchanged for information or the resolution of a problem. The broker also acts as a gatekeeper to the patron's resources (Turner and Keegan, 2001).

In the healthcare context the Broker competes for funding against many other clinical and managerial priorities. Technical failures which result in organisational problems are used as opportunities by the Broker to create pressure for additional resources. This behaviour supports findings that the IS strategy process can be used as a means to compete for resources and to intimidate top management for access to funds (Lederer and Mendelow, 1988). A long-term focus is regarded as an important feature of IS strategy (Segars et al, 1998), yet in public organisations officials are responding to the dictates of short election and budget cycles, which lead to compressed planning horizons (Allison, 1971; Caudle et al, 1991). One year budgets make it difficult for the Broker to plan long-term and adopt IT

innovations (Reed, 2001; Rocheleau, 2002, citing the Centre for Technology in Government, 1996). Szygenda (2004) describes the CIO at the moment as an "intelligent caretaker"—one who keeps the business running at the lowest IT cost. However, he anticipates a new role of "innovative business IT broker." Here the CIO will emerge as an innovative business-IT broker. They will be asked by the CEO to again help change the business. There will be instances where business needs will force the CIO to broker resources to help reinvent business processes to remain competitive.

The Broker's role is to proactively mediate the acquisition of resources from patrons in order to implement projects in the IS strategy on behalf of the organisation. They do this by negotiating, justifying and prioritising IS projects through formal and informal means. The activities in this role are usually synchronised around a resource cycle based on budget allocation.

#### **6.4.7 The Facilitator in Practice**

The Facilitator uses projects arising out of the IS strategy process as catalysts for organisational *change*. *Processes* are analysed to determine how these could be improved through the use of IT and which are within the capabilities of the recipients to undertake the proposed change. Project *teams* are assembled by the Facilitator; encouraging allies and champions to play lead roles in enabling change through communicating, *motivating* and directing project teams. The Facilitator uses project structures for *co-ordinating* and managing the implementation of projects according to a *phasing* of projects based on current resource constraints.

*Change* is the focus of the Facilitator role. They investigate organisational processes and outcomes to determine how technology led changes can achieve improved or new outcomes throughout the organisation. A *process* perspective is needed to provide understanding of how current activities produce outcomes and which activities would be amenable to IT. Project meetings, workshops, focus groups and one to one meetings are used to facilitate mutual understanding of the processes and changes required. The Facilitator may lead the process investigation and analysis themselves or use external consultants, human resources staff, specialist change managers or project leaders with this expertise. More usually change is expected to emerge at the end of the project and is not

given sustained direct attention. The capacity of the organisation, department or function to assimilate and use the technologies to improve these processes is used as an indicator of how successful the outcome of the project is likely to be. The Facilitator takes a rather narrow task and technology approach to organisational change operated through the mechanism of project management.

The influence domain of the Facilitator is project *teams*. The Facilitator assembles project teams consisting of senior management, clinical staff and 'smart' users, who are encouraged to occupy leading roles. These individuals act as allies and champions for change and increase the likelihood of project success through reassuring doubters and supporting the delivery of outcomes. Champions are individuals in positions of power and influence, with requisite knowledge and skills from the functional or clinical area that support the realisation of the project aims.

The Facilitator monitors project progress at a distance through communicating with champions, enabling change by encouraging and energising project teams throughout the duration of the project. They monitor overall project objectives, deliverables, scope, benefits and risks. The Facilitator avoids dropping into the day to day detail and operational concerns of projects although they are prepared to intervene if necessary when things go wrong. IT staff are not used to lead change projects in order to encourage ownership by project teams and ensure that projects are seen as a business need rather than a technical imperative. IT staff often do not possess the requisite skills in change management to lead such projects. Project leaders also help dissipate the consequences for the Facilitator should the project fail by taking ownership for achieving the outcomes of the project.

The Facilitator continues to influence for change by *motivating* staff to fully participate in projects and encouraging champions to take the lead project roles. They continually promote the benefits of change to champions and encourage them in turn to influence other team members. Outcomes for change are agreed at the outset of the projects. These are highlighted through business cases where the problems and potential solutions are scrutinised. The Facilitator leads project team members providing advice and support during the course of the project. The business case is often used as a means of monitoring and evaluating the progress of the project. Informal mechanisms are also used to

investigate the possible implications of change with those involved in the project. Through these the Facilitator discusses and assesses with the stakeholders the viability and receptivity of the organisation to change proposals. The Facilitator also looks for any signs that the project could run into problems of communication, conflict or cultural issues between the stakeholders. The Facilitator engages with all those likely to be affected by the change, talking, challenging, promoting and persuading those who are not supportive. Where feasible those antagonistic to-wards change are included in project teams in an attempt to change their views and get their support.

In the enactment of the role the Facilitator has an awareness of the totality of projects, *coordinating* the progress of each by deploying the resources required to manage and deliver successful outcomes. They map the sequence, duration and interdependencies of the steps needed to achieve the project objectives. A project management methodology and or project management software is often used in conjunction with this role. The timing of the role is determined by the *phasing* of projects, often based on precedence of which can be implemented with lowest risk, least resource and for the greatest benefit. Although timescales are set at the beginning of the project these are often subject to slippage because of unforeseen events. Projects will form the basis of the Facilitator's programme of work. Table 12 shows the attributes of the Facilitator role using examples from the informants.

Table 12. The Facilitator: Attributes and Key Activities with Examples from the Data

ATTRIBUTE	FACILITATOR	KEY ACTIVITIES	EXAMPLES
<b>Focus</b>	Change	<ul style="list-style-type: none"> <li>Identify the change required</li> <li>Assess the current outcome</li> <li>Determine new outcomes required</li> <li>Understand current activities</li> <li>Determine changes needed</li> <li>Appreciate the capacity to change</li> </ul>	<p>'I look at the proposed changes that can be enabled through technology'<sup>(SB)</sup></p> <p>'IT in the IS strategy change structures in the organisation, I prepare people for these changes'<sup>(SH)</sup></p> <p>'IT is a catalyst for change, we need to consider the benefits of changing the way things are'<sup>(TM)</sup></p> <p>'We run work-shops to determine bottlenecks in processes, we examine how things will change, not doing this will give us problems'<sup>(DO'L)</sup></p>
<b>Perspective</b>	Process	<ul style="list-style-type: none"> <li>Identify project champions</li> <li>Assign staff to team roles</li> <li>Seek support for the change</li> <li>Direct project teams</li> <li>Communicate new outcomes required</li> <li>Deploy the resources needed</li> </ul>	<p>'I do process mapping in the clinical areas to understand what's going on it helps them to see the bigger picture and remove ambiguity'<sup>(DM)</sup></p> <p>'I use sub committees of the ICT strategy group to investigate how processes work and the appropriateness of IT to these processes'<sup>(TM)</sup></p> <p>'Generally I have a feeling and know from experience what projects will work'<sup>(SS)</sup></p> <p>'I assess the degree of change that can be applied within the project constraints'<sup>(MS)</sup></p> <p>'People need to want to change to new ways of doing things...IT is the easy bit, people are difficult'<sup>(TM)</sup></p>
<b>Influence Domain</b>	Teams	<ul style="list-style-type: none"> <li>Encourage participation in projects</li> <li>Lead champions through key project roles</li> <li>Promote and persuade for measured change</li> <li>Appreciate totality of projects</li> <li>Monitor the progress of the projects</li> <li>Manage changes through project structures</li> <li>Set time-scales to achieve outcomes</li> </ul>	<p>'I use smart users in projects as well to convince and carry through change with their colleagues'<sup>(DM,GI)</sup></p> <p>'IT people often do not have a process view, people come to IT and say I want this, we try to facilitate rather than do the project for them'<sup>(TM)</sup></p> <p>'I don't have IT people leading projects ... I don't want these seen as IT projects'<sup>(RO)</sup></p> <p>'I facilitate change through the application of expertise in projects and project management'<sup>(SB)</sup></p> <p>'I facilitate getting the right people on project teams especially those resisting change'<sup>(BD)</sup></p> <p>'I use smart users as well to convince and carry through change with their colleagues'<sup>(DM,GI)</sup></p> <p>'I engage with professionals to take the lead on service redesign projects'<sup>(BD)</sup></p> <p>'Senior people understand the consequences and importance of innovation, they help us manage change... you can't just plonk boxes on desks'<sup>(RO)</sup></p> <p>'I set aside resources in case there is any slippage in the projects, I also may reallocate resources from smaller projects if I have to'<sup>(DO'L)</sup></p>
<b>Decision Trajectory</b>	Enabling	<ul style="list-style-type: none"> <li>Encourage participation in projects</li> <li>Lead champions through key project roles</li> <li>Promote and persuade for measured change</li> <li>Appreciate totality of projects</li> <li>Monitor the progress of the projects</li> <li>Manage changes through project structures</li> <li>Set time-scales to achieve outcomes</li> </ul>	<p>'The people on the project teams are from user departments, I select 'smart users' with a vision for the system, these project managers are the change managers they are influential with other users and act as champions'<sup>(GI)</sup></p> <p>'I get ambassador users, get them enthused give them support, they're champions for the project'<sup>(SB)</sup></p> <p>'As projects roll on people need motivated at critical times to ensure they don't fail'<sup>(DO'L)</sup></p> <p>'I use the project teams and stimulate gentle change management, I must manage the subtleties'<sup>(BD)</sup></p> <p>'Usually 8-10 projects are taken forward depending on external events, staffing and skills needed as well as any local financing issues'<sup>(WA)</sup></p> <p>'I drive change through as a component of the project, it's the responsibility of the project board'<sup>(RO)</sup></p> <p>'I delegate the management of projects, though I step in when something goes wrong, there is an implementation plan that I robustly manage'<sup>(BD)</sup></p> <p>'I control the projects trying to influence changes through project boards'<sup>(SH)</sup></p> <p>'I manage change through the project lifecycle'<sup>(GI)</sup></p> <p>'We use a project management methodology and look at the timescales, deliverables and outcomes'<sup>(WA)</sup></p>
<b>Influencing Activity</b>	Motivating	<ul style="list-style-type: none"> <li>Encourage participation in projects</li> <li>Lead champions through key project roles</li> <li>Promote and persuade for measured change</li> <li>Appreciate totality of projects</li> <li>Monitor the progress of the projects</li> <li>Manage changes through project structures</li> <li>Set time-scales to achieve outcomes</li> </ul>	<p>'The people on the project teams are from user departments, I select 'smart users' with a vision for the system, these project managers are the change managers they are influential with other users and act as champions'<sup>(GI)</sup></p> <p>'I get ambassador users, get them enthused give them support, they're champions for the project'<sup>(SB)</sup></p> <p>'As projects roll on people need motivated at critical times to ensure they don't fail'<sup>(DO'L)</sup></p> <p>'I use the project teams and stimulate gentle change management, I must manage the subtleties'<sup>(BD)</sup></p> <p>'Usually 8-10 projects are taken forward depending on external events, staffing and skills needed as well as any local financing issues'<sup>(WA)</sup></p> <p>'I drive change through as a component of the project, it's the responsibility of the project board'<sup>(RO)</sup></p> <p>'I delegate the management of projects, though I step in when something goes wrong, there is an implementation plan that I robustly manage'<sup>(BD)</sup></p> <p>'I control the projects trying to influence changes through project boards'<sup>(SH)</sup></p> <p>'I manage change through the project lifecycle'<sup>(GI)</sup></p> <p>'We use a project management methodology and look at the timescales, deliverables and outcomes'<sup>(WA)</sup></p>
<b>Enactment</b>	Co-ordinating	<ul style="list-style-type: none"> <li>Encourage participation in projects</li> <li>Lead champions through key project roles</li> <li>Promote and persuade for measured change</li> <li>Appreciate totality of projects</li> <li>Monitor the progress of the projects</li> <li>Manage changes through project structures</li> <li>Set time-scales to achieve outcomes</li> </ul>	<p>'The people on the project teams are from user departments, I select 'smart users' with a vision for the system, these project managers are the change managers they are influential with other users and act as champions'<sup>(GI)</sup></p> <p>'I get ambassador users, get them enthused give them support, they're champions for the project'<sup>(SB)</sup></p> <p>'As projects roll on people need motivated at critical times to ensure they don't fail'<sup>(DO'L)</sup></p> <p>'I use the project teams and stimulate gentle change management, I must manage the subtleties'<sup>(BD)</sup></p> <p>'Usually 8-10 projects are taken forward depending on external events, staffing and skills needed as well as any local financing issues'<sup>(WA)</sup></p> <p>'I drive change through as a component of the project, it's the responsibility of the project board'<sup>(RO)</sup></p> <p>'I delegate the management of projects, though I step in when something goes wrong, there is an implementation plan that I robustly manage'<sup>(BD)</sup></p> <p>'I control the projects trying to influence changes through project boards'<sup>(SH)</sup></p> <p>'I manage change through the project lifecycle'<sup>(GI)</sup></p> <p>'We use a project management methodology and look at the timescales, deliverables and outcomes'<sup>(WA)</sup></p>
<b>Timing</b>	Phasing	<ul style="list-style-type: none"> <li>Encourage participation in projects</li> <li>Lead champions through key project roles</li> <li>Promote and persuade for measured change</li> <li>Appreciate totality of projects</li> <li>Monitor the progress of the projects</li> <li>Manage changes through project structures</li> <li>Set time-scales to achieve outcomes</li> </ul>	<p>'The people on the project teams are from user departments, I select 'smart users' with a vision for the system, these project managers are the change managers they are influential with other users and act as champions'<sup>(GI)</sup></p> <p>'I get ambassador users, get them enthused give them support, they're champions for the project'<sup>(SB)</sup></p> <p>'As projects roll on people need motivated at critical times to ensure they don't fail'<sup>(DO'L)</sup></p> <p>'I use the project teams and stimulate gentle change management, I must manage the subtleties'<sup>(BD)</sup></p> <p>'Usually 8-10 projects are taken forward depending on external events, staffing and skills needed as well as any local financing issues'<sup>(WA)</sup></p> <p>'I drive change through as a component of the project, it's the responsibility of the project board'<sup>(RO)</sup></p> <p>'I delegate the management of projects, though I step in when something goes wrong, there is an implementation plan that I robustly manage'<sup>(BD)</sup></p> <p>'I control the projects trying to influence changes through project boards'<sup>(SH)</sup></p> <p>'I manage change through the project lifecycle'<sup>(GI)</sup></p> <p>'We use a project management methodology and look at the timescales, deliverables and outcomes'<sup>(WA)</sup></p>



## Vignettes of Praxis: The Facilitator

The exemplar CIO did not really have a formal IS strategy though did follow the guidelines provided by the latest regional IS strategy developed by the DHSSPS. There was a technical strategy but this was “*developed on the back of an envelope*” which stuck to all the technical standards but the CIO knew IT on its own was not enough. He thought there was too much emphasis on technology and technology projects regionally; there was a different focus in his organisation. This was on how to do things differently with information; this was the basis of change.

*“There is too much talk about hardware and software around IS strategy, rather than the management and flow of information, what information is needed and how it will be used to manage things differently... in fact we are thinking of changing the name of our IT strategy group to the service modernisation group”.*

Modernisation and change is what the health service was about now and this had to be facilitated and supported by the IS strategy. The CIO’s starting point for the IS strategy was to understand what information was available now and how this facilitated the basic building block of the DHSSPS regional IS strategy, the electronic patient record. He needed a full understanding of how current organisational processes worked, what information they needed, where this came from and what outcomes were required. Once this was established meeting these information requirements could be investigated. This was necessary before deciding what technologies could be applied, otherwise there was danger of procuring systems that did not meet requirements. The CIO formed a team of stakeholders and users from within the department where IT was to be deployed. In a series of workshops and meetings they investigated and modelled the organisational processes to see who was doing what and how all the components worked together.

*“We need to examine the human system first...there is too much emphasis on projects, we need to go back to the basics and not make the system fit the technology. For example to look at a new A&E system we formed a clinical group to examine the clinical processes and information needs, we review what is going on before we look at IT, we need to streamline processes first”.*

The IS strategy was regarded as a catalyst for change rather than a technical strategy. There was little value in IT for its own sake. This perspective did not require technical skills *“the technology was the easy bit”*. There was an imperative to ensure the benefits of proposed changes were articulated to users so they were motivated to participate and lead projects *“the users need to want the process change themselves; it is difficult for just the IT department alone to do for this for them, we just facilitate, it’s organisational development that really delivers the IS strategy, IT will not provide a solution to any problem on its own.”*

The CIO originally came from a human resource and business background he understood that *“IS strategy was more about outcomes, processes and people”*. The technologies had to be sensitive to organisational, cultural and political factors within his organisation or else change would not happen.

Our second CIO was also a change facilitator, but in a very narrow sense. The IS strategy process was implemented through projects and project structures. Change management occurred *“through using his project management expertise and his knowledge of the mandated project management methodology, Prince 2<sup>16</sup>”*. Each project was set up in accordance with the rigorous stages in the methodology. The key project leaders on the project teams looked after the changes that arose, if they could not get the changes required the problems were referred back to the project board and sponsors as required by the project management methodology. However, these individuals were often busy and detached from the projects and unwilling to intervene. The CIO coordinated a programme of IT projects and ensured there was satisfactory progress. The project leaders of proposed projects had to convince him of process changes that were necessary and he would establish if these could be delivered through IT. There was also *“an equality manager, to make sure everyone knew their new roles and responsibilities with the technology”*. The CIO would also ensure that any software training that was necessary was provided; *“this helped ensure a smooth transition to a new way of working”*. When his IT staff developed software they always involved the user and they *“mapped out the processes at the requirements stage and we separate out must have features from should have”*. He viewed

---

<sup>16</sup> Prince2 (Projects IN Controlled Environments) is a structured project management method first established in 1989 and is a de facto standard used in the UK government.

change as following naturally with the introduction of new technology that always increased efficiency.

#### **6.4.8 The Facilitator and the Literature**

The focus of the Facilitator in the IS strategy process is project based organisational change. Using Mintzberg's role typology as a basis for their work Grover et al (1993) identified creating and managing change as a key role for CIOs. They describe this as the 'Entrepreneur' role, where the CIO identifies business needs and develops solutions that change business situations. They note the 'Entrepreneur' role raised questions about how change is structured and monitored in organisations and the role of the CIO. The CIO facilitates, guides and promotes change rather than try to control it (Benjamin, et al, 1985; Stephens, 1995). Proactive CIOs not only set IS strategy objectives consistent with the firm's overall objectives, but as an organisational change agent, they are also able to influence the future strategic direction and opportunities of the firm (Synott and Gruber, 1981; Grover et al, 1993,).

CIOs should view IT as a means to enhance organisational effectiveness rather than an end in itself. Remenyi and Brown (2001) propose that the role of the CIO is that of a facilitator of business process and change that brings to the attention of managers IS opportunities with the greatest potential to enhance organisational performance. Markus and Benjamin (1996) also urge CIOs to become more effective and more credible agents of organisational change. The ability of IS professionals to function as effective change agents is becoming increasingly important (Lee et al, 1995). As new IT is an organisational intervention or an attempt to create change, change agency will become the largest and most important part of intraorganizational IS work and having the skills to do this will improve the credibility of CIOs (Markus and Benjamin, 1996). Of nine CIO leadership roles uncovered by Gottshalk (2000) the 'informational' and 'change leader' roles were the most significant. In their role as Facilitators, CIO seek to understand their business clients' needs and use the language of process to investigate those needs, in many cases using expertise outside of IT. They then plan project, product or service roadmaps to meet those IT requirements (Agarwal and Sambamurthy, 2002).

The Facilitator assembles project teams and uses project structures and project management methods to manage change. Creating teams, distributing project ownership among project sponsors and monitoring project metrics and outcomes are standard project management techniques (Potter, 2003). Pellegrinelli (2002) notes the growing use of projects to effect organisational change and the importance of programme management in the marshalling of projects and resources to achieve desirable outcomes. However, instead of trying to control a well defined project schedule, the CIO is trying to influence the direction of the organisation (Stephens, 1995). There is a danger that CIOs are often pushed to be project orientated and to concentrate on the short-term actions needed to make targeted improvements or to put out fires.

Criticising the project management approach to change Nelson and Coopriider (1996) highlight the need for IT personnel to develop strong teamwork and collaboration skills to function in a geographically and culturally diverse environment and to have the ability to influence and lead in that environment. The juxtaposition of the goals of project management with the wider purpose of the Facilitator in organisational change creates dissonance. A project based strategy represents a narrow view of change, managing change both technically and politically is fraught with difficulty and not conducive to such a recipe-driven approach (Currie and Galliers, 1999). A project orientated, functional level 'mindset' persists in most organisations, as compared to a more strategic enterprise oriented view of the organisation (Weiss and Anderson, 2004). When the supply side of IT is running efficiently the CIO must turn their attention to the demand side. The required management capabilities change from operational skills to strategic ones, from short term horizons to longer term ones, from IT communications to business communications (Mark and Monnoyer, 2004). Project management all too often focuses on the means, costs and time targets. It assumes users will do what is necessary on all the other fronts of change and that benefits will arise and initial objectives will be met (Earl and Feeney, 1994). Change management issues should include the impact of the project on the organisation's strategy, structure, processes and knowledge; and changes to users' skills and competencies (Braganza, 2005).

An important objective for IS strategy is to ensure there is senior management commitment for implementing prioritised projects and to create a partnership between IS and user

groups for successful implementation efforts (Segars and Grover, 1999; Teo and Ang, 2001). It is important to select skilled people from various parts and different levels of the organisation for implementation (Galliers, 1987; Boynton and Zmud, 1987; Premkumar and King, 1994). Having line managers take ownership of critical IS projects increases the likelihood of appropriate IS deployment and organisational success (Rockart, 1988; Sambamurthy and Zmud, 1999). The 'enabler' role of the IS executive described by Brown et al (1996) has similarities to the Facilitator role portrayed in this research. The 'enabler' role creates and maintains a climate conducive to joint responsibility and accountability for IS initiatives. Emphasis here is on the importance of cross functional partnerships where the different expertise that IS and non IS partners bring to IS projects is important for success, for example encouraging managers to become champions and project sponsors (Brown et al, 1996; Ross et al, 1996). Bassellier et al (2001) also note the importance of line managers having competences to form partnerships with IT people and the increased propensity to lead and participate in IT projects.

The purpose of the Facilitator is to promote change. This is achieved through analysing processes, expected outcomes and receptivity to change. The Facilitator then coordinates a programme of phased IS projects they unobtrusively manage. Project structures are used to motivate team members and distribute ownership and responsibility for successful implementation. Teams are lead by a project champion supportive of the project objectives.

#### **6.4.9 The Technologist in Practice**

The Technologist role develops, maintains and controls the organisation's *technology* infrastructure. They ensure a secure platform meeting technical standards is available to support existing and proposed technologies. *Innovating* technologies are assessed for their viability and benefits to prospective *users*, *collaborating* with these users as well as *controlling* their use of technologies. The role is enacted through *implementing* new technologies ensuring they integrate with the existing infrastructures. The timing of the role is undertaken in relation to the *immediacy* needed to renew, replace or implement technology infrastructures.

The focus of the role is the *technology*. The Technologist must provide a stable, secure, integrated technology infrastructure for the organisation through the IS strategy process. This infrastructure is compliant with IT governance standards. The term governance has been used to broadly describe the policies, structures and management processes involved in managing the IT function (Schwarz and Hirschheim, 2003). The Technologist must install new technologies as well as maintaining existing infrastructure.

The perspective that the role takes is to *innovate* through the introduction of technology. The Technologist makes themselves aware of the capabilities of the existing hardware, software and communications infrastructures. Intelligence is gathered on new technologies by scanning for developments in peer organisations, contacts with vendors and through the IT media. The Technologist does not necessarily have in depth technical knowledge rather relies on their own technical staff to provide this expertise to investigate the technical capabilities and viability of these products.

By *collaborating* with the users prior to implementation the Technologist can assess the technical support needed. Consideration is also given through interactions with users as to their receptivity to new technology. The Technologist uses their experience and knowledge of the organisation to make a judgement on what technology will work in particular situations and whether the users have the necessary skills and ability to use these technologies.

The influence domains are the existing and prospective *users* of the technologies. The Technologist gets to know existing and prospective users through the IS strategy process and in the day-to-day operations and exchanges of managing the delivery of IT services. Influence is exerted over this domain by *controlling* user access to and use of technology. This is accomplished by developing IT governance policies and procedures, including security and technical standards to which users must adhere and verifying that these are met. The Technologist attempts to curtail isolated activities which could fragment the IS strategy such as the procurement of unauthorised technologies or the development of isolated applications by users.

The Technologist enacts the role through *implementing* technologies. Technical innovations cannot be introduced piecemeal; rather the hardware and software are woven together by an implementation plan that creates an integrated technical platform. Following common technical standards makes it easier to connect systems into a seamless network within organisations and across organisational boundaries. The IS/IT department can take technical infrastructure projects forward without the involvement of other staff groups. These projects are usually technical imperatives required to maintain or enhance present operations. This may include for example increasing the capacity of communication networks or upgrading to new versions of operating systems. IT staff can undertake these technical infrastructure projects in relative isolation from the rest of the organisation. The Technologist must reconcile the need to maintain and enhance the existing infrastructure with the introduction of innovative IT. The Technologist must incorporate sufficient flexibility in the infrastructure to accommodate changes in scope and specification that arise during the course of technology projects.

The timing of the Technologist role depends on the *immediacy* with which the technology is required. In order to keep pace with technological change<sup>17</sup> and to manage acceptable support levels, technologies need to be introduced, replaced and upgraded to maintain their organisational value and functionality. These upgrades are described as the computer refresh. A refresh is a business value and support decision made by the Technologist in conjunction with their team to change the technical infrastructure. For example, a desktop configuration is considered for refresh every three years from purchase, and laptops every two years from purchase. Similarly applications need to be changed as computer operating systems evolve or as new projects are sanctioned through the IS strategy process. Knowing when to commission new technologies and decommission old is a key activity. Table 13 shows the attributes of the Technologist role using examples from the informants.

