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Impediments to the Process of Aligning Business and Information Systems Strategies in Public Service Organisations

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Thesis submitted for the degree of Doctor of Philosophy

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Dedication

To Andy, my husband, for your love, encouragement and support throughout the years – I will make it up to you.

To my late father, Johnny, for being proud of me always and inspiring me with his passion and drive for hard work.

To my mother, Bridie, for your love and unquestioning belief in me.

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Summary

With the rise of e-business, organisations have become increasingly reliant on information systems (IS). Alignment of IS and business strategies has become a key factor in contributing to the creation of business value for organisations. The strategic alignment of business and IS strategies has been a top management concern for both IS management and business executives for over three decades. Failure to align business and IS strategies may result in misused resources and failed IS projects, culminating in negative financial and organisational outcomes. A number of scholars have tried to ascertain factors that contribute as either enablers or impediments to this process of strategic alignment.

IS in Public Service Organisations (PSOs) has been mainly discussed in the literature as an aid to delivering new and better services to citizens, increasing efficiency and transparency, and improving accountability in public sector procedures and management. The management of IS within PSOs continues to face challenges, such as excessive cost, project failure or unrealised value. Although problems with alignment in the public sector are identified as a recurring theme by government audit functions, a review of the IS alignment literature indicated that most studies were concentrated in the private sector, using a variance approach with few focused on strategic alignment within PSOs. Overall, a review of the literature identified an insufficient understanding of the impediments to IS alignment as an emerging strategic process in PSOs, from both a theory and practitioner perspective.

This dissertation presents an interpretive processual longitudinal case study across two time periods to identify a set of impediments to the process of aligning business and IS strategies in a PSO. Alignment is viewed in this dissertation as an unfolding sequence of events thereby necessitating a longitudinal approach to data collection. This is as opposed to the alternative variance approach which looks at a set of static independent and dependent variables. Real time and retrospective data (primary and secondary) was collected at multiple organisational levels. The process of alignment is presented in the form of a case narrative with the aid of temporal bracketing. The analysis resulted in the identification of a process model which illustrates the conditions, using process theories, under which certain impediments could be expected to occur therefore adding to existing knowledge on impediments to strategic alignment. While this study concentrates on a single PSO, the results shed light on a globally-persistent IS management concern for the past thirty years. Methodological contributions also arise due to the novel application of a processual approach, still somewhat rare in IS research.

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List of Abbreviations

BDS	- Business Development Service
CAL	- Centre for Applied Learning
C&AG	- Comptroller and Auditor General
CEO	- Chief Executive Officer
CCTA	- Central Communication and Telecommunication Agency
CITUNI	- Central Information Technology Unit Northern Ireland
CSD	- Central Software Development
CSF	- Critical Success Factor
CFO	- Chief Financial Officer
CIO	- Chief Information Officer
CTO	- Chief Technical Officer
DARD	- Department of Agriculture and Rural Development
DCAL	- Department of Culture, Arts and Leisure
DD	- Deputy Director
DE	- Department of Education
DEL	- Department for Employment and Learning
DETI	- Department of Enterprise, Trade and Investment
DFP	- Department of Finance and Personnel
DHOTS	- Departmental Heads of Technology
DHSSPS	- Department of Health, Social Services and Public Safety
DOJ	- Department of Justice
DRD	- Department of Regional Development
DSD	- Department for Social Development
EDA	- Enterprise Development Authority
ESS	- Enterprise Shared Services
ERP	- Enterprise Resource Planning
HOT	- Head of Technology
IA	- Information Assurance
ICT	- Information and Communication Technology
IM	- Information Management
IMC	- Information Management Committee
IS	- Information Systems

ISJ	- Information Systems Journal
ISID	- Information Strategy and Innovation Division
ISRA	- Information Systems Reference Architecture
ISS	- Information Systems Strategy
ISSP	- Information Systems Strategic Planning
ISU	- Information Systems Unit
IT	- Information Technology
IT-CMF	- Information Technology - Capability Maturity Framework
ITGI	- Information Technology Governance Institute
ITGB	- Information Technology Governance Board
ITIL	- Information Technology Infrastructure Library
LAN	- Local Area Network
MIS	- Management Information Systems
MLA	- Members of the Legislative Assembly
MNC	- Multi-National Corporation
NAO	- National Audit Office
NPR	- National Performance Review
NI	- Northern Ireland
NICS	- Northern Ireland Civil Service
NIEGU	- Northern Ireland e-Government Unit
NIO	- Northern Ireland Office
OFMDFM	- Office of the First Minister and Deputy First Minister
OGC	- Office of Government Commerce
PFG	- Programme for Government
PID	- Project Initiation Document
PS	- Permanent Secretary
PSG	- Permanent Secretaries Group
PSA	- Public Service Agreement
PSO	- Public Sector Organisation
RBV	- Resource Based View
RIMG	- Records Information Management Group
RPA	- Review of Public Administration
SRO	- Senior Responsible Owner
SAF	- Strategic Alignment Framework

SAM	- Strategic Alignment Model
SAMA	- Strategic Alignment Maturity Assessment
SAMM	- Strategic Alignment Maturity Model
SFIA	- Skills Framework in the Information Age
SIRO	- Senior Information Risk Owner
SISP	- Strategic Information Systems Planning
SME	- Small Medium Enterprise
SSA	- Senior Systems Analyst
STROBE	- Strategic Orientation of Business Enterprises
STROIS	- Strategic Orientation of Information Systems
STROEPIS	- Strategic Orientation of the Existing Portfolio of IS Applications
SWOT	- Strengths, Weaknesses, Opportunities & Threats
TOGAF	- The Open Group Architecture Framework
TRIM	- Tower Records Information Management
UK	- United Kingdom
US	- United States
USA	- United States of America
VFM	- Value for Money
WAN	- Wide Area Network

Chapter 1 - Introduction and Overview of the Research

1.1 Introduction

Given the complexity of government structures, managing public sector Information Systems (IS) is considered to be increasingly important (Van Grembergen, 2004) as is public sector IS strategic alignment. Alignment between business and IS strategies is not easy to accomplish or maintain (Ciborra, 1997) in public or private organisations, however, there is a paucity of empirical research into strategic alignment in Public Service Organisations (PSOs). Since the 1980s, researchers have been interested in establishing what factors are determinants in fostering or impeding strategic alignment. The focus of this dissertation is the empirical study of the impediments to the process of aligning business and IS strategies in PSOs using a processual methodology.