---

<sup>17</sup> The fastest personal computer (PC) that is available today, is more than 3 times the speed of the fastest PC available just 1 year ago)

Table 13. The Technologist: Attributes and Key Activities with Examples from the Data

ATTRIBUTE	TECHNOLOGIST	KEY ACTIVITIES	EXAMPLES
<b>Focus</b>	Technology	<ul style="list-style-type: none"> <li>Develop the technical infrastructure</li> <li>Ensure stability and safety of the technical infrastructure</li> <li>Manage the technology</li> </ul>	<p>'I come up with a list of schemes which are infrastructure projects, these evolve throughout the year' <sup>(RO)</sup></p> <p>'The ICT infrastructure is agreed with the IT manager no one else is involved, no debate, we deliver this, senior management are just interested in things that work' <sup>(MS)</sup></p> <p>'I leave this role to others, it does not really matter as long as the expertise is there beneath you to deliver the technology' <sup>(GI)</sup></p> <p>'My technology role is more of a strategic one than operational – I'm more a manager than a technologist' <sup>(WA)</sup></p>
<b>Perspective</b>	Innovate	<ul style="list-style-type: none"> <li>Know the capabilities of the technology</li> <li>Scan for technical innovation</li> <li>Assess the viability of new technologies</li> <li>Know existing and prospective users</li> <li>Be attuned to user insights</li> <li>Moderate expectations of technologies</li> </ul>	<p>'I can't know everything about IT, my staff are more technically orientated than me, though they are not people orientated' <sup>(SH)</sup></p> <p>'I must still retain my technical knowledge or else my own staff will loose confidence in me' <sup>(KO'L)</sup></p> <p>'I take time out to look at other industries using ICT's and how these could benefit the Trust' <sup>(DM)</sup></p> <p>'I need to keep abreast of new technologies, I really do the R&amp;D find out what's there, for example, document management will be important' <sup>(K,OL)</sup></p> <p>'I am responsible for the right technical platform being in place, I assess the positive and negatives, I made the decision for Microsoft.' <sup>(SH)</sup></p>
<b>Influence Domain</b>	Users	<ul style="list-style-type: none"> <li>Assess receptivity to technology</li> <li>Work with IT, users and suppliers</li> <li>Appreciate the technical support needed</li> </ul>	<p>'Local users are identified that I think can deliver the benefits of technology' <sup>(DM)</sup></p> <p>'Smart users have a reasonable understanding of what technology can do for them, they come to me or I identify them' <sup>(D'O'L)</sup> 'I listen to proactive users such as the diabetics people' <sup>(SS)</sup></p> <p>'I don't sell IT too much because of the difficulties with delivery' <sup>(GI)</sup></p> <p>'There is scepticism about IT improving efficiency you need to be sure it does not create extra work for the users' <sup>(HF)</sup></p>
<b>Decision Trajectory</b>	Collaborating	<ul style="list-style-type: none"> <li>Set technical standards</li> <li>Apply technical standards</li> <li>Monitor standards are met</li> </ul>	<p>'Strategic technologies are important though the skills are often not there to use them' <sup>(TM)</sup></p> <p>'Few outside of IT are interested in the technology, there are some clinicians that are interested' <sup>(DO'L)</sup></p> <p>'I know what the technologies can do but I am not an expert, I don't know the detail I work on the advice of others' <sup>(WA)</sup></p> <p>'The IS strategy should be implemented with appropriate levels of technical management and project support' <sup>(DHSSPS2002)</sup></p>
<b>Influencing Activity</b>	Controlling	<ul style="list-style-type: none"> <li>Develop implementation plan</li> <li>Balance maintenance against innovation</li> <li>Integrate with existing platforms</li> </ul>	<p>'We set technical performance standards for the infrastructure there is minimal discussion outside the IT department' <sup>(MS)</sup></p> <p>'We stick to industry standards for the technology what we know we can manage, we flood the hospital with LAN and stick to Windows 2000' <sup>(TM)</sup></p> <p>There are pockets of database development which are needed for particular jobs these must be approved by the CIO' <sup>(MS)</sup></p>
<b>Enactment</b>	Implementing	<ul style="list-style-type: none"> <li>Determine life-span of technologies</li> <li>Replace before obsolescence</li> </ul>	<p>'I implement technologies as a series of projects ... through the project structures' <sup>(MS)</sup></p> <p>'We implement projects in technical priority order through an implementation plan' <sup>(CH)</sup></p> <p>'I decide when projects involving technical infrastructure are installed' <sup>(WA)</sup></p> <p>'I need to build the technical infrastructure that will support a technically integrated logical system' <sup>(GI)</sup></p> <p>'IT integration is important or else you get paper outcomes' <sup>(D'OL)</sup></p>
<b>Timing</b>	Immediacy		<p>'We stick to industry standard time for our refresh policy for hardware and software' <sup>(CH)</sup></p> <p>'The length of the IS strategy forecast depends on the rate of technological change' <sup>(ED)</sup></p> <p>'We must eliminate risk to the infrastructure based on technical obsolescence' <sup>(DHSSFS2000)</sup></p>



## Vignettes of Praxis: The Technologist

The exemplar Technologist CIO drew up an implementation plan for the IS strategy for the year. The organisation could not purchase any hardware or software without his authorisation. Every six weeks he reported back to the IT steering group on progress. The IS implementation plan was the reporting mechanism back to the group. He made sure steering group members knew what projects were needed and why. The technology came first and projects would be carried out to meet with best practice. Certain technical management standards had to be maintained regionally and he did not have the freedom to do what he wanted. The CIO made sure IT security policies were applied, and the infrastructure was as up to date as possible. The help desk had targets to fix faults across the IT infrastructure.

*“Priorities in the IS strategy are technical, security is important as is the ICT infrastructure and the PC refresh policy, all these are carried out to industry standards, I won't get shot for buying IBM and PCs are now accepted like the telephone, the same applies to other IT infrastructure projects, they are a corporate necessity”.*

The CIO's priority was to invest in IT and make sure the organisation had access to the appropriate infrastructure, otherwise the bigger projects within the IS strategy would not have the necessary platform on which to build. *“IT is aligned to the business objectives and I have to work these right back to the technical priorities”.* He needed people with IT skills to implement IS strategy, if he could not get these *“the quality of service he could provide to support bigger technical projects would suffer”.* There are more projects than staff to do them, he recognised that large IT projects required certain experience and skills. *“We don't have staff with the necessary project and business skills for large IT investments”.*

Our next CIO was also another exemplar of the Technologist role in the IS strategy process. The CIO set the strategic framework for change using IT that was a critical support function for the organisation. The CIO had to retain a considerable degree of technical knowledge, understanding the implications of technology were strategically important and this required significant knowledge of the technology itself. Otherwise there

was a danger of major technical decisions being taken by her staff or the Trust's users. She had to retain a certain level of technical credibility with her own staff and users.

*“New technologies can drive change. For example wireless networks leads to mobile workers, I need to keep abreast of new technologies, I do the research and development, I find out about them at a conceptual level for example document management. I need to retain this knowledge or else my own staff will lose confidence in me”*

Although the existing IT baseline was not ‘*state of the art*’ she had to be careful that new technical innovations were not too radical for existing users and those with no exposure to IT. A lot of staff simply did not have the capacity to use IT and there was considerable mistrust of IT a result of project failures in the past. She had to use her political and social skills to moderate expectations and build confidence in IT.

Our next CIO admitted he was not an expert in technology. He knew what IT could do and how it could benefit the organisation. The CIO was *“less of a technologist and more of a manager in a strategic role. I don't know the detail of the technology”*. Instead he relied on the technical advice given by his own technical team. Each project had a technical implementation manager from within his own team that dealt with all these technical issues. Although he was responsible for the decisions regarding IT infrastructure they were taken on the advice of his team. Technology had to be incorporated into all business areas to ensure *“a holistic strategic approach to IS strategy”*. The CIO technical role was primarily as a manager of technologists, though often did not know what they were doing with the technology.

#### 6.4.10 The Technologist and the Literature

The Technologist makes complex decisions about what IT capabilities the organisation needs now and for the future, how to architect those capabilities, and whether to build, buy or partner to secure those capabilities. A practitioner study of CIOs (CSC, 1996) identifies the 'chief architect' role that is the master designer of an information technology infrastructure that enables such agility. Architecture planning and technology fixing are regarded as core capabilities needed to create the technical platform<sup>18</sup> to meet current and future business needs (Feeney and Wilcox, 1998). CIOs are attempting to build robust, standardised, flexible IT architectures and IT organisations (Reich and Nelson, 2003). The key objective of the Technologist role is to develop a stable, reliable infrastructure and promote organisational efficiencies (Brown et al, 1996) and to provide technology leadership. As well as undertaking managerial tasks the CIO still has significant operational responsibilities to maintain and enhance technical infrastructures (Earl, 2000). *"The CIO's mandate is to be a technology scanner, evaluator, and gate-keeper, whether outsourced or not, data-centre operations, network uptime, help-desk service, and systems development are still the CIO's job. If the operational performance of IT is below standard, the CIO is dead"* (Earl, 2000:60).

Although CIOs did not play the role of technical experts they often had extensive experience with IT (Stephens, 1995). The CIO cannot maintain as much direct line management control over computer operations, and therefore need to transfer some of these responsibilities to lower level managers. Grover et al (1993) argue that CIOs should increasingly become focused on strategies and planning. Although technical knowledge is often dismissed as something that can be delegated to other IT staff, CIOs of the future will need considerable technical understanding to sort out complex issues independently and take advantage of technical opportunities (Feld, 2003). A sophisticated IT infrastructure enables organisations to develop a higher level of technical knowledge that in turn fosters greater IT innovation and assimilation (Sambamurthy and Zmud, 1996; Armstrong and Sambamurthy 1999). Over investing in infrastructure can lead to wasted resources, while under investing or implementing the wrong infrastructure translates into delays, rushed

---

<sup>18</sup> IT infrastructures include platform technologies (hardware and operating systems), network and telecommunications technologies; and databases and shared services, such as EDI, e-mail, universal file access, and video-conferencing and teleconferencing services (Armstrong and Sambamurthy, 1999).

implementations, islands of automation and limited sharing of resources (Weill, et al, 2002).

IT infrastructure is a collection of reliable, centrally coordinated services budgeted for by senior managers and comprising both technical and human capability (Weill et al, 2002). *“In the process of negotiating an information system project with a user, the IT function creates an expectation of a finished product that actually requires perpetual care and maintenance”* (Hirschheim et al, 2003:11). CIOs that concentrate on technical issues often fail to connect with the business. In implementations of enterprise resource planning<sup>19</sup> (ERP) systems, CIOs that are technically focused attempt to deliver technical capability on time and within budget and are less comfortable with the change equation to deliver business value (Willcocks and Sykes, 2000). The IS function must maintain a technology watch, looking for opportunities and threats from developing technologies. Frequent reassessment of strategic plans is common in IT; CIOs are accustomed to making quick judgements about new technologies (Gordon, 2002). Previously mid to long range plans could be made with confidence in the relative stability of the underlying assumptions. Today these timescales may represent an entire generation of technologies which provide the base foundation of enabling sustained IT assimilation in business activities (Keen 1991, Weill and Broadbent, 1998).

Building the infrastructure for technological integration is becoming a top priority for IS activities (Lee et al, 1995) and an area which requires increasing attention for the Technologist throughout the IS strategy process. As IT supports and helps expand new organisational architectures the role of chief technology officer or CTO as the primary technical person in the organisation is beginning to emerge (Reich and Nelson, 2003). A strong CTO allows the CIO to take on a more strategic role, which requires increased business knowledge, improved ability to influence and negotiate, and a renewed focus on standardized architectures, metrics and value creation (Reich and Nelson, 2003).

The pressures of effectively dealing with the complexities and uncertainties associated with new technologies and ensuring the smooth adoption and operation of IT invariably

---

<sup>19</sup> ERP integrates all departments and functions across an organisation into a single computer system that can serve all those different departments particular needs

rests on the shoulders of the CIO. Many CIOs express the real value of IT is in providing a robust enabling platform, a central core around which users' changing information and infrastructural needs can be actively supported. One of implications of IT when expressed as infrastructures is that users expect simplicity, ubiquity of complex services, and yet at the same time take them for granted (Madan et, 2003).

The Technologist's focus is the technology. They implement and maintain an innovative, secure and standardised technological architecture. This is achieved through collaborating with users and controlling their access to technology to ensure it is integrated and capable of meeting current and future business needs. The speed of technological change and the condition of the current infrastructure create immediacy to the temporal dimension of the Technologist role.

#### **6.4.11 The Coach in Practice**

The Coach uncovers and facilitates *understanding* of organisational *problems* through the IS strategy process. They seek the perspectives and opinions of the problem *owners* to reach an understanding of their views in *resolving* the problem, *educating* the problem owners through acquiring and transferring knowledge and expertise in the resolution of the problem. *Learning* is obtained throughout the IS strategy process of the *present* problem which can be reapplied should similar problems arise again.

Organisational *problems* uncovered during the IS strategy process are the focus of the Coach role. Problems are identified through the CIO's existing knowledge of the business and through contacts and relationships with individuals and groups who have direct insight into particular areas of concern. Problems can be formally raised through meetings with the IS strategy steering group, problem owners, by production of business cases and project documentation. Informally issues and problems can also arise through contacts with problem owners throughout the IS strategy process. The Coach's perspective is to *understand* the origin, dynamics and resolution of problems as fully as possible during the IS strategy process. The Coach endeavours to grasp the interrelated nature of problems in order to gain a holistic understanding of the issues involved. The Coach's influence domain are the problem *owners*, that is any individual or group seeking to alleviate a

concern through the use of IT. They get to know these problem owners through formal and informal interactions throughout the IS strategy process.

Through these contacts the Coach acquires an appreciation of the views of the owners concerning the problem and how best to go about *resolving* them through the application of IT. Without this shared understanding of the problem and its resolution there is danger that any IT proposed may not be readily accepted. The Coach assesses the nature of the problem. Many organisational problems may not be amenable to a technical solution and the Coach must warn against inappropriate use of technology. Resolution of the problem may be achieved using the skills and competencies available to the CIO or by using external expertise such as management consultants for support. Advice may be given informally on a one to one basis or through more formal means such as IS project teams and IS strategy steering committees.

The CIO influences the problem owners through *educating* them as to the opportunities for the use of IT and measuring their expectations of what technology can deliver. The transfer of IT knowledge to the SMT team requires the Coach to educate them individually and collectively throughout the IS strategy process. The Coach also provides an educational service to their own staff so they are capable of understanding and delivering the IS strategy endorsed by the SMT. The Coach provides a bridge between the technical infrastructure which their own IT staff are aware of and its application to support and improve the organisation. The enactment attribute of the Coach role is active *learning*, for themselves, their staff and those involved in the IS strategy process. The CIO learns experientially from those groups and individuals involved in past and current IS strategy processes. Successful projects in the IS strategy are informally evaluated through discussions with project leaders and users. Experiences with successful projects are used to inform the implementation of future IS projects and strategies. Formal evaluation of the IS strategy process also takes place in this role by measuring the outcomes of IS strategy projects against benefits indicated in the business cases. Post implementation reviews are carried out as a routine part of project management. The timing attribute sees the Coach role carried out for the duration of the *present* problem or issue. The more intractable the problem the longer the time period is needed to engage the problem owners and to resolve the issue. This time is used to find out more about the nature of the problem and undertake a wider search for a solution. The complexity and interrelated nature of organisational

problems are constant features of the IS strategy process. Table 14 shows the attributes of the Coach role using examples from the informants.

Table 14. The Coach: Attributes and Key Activities with Examples from the Data

ATTRIBUTE	COACH	KEY ACTIVITIES	EXAMPLES
Focus	Problems	<ul style="list-style-type: none"> <li>Uncover problems formally and informally</li> <li>Articulate problems to owners</li> <li>Search for an appropriate IS solution</li> </ul>	<p>'The process of developing the IS strategy provides a means of uncovering issues and problems'<sup>(CH)</sup></p> <p>'We use a business impact matrix to highlight what the problems are, we look for matches between the problem as raised in the business strategy and technical solutions'<sup>(GI)</sup></p> <p>'Senior managers discuss problems informally with me, often on a one to one basis I discuss the opportunities for using IT, it's a two way process'<sup>(SH)</sup></p> <p>'I don't make the problem fit IT, I make IT fit the problem'<sup>(TM)</sup></p>
Perspective	Understand	<ul style="list-style-type: none"> <li>Appreciate the origins of the problem</li> <li>Know the structures and processes</li> <li>Facilitate understanding of the problem</li> </ul>	<p>'It's not about hardware and software it's about information needs and uses in the situation, we need an IS strategy that is problem focused'<sup>(TM)</sup></p> <p>There is a lack of understanding of the holistic nature of problems, this needs to be acquired before applying a technical solution'<sup>(DM)</sup></p> <p>'An outsider like the CIO can facilitate understanding, the same problems often appear in different areas'<sup>(DM)</sup></p> <p>'Mutual learning is facilitated through understanding organisational processes'<sup>(CH)</sup></p>
Influence Domain	Owners	<ul style="list-style-type: none"> <li>Identify the problem owners</li> <li>Appreciate views of the problem owners</li> <li>Seek accommodation of views</li> </ul>	<p>'People come to me with their problems... its not just me that has to identify them'<sup>(DM)</sup></p> <p>'I have got to ensure that IT is not seen as the answer to everyone's problem... I have got to seek out and resolve the different views of problems'<sup>(SB)</sup></p> <p>'I use workshops with the senior management team and clinicians to get agreement on how to resolve the problem'<sup>(GI)</sup></p> <p>'There are always different views, in fighting from different people and a lack of ownership, I try and get agreement through consultation.'<sup>(ED)</sup></p>
Decision Trajectory	Resolving	<ul style="list-style-type: none"> <li>Acquire expertise</li> <li>Seek agreement on proposed changes</li> <li>Resolve problem</li> </ul>	<p>'Its not just me solving problems I bring in expertise from elsewhere from human resources from outside the Trust'<sup>(WA)</sup></p> <p>'I look at problems as a change issue, a change agent culture is needed, it's not just about sticking a box in'<sup>(KOL)</sup></p> <p>'The IS strategy has to reflect the views inside and outside the organisation of changes'<sup>(WA)</sup></p> <p>'I have a feeling for what the problems are and how to go about resolving them'<sup>(DOL)</sup></p>
Influencing Activity	Educating	<ul style="list-style-type: none"> <li>Appreciate knowledge of problem owners</li> <li>Obtain knowledge needed</li> <li>Transfer knowledge</li> </ul>	<p>'I use my knowledge to influence others especially the Directors'<sup>(WA)</sup></p> <p>'I find out about new technologies and try to retain technical knowledge otherwise staff, especially IT staff will lose confidence in you, I try and broaden the business knowledge of IT staff'<sup>(KOL)</sup></p> <p>'I use the knowledge that I have to influence others in the IS strategy group'<sup>(WA)</sup></p> <p>If I keep regularly meeting with staff during the process I hope the skills will transfer, otherwise they become too reliant on me'<sup>(BD)</sup></p>
Enactment	Learning	<ul style="list-style-type: none"> <li>Evaluate outcomes of the IS strategy</li> <li>Learn from current IS strategy process</li> <li>Apply previous experience</li> </ul>	<p>'Pilot projects provide learning and education for the organisation'<sup>(UW)</sup></p> <p>'We learn about IS strategy through doing'<sup>(SS)</sup></p> <p>'I get the users to learn so that they can see the steps needed to solve the problem'<sup>(DOL)</sup></p> <p>'Solutions from one area can be reapplied in another'<sup>(DM)</sup></p> <p>'Some problems reappear in different areas, a problem in one area can be solved then reapplied in another area'<sup>(WA)</sup></p>
Timing	Present	<ul style="list-style-type: none"> <li>Assess time needed to resolve the problem</li> </ul>	<p>'I learn about problems over time'<sup>(DOL)</sup></p> <p>'The strategy process is political, there are problems with language and terminology you need time to get buy in'<sup>(ED)</sup></p>



## Vignettes of Praxis: The Coach

The exemplar CIO was ideally placed to uncover any organisational problems. IT supported almost every clinical and functional area within the Trust, he therefore had insights into all the activities of these areas. Sometimes the users approached him directly with operational and organisational problems. The CIO endeavoured to ensure his department had the knowledge, skills and ability to anticipate and resolve these creatively and consistently. He was willing to challenge and question users in order to bring issues out into the open. Sometimes the problems were broader than the just a need for IT. The need for IT was often a catalyst that brought deeper problems to the surface. If the CIO or his department did not have the expertise to resolve the problem he would try and obtain it from elsewhere. Many problems could not be anticipated in the IS strategy rather they often arose unexpectedly. He used his previous experience of similar problems to address these issues.

The CIO was an advocate of the benefits that IS strategy would bring in supporting the overall mission of the Trust to improve patient care. Unless he could understand and articulate these benefits it would be difficult to convince colleagues throughout the organisation. Communication was necessary to ensure the IS strategy was pertinent and persuasive and could integrate with the strategic objectives of the organisation. He had to *“educate the CEO and directors through workshops about what IT could do to change processes, there was still too much emphasis on operational issues”*. The CIO ensured that there was a means to evaluate the IS strategy process. He researched and learned from previous experiences with IS strategy. He actively sought opinions from stakeholders on the progress and outcomes of IT projects. *“I get feedback from nurses and doctors as well as the senior management team across all projects, changes were made to the strategy as a result”*. Above all the IS strategy had to benefit the organisation:

*“The outcome of the IS strategy was successful projects, IT had to add value to the organisation and make a difference to the users. I get a feeling for what the outcomes will be before the project starts, I then measure the results after the implementation, see if it produces the expected outcome, I talk to the users informally and learn from the feedback I get”*

Assistance was provided to staff if the implementation of the IS strategy was falling behind schedule. He intervened personally in these projects if necessary. The CIO's technical understanding was also vital, otherwise his own credibility would suffer especially as some of his colleagues had a keen appreciation of the technology. The Trust's Clinical Director was *"very technology literate"*. The implementation of the CIO's IS strategy required skills in IT at all levels of the organisation from the end-user to the CEO. This was addressed through the provision of IT training courses for all users. The CIO ensured that the organisation *"learns from all the steps in the IS strategy process, most staff had some understanding of what IT could do and smart users soon picked things up when he talked to them"*.

Our next CIO identified and resolved only technical problems. His staff had all the technical expertise necessary to do this. There was no urgency or need to engage with wider organisational problems unless these were directly seen as technical issues. These issues were usually operational. *"It was up to user groups to identify any problems with the technology and our help desk system recorded these faults; if the help desk cannot resolve these problems then they come to me, there has to be a clear link between the need of the person with the problem and the IT department"*.

There were bigger problems such as IT security this *"was not just an IT issue but went right up to the CEO"*. The CIO had to take advantage of problems caused by lack of investment such as breaches of security by computer viruses or technical failure to get investment, only then would the CEO take notice. *"We had a single point of failure with the Local Area Network when that sort of thing happens it easier to get the resources we need it's the only way they learn about the importance of technology "*. There was no opportunity of getting feedback on current and previous IS strategies in order to learn. Instead the CIO promoted computer training courses throughout the organisation and used questionnaires to get feedback. He did not try and educate the organisation in the importance of an IS strategy and IT.

#### 6.4.12 The Coach and the Literature

The CIO is less involved in the actual creation of new products or services, but instead acts as a catalyst that encourages departments to use IT in innovative ways to resolve their problems (Grover et al, 1993). Lasting improvements in IS management in the public sector are difficult to realise without upgrading the knowledge and skills of executives, managers and IS professionals. The importance of CIOs educating others in the senior management team about the strategic impact of IT is well documented (Lederer and Mendelow, 1988; Earl and Feeney, 1994; Caudle 1996; Enns et al, 2001). Antiquated skills stymie the organisation as it tries to assess the potentialities of emerging IT (Caudle, 1996). Informal trusting relationships between the CIO and senior executives provide an opportunity for the CIO to educate and influence as to the opportunities provided by IT (DeLisi et al, 1998). This learning can be more important than any resultant IS strategy or documentation (Auer and Reponen, 1997). With the right IT in place data can be updated automatically making the right information available to whoever needs it at any time. IS therefore not only automate but also “informate” and eventually transform the organisations themselves (Zuboff, 1988). IS are also capable of generating new streams of information thereby expanding knowledge. In an informed organisation, the locus of control shifts from managers to workers, who are now empowered with all the information required for their effective performance.

Managerial knowledge of IT depends on a mosaic of activities, interactions and exchanges to share know how among CIOs and managers (Cohen and Levinthal, 1990; Boynton et al 1994, Mata et al, 1995). Knowledgeable CIOs can also provide a value-added and unique perspective to other members of the top management team (Applegate and Elam 1992; Watson 1990; Earl and Feeney 1994). Rockard et al (1996) regards the CIO's role as a strategic partner is to achieve strategic alignment between business and technology. Key tasks within this role are twofold. Firstly, CIOs engage in persistent efforts to educate business management about the opportunities presented by IT. Secondly, CIO's focus IT resources on solving business problems and identifying business opportunities (Earl and Feeney, 1994; Ross and Feeney 2000). Carrying out these tasks demands a continuous investment in relationship building with business executives (Henderson, 1990). The most important skills needed are the ability to work effectively in diverse teams and the ability

to negotiate with and influence others, especially business leaders and partners (Reich and Nelson, 2003). CIOs also deliberately mentor their own IT people, trying to pass on their tactics for negotiation and influence (Reich and Nelson, 2003).

A study by CSC (1996) also found a 'coach' role for the CIO which had two basic responsibilities with IT. Firstly, teaching people how to learn, so that they can become self-sufficient and providing team leaders with staff able to do the IT related work of the business. The Coach assembles and promotes a consistent set of best practices from both inside and outside the organisation. This also encourages individuals and groups to share their experiences of the business and IT. The IS strategy process should be aligned with learning for the SMT, user managers and the IS executive so that they can more fully understand the problems of the organisation and the opportunities for IT (Ruohonen, 1991). Sustained and purposeful educational activities are an essential tool in developing the capacity and capabilities of senior executives in IT. (Benjamin et al, 1985; Wheeler et al, 2002). The CIO can be the leading learner and themselves facilitate organisational learning (Smaczny, 2001). The education of management, especially top management on potential uses of IT is a common responsibility of the CIO (Stephens, 1995). The IS strategy process is a key arena for this to take place.

The challenge in much IS strategy development is to find ways to deal with the new and unknown. Learning about what is desirable and developing ways to achieve this is fundamental to the IS strategy process. Learning occurs when feedback loops, whether formal or informal, provide evidence of whether a particular action or policy is working (Pidd, 2004). Learning and feedback mechanisms are important to allow managers of IS strategy to improve their planning efforts (McLean and Snodden, 1977; Baker, 1995). Strategy is as much about "*what an organisation knows, not what is written*" (Auer and Reponen, 1997:32). Incremental planning is based on the theory that organisations learn and benefit by adapting based on their learning (Argyris and Schon, 1978). Incrementalism relies on informal contacts, face to face communications, personal experiences, judgements, and experiments (Pyburn, 1983; Ciborra, 1994; Sambamurthy et al, 1994). For firms to be successful they must complement IT with organisational-level learning processes (Anand et al, 1998). This post-implementation learning often represents "firm-specific" knowledge that must be developed internally. Without this continuing IT learning, there will always be a gap between how technology is actually used and the

realization of its full potential. Vitale et al (1985) identify the 'teacher role', which has similarities to the Coach, which provides introductory lessons to the management team about technology with emphasis placed on existing applications and the identification of potential applications. The facilitation of more effective team working, continuous learning and change are key roles for the CIO (Coulson-Thomas, 1991).

The SMT can be regarded as an organisational structure for integrating members' knowledge (Armstrong and Sambamurthy, 1999). The knowledge of the senior leadership team is an important influence on the assimilation of IT into the organisation (Armstrong and Sambamurthy, 1999). Spender (1996) identified two distinct components of the structures for knowledge integration: objective knowledge and systems of knowing. The former refers to the explicit, visible knowledge possessed by individual team members. Systems of knowing refer to structures of interaction among team members for sharing their perspectives, pooling of knowledge, and development of shared understanding (Nahapiet and Ghoshal 1998). Prior IS literature suggests there are three possible systems of knowing. First, the hierarchical distance of the CIO from the CEO (Watson, 1990; Keen, 1991; Feeney et al, 1992), second, the extent of the CIO's participation in the top management team (Watson, 1990) and third, the frequency of informal interactions between the CIO and top management team members (Lederer and Mendelow 1988). More frequent interactions between the CIO and line managers positively impact a firm's level of IT assimilation (Boynton et al, 1994). The ability of top managers including the CIO to provide coaching, help and constructive feedback is important for risk taking behaviours in organisations (Chakravarthy and White, 2000). A longer-term view of IS strategy emphasises that the process of strategy should also lead to improved managerial capabilities needed in the IS strategy process itself. The IS strategy process should be consciously evaluated and improved (King, 1988; Ruohonen, 1991; Raghunathan and Raghunathan, 1991; Baker, 1995). It is difficult for leaders to promote the benefits of ICT to the organisation unless they themselves demonstrate a degree of familiarity and comfort with the technology (Brynjolfsson, 2003).

The Coach focuses on identifying and understanding organisational problems and how these may be resolved in innovative ways through the application of IS. They educate and influence the problem owners as to potential and impact of IS strategy by formal and

informal means. The IS strategy process provides an opportunity for the Coach and the problem owners to learn and get feedback about present issues.

## **6.5 Holistic Enactment**

In practice the six CIO roles uncovered in this research do not present themselves as discrete isolated entities equally undertaken by each CIO. Rather they enact to different degrees some or all of the roles through a rich repertoire of dynamic social interactions in time. The CIOs influence the choices and actions in the IS strategy process through relationships, ideas, resources, change, technology and problems. In the research some roles are more accentuated than others. The Ambassador, Visionary and Broker in particular have most resonance with the CIO throughout the practice of the IS strategy process in a public healthcare setting. The Ambassador role reflects the need to raise the profile and understanding of IT. Many organisations still see the CIO as a technologist and IT as a support service rather than a means to deliver change. The success in undertaking this role varies with different individuals and contexts. In healthcare organisations CIOs often report to a functional director from another area such as planning or finance that has line management responsibility for IT. Executive management tend to regard IS strategy as a technical issue and responsibility for this activity is left to the CIO. To develop a richer holistic understanding of the business and uncover ideas for the IS strategy, the Ambassador continually cultivates relationships throughout the organisation. The Ambassador in particular looks for champions and allies to exercise power, authority and understanding to endorse the ideas in the vision and win over doubters.

The Visionary uses relationships established through the Ambassador role both to acquire and subsequently promote their ideas for the IS strategy. The Visionary refrains from putting forward ideas in the vision that are too innovative which could lead to a high risk of project failure. The Visionary uses experience acquired through the Ambassador and Broker activities to understand which problems can be addressed with the resources available in what organisational contexts, as well as which champions can be used to endorse projects. The Visionary synthesises, interprets and communicates ideas to stakeholders in a non-technical business orientated language to enable the vision to be understood. The relationships established; champions and allies uncovered through the Ambassador role as well as those stakeholders endorsing the vision are brought into play

when support is needed to broker resources. Prioritisation is informed by the constraints surrounding projects such as the finance available, staff capacity and skills, along with the politics of 'who gets what'.

The Technologist role also infuses the IS strategy process and the roles theory highlights a discordant juxtaposition within the role where they must reconcile opposites. The technologist must encourage and work with users to apply technologies to improve the performance of their work and ultimately the organisation. The onus is on the CIO to put in place a technical infrastructure capable not only of supporting the implementation of the IS strategy and but that meets the needs of users. There is an imperative to integrate these new systems into the existing technology architecture while maintaining secure day-to-day operations. As well as collaborating with users the technologist must also exert control over IT security, development and costs. They must ensure users comply with the policies and procedures for the introduction and use of technology. Many organizations suffer from fragmentation in their hardware, their infrastructure, databases, applications, and vendors with which they work, which leads to a high total cost of ownership for IT and ineffective IS strategy.

Technologist activities are often delegated to technical staff reporting to the CIO. Although managerial control is retained, CIOs regard the Technologist role as the one they are least comfortable with. There are exceptions where technology is brought to the fore but usually at the expense of the other roles. This may be due to weaknesses in the competencies of the CIO in enacting other role activities or technical imperatives squeezing out the time available for other roles. The governance of IT infrastructures is becoming increasingly sophisticated and complex. Many technical innovations usually preclude the need for the Technologist to involve other stakeholders and constituents. Decisions to refresh PCs, servers, operating systems and communications infrastructures are often taken by the CIO and their technical team. Innovations must be balanced with controls; the need to keep the infrastructure up to date will conflict with the aspirations to implement the Visionary's ideas. Earl (2000) sees a split of the CIO into the systems strategist and the CTO (Chief Technology Officer) who makes technology policy and is the service provider. The requirement to undertake managerial and leadership activities may have led CIOs to a

crossroads where one path leads to an executive leadership role and the other to a technical management role (Broadbent and Kitzis, 2005).

Two of the less dominant roles in practice are the Facilitator and the Coach. Although the Facilitator is focused on change, the perspective taken is a rather narrow project based view. Change is managed through adherence to project structures and project management techniques. Champions uncovered by the Ambassador are encouraged to lead projects. However, the skills to undertake broader change management are often not available to the Facilitator. Instead there is the somewhat loose adoption of the rhetoric of process mapping or modelling, business process reengineering (Hammer and Champy, 1993) and total quality management (Deming, 1986) and the co-option of expertise in these or similar approaches. Broader knowledge of politics, culture, structure and process are also needed. What can be achieved through the Facilitator role also depends on the coherence of the ideas (vision) promoted by the Visionary and level of endorsement for the projects proposed. The Facilitator role is also time intensive and conflicts with the imperatives of other roles.

The Technologist implements applications and must maintain the safety and stability of the infrastructure which in turn is restricted by the immediacy of implementation and ability of the Broker to acquire the necessary resources. Resources are often only made available to implement the technology and not for broader change management initiatives. As a consequence the Facilitator role is left to adapt processes to the technology rather than examine in-depth the changes that are required. The Coach role is about getting the best out of IT from the IS strategy process, educating problem owners to understand how technologies can be used to address their issues. CIOs are expected to understand and resolve stakeholders and constituents' business needs and problems that are embedded in economic, political and social organisational constraints, which require effective communication and political skills (Weiss and Anderson, 2004). These in turn are acquired through the activities of the Ambassador. The Coach interacts with all the other roles, education and learning are outcomes of all the activities in the IS strategy process.

Rather than the IS strategy process being a hierarchical, rational design activity it emerges from the decisions, actions, behaviours, politics and influencing activities of the CIO and their colleagues. The dynamics of the IS strategy process becomes humanised as a multidimensional social process of role enactments where the CIO attempts to influence



the decisions, actions, meanings and understandings of others. It supports Eden's (1992) view that the success of the strategist can only be measured by the extent to which they influence the thinking and action of other people. The leaders of the IS strategic process need to identify and develop under an appropriate time-scale the required mix of role competencies if the IS strategy process is to be successfully implemented and technology transfer is to take place.

The typology of CIO roles in the IS strategy process captures the micro aspects of strategic actions made by organisational actors. This has similarities with Quinn's (1980) model of logical incrementalism that conceptualises strategy process as 'planned emergence' (Grant, 2003). Lederer and Sethi (1996) describe the emergent pattern of process dimensions (or characteristics) that organises and coordinates the activities of the managers who accomplish the strategy process as a planning system. By its very nature the IS strategy process is about transition; it must help bring about beneficial change and as such is a distinctly human activity, requiring an active vocabulary to describe these processes (Chakravarthy and White, 2001). The Facilitator should therefore be an essential and clearly enacted role in the IS strategy process. Politics and political behaviour and its outcomes are key factors in the change process (Pettigrew, 2003). The right combination of relationships, political intelligence and networking are needed by the CIO to maintain appropriate executive attention that in the public sector is a scarce commodity (Gartner, 2003).

The IS strategy process uncovered in this research is not a one off exercise undertaken every year, rather it is an on going dynamic, polychronic socio-political process. As a consequence, strategizing becomes a constant feature of organisational life (Johnson et al, 2003). All forces and activities driving or counteracting strategic change emerge from human actions. Central to the interpretation of the events, activities and decisions are how they are perceived against the cognitive maps and cultural filters of the organisational members. These can be considered both a device for interpretation and for influencing actions (Mason and Mitroff, 1981; Johnson, 1988). The typology of roles explores these actions as a continuing 'system' with a past, present and future, that is actors and systems in motion.

The six roles uncovered in this research can be viewed as a gestalt. Gestalts are closely associated with the concept of internal consistency, which is defined as the agreement or harmony of parts or features to one another or a whole (King and Pollalis, 2000). The performance of the whole system is not the sum of the performances of its parts taken separately, but is the product of their interactions (Ackoff, 1993). Mintzberg (1975) also made the observation that the roles of executive leadership he observed form a gestalt, an integrated whole, and that effectiveness of leaders hinges on the execution of all the roles simultaneously. Studies of effective executives suggest they not only think multi-dimensionally, but are also able to act out a cognitively complex strategy by playing multiple roles in a highly integrated and complementary way (Hart and Quinn, 1993).

Where context influences process in these types of studies, the role that IT plays in the organisation will determine the type of CIO needed to manage their IT functions (Earl, 1989). McFarlan's (1984) 'Strategic Grid' proposes an analysis of all existing, planned and potential IT applications into four categories based on an assessment of the current and future business importance of each application. An application can be defined as 'Strategic', 'Turnaround' (or high potential), 'Factory' (or key operational), or 'Support' depending on its current or expected contribution to business success. Where IT plays a 'support' role it may be acceptable to have a CIO interacting primarily in a technical role. However, firms where IT has a 'strategic orientation' and is critical in achieving corporate objectives, CIOs should have multidimensional roles. They should also have business, strategic, and political skills and a conceptual and visionary mind (Karimi et al, 2001). Different strategic situations require different CIO roles and repertoires in order to achieve an effective IS strategy process.

Like the provincial, incremental, political and fluid decision making processes of Saberwal and King (1995), all the roles are not evident or applicable in all CIOs, rather they are dependent on individual and contingent circumstances. Each of Earl's (1993) five approaches to IS strategy; business led, methods driven, technological, administrative and organisational have resonance with and could be linked to activities within the six CIO roles. The organisational approach where teams with themes tackle business problems, with emphasis on partnering with business managers in implementation of the strategy, complements some of the activities uncovered in the six roles.

The roles typology described in this chapter depicts fully the diversity, granularity and patterns of activities undertaken in the IS strategy as a dynamic, holistic social process undertaken by the CIO. Multiple activities are undertaken in a non linear way across varying temporal dimensions.

## 6.6 Conclusions

This chapter presents a theory for the role of the CIO in the IS strategy process in public healthcare organisations in the DHSSPS in Northern Ireland. It is shown as a multidimensional typology consisting of six roles: the Ambassador, the Visionary, the Broker, the Facilitator, the Technologist and the Coach. Attributes of these roles are developed and used in the construction of ideal types as a part of the theoretical coding stage of grounded theory to enrich the characterisation of the activities enacted in the roles. The practice of each of these roles is illuminated through examples from the data collected from the informants. The substantive theory that emerged is compared with the relevant literature which in grounded theory is regarded as an important part of theory development. The roles articulate a set of distinct activities or behaviours that focus on relationships, ideas, resources, change, technology and problems. The role activities consist of sequences of human decisions and enactments that CIOs undertake and influence across a series of domains over varying temporal dimensions. Rather than prescribing what CIOs should do the theory shows empirically what public healthcare CIOs are doing in their praxis of IS strategy. The dynamic human activity components of the roles are described by verbs which forms the basis of a structure and a language for further theorizing, argumentation and insight into the IS strategy process (Weick, 1979).

The roles typology shows that the IS strategy process is a constant flux of dynamic interactive social processes through which CIOs attempt to influence and shape the thoughts, decisions and actions of constituents, stakeholders, patrons, project teams, users and problem owners. The typology provides for the first time a processual view of how CIOs 'do' IS strategy or strategize. It provides a cohesive account and in depth understanding of the variety of IS strategy behaviours in public healthcare organisations which are lacking in the IS strategy literature (Han and Weber, 1996). The typology forms

a gestalt, an integrated pattern that acts as a functional whole with properties not derivable by summation of its parts.

It serves as an agenda for action for the CIO by illuminating the set of key activities in the IS strategy process to which they devote attention (Applegate and Elam, 1992). The roles represent consistent patterns of behaviour that emerge over time. The role of the CIO in the IS strategy process is multidimensional and complex. How they accomplish the multifaceted tasks assigned to them bears a greater resemblance to the work of a playwright than that of a scientist (Stephens, 1995). Staging and timing events, selecting characters to involve, and choosing words with certain connotations are central decisions (Stephens, 1995). The typology provides a platform to capture the subtleties of the roles in the drama as well as the synergistic relationships between the roles. In doing so it provides a means to theorise about the IS strategy process through an examination of the practice of strategy.



## CHAPTER 7

### IMPLICATIONS AND CONCLUSIONS

*"There is nothing like returning to a place that remains unchanged to find the ways in which you yourself have altered."*

*(Nelson Mandela, A Long Walk to Freedom)*

#### 7.1 Introduction

In the previous chapter I presented a theory for the role of the CIO in the IS strategy process. I discussed these roles in practice and then undertook a more focused comparison of the theory with the relevant extant literature. In this final chapter of the thesis I review whether the aims and purpose of the research were met. There are a number of implications for practitioners in the IS strategy process and those wishing to undertake inductive processual research in IS using interpretive GTM. I present the overall contribution to knowledge the thesis makes and in particular for the theory and practice of IS strategy. As with any piece of research there are limitations as to what has been achieved and in the spirit of reflective research I make explicit what these are. The opportunities for further research are also explored.

#### 7.2 Achievement of the Purpose and Aims

The purpose of this research was to develop an in-depth understanding, from the perspective of the CIO, their role in the IS strategy process in public healthcare organisations. Chapter one identified gaps in the literature regarding understanding of the IS strategy process in public organisations and in particular the role of the CIO. A broad review of the IS strategy literature showed no pre existing theory that could illuminate the research question. A process orientated inductive study using grounded theory in an interpretive mode was undertaken to answer the research question. The outcome was for the first time a sustained empirical investigation into the practice of CIOs in the IS strategy

process in public healthcare organisations. From this empirical research a theory was developed consisting of a typology of six roles; designated the Ambassador, Visionary, Broker, Facilitator, Technologist and Coach. Each role was characterised by key attributes which reveal the enactment of the IS strategy process. These roles represent patterns of activities CIOs carried out over time throughout the IS strategy process. The aims of this research have been achieved through the development of a multidimensional typology of roles.

### **7.3 The Contribution to Knowledge**

A cohesive set of roles for the CIO in the IS strategy process is not represented in the IS strategy literature despite calls for such work (Weiss and Anderson, 2003). Much of the IS management literature has developed with the private sector in mind and consists of speculation regarding what managers and their subordinates say they do, could do or should do. Relatively little of this information is empirically based on studies of job activities (Lau et al, 1980). Existing research on the IS strategy process and the role of the CIO focuses on private sector organisations (Grover et al, 1993; Earl and Feeney, 1994; Gottshalk, 1999; 2000). In this research sustained attention is given to the set of activities or roles undertaken by the CIO in the IS strategy process in public healthcare organisations. Knowledge and understanding of what CIOs are doing in practice in the IS strategy process in healthcare organisations rather than what they should be doing (Huff and Reger, 1987; Lederer and Sethi, 1996; Segars et al, 1998) is presented.

The IS strategy process is shown as an emergent, systemic, dynamic social and contextual process focusing on relationships, ideas, resources, change, technology and problems. The CIO interacts with and influences the thoughts and actions of constituents, stakeholders, patrons, project teams, users and owners over time. The typology of CIO roles in the IS strategy process contributes to a systemic understanding of the IS strategy process in healthcare organizations by providing six different roles through which a CIO strategizes. Individually and collectively the roles provide deeper knowledge and understanding of the activities undertaken by the CIO in the IS strategy process through:

- Illuminating the practice of IS strategy in public healthcare organisations through sensitising researchers and practitioners to the activities of the senior executive responsible for the process;
- Providing a systemic, contextualised, processual view of IS strategy as a complex, emergent dynamic, unfolding social and political process enacted and influenced by the CIO that takes place over time;
- Building upon existing knowledge of CIOs by illuminating what they *are* doing in practice in the IS strategy process, focusing on human patterns of activities of relationships, ideas, resources, change, technology and problems;
- Articulating a set of roles that the CIOs enact in shaping; and influencing the decisions and enactments of other actors in IS strategy process;
- Providing an externalised, comparative sense-making device which provides a role based language to describe, understand and further investigate the IS strategy process in public healthcare organisations; and
- Providing a way to link theory about individuals to theories about organisations (Handy, 1985) from micro to macro strategizing. The processes in the typology provide a bridge between individual, organisational and industrial level outcomes of the use of ICT (Crowston, 2000).

#### **7.4 Implications for Theory**

Strategy theory has called for more gestalt approaches that capture interactions and so furnish more holistic explanations of strategy creation (Mintzberg, 1978; Pettigrew, 1990; Mintzberg et al, 1998) and of IS strategy (Burns, 1993; Earl, 1993). The IS field is still at the theory building stage and an in depth understanding of the phenomena of IS strategy is needed in order to strengthen its theoretical base (Madon, 1994). The conceptualisation of roles promotes a holistic view of the IS strategy process (Burns, 1993, Earl, 1993). It provides insights and understanding how the IS strategy process is carried out by the CIO as lived human experience. The articulation of distinct roles provides the building block of social systems and the summation of requirements with which the system confronts the individual member (Katz and Kahn, 1966).

The research contributes to IS theory by addressing calls for more process orientated research in IS and organisations (Markus and Robey, 1988; Monge 1990; Orlikowski and



Baroudi 1991; Shaw and Jarvenpaa, 1997). It provides an example of a process theory in the IS strategy domain in contrast to the ubiquitous variance theories. Process theories can be valuable aids in understanding issues pertaining to IS, assessing their impacts and anticipating and managing processes of change associated with them (Kaplan, 1991). The process theory described in this thesis summarises a set of observations and predictions about the world (Crowston, 2000). It extends the theoretical development of the IS strategy literature particularly in relation to IS strategy phenomena in the public sector.

The thesis also answers the call for more theory building in the field of IS (Sahay and Walsham, 1995). The emergent theory provides means for researchers to communicate with each other; a means for researchers to communicate with practitioners; a means for accumulation of knowledge, and a means for legitimacy and recognition of an academic discipline. Researchers engaging with the theory can use it in two main ways: to develop and refine that theory, or to bridge the gap between theory and practice (Sahay and Walsham, 1995). The theory builds on existing empirical work that examines the practice of managers (Mintzberg, 1971, 1975, 1990a; Fondas and Stewart, 1994; Stephens, 1995). In particular it deepens understanding of the managerial practice of CIOs in public sector healthcare organisations, investigations of which are sparse in the literature (Ferlie, 2002).

A key outcome of IS strategy in the public sector is to improve the delivery of services. Insights into the CIO's role also offers public sector managers enhanced understanding of the shaping and influencing activities important in the IS strategy process within healthcare. Such understanding is important if technology is to be used as a means to address the demands for more and better services in the face of continually declining resources (Andersen et al, 1994). It provides a platform to progress many of the 'content issues' in strategy that will increasingly rely on a more direct confrontation with the complexities of managerial and organisational action (Rumelt et al, 1994; Johnston et al, 2003). Increased knowledge and understanding about the IS strategy process is an important precursor in determining the contribution IS makes to the performance of organisations (Fredrickson, 1983; Lederer and Sethi, 1992). The roles theory provides a link between micro and macro level strategy perspectives. Many organisational issues are multi-level, and these are incompletely captured by single level theory. The impact of IS strategy and the role of the CIO in organisations is a multi-level phenomena (Crowson, 2000).

Methodologically, the study extends the empirical application of the GTM in the IS domain. It provides a robust series of steps that shows the application of GTM through a qualitative, interpretative lens in investigating the role of the CIO in the IS strategy process. The research supports the importance of GTM in IS work when it is viewed as an interpretive tool (Charmaz, 2000; Bryant, 2002; 2003). It extends the use of GTM which is relatively new to the IS research domain and confirms its acceptability and utility in rich, context based interpretive IS research (Hughes and Jones, 2004). The utility of grounded theory for IS practitioners is re-enforced by showing the outcome of the research as being understandable and enlightening to individuals who have some familiarity with the social phenomena under investigation, either as participants or as 'lay' observers (Turner, 1983). Grounded theory can achieve this since it treats the accounts of informants painstakingly and seriously, hence the importance that all grounded theory research gives to the activity of coding (Bryant, 2002).

The CIO roles theory is applicable only to the substantive area from which it was derived. In contrast, formal theories have a much broader application beyond the boundaries of a single area of enquiry and therefore encompass a much higher level of generality than substantive theories. Substantive theory can act as the building blocks for formal theory, which is dependent on carrying out extensive further comparisons with emergent theory generated from diverse contexts. Such comparisons are likely to yield highly robust theory on account of their transcending influence and formal theory is extensive compared to the intensiveness of substantive theory (Glaser, 1978).

There is a danger that formalisation of the theory can go too far and resulting theory can be too general and lose its appeal to and specific relevance to practitioners. Practitioner-researchers generating substantive grounded theories that come out of their respective practices are useful for enacting those practices. There are two perspectives on how organisations achieve their ends. At one end of the spectrum is the perspective that organisations are rigid corporate entities devoid of personalities that can be engineered. At the other end of the spectrum is the view that organisations are primarily social systems of interrelated elements where a change in one element affects all others (Chan, 2002). This research shows the role of the CIO in the IS strategy process to be social and interactive. The theory contributes to the development of a holistic understanding of a process that

bridges the artificial divide between strategy formation and implementation, steady state and change as such it is not one that is amenable to theoretical or empirical reductionism (Chakravarthy and White, 2001).

## **7.5 Implications for Practice**

The academic community argues that strategy research should closely reflect the concerns of practitioners by deriving knowledge that is actionable in practice, particularly by those responsible for the development of strategy (Pettigrew and Webb, 1996; Rynes et al, 2001). The typology of CIO roles provides an activity based view of the details of IS strategy practice through examining what is actually done by CIOs in the IS strategy process (Whittington, 2003). There is little published work to date that attempts to describe interpretations of the way in which IS strategy forms in practice (Walsham, 1993). The theory shows through the role activities the meanings the CIOs attach to their practice and so contributes towards the practice based theorising research agenda gaining ground in the management sciences (Wilson and Jarzabkowski, 2004). A focus on meaning using grounded theory furthers interpretive understanding. The developed theory is contextual, shaped by the historical and socio-cultural conditions that guide human action in the IS strategy process.

The research articulates for the first time a roles based view of IS strategising (Galliers, 2004) undertaken by CIOs in public sector healthcare organisations. Detached a priori theorizing is challenged by providing an empirically derived practical, activity based agenda for CIOs in the IS strategy process (Pettigrew et al 2001). Much of the influential literature on IS strategy, important though it is, has left the CIO bereft of insights, let alone guidelines for action (Johnston et al, 2003). The identification of patterns (or configurations) of roles and their attributes can explain interactions among organisational elements, and possibly reveal either functional or dysfunctional patterns of strategy making (Miles and Huberman, 1994; King and Pollalis, 2000). The roles typology can be used as a diagnostic tool or comparative model by those concerned with the practice of IS strategy. It helps practitioners and researchers think about extant knowledge and practice in new ways so the IS strategy process can be understood and improved. The theory provides a reference point for any CIO or other actor entering, navigating and negotiating the IS strategy process. It provides CIOs with a conceptual map of the activities and events they

orchestrate and the individuals and groups they must engage and influence so that IS strategy can be progressed. As such it provides clarification to CIOs as to what their role is or should be (Grover et al, 1993, Ward and Peppard, 1996; Gottschalk, 1999). There is a discrepancy between the widespread potential for change created by IS and the capacity of IS professionals to lead such change (Markus and Benjamin, 1996). The theory provides a means to reduce this gap.

CEOs often do not understand the CIO's contribution well enough to properly evaluate the IS function's performance (Earl and Feeney, 1994). The theory provides 'conceptual grab' to knowledgeable people in the substantive area, facilitating heightened understanding of their own situation (Martin and Turner, 1986; Glaser, 1998). It will help those carrying out IS strategy to question the reality that they are creating by their actions and interaction and help show useful new ways of thinking and acting. In doing so it may contribute to the formation of 'reflective practitioners,' more subtle and sensitive in their strategic practice (Schön, 1983).

Finally, the research raises considerable implications for management development programmes, training and the career trajectories of prospective and existing CIOs. IS strategy should be used as a tool to increase organisational learning. It is "*what an organisation knows, not what is written*" (Auer and Reponen, 1997:32). Yet the tools and methods available for IS strategy have not altered IS professionals' project-based and technology-led practices. The capacity of CIOs to play a pro-active role in planning or facilitating organisational change using IT has been slow to emerge. If individuals do not give clear data on their role, they run the risk of either confusing or antagonising, those with whom they come in contact, or, more often, of being stuck with a stereotype, which they did not want (Handy, 1985). The typology provides much needed additional clarity to the role of the CIO in the IS strategy process.

## 7.6 Limitations

The investigation does not attempt to link the role activities of the CIO in the strategy process to outcomes although this is often a key objective of strategy process research. Separating process from content and context are false dichotomies (Pettigrew, et al, 2001). However, Stewart (1982) rejects arguments that it is meaningless to study the managerial process without reference to performance output or some measure of success in describing what managers do. In order to make CIOs more effective in their strategizing we must improve our understanding of CIO's thoughts and actions over time and this is more important than trying to measure the more limited domain we know. Intensive qualitative research is a more valuable analytical tool in this stage than quantitative analysis as it avoids the researcher's preconceived notion of what managers do and what should be measured (Lowe, 2003).

Although the research is based on the problems of CIO practice, there is a danger that being a knowing practitioner with closeness to the experiences of practice could 'naturalise' cultural peculiarities. Access to the literature and other professional practice assisted in reducing this effect. The study avoids the risks of becoming autobiographical, which would otherwise be a limit to its utility. I remained alert to and recorded any existing subjective bias I may have had. The design of the methodology was intended to reduce this risk, though the resonance of some of the informants' observations with my own experience could have led to some of the roles being over or under emphasised. The informants were predominantly CIOs. IS strategy is often delegated to CIOs as other senior executives do not possess a high degree of strategic IT knowledge (Keen,1991, Clegg 1996) and the CIO is seen as the most knowledgeable person to undertake IS strategy. To guard against the dangers of self reporting, business directors were also interviewed; however, considerations of the time and resources available limited the number of informants in the CIO's role set (Katz and Kahn, 1966) that could be interviewed.

Katz and Kahn (1966) define human organisations as open systems of roles that are contrived in nature and have the unique properties of a structure consisting of acts or events rather than unchanging physical components. "*The organisation consists of the patterned and motivated acts of human beings. Each behavioural element in the pattern is to a large extent caused and secured by the others*" (Katz and Khan, 1966:172). The

CIO's role in the IS strategy process from the perspective of their role set may have been different. The issues in separating the process of IS strategy from its context and content and the problems in capturing multiple levels of analysis and perspectives of perceived reality are also noted. Although useful, the context, process and content distinction obscures the observations that synergistic interactions exist between these constructs (Pettigrew and Whipp, 1991). The IS strategy process is too rich to be captured in its entirety through one person or perspective. Any theoretical model is a partial representation of a complex phenomenon reflecting the perspective of the model builder and the interests of the user in mind. Research knowledge is advanced by comparing the contributions and perspectives of such models with the complex and multilayered nature of strategy (Poole and Van de Ven, 2005).

Strategies are not developed on schedule, immaculately conceived. They can appear at any time and at any place in the organisation (Mintzberg, 1994). Following Pettigrew's (2003:306) advice "*I tried to make time for time*" in my work to reveal the temporal character of the CIO's role in the IS strategy process. However, the longitudinal-processual method was not followed because of the difficulties in spending prolonged periods of time observing the CIOs in practice. Rather the necessary data was reconstructed from interviews with informants and documentation that provide a rich pragmatic source of useful information. Johnston et al (2003) criticises much process research consisting of second-hand retrospective reports typically given by senior executives, ignoring those at the periphery of strategy who can have crucial effects. However, the research focuses on the practical activities of one senior executive, the CIO and gets close to how they strategize.

For any interpretive researcher using GTM, the challenge is to discover what the philosophical foundations of GTM are, and whether use of the method carries some philosophical implications. While it is clearly useful to consider the philosophical baggage that any research method might have, it may simply be that the focus of GTM, as a method of analysing data, has precluded much consideration of ontology or epistemology by its founders. One could argue that, as long as IS researchers are clear about their own philosophy, GTM can then be subsequently located in any paradigm as a way of analysing data (Urquhart, 2002). There are problems with the GTM, in particular the unproblematic

conceptualisation of data, and a level of methodological flexibility that can degenerate into methodological indifference and result in superficial and ambiguous conclusions. Taken together these criticisms stamp the method as positivist, while simultaneously locating it as qualitative and interpretive (Bryant, 2002). This can create problems for novice users and did so for a period of time with this research. Klein and Myers (1999) maintain that considering a method as either positivist or interpretivist is unhelpful since quantitative methods have been used in interpretive research and qualitative methods used in positivist research. GTM is a useful means for structuring the process of conducting data collection and as a rigorous means of data analysis (Hughes and Howcroft, 2004). Grounded theory research is likely to function best in IS research in a heuristic way, when the mind is prepared to use it in this mode, that is to think theoretically. This is consistent with the argument that when one has a rich and varied context of background knowledge and experience in which to apply it and is also accustomed to thinking 'theoretically' analytic power is enhanced (Glaser, 1978). Further limitations are concerned with the problematic nature of validity in qualitative research and the need for 'trade offs' between generaliseability, accuracy and simplicity (Weick, 1979). In any context the researcher has to adapt to the contingencies of the particular situation.

## **7.7 Extending the Work**

The typology of roles emerged in healthcare organisations in the public sector. This setting may have had an impact on the types of roles identified. It would be of value to test and expand the theory with CIOs in wider public sector settings and in very different organisational settings such as the private sector. A narrow range of industries are examined in IS research and there is infrequent consideration of industry in theory. Industry provides an important contextual space to build new IS theory and to evaluate the boundaries of existing IS theory (Ciasson and Davidson, 2005).

The review of the IS strategy literature in chapter three revealed a number of existing IS strategy models and strategizing concepts. These frameworks provide a means of sense making (Weick, 1995) and a benchmark against which informed debate and communication might take place about IS strategy (Galliers, 2004). Further research could seek to link the practice based conceptualisation of the IS strategy process from the perspective of the CIO developed in this research to these extant frameworks. Exploring

how 'top down', 'bottom up' (Ward et al, 1990), 'inside out' (Earl, 1989), static and dynamic (Hidding, 1999) approaches to IS strategy could map unto actual strategizing practices or ideal types portrayed in the theory. Further connections to more inclusive holistic IS strategising frameworks based on socio-technical concepts which aim to bridge these distinctions could also be explored (Madan, 2003, Galliers, 2004).

There is little agreement how to assess IS strategy and performance outcomes, there are also few theories linking strategy to performance constructs (Chan and Huff, 1992). The research provides a means to link the IS strategy process to outcomes. Variations among the patterns of role activities and therefore differences in the IS strategy process may lead to different outcomes. A link from IS strategy process to IS strategy content could therefore be made through understanding the activities undertaken and their consequences. These activities are also the day to day practice of managers. Further research could investigate the links between the management development and management practice of CIOs at the micro level of capability in the IS strategy process. In particular, from a leadership development perspective what are the implications of the roles on the personal, cognitive and social qualities required of CIO. The internal and external contextual factors such as organisational size, strategy, resources, cultures and IT heritage that impact and are impacted by process and content (Pettigrew and Whipp, 1991) could also be investigated.

The theory provides a diagnostic tool to investigate the practice of IS strategy. The grounded theory developed could be combined with other research methods such as action research to investigate, understand and intervene in problematic situations pertaining to the development of IS strategy, implementing IS, assessing their impacts and anticipating and managing the processes of change associated with them. These elements are often omitted in IS strategy studies that rely on variance and cross sectional data (Orlikowski, 1993). Much of the literature on action research currently assumes that theory evolution and exposition will occur as a natural consequence of problem formulation (Baskerville and Pries-Heje, 1999) rather than through rigorous data analysis.

It is unlikely that all the roles are played out equally in all organisations. Quantitative investigation and analysis through survey work could establish which of the CIO roles predominate in a broad range of organisations. There may be differences in the extent to



which different roles are played out in different between different types of public and private sector organisations. If these differences exist then how are the multiplicity of roles undertaken in context? Some of these roles may be absorbed through the activities of other organisational members such as subordinates or peers, further research is needed to investigate this.

The role of other organisational members or CIO role sets in the IS strategy process while not the direct focus of this research has implications for the conceptualisation of the role of the CIO (see Chapter 2:6). These additional and possibly different perspectives that these staff hold of the IS strategy process and the role of the CIO could be explored and used to refine and extend the theory. This role set could include senior functional and clinical peers of the CIO, IT staff reporting directly to the CIO, CEOs, vendors and users of the IS strategy. Further research which seeks to identify role prescriptions, performance expectations or demands whether undertaken through an examination of formal job descriptions or through an investigation of the expectations held by members of the CIO's role set could prove insightful (Hales, 1986). Previous research on CIO behaviour patterns indicates they are more closely aligned with those of CEOs rather than operational managers (Stephens, 1992). Future research could investigate the effectiveness of CIOs in the individual and collective roles uncovered in this research, what do they or should they do to make a difference.

The research could be further extended by examining how the CIO roles theory could be incorporated into formal social theories of sense making such as Actor Network theory (Callon, 1986; Latour, 1987) and Structuration theory (Giddens, 1984). The 'lens' of actor-network theory and structuration theory could be used to sensitize researchers to the application the CIO roles.

The roles were abstracted from concepts through categories to higher order categories. There is appeal to future researchers to return to the categories that are '*sub core*' in terms of their relevance for the theory but provide an interesting area of their own. Glaser (1998:200) labels these as '*comebacks*'. The present research illuminated six empirical roles in the IS strategy process that were further enriched through the construction of ideal types. Key activities at a lower level of abstraction could be further expanded and

investigated. The temporal predispositions of the roles could also be further examined in terms of the CIOs' perceptions of, reactions to and use of time (Poole and Van de Ven, 2005) throughout the IS strategy process.

## **7.8 Conclusions**

When Columbus set out from Spain on the first of his famous voyages in 1492 he really didn't know where he was going. Furthermore, when he arrived in the 'new world' he was not sure exactly where he was. Finally when he returned to Spain the following year he could not say with any certainty where he had been. However, he was able to repeat this amazing voyage on three subsequent occasions. It would seem to be the case if he did not possess a physical map or theory of the terrain ahead we can be sure he was able to construct a workably decent one thereafter based on his decisions, actions and experiences. Maps and theories are both tools intended to help us navigate, understand, discuss and share our experiences with others, including facilitating learning (McMaster, 2001).

IT and its practitioners are increasingly seen as central to the reform, improvement and delivery of services in public healthcare in the United Kingdom (Wanless, 2002, Crisp, 2003). While IT is used in many healthcare organisations, the extent to which it is applied creatively and successfully to critical tasks varies widely. Those organisations that have tried to achieve significant gains in performance through IT are often disappointed by the outcomes (Boynton et al, 1994). It is argued that relative failures are due to the fact that IT is not seen strategically enough by organisations (Ciborra, 1994; Galliers et al, 1994). It is the IS strategy process itself rather than the output or content that causes the most dissatisfaction with IT management and even an implication that IS strategy is a cosmetic exercise (Flynn and Goleniewska, 1993).

The strategic management field constantly pivots between concerns for theory and practice. Detached a priori theorizing at some point will be challenged by the practical agenda of the senior executive, consultant or empirical researcher (Pettgrew et al, 2001). Undertaking IS strategy is a significant challenge for CIOs and many do not have sufficient time to engage with it or reflect on their practice (Cosgrove, 2003). Macro research in IS strategy is remote from what the managerial actors such as the CIO, actually manage and influence. Much of the influential literature on strategy, important as it is, has

left the manager bereft of insights, let alone guidelines for action, at the micro level (Johnson et al, 2003). Strategy process research attempts to address the very difficult question of how strategies are formed, implemented and changed.

The CIO roles theory developed in this research shows the IS strategy process to be dynamic, enacted and orchestrated by the CIO (Chakravarthy and White, 2001). CIOs not only think multi-dimensionally, but also are also able to act out cognitively complex strategy by playing these multiple, even competing roles in a highly integrated and complementary way in order to be effective (Hart and Quinn, 1993). Smircich and Stubbart (1985) consider the primary role of strategic managers is the management of meaning and that more resources should be devoted to the study of the enactment processes of strategic managers, because these enactment processes form the invisible foundations supporting strategic choice. The research helps to illuminate, understand and increase knowledge of IS strategizing in public healthcare organisations (Johnston et al, 2003). It provides a theoretical construct focused on the CIO and their capacity to enact six distinct roles in order to influence thinking and action of those involved in the IS strategy process. Such roles for the CIO in public healthcare organisations have not been empirically derived before.

Perhaps the final words are left to an equally famous contemporary and compatriot of Columbus, Leonardo da Vinci who observed "*he who loves practice without theory is like the sailor who boards a ship without a rudder and compass, never knowing where he may be cast*" (McMaster, 2001 citing Klein, 1972).

## APPENDICES

1. Exposing Researcher Bias: Key Experiences and Prior Views
2. Interview Schedule
3. Preliminary Interview Questions First Phase (05/09/03)
4. Strategy Documentation and Data Sources
5. Example of Open Coding from Interview Notebooks
6. Examples of Concepts Emerging from Open Coding of Interviews
7. Example of a Memo
8. Developing concepts through network diagrams
9. Similar Concepts Developed into a Conceptual Category
10. Principles of Interpretive Methods used in this Study
11. Review of Interview Guide Based On Emerging Categories

## Appendix 1.

### **Exposing Researcher Bias: Key Experiences and Prior Views (After Kriflic, 2002).**

- I am a CIO with fifteen years work experience in an acute healthcare organisation. I have developed values, experiences and practices in this role;
- I have been individually responsible for the development of IS strategy both within my own organisation and with others for regional IS strategy development for the Northern Ireland DHSSPS;
- In this role I have formed my own opinions concerning the activities of the CIO in the IS strategy process in healthcare organisations;
- It is part of my personal value system that CIOs are genuinely trying to ensure that healthcare organisations make best use of IS to improve patient care;
- Through my value system and experience of the IS strategy process I see contradictions between the structured method driven approaches used to develop a comprehensive IS strategy and the varying and disappointing levels of implementation;
- It is my professional experience that healthcare CIOs are concerned as to what their role is generally and in the IS strategy process in particular;
- Reflecting on my experiences it is my view that the human activities carried out by the CIO are an important feature of IS strategy and these are not well understood;
- I think this lack of understanding has impeded the successful implementation of IS strategy and subsequent individual and organisational learning;
- Throughout my work experience I have got to know many CIOs in the DHSSPS as well as Directors, ICT staff and vendors. It is my view that CIOs are those best placed to discuss their role and experiences of the IS strategy process;
- I took care that I recorded CIO views of their role in the IS strategy process in a value free accurate way as accurately as possible guarding against self reporting through interviewing those to whom the CIO reported;
- There was a high level of participant cooperation, interviews were perceived as positive events facilitating generous attitudes and improved data collection.

## Appendix 2.

### Interview Schedule

Name (Code)	Job Title	Organisation	Date	Time
Ms E. Whitehead (EW)	IS Strategy Project Manager	NI Department of Health	8/02/03	1½ hours
Mr W. Allen (WA)	Assistant Director of IT	United Hospitals HSS Trust Antrim	17/02/03	2 hours
Mr S. Stewart (SS)	IT Manager	Ulster Community & Hospitals HSS Trust, Dundonald	18/02/03	1 hour
Mr J. Whitmore (JW)	IT Manager	Mater Informorum Hospital HSS Trust	13/03/03	1½ hours
Mr T. Melaugh (TM)	Director Clinical Support Services	Altnagelvin Hospitals HSS Trust	21/03/03	2½ hours
Mr D. Moore (DM)	IT Manager	Armagh & Dungannon HSS Trust	05/03/03	1½ hours
Mrs B. Donaghy (BD)	Director Planning and Information	Sperrin Lakeland HSS Trust	12/05/03	2 hours
Dr G. Irwin (GI)	IT Manager	Causeway HSS Trust	15/05/03	2 hours
Mr M. Sloan (MS)	Director Planning and Information	Homefirst Community Trust	19/05/03	2 hours
Mr S. Beattie (SB)	IT Manager	Greenpark HSS Trust	13/06/03	1½ hours
Mr S. Hylands (SH)	IT Manager	Craigavon & Banbridge HSS Trust	17/06/03	1½ hours
Mr D. O' Loan (D'OL)	IT Manager	Belfast City Hospital HSS Trust	2/07/03	1½ hours
Mr C. Harrigan (CH)	IT Manager	Foyle HSS Trust	10/07/03	2 hours
Mrs H. Findlater (HF)	Director Planning and Information	United Hospitals HSS Trust Antrim	29/07/03	1 hour
Mr R. Oldcroft (RO)	IT Manager	Sperrin Lakeland HSS Trust	15/09/03	1¼ hours
Mrs K. O'Loan (KO'L)	Assistant Director IT	Down Lisburn HSS Trust	19/03/04	1½ hours
Mr D. Moore*	IT Manager	Armagh & Dungannon HSS Trust	02/04/04	1¼ hours
Mr W. Allen*	Assistant Director of IT	United Hospitals HSS Trust Antrim	09/04/04	2 hours
Mr S. Hylands*	IT Manager	Craigavon & Banbridge HSS Trust	15/04/04	2½ hours
Mrs B. Donaghy*	Director Planning and Information	Sperrin Lakeland HSS Trust	28/04/04	1½ hours
Dr G. Irwin*	IT Manager	Causeway HSS Trust	30/04/04	1½ hours
Mr S. Beattie*	IT Manager	Greenpark HSS Trust	17/05/04	1½ hours
Mr D. O'Loan*	IT Manager	Belfast City Hospitals HSS Trust	18/05/04	1 hour
Mr J. Whitmore*	IT Manager	Mater Informorum Hospital HSS Trust	26/05/04	1 Hour
Mr T. Melaugh*	Director Clinical Support Services	Altnagelvin Hospitals HSS Trust	14/06/04	2 hours

\* Informants who were re-interviewed in second phase of interviews

### **Appendix 3.**

#### **Preliminary Interview Questions First Phase (5/09/03)**

- (1) Could you describe how you undertake IS strategy?
- (2) Who decides what the strategic priorities are for IS?
- (3) How does the prioritisation take place?
- (4) What do you do to influence these priorities?
- (5) How do you get support and ownership for the IS strategy?
- (6) Who are the groups or individuals that you seek support from and why?
- (7) Is there particular champion (s) for the IS strategy?
- (8) How do you get the resources you need to implement the strategy?
- (9) How do you justify what you need in terms of resources?
- (10) Are there any strategies that you specifically use to get more resources?
- (11) How are change issues anticipated and dealt with?
- (12) How do you implement the strategy?
- (13) What are the outcomes of the IS strategy?
- (14) How do you establish if these outcomes were achieved?
- (15) Do you evaluate the projects that were implemented as result of the ISS?
- (16) How do you plan the needs of the technical infrastructure?
- (17) What advice would have for a CIO undertaking the IS strategy process?
- (18) IS there anything else I should know about the IS strategy process and your role that I did not ask?

## Appendix 4.

### Strategy Documentation and Data Sources

Strategy Documents	Date of Publication/ Author
HPSS ICT Programme From Vision to Reality: Implementing the ICT Strategy	March 2005:Department of Health, Social Services and Public Safety Directorate of IS
The HPSS ICT Strategy 2005	January 2005:Department of Health, Social Services and Public Safety Directorate of IS
The HPSS Information and Communication s Technology Strategy Vision Statement	September 2001 Department of Health, Social Services and Public Safety Directorate of IS
Scenarios for Growing not Building the systems of the future: Strategic Framework For Information Services in the Northern Ireland HPSS Acute Sector 1997-2002.	April 1997 (NIHPSS Regional Information Strategy Project Team)
Information for Health: An Information Strategy for the Modern NHS 1998-2005	September 1998 Head of IM&T the UK NHS National Executive
Health and Personal Social Services in Northern Ireland: Regional Strategic Framework for Information	December 1990 (Coopers & Lybrand Deloitte)



Example of Open Coding from Interviews

<p>Interview Extract CIO [BD] 12/05/03</p> <p><i>“We did a strategy in 2001, it’s a five year strategy, I don’t know why, the timescale is picked out of a hat; it took three years to do. <u>We produce a vision through workshops in a structured way – it’s a modest vision we don’t have a formal document. I try to involve people, the concepts in the vision are implemented.</u> The vision is a fluid mix often needs revisioning. The ICT strategy is high on the agenda and I need to have the ear of top people, the clinicians and managers, make sure the clinicians no longer have a veto,</i></p>	<p>Open Coding of Concepts</p> <pre> graph TD     A[Setting out a Vision] --- B[Modest]     A --- C[Not documented]     A --- D[Involving people]     A --- E[Fluid]          F[Implement ideas/vision] --- G[Putting ideas on the agenda]     F --- H[Having the ear of top people (managers/clinicians)]     F --- I[Removing the veto]         </pre>
---	--

## Appendix 6.

### Examples of Concepts Emerging in Open Coding of CIO Interviews

#### Interview CIO 1 ED PM NIHSS Open Codes

<p>Capturing a Vision</p>	<ul style="list-style-type: none"> <li>• deliverable</li> <li>• implementable [weak versus strong]</li> <li>• realistic</li> <li>• owned</li> <li>• 'matches the landscape' (NHS vision no match)</li> </ul>	<p>Changing</p> <ul style="list-style-type: none"> <li>• By degrees [gradual – radical]</li> <li>• Culture [simple - difficult]</li> <li>• Cultural change difficult</li> <li>• Attitude to IT</li> <li>• changing to match vision</li> <li>• willingness to 'buy into change'</li> <li>• Speed of technological change</li> <li>• Using BPR but no 'buy in'</li> <li>• too much change</li> <li>• resources needed to change culture</li> </ul>
<p>Engaging a Champion</p>	<ul style="list-style-type: none"> <li>• credible</li> <li>• focused</li> <li>• excited by IT</li> <li>• The right background</li> <li>• creating ownership</li> <li>• CEO</li> <li>• driving the strategy through</li> <li>• champions not engaged</li> <li>• CEO's not understanding</li> </ul>	<p>Strategy Initiation</p> <ul style="list-style-type: none"> <li>• Top management</li> <li>• Mandatory item</li> <li>• uniform approach</li> </ul>
<p>Making Decisions</p>	<ul style="list-style-type: none"> <li>• have implementation plan</li> <li>• know who to speak to get things done</li> <li>• interested CEO</li> <li>• necessary technical infrastructure</li> <li>• Make a business case to resource controllers</li> <li>• nobody in a position to drive the strategy through</li> </ul>	<p>Consulting</p> <ul style="list-style-type: none"> <li>• Early in process</li> <li>• 'Sound out' individually</li> <li>• Get wide representation</li> <li>• Uncover views</li> <li>• Discuss the content (product)</li> <li>• Select a project board</li> <li>• one to one conversations</li> </ul>
<p>Facilitating Understanding</p>	<ul style="list-style-type: none"> <li>• through experience</li> <li>• map the present</li> <li>• use facilitator (soft process)</li> <li>• develop scenarios</li> <li>• find big picture</li> <li>• review big picture</li> <li>• workshops with aware people</li> <li>• using the right language [not computer]</li> </ul>	<p>Getting ownership and consensus</p> <ul style="list-style-type: none"> <li>• Different Views</li> <li>• Political process</li> <li>• One to one conversations</li> <li>• Lack of ownership</li> <li>• 'In fighting' between sides</li> <li>• Time needed to get agreement</li> <li>• accommodating different perspective</li> </ul>
<p>Contextualising</p>	<ul style="list-style-type: none"> <li>• evaluating previous strategies</li> <li>• reorganising to paralysis [of Trusts]</li> <li>• as result of policy decisions</li> <li>• speed of technological change</li> <li>• Strategy for internal or external use</li> <li>• Reorganisations of Trusts impacts</li> <li>• Getting the big picture</li> </ul>	<p>Learning from the process</p> <ul style="list-style-type: none"> <li>• learning from IS strategy team</li> <li>• Review every 2 years what we achieved 'A - F'</li> <li>• Reviewing because of change</li> <li>• Getting experience</li> </ul>

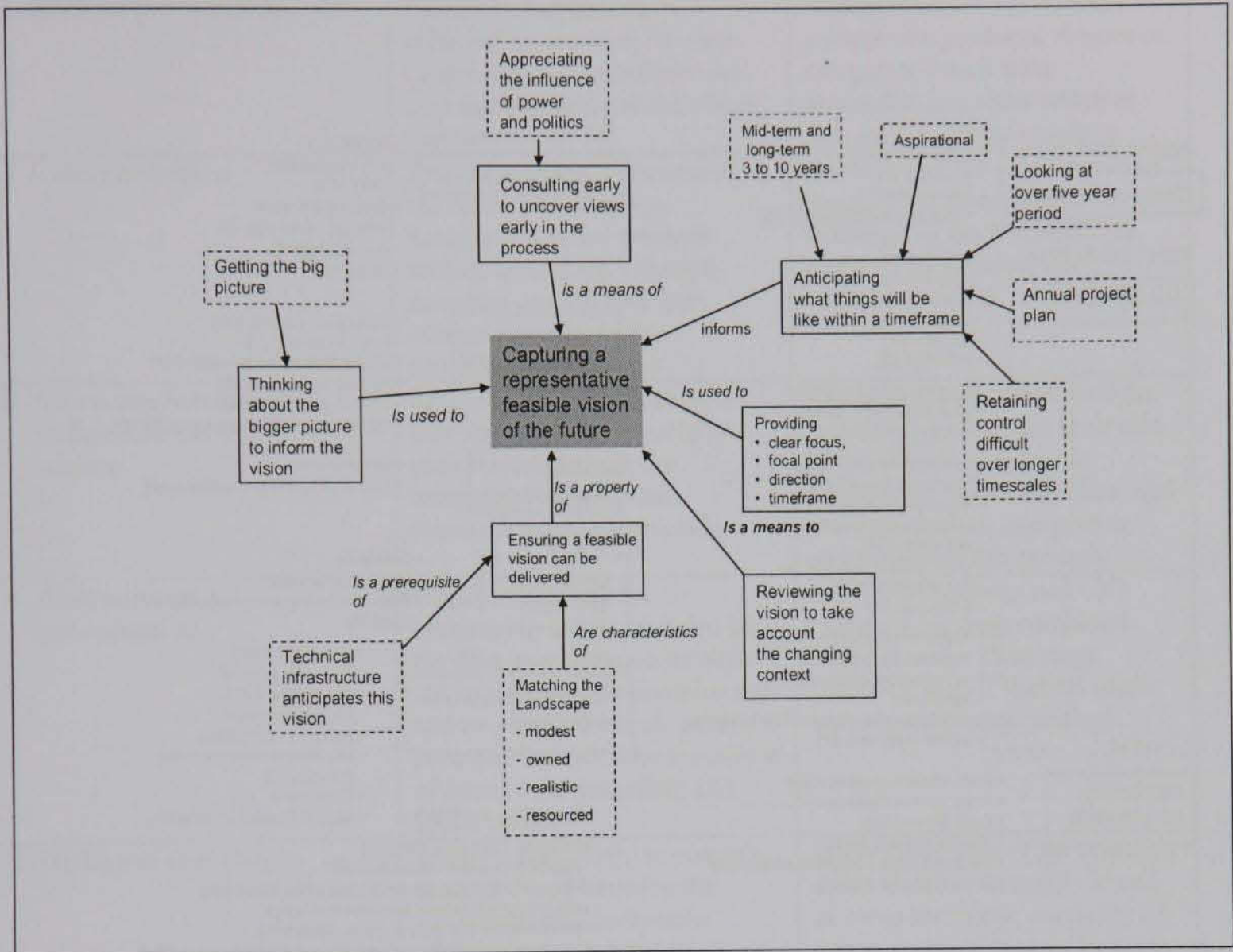
## Appendix 7.

### Example of a Memo Following An Interview with Informant (UTD WA)

CONCEPT	MEMO
Having a Vision	Vision is an aspiration something which may not be achieved. Blue sky thinking - Addresses (technical) systems individually and collectively This vision must fit the local and regional context CIO liaises with 'information teams' who have significant understanding of needs
IT steering group	85% of things in the plan get the go ahead; however, projects take time. IS strategy project focused The mechanism to reconcile views though can be political – best argument and business case or is case read? Attendance important to assure projects are put on a list - prioritisation how to deal with this – how do you prioritise?
Reflecting views	What are the views and how are they reconciled what if they are incommensurate, is it he who shouts loudest. Is there a link with the steering group? What is this about? Relationships who you know not what you know.
Contextualising	The context is a resource constraint do what you can do. Constraints imposed from outside – is strategy imposed in public sector
Timing	Takes time to get things done Implementation record of IT strategy of previous year used to follow up what has been done
Implementation teams	Evidence of integrated working, these teams deal with management of change issues. The CIO does not take the lead
Finding champion	The CEO with clout to do things
Controlling the process	The steering group acts as a control mechanism for the CIO
Business cases	Used to bring projects forward to IT steering group, are decisions made before the case is presented. How do or can you prioritise projects
Keeping the CIO focussed	By projects going through a particular route then the CIO remains focussed. Could this formality inhibit innovation? This is what the CIO wants to do rather than the organisation
Taking projects forward	A project based approach to change are there other approaches, this very narrow. Projects are well defined people are not. Who take projects forward?
Constraints	The IS process is well formalised and seems to work, is this due to just enough syndrome. Enough money for the IT staff to handle the projects that can be achieved with the resources that are available.
Accepted way of doing things	Formal, conservative approach to things establish control over IS strategy and projects
Establish infrastructure	Important role for the CIO is to establish a technical infrastructure to progress application based projects the is important irrespective of views of others for safety governance of ICT.
Implementation plans	Used to check progress of strategy but who measures progress implementation constrained by resources. What happens if targets are not reached?

Appendix 8.

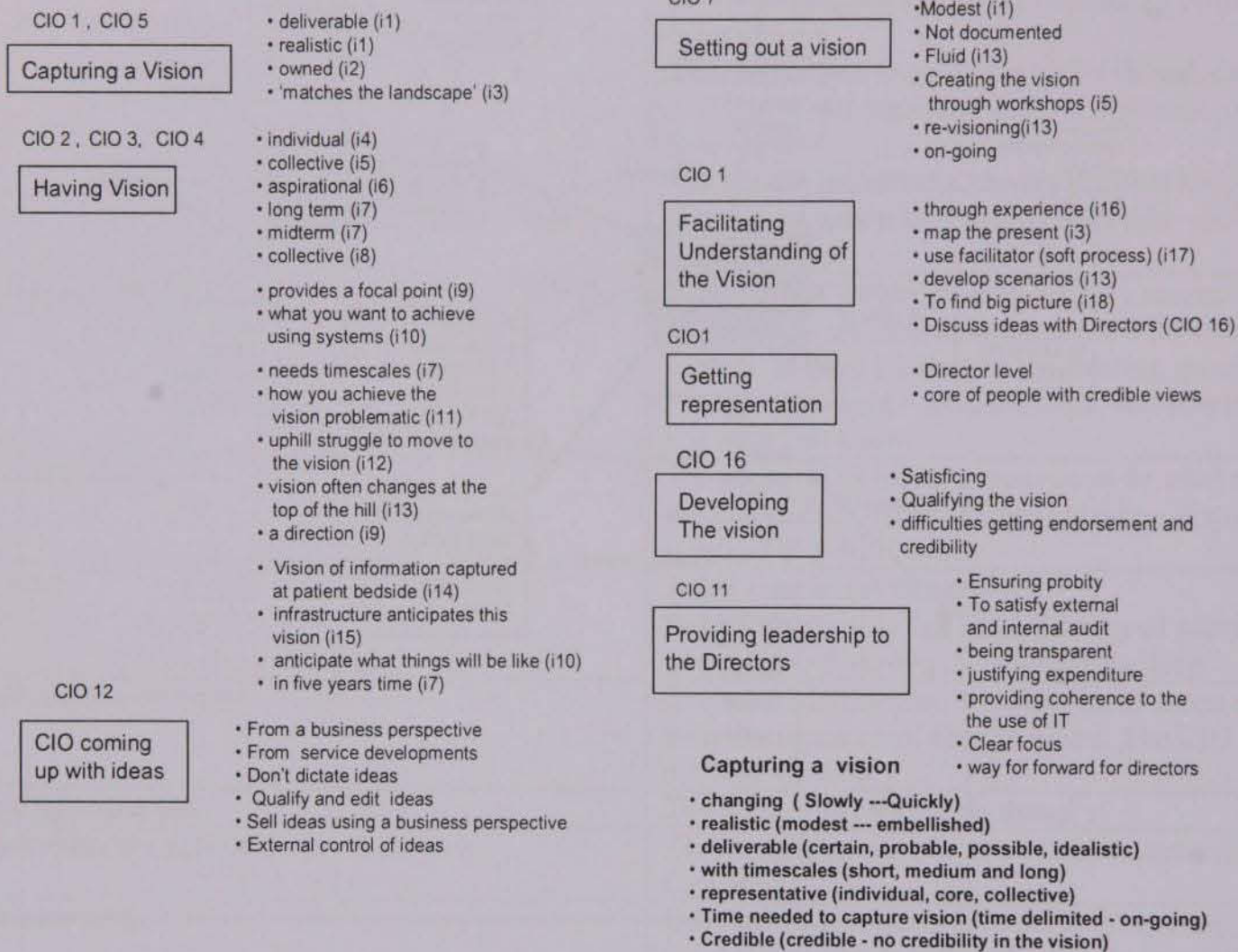
Network Diagrams Concepts “Capturing a Representative, Feasible Vision”



## Appendix 9.

### Similar Concepts developed into the Conceptual Category

#### “Capturing a Vision”



## Appendix 10.

### Principles of Interpretive Methods used in this Study (After Klein and Myers, 1999)

Principles	Its Methodological emphasis	Examples in this Study
1. Hermeneutic tradition	Human understanding is achieved by iterating between considering the interdependent meaning of parts and the whole that they form.	The open codes and constant comparison produced themes or categories which were abstracted into roles which in turn form a gestalt typology
2. Contextualisation	Requires critical reflection of the social and historical background of the research setting, so that the intended audience can see how the current situation under investigation emerged.	Context (social and historic) of the study documented IS strategies in the NHS&HPSS and their importance and centrality of CIO
3. Interaction between the researchers and the subjects	Requires critical reflection on how the 'data' were socially constructed through the interaction between the researchers and participants.	The informants (25) helped the researcher understand their role in the IS strategy process through his 'cognitive filter' and were themselves interpreting and analysing this process.
4. Abstraction and generalisation	Requires relating the idiographic details revealed by the data interpretation through the application of principles one and two on theoretical, general concepts that describe the nature of human understanding and social action.	Analytical findings and CIO experiences were combined with the wider IS strategy literature, use of Webers ideal types in theoretical coding.
5. Dialogical reasoning	Requires sensitivity to possible contradictions between the theoretical preconceptions guiding the research design and actual findings 'the story which the data tell' with subsequent cycles of revisions.	Intellectual basis of the research made clear, IS strategy viewed as socio-technical, centrality of Process view/theory of IS strategy formulation and implementation, constructivist ontology and interpretive epistemology used as underpinnings of grounded theory. Historicity of researcher taken into account.
6. Multiple interpretations	Requires sensitivity to possible differences in interpretations among the participants as are typically expressed in multiple narratives or stories of the same sequence of events under study. Similar to multiple witness accounts even if all tell as they saw it.	Achieved by the research design based on replication logic and the deliberate intention of comparing and contrasting differences in interpretations in the primary (CIOs and non CIOs) and secondary data.
7. Suspicion	Requires sensitivity to possible 'biases' and systematic 'distortions' in the narratives collected from the participants.	Researcher had considerable understanding of context helped to 'read between the lines' and appreciate any power structures or vested interests. Principle not explicitly followed.

## Appendix 11.

### Refining the Interview Questions Based on Emerging Concepts and Categories

(1) Can you describe the IS strategy process in your organisation?

*Looking for evidence of the Visionary*

Strategic ideas  
Selling ideas  
Seeking endorsement  
Gaining credibility for the ideas  
Shared vision of the future  
Contextual synthesis  
Future  
Emerging technologies

(2) How do you get support for the IS strategy process?

*Looking for evidence of the Ambassador*

Strategic Relationships  
Managing those relationships  
Seeking alliances  
Nurturing those alliances  
Internal and external orientation  
Supportive networks  
Political skill  
Continuous

(3) How do ensure you get the resources you need to implement the strategy?

*Looking for evidence of the Broker*

Strategic priorities  
Acquiring resources  
Allocating resources  
Negotiating resources  
Resource holders (influencing)  
Agree priorities  
Justifying resources  
Resource cycle  
Value for money

(4) How is the strategy implemented once you get the resources you need ?

*Looking for evidence of the Project (Change) Manager*

Strategic change  
Managing projects  
Project objectives  
Orchestrating implementation  
Project teams  
Improving outcomes  
Process view  
Project life cycle  
Adapting technologies

(5) How do plan for routine technical implementations such as hardware, software networks?

*Looking for evidence of the technocrat*

Strategic technologies  
Implementing technologies  
Decisions on technologies required  
Technical progress  
Technical operations  
Technical integration  
Technical stewardship  
Technical life cycle  
Maintaining technologies

(6) Are there insights that you and others gain from the IS strategy process?

*Looking for evidence of the Coach/Mentor*

Strategic advice  
Facilitate understanding  
Consultation  
Leadership  
Influencing stakeholders  
Learning from process  
Motivating participants  
Post project reviews  
Transfer of knowledge



## BIBLIOGRAPHY

- Abrahamson E. 1991. Managerial fads and fashions. Academy of Management Review Volume, 16: 586-612.
- Abell D.F. & Hammond J.S. 1979. Strategic Market Planning. Englewood Cliffs, N.J.: Prentice Hall.
- Abbot A. 1990. A primer on sequence methods. Organisation Science, 1(4): 375-392.
- Adam B. 1990. Time and Social Theory. Philadelphia, Temple UP. Polity Press.
- Adams A. & Sasse M.A. 1999. The user is not the enemy. Communications of the ACM, 42(12):40-46.
- Ackoff R.L. 1993. Idealized design: creative corporate visioning. Omega International Journal of Management Science, 21(4): 401-410.
- Agarwal R. & Sambamurthy V. 2002. Principles and models for organizing the IT function. MIS Quarterly Executive, 1(1):1-16.
- Allison G.T. 1971. Essence of Decision: Explaining the Cuban missile crisis. Boston: Little, Brown and Company.
- Anderson C.R. & Paine F.T. 1975. Managerial perceptions and strategic behaviour. Academy of Management Journal, 18: 811-823.
- Andersen D.F., Belardo S. & Dawes S.S. 1994. Strategic information management: conceptual frameworks for the public sector. Public Productivity and Management Review, 17(4): 335-353.
- Andrews K.R., Learned E., Christensen C.R. & Guth W. 1965. Business Policy: Text and Cases: Homewood, III: Irwin.
- Andrews K.R. 1971. The Concept of Corporate Strategy: Richard D. Irwin, Homewood, IL.
- Angell I.O. & Smithson S. 1991. Information Systems Management: Opportunities and Risks. Basingstoke, Macmillan Press.
- Annells M. 1996. Grounded theory method: Philosophical perspectives, paradigm of inquiry, and postmodernism. Qualitative Health Research, 6(3): 379-393.
- Ansoff H.I. 1965. Corporate Strategy: McGraw-Hill, NY.
- Ansoff H.I. 1979. Strategic Management: MacMillan London.
- Ansoff H.I. 1984. Implementing Strategic Management. Prentice Hall International. Englewood Cliffs, New Jersey.
- Ansoff H.I. 1987. Corporate Strategy. London: Penguin.

- Applegate L.M. & Elam J.J. 1992. New information systems leaders: A changing role in a changing world. MIS Quarterly, 16 (4): 469-489.
- Argyris C. 1985. Dealing with Threat and Defensiveness. Jossey Bass Management Series.
- Argyris C. & Schon D. 1978. Organisational Learning: A Theory of Action Perspective: MA: Addison-Wesley.
- Armstrong C. & Sambamurthy V. 1999. Information technology assimilation in firms: The influence of senior leadership and IT infrastructures. Information Systems Research, 10(4): 304-327.
- Aron R. 1970. The Logic of the Social Sciences in Max Weber. New Jersey: Prentice Hall.
- Aron D. & Blosch M. 2004. Improving the CEOs view of the CIO. Gartner Executive Programs Premier Report, July. Retrieved 1<sup>st</sup> December from [www.gartner.com/resources/121700/121783/executive\\_summa.pdf](http://www.gartner.com/resources/121700/121783/executive_summa.pdf).
- Audy J. 2000. Information systems planning impacts on and contributions from organisational learning and decision processes. Proceedings of the Sixth Americas Conference in Information Systems: 1225-1229 Long Beach CA.
- Auer T. & Reponen T. 1997. Information systems strategy formation embedded into a continuous organisational learning process. Information Resources Management Journal: (10) 32-43.
- Avison D. & Myers M. 2002. Qualitative Research in Information systems a Reader. London: Sage.
- Avison D., Jones J., Powell P. and Wilson D. 2004. Using and validating the strategic alignment model. Journal of Strategic Information Systems, 13 (3):223-246.
- Baets W. 1992. Aligning information systems with business strategy. Journal of Strategic Information Systems, 1(4): 205-213.
- Balogun J., Huff A.S. & Johnson P. 2003. Three responses to the methodological challenges of studying strategizing. Journal of Management Studies 40(1):197-224.
- Bajjaly S.T. 1998. Strategic information systems planning in the public sector. American Review of Public Administration, 28:75-85.
- Baker B. 1995. The role of feedback in assessing information systems planning effectiveness. Journal of Strategic Information Systems, 4(1): 61-80.
- Bakos Y.J. & Treacy M.E. 1986. Information technology and corporate strategy. A research perspective. MIS Quarterly 10(2):107-118.
- Barnard, C. 1938. The Functions of the Executive. Cambridge, MA, Harvard University Press.

Barney J.B. 1992. Integrating Organisational Behaviour and strategy formulation research: a resource based analysis: Greenwich, Conn: JAI Press.

Barney, J.B. 2001. Is the resource-based 'view' a useful perspective for strategic management research? Yes. Academy of Management Review 26: 41-57.

Barry C.A. 1998. Choosing qualitative data analysis software: Atlas/ti and Nudist compared. Sociological Research Online, 3(3). Retrieved 24 January 2003 from <http://www.socresonline.org.uk/socresonline/3/3/4.html>.

Bartlett C.A. & Ghoshal S. 1993. Beyond the M form: Toward a managerial theory of the firm. Strategic Management Journal, 14: 23-46.

Bartlett C. & Ghoshal S. 1997. The Transnational Organization. London: Penguin.

Barrett, M. & Walsham, G.(1999). Electronic trading and work transformation in The London insurance market. Information Systems Research 10(1):1-22.

Baskerville R. & Wood-Harper, T. 1996. A critical perspective on action research as a method for information systems research. Journal of Information Technology 11:235-246.

Baskerville R. & Pries-Heje J. 1999. Grounded action research: a method for understanding IT in practice. Accounting, Management and Information Technology, 9: 1-23.

Bassellier G., Reich B.H., & Benbasat I. 2001. Information technology competence of business managers: A definition and research model. Journal of Management Information Systems, 17(4): 159-182.

Beath C.M. 1991. Supporting the information technology champion. MIS Quarterly, 15(3): 355-372.

Beer S. 1979. The Heart of Enterprise. Chicester, Wiley.

Belbin R.M. 1993. Team Roles at Work: Butterworth-Heinemann, London.

Benbasat I. & Zmud R.W. 1999. Empirical research in information systems: The practice of relevance. MIS Quarterly, 23(1):3-16.

Benbasat I., Dexter A.S. & Martha R.W. 1980. Impact of organisational maturity on information system skill needs. MIS Quarterly, (4):21-34.

Bend J. 2004. Public value and e health. Institute of Public Policy and Research retrieved 11 August 2005 from <http://www.ippr.org.uk/publicationsandreports/publications.asp?title=&author=bend&pubdate=&policyarea=&search=search>.

Benjamin R.I., Rockart J.F., Morton M.S. & Wyman J. 1984. Information technology: A strategic opportunity. Sloan Management Review. 25(3):3-10.

Benjamin R.I., Dickinson C. & Rockart, J.F. 1985. Changing role of the corporate information systems officer. MIS Quarterly, 9(3):177-188.

- Berger, P. and Luckman, T. 1967. The Social Construction of Reality: A Treatise in the Sociology of Knowledge. Penguin Publishers, London.
- Bergeon F., Buteau C., Raymond L. 1991. Identification of strategic information systems opportunities: applying and comparing two methodologies. MIS Quarterly, 15(1): 89-103.
- Berstein R.J. 1978. The Restructuring of Social and Political Theory. Philadelphia : University of Pennsylvania Press.
- Berstein R. J. 1985. Beyond Objectivism and Realism. Philadelphia: University of Pennsylvania Press.
- Bhaskar R. 1991. Philosophy and the Idea of Freedom. Oxford: Blackwell.
- Bikson T.K. 1991. Relevance versus Rigor in Information Systems Research: An Issue of Quality. In Panel Discussion chaired by Turner J.A.: North Holland, Amsterdam.
- Blosch M., Henderson J.C., & Hunter R. 2003. Making external relationships work. Gartner Executive Programs. July Retrieved 3 June 2005 from <http://www.gartnerweb.com/resources/118500/118502/executive.summa.pdf>.
- Boaden R.J. & Lockett G. A. 1991. Information technology, information systems and information management: definition and development. European Journal of Information Systems, 1(1): 23-32.
- Boland R.J. 1979. Control, causality and information system requirements. Accounting, Organizations and Society, 4(4): 259-272.
- Boland, R.J. 1985. Phenomenology: A preferred approach to research on IS. In Mumford, E. (ed) et al., Research Methods in IS. Amsterdam, New York: Elsevier.
- Bolman L.G. & Deal T.E. 1991. Reframing organizations: Artistry, choice, and leadership. San Francisco: Jossey-Bass.
- Boulding K. 1956. General systems theory - The skeleton of science. Management Science, 2(3): 197-208.
- Boissevain, J. 1974. Friends of Friends: Networks, Manipulators and Coalitions. Oxford: Basil Blackwell.
- Boyle R.D. 1994. Critical success factors for establishing and maintaining the position of CIO. Information Strategy: The Executives Journal, 10:29-38.
- Boynton A. C. & Zmud R.W. 1987. Information technology planning in the 1990's: Directions for practice and research. MIS Quarterly, 11(1): 59-72.
- Boynton A.C., Jacobs G.C., & Zmud R.W. 1992. Whose responsibility is IT management? Sloan Management Review, 33(4): 32-38.
- Boynton A.C., Zmud R.W., & Jacobs G.C. 1994. The influence of IT management practice on IT use in large organisations. MIS Quarterly, 18(3): 299-311.

- Bozeman B. & Bretschneider S. 1986. Public management information systems: Theory and prescription. Public Administration Review, 40: 475-487.
- Braa K. & Vidgen, R. 1997. An IS research framework for the organisation as laboratory. Cambridge, Massachusetts: MIT Press.
- Branganza A. 2005. Why it's good to talk. Computing, 18 October. Retrieved 1 December 2005 from <http://www.computing.co.uk/computing-business/comment/2144235/why-talk>.
- Brancheau J.C. & Weatherbe J.C. 1987. Key issues in information systems management. MIS Quarterly, 1(1): 23-45.
- Brancheau J.C., Janz, B. D., & Wetherbe J.C. 1996. Key issues in information systems management: 1994-1995. SIM delphi results. MIS Quarterly, 20(2): 225-242.
- Braybrooke D. & Lindblom C.E. 1970. A Strategy of Decision: Policy Evaluation as a Social Process. New York: Free Press.
- Bretschneider S. 1990. Management information systems in public and private organisations: An empirical test. Public Administration Review 50(5): 536-545.
- Broadbent M. & Kitzis E.S. 2005. The New CIO Leader Setting the Agenda and Delivering Results: Gartner inc. Boston. Harvard Business School Press.
- Brocklesby J. & Cummings S. 2003. Strategy as Systems Thinking: eds Cummings S. & Wilson D.C. 2003. Images of Strategy. Oxford: Blackwell.
- Brown A.D. 1998. Narrative, politics and legitimacy in an IT implementation. Journal of Management Studies, 35(1): 35-58.
- Brown C., Ephram R., & Straub D.W. 1996. Partnering roles of the IS executive. Information Systems Management, 13(2): 14-18.
- Brown S.L. & Eisenhardt K. M. 1998. Competing on the Edge: Strategy as Structured Chaos. Boston, MA: Harvard Business School Press.
- Brown C.V. and Magill S.C. 1994. Alignment of the IS function with the enterprise: Towards a model of antecedents. MIS Quarterly, 18(4):371-403.
- Brumm E.K. 1988. Chief information officers in service and industrial organisations: A survey. Information Management Review, 3:17-30.
- Brunsson N. 1982. The irrationality of action and action rationality: decision, ideologies and organisational actions. Journal of Management Studies, 19: 29-44.
- Brunsson N. 1989. The Organisation of Hypocrisy. Talk, Decisions and Actions in Organisations. Chicester. Wiley.
- Bryant A. 2002. Re-grounding grounded theory. Journal of Information Technology Theory & Applications, 4(2): 25-42.

- Bryant A. 2003. A constructive/ist response to Glaser. *Forum: Qualitative Social Research* [On-line Journal], 4(1). Retrieved 24 June 2004 from <http://www.qualitative-research.net/fqs-texte/1-03/1-03bryant-e.htm>.
- Brynjolfsson E. 1994. The productivity paradox of information Technology. *Communications of the ACM*, 36(12):67:77.
- Brynjolfsson E. 2003. The digital organisation: Seven practices of highly productive firms. Center for e Business Research Brief 1(2):1-3.
- Burrell G. & Morgan G. 1979. *Sociological Paradigms and Organisational Analysis*. Ashgate Publishing Company.
- Burgelman R.A. 1983. A process model of internal corporate venturing in the diversified major firm. *Administrative Science Quarterly*, 28: 223-224.
- Burgelman R.A. 1994. Fading Memories: A process theory of strategic business exit in dynamic environments. *Administrative Science Quarterly*, 39: 24-56.
- Burgelman R.A. 1996. A process model of strategic business exit: Implications for an evolutionary perspective on strategy. *Strategic Management Journal*, 17: 193-214.
- Burn J. 1993. Information systems strategies and the management of organisational change - a strategic alignment model. *Journal of Information Technology*, 8: 205-216.
- Burn, J.M. & Szeto, C. 2000. A comparison of the views of business and IT management on success factors for strategic alignment. *Information and Management*, 37(4):197-216.
- Byrd T.A., Sambamurthy V., & Zmud R.W. 1995. An examination of IT planning in a large, diversified public organisation. *Decision Sciences*, 26(1): 49-74.
- Callon M. 1986. Some elements of a Sociology of Translation: Domestication of the Scallops and the Fishermen in Law J. (ed.) *Science as Practice and Culture*, 343-368. Chicago and London: The University of Chicago Press
- Calnan M. & Ferlie E. 2003. Analysing process in healthcare: the methodological and theoretical challenges, Special guest edited section 'Analysing process in healthcare'. *Policy and Politics*, 31(2): 185-193.
- Camillus J.C. 1975. Evaluating the benefits of formal planning systems. *Long Range Planning*, III(June): 33-40.
- Camillus J.C. 1982. Reconciling logical incrementalism and synoptic formalism -An integrated approach to designing strategic planning processes. *Strategic Management Journal*, 3: 277-283.
- Camillus J.C. & Lederer, A. L. 1985. Corporate strategy and the design of computerised information systems. *Sloan Management Review*, 26(3):35-42.
- Cannella Jr. A.A., Pettigrew A., & Hambrick D. 2001. Upper echelons: Donald Hambrick on executives and strategy. *The Academy of Management Executive*, 15(3): 36-44.

- Carnall C.A. 1995. Managing Change in Organizations. (second edition). London: Prentice Hall.
- Carroll J.M. & Swatman P.A. 2000. Structured case: A methodological framework for building theory in information systems research. European Journal of Information Systems, 9(4):235:242.
- Caudle S.L. 1996. Strategic Information resources management: Fundamental practices. Government Information Quarterly, 13(1): 83-97.
- Caudle S.L. & Marchand, D. A. 1990. Management information resources: New directions in state government. Information Management Review, 5(3): 9-30.
- Caudle S.L., Gorr W., & Newcomer K. 1991. Key information systems management issues for the public sector. MIS Quarterly, 15(2): 171-188.
- Chandler A.D. 1962. Strategy and Structure: Chapters in the History of Industrial Enterprise. MIT Press Cambridge, MA.
- Chan Y.E. & Huff A.S. 1992. Strategy: An information systems research perspective. The Journal of Strategic Information Systems, 1(4): 191-204.
- Chan Y.E. & Huff A.S. 1993. Strategic information systems alignment. Business Quarterly, 58(1): 51-55.
- Chan Y.E., Huff S.L., Barclay D.W., & Copeland D.G. 1997. Business strategic orientation, information systems strategic orientation and strategic alignment. Information Systems Research, 8(2): 125-150.
- Chan Y.E. 2002. Why haven't we mastered alignment? The importance of the informal organisation structure. MIS Quarterly Executive, 1(2): 97-112.
- Chaffee E. 1985. Three models of strategy. Academy of Management Review, 10: 89-98.
- Chakravarthy B.S. 2003. Strategy process: Shaping the contours of the field. Malden, MA: Blackwell Publications
- Chakravarthy B.S. & Doz Y. 1992. Strategy process research: focusing on corporate self-renewal. Strategic Management Journal, 13: 5-14.
- Chakravarthy B.S. & White R.E. 2001. Strategy Process: Forming, Implementing and Changing Strategies. eds Pettigrew A.M., Thomas H., & Whittington R. Handbook of Strategy and Management. London. Sage.
- Chandler A.D. Jr. 1962. Strategy and Structure: Cambridge MA, MIT.
- Charmaz K. 1990. Discovering chronic illness: using grounded theory. Social Science and Medicine, 30: 1161-1172.

- Charmaz K. 1994. The Grounded Theory Method: An explication and interpretation in B.G. Glaser (Ed). More grounded theory methodology a reader. Mill Valley CA. Sociology Press.
- Charmaz K. 2000. Grounded Theory. Objectivist and Constructivist Methods (2<sup>nd</sup> ed.). Thousand Oaks, California: Sage.
- Charmaz, K. 2003. Qualitative interviewing and grounded theory analysis. in: Holstein, J. and Gubrium, J. (eds) Inside Interviewing : New Lenses, New Concerns. Thousand Oaks CA.: Sage.
- Chatham R. & Patching K. 2000. Corporate Politics for IT Managers: How to get Streetwise. Butterworth-Heinemann.
- Checkland P.B. 1981. Systems Thinking, Systems Practice: Wiley, Chicester.
- Checkland P.B. & Davies L. 1986. The use of the term weltanschauung in soft systems methodology. Journal of Applied Systems Analysis, 13: 109-115.
- Checkland P.B. & Scholes J. 1990. Soft Systems Methodology in Action. Chicester: Wiley.
- Chenitz W.C. & Swanson J.M. 1986. From Practice to Grounded Theory: Qualitative Research in Nursing. Menlo Park, CA, Addison-Wesley.
- Chia R. 1994. The concept of decision: A deconstructive analysis. Journal of Management Studies, 31(6):781-806.
- Chiovitti R.F. & Piran N. 2003. Rigour and grounded theory research. Methodological Issues in Nursing Research, 44(4): 427-435.
- Chua W.F. 1986. Radical developments in accounting thought. The Accounting Review, 61: 601-632.
- Ciasson M. & Davidson E. 2005. Taking industry seriously in information systems research. MIS Quarterly, 29 (1):591-605.
- Ciborra C. 1994. The grassroots of IT and strategy. In C. Ciborra and T. Jelassi (eds) Strategic Information Systems: A European Perspective. Chicester: Wiley.
- Ciborra C.U. 1997. De Profundis? Deconstructing the concept of strategic alignment. Scandinavian Journal of Information System, 9(1): 67-83.
- Ciborra C.U. & Associates 2001. From Control to Drift: The Dynamics of Corporate Information Infrastructures. Oxford University Press. Oxford.
- Ciborra C. & Jelassi T. 1994. Strategic Information Systems: A European Perspective: John Wiley & Sons.



Ciborra C.U. 2004. Encountering Information Systems as a Phenomena. In Avgerou C., Ciborra C. and Land F. (eds) The Social Study of Information and Communications Technology: Innovation, Actors and Contexts. Oxford University Press. Oxford.

Clarke R. 1994. The Path of Development of Strategic Information Systems Theory. Retrieved 12 February from <http://www.anu.edu.au/people/Roger.Clarke/SOS/StratISth.html>.

Clegg C.C. 1996. The performance of Information Technology and the role of human and organisational factors. Report to the Economic and Social Research Council UK. Version 1.

Clemons E.K. 1996. Using scenario analysis to manage the strategic risks of reengineering. Sloan Management Review, 3(4): 61-71.

Cohen A.R. & Bradford D.L. 1989. Influence without authority: The use of alliances, reciprocity, and exchange to accomplish work. Organisational Dynamics, 17(3):5-17

Cohen W.M. & Levinthal D.A. 1990. Absorptive capacity: A new perspective on learning and innovation. Administrative Science Quarterly, 35: 128-152.

Cohen M.D., March J.G., & Olsen J.P. 1972. A garbage can model of organisational choice. Administrative Science Quarterly, 17: 1-25.

Collins A. 2006. Why audit is needed more than ever. Computer Weekly 6<sup>th</sup> June

Collins J.C, & Porras J.I. 1991. Organisational vision and visioning organisations, California Management Review, 34 (1):39-52.

Collis D. & Montgomery C. 1994. Competing on resources: Strategy in the 1990s. Harvard Business Review, (73) July-August: 118-128.

Cook T.D. & Campbell, D. T. 1979. Quasi-Experimentation: Design and Analysis Issues for Field Settings. Boston.: Houghton Mifflin Company.

Cooper, RB & Zmud, RW (1990) Information technology implementation research: A technological diffusion approach. Management Science, 36, 123-139.

Coopride J.G. & Victor K.M. 1993. The contribution of shared knowledge to IS group performance. eds De Gross J.I., Bostram R.P. & Robey D. Proceedings of the 14<sup>th</sup> International Conference on IS, Orlando, Florida :285-299

Cosgrove Ware E. 2003. The State of the CIO survey. CIO magazine, CIO April 1, 2003. Retrieved 24 June 2005 from <http://www2.cio.com/research/surveyreport.cfm?id=54>.

Coulson-Thomas C. 1991. Directors and IT and IT directors. European Journal of Information Systems, 1(1): 45-53.

Creswell J.W. 1998. Qualitative Inquiry and Research Design: Choosing among Five Traditions. Thousand Oaks, California: Sage.

Crisp N. 2003. Chief Executive's report to the NHS. London: Department of Health, December at [www.doh.gov.uk/nhsreport](http://www.doh.gov.uk/nhsreport).

Crotty, M. 1998. The Foundations of Social Research. Sydney. Allen and Unwin Publishers.

Crowston K. 2000. Process as theory in information systems research. In The IFIP WG 8.2 International Conference: The Social and Organizational Perspective on Research and Practice in Information Technology. Aalborg, Denmark. Retrieved March 2003 from <http://crowston.syr.edu/papers/ifip2000-long.pdf>

CSC. 1996. New IS leaders. In CSC Index Research, UK. (Ed.).

Cummings S. & Wilson D.C. 2003. Images of Strategy. Oxford:Blackwell

Currie W.L. & Galliers R. 1999. Introduction to Part III Developing and Implementing Change Programmes: Oxford University Press.

Cutcliffe, J.R. 2000. Methodological Issues in grounded theory. Journal of Advanced Nursing. 31(6):1476-1484.

Cyert R.M. & March J.G. 1963. A Behavioural Theory of the Firm. Englewood Cliffs, New Jersey: Prentice Hall.

Daft R.L. & Weick K.E. 1984. Toward a model of organisations as interpretation systems. Academy of Management Review, 9(2): 284-295.

Das T.K., Zahra S., & Warkentin M. 1991. Time: The hidden dimension in strategic planning. Long Range Planning, 24(3): 49-57.

Datz T. 2003. Six Habits of Highly Effective CIOs, CIO magazine, 15 June. 1.

Dawson P. 1997. In at the deep end: Conducting processual research on organisational change. Scandinavian Journal Of Management, 13(4): 389-405.

Delbecq A., Van de Ven, & Gustafson D. 1975. Group Techniques for Program Planning: Scott,Foresman,Glenview,IL.

Delisi P.S., Danielson R.L. and Posner B.Z 1998. A CEO's-eye view of the IT function. Business Horizons (41)1:65-74.

Demming W.E. 1986. Out of Crisis. Cambridge, Mass: MIT.

Denzin N. K. & Lincoln Y.S.. 2003. The Landscape of Qualitative Research: Theories and Issues. Sage Publications 2nd. edition.

Department of Health. 1989. Working for patients. (Series no.Cm. 555) London: HMSO, ISBN: 0101055528.

Department of Health 2000. The NHS Plan: A Plan for investment, a plan for reform. 01/07/2000, (Series no. cm48181), London HMSO.

- Dess G., Newport S., & Rasheed A. 1993. Configuration research in strategic management: Key issues and suggestions. Journal of Management, 19(4): 775-795.
- Desanctis G., Poole M.S., Lewis H. and Desharnais G. 1991. Using computing to facilitate the quality improvement process: The Minnesota Project. Interfaces, 21 (6): 23-36.
- De Wit B. & Meyer R. 1994. Strategy: Process, Content, Context: Minneapolis/St Paul: West Publishing.
- Dey I. 1999. Grounding Grounded Theory. CA: Academic Press.
- Dibben M. & Smallman C. 2005. Ignoring Convention? Reframing Process Thinking in Organisational Analysis. The First Organization Studies Summer Workshop on 'Theorizing Process in Organizational Research' 12-13 June, Santorini, Greece.
- Dobson P.J. 2002. Critical realism and information systems: why bother with philosophy? Information Research, 7(2). Retrieved September 24, 2005 from <http://informationR.net/ir/7-2/paper124>.
- Doherty N.F., Marples C.G., & Suhaimi A. 1999. The relative success of alternative approaches to strategic information systems planning: an empirical analysis. Journal of Strategic Information Systems, 8(3): 263-283.
- Doll W.J. & Torkzadeh G. 1987. The relationship of MIS steering committees to size or firm formalisation of MIS planning. Communications of the ACM 30(11), 972-997.
- Doyle J.R. 1991. Problems with strategic information systems frameworks. European Journal of Information Systems, 1(4): 273-280.
- Dufner D., Holley L., & Reed B. 2002. Can private sector strategic information systems planning techniques work for the public sector? Communications of the Association for Information Systems, 8: 413-431.
- Dutton, J.E, Fahey, L. & Narayanan, V.K. 1983. Toward understanding strategic issue diagnosis. Strategic Management Journal, 4: 307-323.
- Earl M.J. 1983. Emerging Trends in Managing New Information Technologies: Croom Helm, London.
- Earl M.J. 1988. Information Management: The Strategic Dimension. Oxford University Press.
- Earl, M.J. 1989. Management Strategies for Information Technology. Prentice Hall International (UK) Ltd.
- Earl M.J. 1990. Approaches to strategic information systems planning experience in twenty one UK companies. Paper presented at the Proceedings of the 1st International Conference on Information Systems, Copenhagen, Denmark. 16-19 December: 271-277.
- Earl M.J. 1993. Experiences in strategic information systems planning. MIS Quarterly, 17(1): 1-24.

- Earl M.J. 1996. Research round-up, London Business School, Business Strategy Review, 7 (1): 54-67.
- Earl M.J. 2000. Are CIOs obsolete. Harvard Business Review (78) 2:55-63.
- Earl M.J. & Feeny D.F. 1994. Is your CIO adding value? Sloan Management Review, 35 (3): 11-20.
- Earl M.J. & Feeney D.F. 2000. How to be a CEO for the information age. Sloan Management Review, 41(2):11-23.
- Eccles R.G. & Nohria N. 1992. Beyond the Hype Rediscovering the essence of management. Boston: Harvard Business School Press.
- Eden C. 1992. Strategy development as a social process. Journal of Management Studies, 29(6): 799-811.
- Ein-Dor P. & Segev E. 1978. Organizational context and the success of management information systems. Management Science: 24 (10):1064-1077.
- Eisenhardt K.M. & Bourgeois L.J. 1988. Politics of strategic decision making in high-velocity environments: To-wards a midrange theory. Academy of Management Journal, 31(4): 737-770.
- Eisenhardt K.M. 1989. Building theories from case study research. Academy of Management Review, 14(4): 532-550.
- Emery F.E. & Trist E.L. 1960. Socio-technical systems. Oxford: Pergamon.
- Enns H.G., Huff S. & Higgins C.A. 2003. CIO lateral influence behaviours gaining peers commitment to strategic information systems. MIS Quarterly, 27(1): 155-176.
- Enns H.G., Huff S.L., & Golden B.R. 2001. How CIOs obtain peer commitment to strategic IS proposals: barriers and facilitators. Journal of Strategic Information Systems, 10(1): 3-14.
- Enns H.G., Murray E.J., & Huff A.S. 1997. Shared understanding between IS and business executives: impacts on IS effectiveness and business performance. Paper presented at the Proceedings of the 1997 Administrative Public Science Association of Canada, St Johns Newfoundland.
- Ericson T., Melander A. and Melin L. 2001. The Role Of The Strategist, In Rethinking Strategy, Volberda H.W. and Elfring T. eds. Sage. London.
- Fahey L. & Christensen H.K. 1986. Evaluating the research on strategy content. Journal of Management, 12(2): 167-183.
- Falkenberg J. 2002. Strategy from prescriptions to propositions. European Business Forum, (9): 29-36.

- Fama G.F. & Jensen M.C. 1983. Separation of ownership and control. Journal of Law and Economics (26): 327-349.
- Fay B. 1987. An Alternative View: Interpretive Social Science, in M.T. Gibbons (Ed), Interpreting Politics, New York University Press, New York, 82-100.
- Fayol H. 1916. General and Industrial Management (in English 1949): New York. Pitman.
- Feeney D.F., Edwards B.R., & Simpson K.M. 1992. Understanding the CEO/CIO relationship. MIS Quarterly December:435-448.
- Feeney D.F. & Willcocks L.P. 1998. Core IS capabilities for exploiting information technology. Sloan Management Review 39(3): 9-21.
- Feeney D.F. & Willcocks L.P. 1999. Rethinking capabilities and skills in the information system function. Oxford University Press, Oxford.
- Feld C. 2003. IT Leadership in 2010; The skills that CIOs will need to win the game, CIO, 17: 1-3.
- Ferlie E. 2002. Quasi Strategy: Strategic Management in the Contemporary Public Sector. eds Pettigrew A.M., Thomas H., & Whittington R. Handbook of Strategy and Management. London. Sage.
- Fernandez W. D. 2004. Using the Glaserian Approach in Grounded Studies of Emerging Business Practices. Electronic Journal of Business Research Methods, 2(2): 83-94.
- Fiegener M.K. & Coakley J.R. 1995. CIO 'Impression Management: Problems and Practices. Journal of Systems Management, (November-December):56-61.
- Field P.A. & Morse J.M. 1985. The Application of Qualitative Approach. London: Chapman Hall.
- Fitzgerald E. 1993. 'Success measures for information systems strategic planning. Journal of Strategic Information Systems, 2 (4):335-350.
- Fitzgerald B. & Howcroft D. 1998. Competing Dichotomies in IS Research and Possible Strategies for Resolution. Paper presented at the Proceedings of the 19<sup>th</sup> International Conference in Information Systems, Helsinki.
- Flood R.C. & Carson E.R. 1993. Dealing with Complexity: Perseus Publishing.
- Floyd S.W. & Woodridge B. 2000. Building Strategy from the Middle: Re-conceptualising Strategy Process: London: Sage Publications.
- Flynn D.J. & Goleniewska E. 1993. A survey of the use of strategic information systems planning approaches in UK organisations. Journal of Strategic Information Systems, 2(4): 292-319.
- Fondas N. & Stewart R. S. 1994. Enactment and managerial jobs: A role analysis. Journal of Management Studies, 31(1): 83-103.

Forbes T. 2001. Devolution and Control within the UK Public Sector: National Health Service Trusts: Financial Times, Prentice Hall.

Fredrickson J.W. 1983. Strategic process research: Questions and recommendations. Academy of Management Review, 8(4): 565-575.

Fredrickson J.W & Mitchell T.R. 1984. Strategic decision processes: Comprehensiveness and Performance in an Industry with an Unstable Environment. Academy of Management Journal, 27(2): 399-423.

Galal G.H. 2001. From contexts to constructs: the use of grounded theory in operationalizing contingent process models. European Journal of Information Systems 10(1):2-14.

Galliers R.D. 1985. Research methods in information systems. Proceedings of the IFIP WG 8.2 Colloquium. in Mumford E., Hirschheim R., Fitzgerald G., & Wood Harper A.T. (eds) 1984. Research Methods in Information Systems, in IFIP WG 8.2 Colloquium, Manchester, 1-3 September. North Holland Amsterdam.

Galliers R.D. 1987. Information systems planning in the United Kingdom and Australia: a comparison of current practice, Oxford Surveys in Information Technology, (Zorkoczy, P, ed),: 223-255.

Galliers R.D. 1988 Information technology strategies today: the United Kingdom experience. Formulating IT Strategies (Earl, MJ, ed), Clarendon Press, Oxford.

Galliers, R.D. 1991. Strategic information systems planning: Myths, reality and guidelines for successful implementation. European Journal of Information Systems, 1(1): 55-64.

Galliers R.D. 1992. Soft systems, scenarios, and the planning and development of information systems. Systemist, 14(3):146-159.

Gallier R.D. 1992a. Choosing Information Systems Research Approaches in Information Systems Research Issues, Methods and Practical Guidelines eds Galliers R.D . London. Blackwell Scientific Publications.

Galliers R.D. 1999. Editorial. Journal of Strategic Information Systems, 8(2): 121-123.

Galliers R.D. 2004. Reflections of Information Systems Strategizing: Oxford University Press. In C. Avgerou, C. Ciborra & F. Land (eds.), The Social Study of Information and communication technology. Oxford. Oxford University Press.

Galliers R.D. & Sutherland A.R. 1991. Information systems management and strategy formulation: the 'stages of growth' model revisited. Journal of Information Systems 1(2): 89-114.

Galliers R. D., Merali Y., & Spearing L. 1994. Coping with information technology? How British executives perceive the key information systems management issues in the mid-1990s. Journal of Information Technology, 9(3): 121-123.

Galliers, R. D., Pattison E.M. & Reponen T. 1994. Strategic information systems planning workshops: Lessons from three cases. International Journal of Information Management, 14 (1): 59-66.

Galliers R.D. & Newell S. 2003. Strategy as Data+ Sense Making in S. Cummings and D.C. Wilson (eds), Images of Strategy. Oxford: Blackwell.

Garcia L. & Quek F. 1997. Qualitative Research in Information Systems: Time to be Subjective. London: Chapman Hall.

Gartner Group. 2003. CIO credibility: Proven practices from the public sector, Gartner EXP Premier Report.

Garvin D.A. 1998. The processes of organization and management. Sloan Management Review 39(4): 33-50.

Gasson S. 2002. Rigor in Grounded Theory Research An Interpretive Perspective on Generating Theory From Qualitative Field Studies. Hersey PA: Idea Publishing Group.

Genus A. 1995. Flexible Strategic Management. London: Chapman and Hall.

Gibson C.F. & Nolan R.L. 1974. Managing the four stages of EDP growth in P. Gray, W.R. King, E.R. McLean and H.J. Watson,(eds) Management of Information Systems, The Dryden Press, Fort Worth Texas.

Giddens A. 1979. Central Problems in Social Theory: Action, Structure and Contradiction in Social Analysis. Berkely, California: University of California Press.

Giddens A. 1984. The Constitution of Society: Outline of the Theory of Structuration. Cambridge: Polity Press.

Giddens A. 1991. Modernity and Self - identity. Polity Press.

Gill J. & Johnson P. 1991. Research Methods for Managers. London: Chapman Publishing.

Gioia D. A. & Chittipeddi K., C. 1991. Sense making and sense giving in change initiation. Strategic Management Journal, 12(6): 433-448.

Gioia, D.A. & Thomas J.B.. 1996. Identity, image, and issue interpretation: sensemaking during strategic change in academia. Administrative Science Quarterly, 41:370-403.

Glaser B.G. & Strauss A.L. 1967. The Discovery of Grounded Theory: Strategies for Qualitative Research. Aldine Publishing Company: New York, NY.

Glaser B.G. 1978. Theoretical Advances in the Methodology of Grounded Theory. Mill Valley California: The Sociology Press.

Glaser B.G. 1992. Basics of Grounded Theory Analysis. Mill Valley CA: Sociology Press.

Glaser B.G. 1998. Doing Grounded Theory: Issues and Discussions. Mill Valley CA: Sociology Press.

Glaser B.G. 2001. The Grounded Theory Perspective: Conceptualization Contrasted with Description. Mill Valley CA: Sociology Press.

Glaser B.G. 2002. Constructivist grounded theory ? Forum: Qualitative Research 3(3). Retrieved September 2004 from <http://www.qualitative-research.net/fqs/fqs-eng.html>.

Glick W., Huber G., Miller C., Doty H., and Sutcliffe K. 1990. Event histories and periodic assessments. Organization Science, 1 (3):293-312.

Gluck F.W., Kaufman S.P., & Walleck A.S. 1980. Strategic management for competitive advantage. Harvard Business Review, 58(4): 154-161.

Goffman E. 1961. Encounters. Two Studies in the Sociology of Interaction. Indianapolis: Bobs-Merill.

Golden B.R. 1992. The past is the past: Or is it? The use of retrospective accounts as indicators of past strategy. Academy of Management Journal, 35(4):848-860.

Golden B.R. 1997. Further remarks on retrospective accounts in organisational and strategic management research. Academy of Management Journal, 35(4): 848-860.

Goodhue D., Kirsch L.J., Quillard J.A. and Wybo M.D. Strategic data planning: lessons from the field. MIS Quarterly, 16(1):11-34.

Gorman G.E. & Clayton P. 1997. Qualitative research for the information professional: A practical handbook. London: The Library Association.

Gordon M. 2002. How to succeed in strategic planning. CIO magazine, 15 March. Retrieved 21 March 2004 from [www.cio.com/archive/031502/hs-succeed.html](http://www.cio.com/archive/031502/hs-succeed.html).

Gottshalk P. 1998. Content Characteristics of Formal Information Technology Strategy as Implementation Predictors, Tano Aschehoug Publishing Norway.

Gottshalk P. 1999. Strategic management of IS/IT functions: the role of the CIO in Norwegian organisations. International Journal of Information Management, 19: 389-399.

Gottschalk P. 2000. Information systems executives: The changing role of new IS/IT leaders. Informing Science, 3(2): 31-39.

Gottschalk P., Andersen E.S., & Karlsen J.T. 2002. Information technology management roles: A comparison of IT executives and IT project managers. Paper presented at the Proceedings of the 35<sup>th</sup> Annual Hawaii International Conference on Systems Sciences.

Goulding C. 1998. Grounded theory: the missing methodology on the interpretivist agenda. Qualitative Market Research, 1(1): 50-57.

Grant R.M. 2003. Strategic planning in a turbulent environment: Evidence from the oil majors. Strategic Management Journal, 24(6): 491-517.



Green S. 1998. Strategic management initiatives in the civil service: a cross cultural comparison. International Journal of Public Sector Management, 11(7): 536-552.

Grover V., Seung-Ryul J., Kettinger W.J., & Choong C. Lee. 1993. The Chief Information Officer: A study of managerial roles. Journal of Management Information Systems, 10(2): 107-130.

Grover V. & Segars A.H. 2005. An empirical evaluation of stages of strategic information systems planning: patterns of process design and effectiveness. Information and Management, 42(5): 761-779.

Guba E.G. & Lincoln Y.S. 1981. Effective Evaluation. San Francisco. Jossey Bass.

Guba E.G. & Lincoln Y.S. 1989. Fourth Generation Evaluation. Thousand Oaks, CA: Sage.

Guha S., Grover V., Kettinger W.J. and Teng J. 1997. Business Process Change and Organisational Performance: Exploring an Antecedent Model. Journal of Management Information Systems, 14(1):119-154

Guth W.D. & Taguiri. 1965. Personal values and corporate strategy. Harvard Business Review, 43(5): 123-132.

Gummesson E. 2000. Qualitative Methods in Management Research 2<sup>nd</sup> Edition. London: Sage Publications.

Hackney R., Burn J., & Dhillon G. 2000. Challenging assumptions for strategic information systems planning: Theoretical perspectives. Communications of the Association for Information Systems, 3(9).

Hackney R. & Little S. 1999. Opportunistic strategy formulation for IS/IT planning, European Journal of Information Systems, 8(2) :119-26.

Hackney R. & McBride N. 2002. Non-implementation of an IS strategy within a UK hospital: Observations from a longitudinal case analysis. Communications of the Association for Information Systems, 8(8): 130-140.

Hales C.P. 1986. What do managers do? A critical review of the evidence'. Journal of Management Studies, 23(1): 88-115.

Hall, R.E. (1984) The natural logic of management policy making: Its implications for the survival of an organization. Management Science, 30:905-927.

Hambrick D.C. 1989. Putting top management back in the strategy picture. Strategic Management Journal, 10(Summer Special Issue): 5-15.

Hambrick D.C. & Finkelstein S. 1987. Managerial discretion: A bridge between polar views of organisations. In Research in organisational behaviour, L.L. Cummings and B.W. Shaw (eds), Greenwich, CT:JAI Press.

Hambrick D.C. & Fredrickson J.W. 2001. Are you sure you have a strategy. Academy of Management Executive, 15(4): 48-59.

- Hambrick D.C. & Mason P.A. 1984. Upper echelons; The organisation as a reflection of its top managers. Academy of Management Review, 9(2) April: 193-206.
- Hambrick D.C. & Pettigrew A. 2001. Upper echelons: Donald Hambrick on executives and strategy. Academy of Management Executive, 15(3):36-44.
- Hamel, G. 1996. Strategy as revolution. Harvard Business Review, July-Aug:69-82.
- Hamel G. & Prahalad C.K.1994. Competing for the Future. Boston, Mass: Harvard University Press.
- Hammer M. & Champy J. 1993. Reengineering the Corporation: a Manifesto for Business Revolution. London: Nicholas Brearley.
- Handy C. 1985. Understanding Organisations (3rd Edition ed.). London: Penguin Business.
- Hann J. & Weber R. 1996. Information systems planning: A model and empirical results. Management Science, (42)7: 1043-1064.
- Hart S. 1992. An integrative framework for the strategy-making process. Academy of Management Review, 17(2): 327-351.
- Hart S. & Banbury C. 1994. How strategy-making processes can make a difference. Strategic Management Journal, 15: 251-269.
- Hart S.L. & Quinn, R. E. 1993. Roles executives play: CEO's behavioural complexity, and firm performance. Human Relations, 46(5): 544-573.
- Hartog C. & Herbert M. 1986. 1985 Opinion survey of MIS managers: Key issues. MIS Quarterly, 10(4): 351-361.
- Hax A.C. & Majluf N.S. 1988. The concept of strategy and the strategy formation process. Interfaces, 18(3) : 24 -33.
- Hayes R.H. 1985. Strategic planning- forward in reverse? Harvard Business Review, 63(6): 111-119.
- Hayley. K.J. 1989. CIO challenges in the changing MIS environment. Journal of Information Systems Management, 6(3) :8 - 13.
- Heiss, J. 1990. Social roles. in Rosenberg M. & Turner R.H. (Eds). Social Psychology: Sociological Perspectives. New Brunswick, NJ: Transaction.
- Henderson J. 1990. Plugging into strategic partnerships: the critical IS connection. Sloan Management Review, 31(3):7-18.
- Henderson J. C. & Sifonis J.G. 1988. Middleout strategic planning: The value of IS planning to business planning. Paper presented at the Proceedings of the New York University Symposium on the Strategic Uses of IT, New York.

Henderson J.C. & Venkatraman N. 1989 Strategic Alignment: A Process Model for Integrating Information Technology and Business Strategies, MIT, Sloan Working Paper.

Henderson J.C. & Venkatraman N. 1993. Strategic alignment: leveraging information technology for transforming organisations. IBM Systems journal, 32(1):4-15.

Hendry J. 2000. Strategic decision making, discourse, and strategy as social practice. Journal of Management Studies, 37(7): 956-977.

Heng M.S.H., Trauth E.M., & Fischer, S. J. 1999. Organisational champions of IT innovation. Accounting Management and Information Technologies, 9: 193-222.

Henwood K.L. and Pidgeon N.F. 1995. Grounded theory and psychological research. The Psychologist, 8(3) :115-118.

Hidding G.J. 1999. Sustaining strategic advantage in the information age, Proceedings of the 32<sup>nd</sup> Hawaii International Conference on System Sciences, January. Retrieved May23, 2004 from <http://csdl2.computer.org/comp/proceedings/hicss/1999/0001/07/00017046.PDF>.

Hinings C.R.1997. Reflections on processual research. Scandinavian Journal of Management, 13(4):493-503.

Hirschheim R. & Boland R.J. 1989. Critical issues in information system research. Chicester: Wiley.

Hirschheim R. & Klein H. K. 2003. Crisis in the IS Field? A critical reflection on the state of the discipline. Journal of the Association for Information Systems: 4(5):237-293.

Hirschheim R., Porra J. and Parks M.S. 2003. The Evolution of the corporate IT function and the role of the CIO at Texaco - How do perceptions of IT's performance get formed ? Database for Advances in Information Systems, Fall 34 (4),:8-27.

HMSO. 2005. Transformational Government Enabled by Technology. Produced by the Cabinet Office eGovernment Unit available online at [www.tso.co.uk/bookshop](http://www.tso.co.uk/bookshop)

Hochstrasser B. & Griffiths C. 1991. Controlling IT Investments:Strategy and Management. London: Chapman and Hall.

Hofer C.W. & Schendel D. 1978. Strategy Formulation: Analytical Concepts. New York: West Publishing Company.

Hogbin G. & Thomas D.V. 1994. Investing in Information Technology, Managing the decision making process. McGraw Hill.

Hood C. 1991. A new public management for all seasons?, Public Administration, 69 (1): 3-19

Hoskisson R.E. & Hitt M.A. 1990. Antecedents and performance outcomes of diversification: a review and critique of theoretical perspectives. Journal of Management, 16: 461-509.

- Hoskisson R.E., Hitt M.A., & Wan W. 1999. Theory and research in strategic management: Swings of a pendulum. Journal of Management, 25(3): 417-456.
- Hosmer L.T. 1982. The importance of strategic leadership. Journal of Business Strategy, 3: 47-52.
- Huff A.S. & Reger R.K. 1987. A review of strategic process research. Journal of Management, 13(2): 211-236.
- Hughes J. & Jones S. 2004. Reflections on the use of grounded theory in Interpretive information systems research, 6(2). Retrieved 11 August 2005 from <http://www.ejise.com/volume-6/issue1-art2.htm>.
- Huysman, M.H., Fischer, S.J. & M.S.H. Heng. 1994. An organizational learning perspective on information systems planning. Journal of Strategic Information Systems, 3 (3):165-177.
- IBM(1984) Business systems planning guide: Manual number GE20-527-4.
- Introna L.D. 1997. Management, Information and Power. London:MacMillan.
- Ives B. & Olson M.H. 1981. Manager or technician, the nature of the information systems manager's job, MIS Quarterly, 5(4): 49 - 63.
- Jackson, J.A. 1972. Role. London: Cambridge University Press.
- Jarvenpaa S.L. & Ives B.1990. Information technology and corporate strategy: A view from the top. Information Systems Research, 1(4): 352-376.
- Jarvenpaa S. L. & Ives B.1991. Executive involvement and participation in the management of information technology MIS Quarterly, 15 (2): 205-227.
- Jarzabkowski P. & Wilson D. 2002. Top teams and strategy in a UK university. Journal of Management Studies, 39(3): 355-381.
- Jarzabkowski P. 2003. Strategic practices: An activity theory perspective on continuity and change. Journal of Management Studies, 40(1): 23-55.
- Jarzabkowski P. 2004. Strategy as practice: Recursiveness, adaptation, and practices in use. Organisational Studies, 25(4): 529-560.
- Jick T.D. 1979. Mixing qualitative and quantitative methods: Triangulation in action. Administrative Science Quarterly, 24(4):602-611.
- Johnson G. 1988. Rethinking incrementalism. Strategic Management Journal, 9: 75-91.
- Johnston H.R. & Carrico S.R. 1988. Developing capabilities to use information strategically. MIS Quarterly, 12(1): 37-48.
- Johnson G. & Huff, A. 1997. Everyday Innovation/ Everyday Strategy. London: Wiley.

- Johnson G., Melin L., & Whittington R. 2003. Introduction micro strategy and strategizing: Towards an activity -based view. Journal of Management Studies, 40(1): 3-22.
- Johnston G. & Scholes J. 1988. Exploring Corporate Strategy 2<sup>nd</sup> Edition. Hemel Hempstead England: Prentice Hall.
- Johnston G. & Scholes J. 2001. Exploring Public Sector Strategy. Harlow England: Prentice Hall FT.
- Jones M.C. & Arnett K.P. 1994. Linkages between the CEO and the IS environment: An empirical assessment. Information Resources Management Journal, 7(1): 20-33.
- Jordan E. 1993. Executive information systems for the Chief information officer. International Journal of Information Management 13(4):249-2259.
- Joshi K. 1990 An Investigation of equity as a determinant of user information satisfaction. Decision Sciences, 21 (4), Fall: 786-807.
- Kaplan B. 1991. Models of Change and Information Systems Research. Amsterdam: Elsevier Science.
- Kaplan B. & Duchon, D. 1988. Combining qualitative and quantitative methods in information systems research: A case study. MIS Quarterly, 12(4): 571-587.
- Kaplan B. & Maxwell, J. A. 1994. Qualitative Research Methods for Evaluating Computer Information Systems. Thousand Oaks, California.
- Katz D. & Kahn R.L. 1966. The Social Psychology Organisations. Wiley.
- Khazanchi D. & Munkvold B..E 2003. On the rhetoric and relevance of IS research paradigms: A conceptual framework and some propositions. Proceeding of the 36 Hawaii international Conference on Systems Sciences.
- Katzenback J.R. 1997. The myth of the top management team. Harvard Business Review, Nov-Dec:82-91.
- Karimi J., Gupta Y., & Somers T. 1996. The congruence between a firm's competitive strategy and information technology leader's rank and role. Journal of Management Information Systems, 13(1): 63-88.
- Karimi J., A. Bhattacharjee, Gupta Y.P & Somers T.M. (2000) The effects of MIS steering committees. Journal of Management Information Systems, Vol 17(2):207-230.
- Karimi J., Somers T., & Gupta Y.P. 2001. Impact of information technology management practices on customer service. Journal of Management Information Systems, 17(4): 125-158.
- Kelle, U. 2005. Emergence vs. forcing of empirical data? A crucial problem of grounded theory reconsidered. Forum: Qualitative Social Research [On-line Journal], 6(2), Art. 27.

Retrieved 1<sup>st</sup> September from: <http://www.qualitative-research.net/fqs-texte/2-05/05-2-27-e.htm>.

Kendall J. 1999. Axial coding and the grounded theory controversy. Western Journal of Nursing Research, 21(6): 743-757.

Keen P.G.W. 1991. Redesigning the organisation through information technology. Planning Review, 9: 4-9.

Keen P.G.W. 1993. Information technology and the measurement difference a fusion map. IBM systems journal, 32(1): 17-39.

Kelly J.R. & McGrath J.E. 1988. On Time and Method. Newbury Park, CA: Sage.

Ketchen D.J., Thomas H., & McDaniel R.R. 1996. Process, content and context synergistic effect on organisational performance. Journal of Management, 22(2): 231-258.

Khazanchi D. & Munkvold B.E. 2000. Is information systems a science? An inquiry into the nature of the information systems discipline'. The Database for Advances in Information Systems, 31(3): 26-44.

King W.R. 1978. Strategic planning for management information systems. MIS Quarterly, 2(1): 27-37.

King W.R. 1985. Editor's Comment - Strategic planning for IS: The state of practice and research. MIS Quarterly, 9(2): 6-7.

King W.R. 1988. How effective is your information systems planning. Long Range Planning, 21(5): 103-112.

King W.R. 1993. Editorial Notes. Information Systems Research, 4(4): 291-298.

King W.R. & Pollalis Y.A. 2000. IT-based coordination and organisational performance: A gestalt approach. Journal of Computer Information Systems: 64-75.

King W.R. & Teo S.H. 1996. Key dimensions of facilitators and inhibitors for the strategic use of information technology. Journal of Management Information Systems, 12(4): 35-53.

Klein H.K. & Myers M.D. 1999. A set of principles for conducting and evaluating interpretive field studies in information systems. MIS Quarterly, 23(1): 67-93.

Knights D. & Morgan G. 1991. Corporate strategy, organisations and subjectivity: a critique. Organisation Studies, 12(2):251-273.

Kotter J. 1982. What effective general managers really do. Harvard Business Review, 60(6): 156-167.

Kovacevic, A. & Majluf N. 1993. Six stages of IT strategic management. Sloan Management Review, 34(4), 77-87.

Kriebel C.G. 1968. The strategic dimension of computer systems planning. Long Range Planning, Fall.

Kriflik. G. 2002. Minimising Attainment Deficit: A Grounded Theory of the Leadership Process in a Large Public Sector Bureaucracy. Phd. Faculty of Commerce. Thesis University of Wollongong, Wollongong, Australia.

Kwon T.H. & Zmud R.W. 1987. Unifying the Fragmented Models of IS implementation in Critical Issues in IS research (eds) Boland R.J. and Hirschheim R.A., Wiley, Chicester.

Lacity M. & Hirschheim R. 1995. Beyond the Information Systems Outsourcing Bandwagon: The Insourcing Response. New York, NY: John Wiley.

Laljani N. 2005. Dirty little secret or untidy quilt: a critique of the strategy process literature. Cranfield Management School Working Paper Series, 08/05. Retrieved 4 January 06 from [www.cranfield.ac.uk/som/research/workingpaper series.asp](http://www.cranfield.ac.uk/som/research/workingpaper%20series.asp) .

Land F. & Hirschheim R. 1983. Participative systems design: Rationale, tools and techniques. Journal of Applied Systems Analysis, 10: 91-107.

Landry M. & Banville C. 1992. A disciplined methodological pluralism for MIS Research. Accounting, Management and Information Technology, 2(2):77-97.

Langley A. 1999. Strategies for theorizing from process data. Academy of Management Review, 24: 691-710.

Langley A. & Truax J. 1994. A process study of new technology adoption in smaller manufacturing firms. Journal of Management Studies, 31(5): 619-652.

Latour B. 1987. Science in Action: How to Follow Scientists and Engineers Through Society, Harvard University Press, Cambridge, MA

Lau A.W., Pavett C.M., & Newman A.R.. 1980. The Nature of Managerial work: A comparison of public and private sector jobs in Huseman R.C. (ed) 40th annual Academy of Management Proceedings.

Lave C.A. & March J.G. 1975. An Introduction to Models in the Social Sciences. New York: Harper and Row.

Lederer A.L. & Mendelow A. 1988. Convincing top management of the strategic potential of information systems. MIS Quarterly, 12(4): 525-534.

Lederer A.L. & Mendelow, A. 1986. Issues in information systems planning. Information and Management, 10(5): 245-254.

Lederer A.L. & Mendelow A. 1987. Information resource planning: Overcoming difficulties in identifying top management objectives. MIS Quarterly, 11(3): 389-399.

Lederer A.L & Salmela, H. 1996. To-ward a theory of strategic information systems planning. Journal of Strategic Information Systems, 5(3): 237-253.

- Lederer A.L. & Sethi V. 1988. The implementation of strategic information systems planning methodologies. MIS Quarterly, 12(3): 444-461.
- Lederer A.L. & Sethi V. 1991. Guidelines for strategic information planning. Journal of Business Strategy, (12)6: 38-43.
- Lederer A.L. & Sethi V. 1992. Meeting the challenges of information systems planning. Long Range Planning, 25(2): 69-80.
- Lederer A. L. & Sethi V. 1998. Seven guidelines for strategic information systems planning. Information Strategy: The Executive's Journal, (15)1: 23-29.
- Lederer A.L. & Sethi V. 1996. Key prescriptions for strategic information systems planning. Journal of Management Information Systems, 13(1): 35-62.
- Leonard-Barton D. 1990. A dual methodology for case studies: synergistic use of a longitudinal single site with replicated multiple sites. Organisation science, 1: 248-266.
- Lee A.S. 1989. A scientific methodology for MIS Case Studies. MIS Quarterly, 13(1): 33-52.
- Lee A.S. 1991. Integrating positive and interpretive approaches to organisational research. Organisation Science, 2(4): 342-365.
- Lee D.M.S, Trauth E.M & Farwell D.1995. Critical Skills and knowledge requirements of IS professionals: A joint academic/industry investigation. MIS Quarterly; September, 19(3):313-340.
- Lepore D. 2000. Are CIOs obsolete? Harvard Business Review, March-April :55-63.
- Levy A. & Merry U. 1986. Organizational transformation: Approaches, strategies, theories. New York: Praeger.
- Lewis P. 1994. Information Systems Development: Systems thinking in the field of information systems. London: Pitman.
- Liebenau J. & Backhouse J. 1990. Understanding Information- An Introduction. London: Macmillan.
- Lincoln, Y., & Guba, E. 1985. Naturalistic inquiry. New York: Sage.
- Lincoln N.K. & Guba E. 2000. Paradigmatic controversies, contradictions and emerging confluences. London: Sage.
- Lindblom C. 1959. The science of muddling through. Public Administration Review, 19(2): 79-89.
- Locke K. (2001). Grounded Theory in Management Research. London: Sage.



Lorange, P. and Vancil, R.F. 1977. Strategic Planning Systems. Englewood Cliffs, N.J.: Prentice-Hall.

Luftman J.& Brier T. 1999. Achieving and sustaining business-IT alignment. California Management Review, 42(1): 109-199.

Luftman J.N. & McLean E.R. 2004. Key issues for IS executives. Management Information Systems Quarterly Executive, 3(2): 89-104.

Luftman J.N. & McLean E.R. 2005. Key issues for IS Executives. Management Information Systems Quarterly Executive, 4(2): 269-286.

Luthans F. & Davis T.R. 1982. An idiographic approach to organizational behavior Research: The use of single case experimental designs and direct measures. Academy of Management Review, 7(3): 380-391.

Lyytinen K. & Ngwenyama O.K. 1992. What does computer support for cooperative work mean? A structural analysis of computer supported cooperative work. Accounting, Management and Information Technologies, 2(1): 19-37.

Madon S. 1994. Designing Information Systems for Development Planning. Henley on Thames: Alfred Walker.

Madan R, Sorensen C & Scott SV. 2003 Strategy sort of died around April last year for a lot of us - CIO perceptions on ICT value and strategy in the UK financial sector. In Proceedings of the Eleventh European Conference on Information Systems (Ciborra CU, Mercurio R, de Marco M, Martinez M, Carignani A eds.), Naples, Italy.

March J.G. & Simon H.A. 1958. Organisations. New York: Wiley.

March J.G. & Olsen J.P. 1989. Rediscovering Institutions: The organisational basis of Politics. New York: Free Press

Mark D. & Monnoyer E. 2004. Next generation CIOs, McKinsey on IT: 1-7: McKinsey's Global IT Practice.

Markides C.C. 2002. Corporate strategy: the role of the centre. London: Sage.

Markus L.M. 1983. Power, politics and MIS implementation. Communications of the ACM, 26(6): 430-444.

Markus M.L. & Benjamin R.I. 1996. Change agency—The next IS frontier, MIS Quarterly, 20( 4) (December): 385-407.

Markus L.M. & Robey D. 1988. Information Technology and Organisational Change: Causal structure in theory and research. Management Science, 34(5): 583-598.

Mallory C. 2001 Examining the Differences Between Research and Participant: An Intrinsic Element of Grounded Theory in Schreiber, R.S. 2001. The 'How to' of Grounded Theory: Avoiding the Pitfalls, In : Using Grounded Theory in Nursing ,(eds) Schreiber, R.S. and Stern P.N. , Springer Publishing Company.

- Marshall C. & Rossman G.B 1995. Designing qualitative research. Newbury Park, CA.: Sage.
- Martin J. & Leben J. 1989. Strategic Information Planning Methodologies. Prentice Hall, Englewood Cliffs, CA.
- Martin P.Y. & Turner, B. A. 1986. Grounded theory and organizational research, The Journal of Applied Behavioural Science, 22(2): 141-157.
- Martinko M. J. & Gardner, W.L.C. 1990. Structured observation of managerial work: a replication and synthesis. Journal of Management Studies, 27(3): 329-357.
- Maruca R.F. 2000. Are CIOs obsolete? Harvard Business Review, March-April 2000:55-63.
- Mason R.O. & Mitroff I. 1981. Challenging Strategic Planning Assumptions. New York: Wiley.
- Masuch M. 1985. Vicious circles in organisations. Administrative Science Quarterly, 30: 14-33.
- Mata F. J., Fuerst W.L., & Barney J.B. 1995. Information Technology and sustained competitive advantage. A resource-based analysis. Management Information Systems Quarterly, 19(4): 487-506.
- Maturana H. & Varela F. 1980. Autopoeisis and Cognition. New York: Reidel.
- McBride N. 1998. To-wards a Dynamic Theory of Strategic IS Planning. Paper presented at the Proceedings of the 3rd UKAIS Conference, Lincoln University.
- MacKenzie K.D. 2000. Processes and their frameworks, Management Science, 46(1) January :110-125.
- McFarland F.W. 1971. Problems in planning the information system. Harvard Business Review, 49(2): 75-89, March-April.
- McFarlan F.W. 1984. Information technology changes the way you compete. Harvard Business Review, 62(3): 98-103.
- McFarlan F.W. & McKenney J.L. 1982 The information archipelago-maps and bridges. Harvard Business Review, 60(5): 109-119.
- McLean E.R. & Sodden J.V. 1977. Strategic Planning for MIS. New York: Wiley.
- McMaster T. 2001. Mapping the Conceptual Domain: A Contribution to the 'Theory/Practice' Debate. Communications of the Association for Information Systems, 6(18): 1-9
- McNulty T. & Ferlie E. 2004. Reengineering Healthcare: The Complexities of Organisational Transformation: Oxford University Press.

Mellion L.R. & Tovin M.M. 2002. Grounded theory: A qualitative research methodology for physical therapy. Physiotherapy Theory and Practice, 18: 109-120.

Menuhin J. & McGee J. 2001. Strategizing routines in HSBC UK. Paper presented at the European Group For Organisational Studies, 17th Colloquium, Lyon, France.

Mentzas G. 1997. Implementing an IS strategy-a team approach. Long Range Planning, 10(1): 84-95.

Merriam S.B. ed. 2002. Qualitative research in practice: Examples for discussion and Analysis, San Francisco. Jossey-Bass.

Miles M.B. & Huberman A.M. 1994. Qualitative Data Analysis. 2<sup>nd</sup> Edition Newbury Park, California: Sage Publications.

Miles R.E. & Snow, C.C. 1978. Organisational Strategy, Structure and Process McGraw-Hill, New York.

Miller D. 1998. Configurations of strategy and structure: towards a synthesis. Oxford: Basil Blackwell.

Miller C.C., Cardinal L.B. & Glick W.H. 1997. Retrospective reports in organizational research: A Re-examination of Recent Evidence, Academy of Management 40(1):189-204.

Miller D., Ket de Vries M.E. & Toulouse J. 1982. Top executive locus of control and its relationship to strategy making, structure and environment. Academy of Management Journal 25: 237-253.

Milliken J. & Schreiber R.S. 2001. Can You 'Do' Grounded Theory Without Symbolic Interactionism? in Grounded Theory in Nursing (eds) Schreiber, R.S. and Stern P.N. , New York: Springer Publishing.

Mingers J. 2000. Variety is the spice of life: Combining soft and hard OR/MS Methods. International Transactions in Operational Research, 7(6): 673-691.

Mintzberg H. 1971. Managerial work: analysis from observation., Management Science, 18(2): 97-110.

Mintzberg H. 1973. The Nature of Managerial Work. New York: Harper and Row.

Mintzberg H. 1975. The manager's job: folklore and fact. Harvard Business Review, 53(4): 49-61.

Mintzberg H. 1978. Patterns in strategy formation. Management Science, 24(9): 934-948.

Mintzberg, H. 1979. The Structuring of Organizations: A Synthesis of Research. Englewood Cliffs, N.J :Prentice-Hall.

Mintzberg H. 1987. Crafting strategy. Harvard Business Review. July-August, 65:66-75.

Mintzberg H. 1989. Mintzberg on Management: Inside our Strange World of Organizations, New York: Free Press.

- Mintzberg H. 1990. The design school: Reconsidering the basic premises of strategic management. Strategic Management Journal, 11: 171-195.
- Mintzberg H. 1994a. Rethinking strategic planning part I pitfalls and fallacies. Long Range Planning, 27(3): 12-21.
- Mintzberg H. 1994b. Rethinking strategic planning part II: New roles for planners. Long Range Planning, 27(3): 22-30.
- Mintzberg H. 1998. The Structuring of Organisations. Oxford: Basil Blackwell.
- Mintzberg H., Ahlstrand B. and Lampel J. 1998. Strategy Safari: A Guided Tour Through the Wilds of Strategic Management, London:FinancialTimes
- Mintzberg H. & Lampel J. 1999. Reflecting on the strategy process. Sloan Management Review, 40(3):21-30.
- Mintzberg H. & Waters J.A. 1982. Tracking strategy in an entrepreneurial firm. Academy of Management Journal, 25(3): 465-499.
- Mintzberg H. & Waters J. 1985. Of strategies, deliberate and emergent. Strategic Management Journal, 6: 257-272.
- Mintzberg H. & Waters J.A. 1990. Does decision get in the way. Organization Studies, 11(1): 1-16.
- Mintzberg H. & Quinn J. 1991. The Strategy Process: Concepts, Context, Cases. Englewood Cliffs, NJ: Prentice-Hall.
- Mintzberg H., Raisinghani D., & Theoret A. 1976. The structure of 'unstructured' decision processes. Administrative Science Quarterly, (11): 246-275.
- Miron M., Cecil J., Bradicich K., & Hall G. 1988. The myths and realities of competitive advantage'. Datamation, October 1 : 71-82.
- Mitroff I.I. & Linstone. 1993. The Unbounded Mind, Breaking the Chains of Traditional Business Thinking: Oxford University Press.
- Mohr L.B. 1982. Explaining Organisational Behaviour: The Limits and Possibilities of Theory and Research. San Francisco: Jossey-Bass.
- Monge P.R. 1990. Theoretical and analytical issues in studying organisational processes. Organisation Science, 1(4):406-430.
- Morgan, G. (1983). Research strategies: Modes of engagement. In G. Morgan (Eds.), Beyond method. Beverly Hills, CA: Sage.
- Morgan G. 1986. Images of Organization. Sage: London.
- Morse J.M. 1994. Emerging from the Data: The Cognitive Process of Analysis in Qualitative Enquiry. Thousand Oaks, CA: Sage.

Morse J.M. 2000a. Determining sample size. Qualitative Health Research, 10(1): 3-5.

Morse J.M. 2000. Situating Grounded Theory Within Qualitative Inquiry, In : Using Grounded Theory in Nursing ,(eds) Schreiber, R.S. and Stern P.N., New York: Springer Publishing Company.

Moss Kanter E. 2002. In times of uncertainty, try improvising. European Business Forum, (8). Retrieved 11 August 2004 from [www.ebfonline.com/pdf/issue\\_8/p07-31%debate.pdf](http://www.ebfonline.com/pdf/issue_8/p07-31%debate.pdf).

Mumford E., Hirschheim R., Fitzgerald G., & Wood Harper A.T. 1984. Research methods in information systems. in IFIP WG 8.2 Colloquium, Manchester, 1-3 September. North Holland Amsterdam.

Myers M.D. 2002 Qualitative research in information systems. Retrieved 26 February 2003 from <http://www.qual.auckland.ac.nz/general.htm>.

Nadler D.A. & Tushman M.L. 1997. Competing by Design: The Power of Organizational Architecture. New York. NY:Oxford University Press.

Nahapiet J. & Ghoshal S. 1998. Social capital, intellectual capital, and organisational advantage. Academy of Management Review, 23(2): 242-266.

Narayanan V.K. & Fahey L. 1982. The micro-politics of strategy formulation. Academy of Management Review, 7: 25-34.

National Audit Office 2006. The National Programme for IT in the NHS, National Audit Office, HC1173.

NCC. 2001. Survey of IT decision makers . Oxford Road, Manchester: Published by The National Computing Centre Ltd.

NCC. 2002. Survey of IT Strategy. Oxford Road, Manchester: Published by The National Computing Centre Ltd.

NCC. 2003. Survey of IT Strategy. Oxford Road, Manchester: Published by The National Computing Centre Ltd.

Neiman, L.J. & Hughes J.W. 1951.The problem of the concept role- a re-survey of the literature. Social forces, 30(2):142-149.

Nelson K.M & Coopriker J.G. 1996. The contribution of shared knowledge to IS group performance. MIS Quarterly, 20(4):409-432.

Nelson C., Treichler P.A., & Grossberg L. 1992. Cultural Studies, New York: Routledge.

Nelson R.R. & Winter S.G. 1982. An Evolutionary Theory of Economic Change. Cambridge, MA. Harvard University Press.

Newkirk H.E. & Lederer A.L. 2006. The effectiveness of strategic information systems planning under environmental uncertainty. Information and Management, (43): 481-501.

- Newman M. & Robey D. 1992. A Social Process Model of User Analyst Nelson C., Treichler P.A., & Grossberg L. 1992. Cultural Studies, New York: Routledge.
- Newman M. & Sabherwal R. 1996. Determinants of commitment to information systems development: A longitudinal investigation. MIS Quarterly, 20(1):23-54.
- Newman W.H. 1985. Formulating an integrated view of strategic management: Jossey Bass Management Series.
- NHS Executive 1992. An information management and technology strategy for England. Department of Health.
- NHS Executive 1998. Information for Health: An information strategy for the modern NHS 1998-2005; A national strategy for local implementation: Department of Health.
- NHS plan 2001. Building the information core- implementing the NHS plan. Retrieved 23 March 2002 from <http://www.doh.gov.uk/nhsexipu/strategy/overview>.
- Niederman F., Brancheau J.C., & Wetherbe J.C. 1991. Information systems management issues for the 1990s. MIS Quarterly, 17(4): 475-500.
- Noble C.H. 1999. The eclectic roots of strategy implementation research. Journal of Business Research, 45: 119-134.
- Noda T. & Bower J. 1996. Strategy making as Iterated Processes of Resource Allocation. Strategic Management Journal, 17: 159-192.
- Nolan R. 1979. Managing the crises in data processing. Harvard Business Review 51(3):143-152.
- Nolan R. 1984. Managing the advanced stages of computer technology: key research issues. In: The Information Systems Research Challenge, McFarlan, F.W. (ed):195-214. Harvard Business School Press.
- Norton L. 1999. The philosophical bases of grounded theory and their implications for research practice. Nurse Researcher, 7(1): 31-43.
- Norman R. 1985. Developing Capabilities for Organisational Learning in Organisational Strategy and Change. San Francisco: Jossey Bass.
- Nutt P. 1976. Models for decision making in organisations and some contextual variables which stipulate optimum use. Academy of Management Review (April): 84-98.
- O'Callaghan J. 1996. Grounded theory: A potential methodology. Counselling Psychology Review, 11(1): 23-28.
- Orlikowski W.J. & Baroudi J.J. 1991. Studying information technology in organisations: Research approaches and assumptions'. Information Systems Research, 2(2): 1-27.

Orlikowski W.J. 1993. CASE tools as organisational change: Investigating incremental and radical changes in systems development. MIS Quarterly, 17(3): 309-340.

Orlikowski W.J. 1996. Improvising organizational transformation over time: A situated change perspective. Information Systems Research, 7 (1):63-92.

Ormerod R.J. 1995. The role of OR in information strategy development. Int. Trans. Opl Res., 2(1): 17-27.

Overby S. & Varon E. 2003. The six best practices: What leading CIOs do, CIO magazine. April 1<sup>st</sup> issue.

Päivärinta T., Halttunen V., & Tyrväinen P. 2001. A Genre-Based Method for Information Systems Planning. In (eds.) Rossi M., Siau K., Information Modelling in the New Millenium, Idea Group Publishing, Hershey PA.

Pandit N.R. 1996. The creation of theory: A recent application of the grounded theory method. Qualitative Report, 2(4). Retrieved April 2003 from <http://www.nova.edu/ssss/qr/qrl-4/pandit.html>.

Parker M.M. 1996. Strategic Transformation and Information Technology. Upper Saddle River NJ: Prentice Hall.

Pavett C.M. & Lau A.W. 1983. Managerial work: The influence of hierarchical level and functional specialty. Academy of Management Journal, 26(1): 170:177.

Pearce J. A., II, Freeman E. B. & Robinson R. B., Jr. 1987. The tenuous link between formal strategic planning and financial performance. Academy of Management Journal, 12(4): 658-675.

Pellegrinelli S. 2002. Shaping context: the role and challenge for programmes. International Journal of Project Management, 20: 229-233.

Pelligrinelli S. & Bowman C. 1994. Implementing strategy through projects. Long Range Planning, 27(4): 125-132.

Pennings J.M., Goodman P.S., & Associates. 1985. Organisational Strategy and Change: New views on formulating and implementing strategic decisions. San Francisco: Jossey Bass Management Series.

Peppard J. & Ward J. (1999) Mind the gap: Diagnosing the relationship between the IS organisation and the rest of the business. Journal of Strategic Information Systems 8(1): 29-60.

Peppard J. & Ward J. (2004) Beyond strategic information systems: To-wards an IS capability. Journal of Strategic Information Systems, 13 (2): 167-194

Pentland B.T. 1999. Building process theory with narrative: From description to explanation. Academy of Management Review, 24(4): 711-724.

- Peterson M.F. 1988. Embedded organisational events: The units of process in Organisational Science, 9(1): 16-33.
- Penrose E.T. 1959. The Theory of Growth of the Firm. Oxford: Blackwell.
- Pettigrew A.M. 1973. The Politics of Organisational Decision Making. London: Tavistock.
- Pettigrew A.M. 1977. Strategy formulation as a political process. International Studies of Management and Organisations, 1(2): 78-87.
- Pettigrew A.M. 1985a. The Awakening Giant: Continuity and Change in ICI. Oxford: Blackwell.
- Pettigrew A. M. 1985b. Culture and Politics in Strategic Decision Making and Change. San Francisco: Jossey Bass.
- Pettigrew A.M. 1985c. Contextualist Research and the Study of Organisational Change Processes. North Holland: Elsevier Science Publishers B.V.
- Pettigrew A. M. 1985d. Examining Change in the Long-Term Context of Culture and Politics: Jossey Bass Management Series.
- Pettigrew A.M. 1989. Issues of Time and Site Selection in Longitudinal Research on Change, in The Information Systems Research Challenge: Qualitative Research Methods, J.I Cash Jr. and P.R. Lawrence (eds.), Harvard Business School Press, Boston, MA:13-19.
- Pettigrew A.M. 1985. The Awakening Giant: Continuity and Change in ICI. Oxford: Basil Blackwell.
- Pettigrew A.M. 1990. Longitudinal field research on change: Theory and practice. Organization Science, 1(3):267-292.
- Pettigrew A.M. 1992a. The character and significance of strategy process research. Strategic Management Journal, 13(8): 5-16.
- Pettigrew A.M. 1997. What is processual analysis? Scandinavian Journal of Management, 13(4): 337-348.
- Pettigrew A.M. 2003. Strategy as Process, Power and Change. eds Brockleby J. and Cummings S. Images of Strategy. Oxford: Blackwell Publishing.
- Pettigrew A. M., Ferlie E., & McKee L. 1992b. Shaping Strategic Change: Sage Publications.
- Pettigrew A.M., Thomas H., & Whittington R. 2001. Strategic Management: The Strengths and Limitations of a Field. eds Pettigrew A.M., Thomas H., & Whittington R. Handbook of Strategy and Management. London. Sage.
- Pettigrew A.M., Woodman R.W. & Cameron K.S. 2001a. Studying organisational change and development: challenges for future research. Academy of Management Journal, 44(4):697-713



Pettigrew A.M. & Webb D. 1996. Espoused business strategy and structure changes in UK and German insurance industries. Paper presented to the All Academy Symposium on the Evolution of New Organisational Forms for the Information Age, Academy of Management, Cincinnati, 12-14 August.

Pettigrew A. M. & Whipp R. 1991. Managing Change for Competitive Success. Oxford: Blackwell.

Pfeffer J. 1981. Management as symbolic action: the creation and maintenance of organizational paradigms. Research in Organizational Behaviour, 3: 1-52.

Pfeffer J. 1982. Organisations and Organization Theory. MA: Pitman Publishing.

Pidd M. 2004. Contemporary OR/MS in strategy development and policy making: some reflections. Journal of the Operational Research Society, 55 (8):791-800.

Poole M.S. 1981. Decision development in small groups I. A test of two models' Communication Monographs 48:1-24.

Poole, M. S. & Van de Ven, A. V. 1989. Using paradox to develop organizational and management theories. Academy of Management Review, 14: 562-579.

Poole M.S., Van de Ven A., Dooley K., & Holmes M.E. 2000. Organisational Change and Innovation processes: theory and methods for research. Oxford, Oxford Press.

Porter M.E. 1980. Competitive Strategy. New York: Free Press.

Porter M.E. & Millar V.E. 1985. How information gives you competitive advantage. Harvard Business Review, 63(4): 149-160.

Porter M.E. 1996. What is a strategy. Harvard Business Review, 74(6):61-78.

Porter M.E. 2001. Strategy and the internet. Harvard Business Review, 79(3)\_(March):63-78.

Potter R.E. 2003. How CIOs manage their superiors' expectations. Communications of the ACM, 46(8): 75-79.

Powell T.C. & Dent-Micallef A. 1997. Information technology as competitive advantage: The role of human, business, and technology Resources. Strategic Management Journal, 18(5): 375-405.

Pozzebon M. & Pinsonneault A. 2001. Structuration theory in the IS field. 9th European Conference on Information Systems, Bled, Slovenia, June 27-29.

Premkumar G. & King W.R. 1992. An empirical assessment of information systems planning and the role of information systems in organisations. Journal of Management Information Systems, 9(2): 99-125.

Premkumar G. & King W.R. 1994. Organizational Characteristics and Information Systems Planning: An Empirical Study. Information Systems Research, 5(2): 75-109.

- Pyburn P. J. 1983. Linking the MIS Plan with Corporate Strategy: An Exploratory Study. MIS Quarterly, 7(2): 1-14.
- Punch K. (1998) Introduction to Social Research: Quantitative and Qualitative Approaches. London: Sage.
- Quinn, J.B. 1978. Strategic Change: Logical incrementalism. Sloan Management Review, (Fall): 7-21.
- Quinn J.B. 1980. Strategies For Change: Logical Incrementalism. Homewood, IL: Irwin.
- Quinn, J. B. 1985. Managing innovation: Controlled chaos. Harvard Business Review May-June (3) :73-84.
- Quy Nguyen Huy. 2001. In praise of middle managers. Harvard Business Review: 79(8) 72-79.
- Raghunathan B. & Raghunathan T.S. 1989. Relationship of the rank of information systems executive to the organisational role and planning dimensions of information systems. Journal of Management Information Systems, 6(1): 111-112.
- Raghunathan B. & Raghunathan T.S. 1991. Information systems planning and effectiveness: an empirical analysis. Omega International Journal of Management Science 19 (2/3):125-135.
- Raghunathan B. & Raghunathan T.S. 1994. Adaptation of a planning system success model to information systems planning. Information Systems Research, 5(3) : 326-340.
- Ragin C. C. 1987. The Comparative Method: Moving Beyond Qualitative and Quantitative Strategies. Berkeley and London: University of California Press.
- Rajagoplan N., Rasheed A., & Datta D. 1993. Strategic decision processes: critical review and future directions. Journal of Management, 19(2): 349-384.
- Reed B.J. 2001. Strategic Information Systems Planning in U.S. State Governments: Status and Prospects Indicated by Quantitative Analysis of Year 2000. Report of Government Performance Project Data, University of Syracuse.
- Regnér P. (2003). Strategy Creation in the Periphery: Inductive versus Deductive Strategy Making. Journal of Management Studies, 40(1): 57-82.
- Reich B.H. & Benbasat I. 1996. Measuring the linkage between business and information technology objectives. MIS Quarterly, 20(1): 55-81.
- Reich B.H. & Benbasat I. 2000. Factors that influence the social dimension of alignment between business and information technology objectives. MIS Quarterly, 24(1): 81-111.
- Reich B.H. & Nelson K.M. 2003. In Their Own Words: CIO Visions About the Future of In-House IT Organisations. The DATA BASE for Advances in Information Systems, 34(4): 28-44.

- Remenyi D. & Brown A. 2001a. Make or Break Issues in IT Management: Butterworth Heineman. Oxford.
- Reponen T. 1993a. Information management strategy - An evolutionary process. Scandinavian Journal of Management, 9(3): 189-209.
- Reponen T. 1993b. Strategic Information Systems - A conceptual analysis. Journal of Strategic Information Systems planning, 2(2): 100-104.
- Reponen T. 1994. Organisational information management strategies, Information Systems Journal, 4: 27-44.
- Riley, R.1996. Revealing socially constructed knowledge. Journal of Travel & Tourism Marketing, 15(2):21- 40.
- Ristock J. & Pennell J. 1996. Community Research as Empowerment: Feminist Links, Postmodern Interruptions. Don Mills, ON. Oxford University Press .
- Robey D. & Newman M. 1996. Sequential patterns in information systems development: An application of a social process model. ACM Transactions on Information Systems, 14(1): 30-63.
- Robson W. 1997. Strategic Management and Information Systems. (2nd Ed) London: Pitman Publishing.
- Rocheleau B. & Wu L. 2002. Public vs private information systems: Do they differ in important ways? A review and empirical test. American Review of Public Administration, 32(4): 379-397.
- Rockart J.F. 1988. The line takes the leadership: IS management in a wired society. Sloan Management Review, 29 (4): 57-64.
- Rockart J.F. 1979. Chief Executives define their own data needs. Harvard Business Review, 57:81-93.
- Rockart J.F. 1995. Perspectives on 'the end of delegation? : Information technology and the CEO. Harvard Business Review, 73(5):166-168.
- Rockart J.F., Earl, M. J., & Ross, J. W. 1996. Eight imperatives for the new IT organisation. Sloan Management Review, 38(1): 43-55.
- Rodham K. 2000. Role theory and the analysis of managerial work: The case of occupational health professionals. Journal of Applied Management Studies, 9(1) 71-81.
- Ropo A. & Hunt J.G. 1996. Entrepreneurial process as virtuous and vicious spirals in a changing opportunity structure: a paradoxical perspective. Entrepreneurial Theory and Practice, 19(3): 91-111.
- Rose J. & Elphick S. 2002. Soft systems strategy: Rationale, Theory and Case Study. Journal of Applied Systems Studies, 3(1), 52-84.

- Ross J.W. & Beath C.M. 2002. Beyond the business case: New approaches to IT investment. Sloan Management Review, 43(2): 51-59.
- Ross J.W. & Feeney D.F. 2000. The Evolving Role of the CIO. Eds Zmud R.W. Framing the Domains of IT Management: Projecting the Future through the Past. Cincinnati, Ohio Pinnaflex Educational Resources.
- Ross J.W., Beath C.M., & Goodhue D. 1996. Develop long-term competitiveness through IT assets. Sloan Management Review, 38(1): 31-42.
- Rothfeder J. & Driscoll L. 1990. CIO is starting to stand for career is over. Business Week: 78-80.
- Rubin J.R. and Rubin I.S. 1995. Qualitative Interviewing: The Art of hearing data. Thousand Oaks CA: Sage.
- Rumelt R.P., Schendel D., & Teece, D. 1994. Fundamental Issues in Strategy: A Research Agenda. Boston, MA: Harvard Press School Press.
- Ruohonen M. 1991. Stakeholders of strategic information systems planning: theoretical concepts and empirical examples. Journal of Strategic Information Systems, 1(1): 15-28.
- Rynes S.L., Bartunek J.M. & Daft R.L. 2001. Across the great divide: knowledge creation and transfer between practitioners and academics. Academy of Management Journal, 44 (2):340-355.
- Sabherwal R. & King W. 1992. Decision processes for developing strategic applications of information systems: A contingency approach. Decision Sciences, 23: 917-943.
- Sabherwal R. & King W.R. 1995. An empirical taxonomy of the decision making process concerning strategic applications of information systems. Journal of Management Information Systems, 11(4): 177-214.
- Sabherwal R. & Kirs P. 1994. The alignment between organisational critical success factors and information technology capability in academic institutions. Decision Sciences, 25(2): 301-330.
- Sabherwal R. & Tsoumpas P. 1993. The development of strategic information systems: some case studies and research propositions. European Journal of Information Systems, 2(4): 240-259.
- Sabherwal R. Hirschheim R. & Goles T. 2001. The dynamics of alignment: Insights from a punctuated equilibrium model. Organizational Science, 12(2):179-192.
- Sahay S. & Walsham G. 1995. Information technology in developing countries: a need for theory building. Information Technology for Development, 6(3/4): 111-124.
- Sambamurthy V. & Chin W. 1994. The effects of group attitudes towards alternative GDSS designs on the decision making performance of computer supported groups. Decision Sciences, 25: 215-241.

Sambamurthy V., Venkataraman S., & Desanctis G. 1993. The design of information technology planning systems for varying organisational contexts. European Journal of Information Systems, 2(1): 23-35.

Sambamurthy V., Zmud R.W. and Byrd T.A. 1995 The comprehensiveness of IT planning processes: A contingency approach. Journal of Information Technology Management 5(1):1-10.

Sambamurthy V. & Zmud R.M. 1996. Information Technology and Innovation: Strategies for Success. Morristown, N.J. Financial Executives Research Foundation.

Sambamurthy V. & Zmud R.M. 1999. Factors influencing information technology management architectures in organisations: A theory of multiple contingencies MIS Quarterly, 23(2):261-290.

Samela H. & Spil T.A.M. 2002. Dynamic and emergent information systems strategy formulation and implementation. International Journal of Information Management, 22: 441-460.

Samra Fredericks D. 2000. Doing 'Boards in Action' research - an ethnographic approach for the capture and analysis of directors' and senior managers' interactive routines. Corporate Governance, 8(3): 244-257.

Sakamoto S. 1989. Process Design Concept: A New Approach to IE. Industrial Engineering, 21(3): 31-34.

Sarbin T.R. & Allen V.L. 1968. Role Theory. Reading MA.: Addison-Wesley.

Sauer C. & Yetton P. 1997. Steps to the Future: San Francisco.Jossey Bass.

Schendel D. 1992. Introduction to the summer 1992 special issue on 'strategy process research'. Strategic Management Journal, 13(8): 1-4.

Schendel D. & Hatten, K. J. 1972. Business policy or strategic management: a broader view for an emerging discipline. Academy of Management Proceedings National meeting Minneapolis: 99-102.

Schon D. A. 1993. The Reflective Practitioner - How Professionals Think in Action. Aldershot Hants: Arena Ashgate Publishing Limited.

Schwenk C.R. & Dalton D. 1991. The Changing Shape Of Strategic Management. Greenwich CT: JAI press.

Schreiber, R.S. 2001. The 'How to' of Grounded Theory: Avoiding the Pitfalls, In : Using Grounded Theory in Nursing ,(eds) Schreiber, R.S. and Stern P.N. , Springer Publishing Company.

Scott Morton M.S. 1991. The Corporation of the 1990s: Information Technology and Organizational Transformation. New York: Oxford University.

Segars A. H. & Grover V. 1999. Profiles of strategic information systems planning. Information Systems Research, 10(3): 199-232.

Segars A.H., Grover V., & Teng T.C. 1998. Strategic information systems planning: Planning system dimensions, internal coalignment, and implications for planning effectiveness. Decision Sciences, 29(2):303-346.

Senge P.M. 1990. The Fifth Discipline: The Art and Practice of the Learning Organization. New York: Doubleday.

Shaw T. & Jarvenpaa S. 1997. Process Models in Information Systems. Paper presented at the Proceedings of the IFIP TC8 WG8.2 International Conference on Information Systems and Qualitative research, Philadelphia, Pennsylvania.

Simon H.A. 1957. Administrative Behaviour. New York: Free Press.

Simon H.A. 1964. On the concept of organisational goal. Administrative Sciences Quarterly, 9(1): 1-22.

Simon H.A. 1976. Administrative Behaviour. New York: The Free Press.

Simon H.A. 1993. Strategy and organizational evolution. Strategic Management Journal, 14:131-142.

Skivington J.E. & Daft R.L. 1991. A study of organizational 'framework' and 'process' modalities for the implementation of business-level strategic decisions. Journal of Management Studies, 28: 45-68.

Smaczny T. 2001. IS an alignment between business and IT the appropriate paradigm to manage IT in to-days organisation. Management Decision, 39(10): 797-802.

Sminia H. 2005. A methodology for testing process theory (as applied to research in strategy formation). Paper presented at the First Organisation Studies Summer Workshop on Theorizing Process in Organizational Research, 12-13 June, Santorini, Greece.

Smircich L. & Stubbart C. 1985. Strategic management in an enacted world. Academy of Management Review, 10(4): 724-736.

Smith A.D. 2002. From process data to publication: a personal sense making. Journal of Management Inquiry, 11(4): 383-406.

Smits M.T., Van der Poel K.G, & Ribbers P.M.A. 1997. Assessment of information strategies in insurance companies in the Netherlands. Journal of Strategic Information Systems, 6(4): 129-148.

Soh C., Ang S., & Neo B.S. 1994. Building the application portfolio: A process analysis. Paper presented at the Proceedings of the Fifteenth International Conference on Information Systems, Vancouver.

Spender J.C. 1989. Industry Recipes. Cambridge MA: Basil Blackwell.

Spender J.C. 1996. Making knowledge the basis of a dynamic theory of the firm. Strategic Management Journal, 17: 45-62.

Staw B. 1976. Knee-deep in the big muddy: A study of escalating commitment to a chosen course of action. Organisational Behaviour and Human Performance, 16(2): 27-44.

Starbuck W.H. 1983. Organisations as action generators. American Sociological Review, 48: 91-102.

Starbuck W.H. 1985. Acting First and Thinking Later: Theory Versus Reality in Strategic Change. in J.M. Pennings and Associates Organisational Strategy and Change. San Francisco: Jossey Bass.

Stephens C.S. 1993. Five CIOs at work: Folklore and facts revisited. Journal of Systems Management, 44(3): 34-40.

Stephens C.S. 1995. The Nature of Information Technology Managerial Work. Westport, Connecticut: Quoram Books.

Stephens C.S., Ledbetter W.N., Mitra A., & Ford F.N. 1992. Executive or functional manager? The nature of the CIO's job. MIS Quarterly, 16(4): 449-467.

Stephens, C.S. & Loughman T. 1994. The CIO's chief concern: Communication. Information & Management, 27 (2) :129-137.

Stern P. N. 1994. Eroding Grounded Theory. CA: Sage.

Stewart R. 1982. A model for understanding managerial jobs and behaviour. The Academy of Management Review, 7, 7-13.

Stewart R. 1991. Chairmen and chief executives: an exploration of their relationship. Journal of Management Studies, 28(5): 511-528.

Strauss A. L. 1987. Qualitative Analysis for Social Scientist: Cambridge University Press.

Strauss A. L. & Corbin J. 1990. Basic of Qualitative Research: Grounded theory procedures and techniques. Newbury Park, California: Sage.

Strauss A. L. & Corbin J. 1998. Basics of Qualitative Research: Tecniques and Procedures for Developing Grounded Theory. Thousand Oaks California: Sage.

Swain J.W., White, J. D., & Hubbert E.D. 1995. Issues in public management: information systems'. American Review of Public Administration, 25(3): 279-296.

Swanson E.B. & Ramiller N.C. 1993. Information systems research thematics: submission to a new journal, 1987-1992. Information Systems Research, 4(4): 299-330.

Synnott, W.R. & Gruber, W.H. 1981. Information Resource Management. Wiley. New York.

Szygenda R. 2004. The CIO from caretaker to IT broker, Optimize, Issue 38 December 15.

- Tallon, P. & K. L. Kraemer. 2003. Investigating the Relationship between Strategic Alignment and IT Business Value: The Discovery of a Paradox, in Creating Business Value with Information Technology: Challenges and Solutions Namchul Shin (ed.) Idea Publishing Group.
- Teo, T. S. & King, W. R. 1997. Integration between business planning and information systems planning: An evolutionary-contingency perspective, Journal of Management Information Systems, 14(1):185-214.
- Teo S.H. & Ang J.S.K. 2001. An examination of major IS planning problems. International Journal of Information Management, 21: 457-470.
- Thomas J.B., Clark S.M. & Gioia D.A. 1993. Strategic sense making and organizational performance: Linkages among scanning, interpretation, action and outcomes. Academy of Management Journal, 36(2):239-270.
- Thomas J.B. & McDaniel R.R. 1990. Interpreting strategic issues: Effects of strategy and the information processing structure of top management teams. Academy of Management Journal, 33(2): 286-307.
- Toraskar K.V. 1991. How Managerial Users Evaluate Their Decision-Support: A Grounded Theory Approach. Amsterdam: North Holland.
- Trauth E.M. 2000. The Culture of an Information Economy: Influences and Impacts in the Republic of Ireland. Dordrecht: Netherlands.
- Trauth, E.M. (ed.) 2001. Qualitative Research in IS: Issues and Trends. Hershey, PA: Idea Group Publishing.
- Turner B. 1983. The use of grounded theory for the qualitative analysis of organisational behaviour. Journal of Management Studies, 20(3): 333-348.
- Turner, J.H. 1986 Structural Role Theory. In Turner J.H. (Ed). The Structure of Sociological Theory (4<sup>th</sup> ed.), Chicago:Dorsey.
- Turner J.R. & Keegan A. 2001. Mechanisms of governance in the project-based organisation: Roles of the broker and steward. European Management Journal, 19(3):254-267.
- Urquhart C. 1999. Themes in early requirements gathering - the case of the analyst, the client and the student assistance scheme. Information Technology and People, 12(1):44-70.
- Urquhart C. 2000. Strategies for conversation and systems analysis in requirements gathering: Qualitative view of analyst-client communications. The Qualitative Report, 4(12). Retrieved October 2003 from <http://www.nova.edu/ssss/qr/qr4-1/urquhart.html>.
- Urquhart C. 2001. Analysts and clients in organisations: A conversational view. Journal of Strategic Information Systems, 10(3): 243-262.



Urquhart C. 2002. Regrounding Grounded Theory a reply to 'Bryant'. Journal of Information Technology Theory and Application, 4(3):43

US General Accounting Office. 1992. Information management and technology issues, GAO/OCG-93-5TR. Washington DC: U.S. General Accounting Office.

Van de Ven A.H. & Huber G. 1990. Longitudinal field research methods for studying processes of organisational change. Organisation Science, 1(3): 213-219.

Van de Ven A.H. & Poole M.S. 1989. Methods for studying innovation processes, in A.H. Van de Ven, H.L. Angle & M.S. Poole (Eds.), Research on the management of innovation: The Minnesota studies. New York: Ballinger/ Harper & Row.

Van de Ven A.H. 1992. Suggestions for studying strategy process: A research note. Strategic Management Journal, 13: 169-188.

Van de Ven A.H. & Poole M.S. 1995. Explaining development and change in Organizations. Academy of Management Review, 20: 510-540.

Van de Ven A. & Poole M.S. 2005. Alternative Approaches for Studying Organisational Change. Organization Studies, 26, 9: 1377-1400.

Van Maanen J. 1983. Qualitative Methodology. Newbury Park, CA: Sage.

Venkatraman N. 1991. IT -induced Business Reconfiguration. Oxford: University Press.

Venkatraman N. & Ramanujam. 1987. Planning system success: A conceptualisation and an operational model. Management Science, 33(6): 687-705.

Vickers G. 1965. The Art of Judgement: A Study of Policy Making. London: Harper and Row.

Vickers G. 1983. Human Systems are Different, London: Harper and Row.

Vitale M.R., Ives B., & Beath C.M. 1985. Linking information technology and corporate strategy: Organisational view. Proceedings of the 7th international conference on Information Systems, San Diego.

Waema T.M. 1990. Information Systems Strategy Formation in Financial Services Sector Organizations. University of Cambridge.

Waema T. M. & Walsham G. 1990. Information systems strategy formation in a developing country bank. Technological Forecasting and Social Change, 38: 393-407.

Walsham G. 1993. Interpreting Information Systems in Organisations. Chichester: John Wiley.

Walsham G. 1995. Interpretive case studies in IS research: nature and method. European Journal of Information Systems, 4: 74-81.

Wanless D. 2002. Securing our Future Health: Taking a Long Term View. Department of Health, London: HM Treasury.

- Ward J., Griffiths P.M., & Whitmore P. 1990. Strategic Planning for Information Systems, Chichester: Wiley and Sons.
- Ward J. & Peppard J. 1996. Reconciling the IT/business relationship: A troubled marriage in need of guidance. Journal of Strategic Information Systems, (5)1: 37-65.
- Ward J., Hemmingway C. & Daniel E. 2005. A framework for addressing organisational issues of enterprise system implementation. Journal of Strategic Information Systems, 14(2):97-119.
- Waterman R.H. & Peters J.R. 1982. The seven elements of strategic fit. Journal of Business Strategy, 2: 69-73.
- Watson R.T. 1990. Influences on the IS Manager's perceptions of key issues: information scanning and the relationship with the CEO. MIS Quarterly, 14(2): 217-231.
- Watson R.T., Kelly G.G., Galliers R.D., & Brancheau J.C. 1997. Key issues in information systems management: An international perspective. Journal of Management Information Systems, 13(4):91-115.
- Weber M. 1949. The Methodology of the Social Sciences. New York. The free press.
- Weber M. 1962. Basic Concepts in Sociology by Max Weber . New York: The Citadel Press.
- Weick K.E. 1969. The Social Psychology of Organizing. Reading, MA: Addison-Wesley.
- Weber R. 2004. Editor's comments - The rhetoric of positivism versus interpretivism: A personal view. MIS Quarterly, 28(1):3-7.
- Weick K. 1979. Social Psychology of Organising. 2<sup>nd</sup> Edition. New York: Random House.
- Weick K. 1987. Organisational culture as a source of high reliability. California Management Review, 29(2): 112-127.
- Weick K. 1989. Theory construction as disciplined imagination. Academy of Management Review, 14(4): 516-531.
- Weick, K. 1995. Sensemaking in Organizations. Thousand Oaks, Calif. Sage
- Weill P., Subramani M., & Broadbent M. 2002. Building IT infrastructure for strategic agility. MIT Sloan Management Review, 44(1): 57-65.
- Weill P. & Broadbent M. 1998. Leveraging the new infrastructure: How market leaders capitalize on information technology. Cambridge MA: Harvard Business School Press.
- Weiss W.J. & Anderson D. 2003. CIOs and IT professionals as change agents, risk and stakeholder managers: A Field Study. Paper presented at the Proceedings of the 36<sup>th</sup> Hawaii International Conference on System Sciences.

- Weiss W.J. & Anderson D. 2004. Aligning technology and business strategy: Issues and framework, A field Study of 15 Companies. Paper presented at the Proceedings of the 37<sup>th</sup> Hawaii International Conference on System Sciences.
- Wernerfelt B. 1984. A resource-based view of the firm. Strategic Managerial Journal, 5: 171-180.
- Wheeler B.C., Marakas G.M., Brickley P. 2002. From back office to boardroom: repositioning global IT by educating the line to lead at British American Tobacco. MIS Quarterly Executive, 1(1):47-62.
- Whitley R. 1984. The development of management studies as a fragmented adhocracy. Social Science Information, 23: 775-818.
- Whittington R. 1996. Strategy as practice. Long Range Planning, 29(5): 731-735.
- Whittington R. 2001. What is Strategy and Does it Matter? London : Thomson Learning.
- Whittington R. 2002. The Work of strategizing and organizing: For a practice perspective. Strategic Organisation, 1(1):119-127.
- Willcocks L. 1992. The Manager as Technologist? London: McGraw Hill.
- Willcocks L. & Sykes R. 2000. The CIO, IT function and ERP: Asleep at the wheel. Communications of the ACM, 43 (4):32-38.
- Williamson O.E. 1975. Markets and Hierarchies. New York: Free Press.
- Williamson O.E. 1985. The Economic Institutions of Capitalism. New York: Free Press.
- Wilson T.D. 1989. The implementation of information systems strategies in UK companies: aims and barriers to success. International Journal of Information Management, 9: 245-258.
- Wilson D.C. & Jarzabkowski P. 2004. Thinking and acting strategically: New challenges for interrogating strategy. European Management Review, 1(1): 14-20.
- Wiseman C. 1985. Strategy and Computers. Homewood, IL: Dow Jones, Irwin.
- Wiseman C. 1988. Strategic Information systems. Homewood, IL: Dow Jones, Irwin.
- Woiceshyn J.M. 1991. Technological change: leaders, followers, and feedback cycles. Scandinavian Journal of Information System, 7(3): 229-246.
- Woiceshyn J. 1997. Literary analysis as a metaphor in processual research: A story of technological change. Scandinavian Journal of Information Systems, 13(4): 457-471.
- Workman J.P. 1993. Marketing's limited role in new product development in one computer systems firm. Journal of Marketing Research, 30: 405-421.

- Wrapp H.E. 1984. Good managers don't make policy decisions. Harvard Business Review, July-August.
- Yang H.L. 1995. Key information management issues in Japan and the US. Information and Management, 30(5):251-267.
- Yee B. 2001. Enhancing security: A grounded theory of Chinese survival in New Zealand. Phd Thesis. University of Canterbury, Canterbury, New Zealand.
- Yetton P.W., Johnston T.D., & Craig J.F., 1994. Computer aided architects: A case study of IT and strategic change. Sloan Management Review, 35(4): 57-67.
- Yukl G. & Tracey B. 1989. Leadership in Organisations. Englewood Cliffs, NJ: Prentice-Hall.
- Yukl G. & Tracey B. 1992. Consequences of influence tactics used with subordinates, peers, and the boss. Journal of Applied Psychology, 77(4): 525-535.
- Zmud R. 1984. Design alternatives for organising systems activities, MIS Quarterly, 5(2), 25-43.
- Zmud R.W. 1988. Building relationships throughout the corporate entity. In Transforming the IS organisation: The Mission, the Framework, and Transition. (eds) J. Elam, M. Ginzberg, P. Keen, and R.W. Zmud, (eds.), Washington, D.C. ICIT Press
- Zuboff S. 1988. In the Age of the Smart Machine. New York, Basic Books