In this chapter, an overview of the dissertation is presented. Section 1.2 outlines the background to the research, focusing on my own motivation as researcher. In section 1.3, the four theoretical concepts underpinning the research are introduced and briefly discussed. Section 1.4 gives an overview of the research methodology, while the proposed contribution is outlined in section 1.5. The following section, 1.6, gives a description of the dissertation structure and content of each chapter.

1.2 Researcher's Motivation

With the rise of e-business, organisations have become increasingly reliant on IS (Huang, Wu, & Chen, 2013). As a result of an auditing/accounting/IS career in PSOs, I developed a particular interest in exploring the use of IS in PSOs.

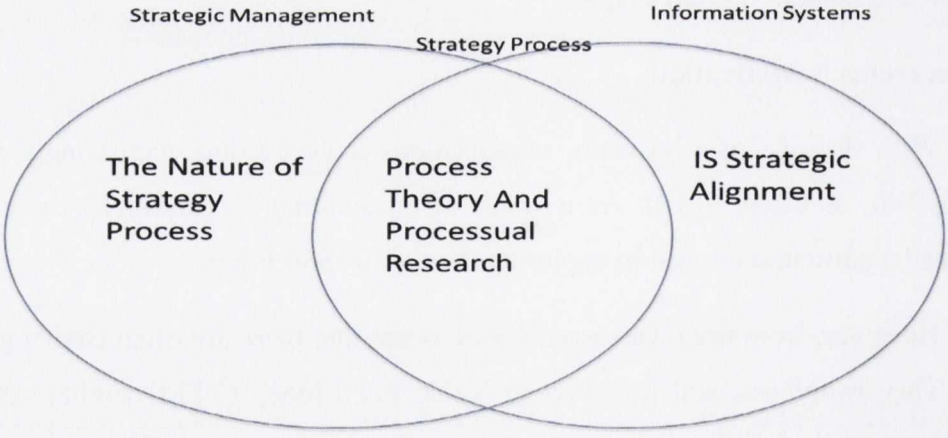
However, from my own career, I was aware that there are often challenges with IS in PSOs. This awareness, and a review of Value For Money (VFM) studies emerging from government audit functions across the United States of America (USA), United Kingdom (UK), and Ireland over three decades, depicted the alignment of IS and business strategies as an ongoing challenge for PSOs (Burke & McDonagh, 2008). In 2002, the National Audit Office (NAO) and the Office of Government Commerce (OGC) in the UK compiled a list of reasons why IS projects had failed in PSOs. One of those reasons was the lack of a clear link between projects and organisations' key strategic priorities. In 2006, the NAO noted the close alignment between IS and business development as essential. The following year, 2007, the Comptroller and Auditor General (C&AG) in Ireland recommended that PSOs should be required to

develop comprehensive plans covering customer service as well as human, process, technology, data, and financial aspects for their transformation programmes. It concluded that business transformation projects should demand a clear and consistent articulation of visions and goals and that IS alone cannot transform business processes. This review of VFM studies, ignited by previous professional experiences, evolved into a cogent research topic: strategic alignment that needed to be explored. However, in carrying out this review I noted that these reports did not explore in-depth the underlying causes or circumstances resulting in misalignment. The reports were carried out at a particular point in time and did not have the scope longitudinally to delve further into the underlying conditions giving rise to the identified challenges. Having conducted this review I next moved on to uncover what the academic literature had to add to the topic.

1.3 Literature Overview

This research is built on the following sets of scholarly literature: the nature of strategy process, process theory and processual research, and IS strategic alignment, as seen in Figure 1.1 below.

Figure 1.1 Streams of Literature



These are now briefly introduced.

1.3.1. The nature of the strategy process. The review highlighted that rational and emergent approaches to the strategy process are near opposites while the third perspective, the 'processual' approach, was shown to integrate both (Chakravarthy & White, 2002). A review of the strategic management literature also suggested that a distinction be made between the 'process', 'content', and 'context' of strategy, which have been described as the three key dimensions of strategy (Pettigrew, 1992). They are now commonly referred to as Pettigrew's

model or Pettigrew's Triangle (Pettigrew, 1985) and are mutually dependent, with the actual strategy content being influenced by process and context.

The manner in which strategies come about is referred to as the strategy process and is concerned with the *how*, *who* and *when* of strategy. Pettigrew (1987, p. 658) describes the process as referring "to the actions, reactions and interactions from the various interested parties as they seek to move the firm from its present to its future state". For Pettigrew, the strategy process considers the events and actions that are affected politically, culturally, and environmentally by strategy context and content and which in turn also affect content and context.

An increased emphasis on strategy as a process was perceived in the literature to be a response to the restrictions of the prevailing rational school (Mintzberg & Waters, 1985). Thus, "theoretically sound and practically useful research on change should explore the contexts, content, and processes of change together with their interconnectedness through time" (Pettigrew, 1987, p. 268).

The product of a strategy process is the strategy content which is concerned with the 'what' of a strategy. Pettigrew (1987, p. 657) describes content as referring "to the particular areas of transformation under examination". An analysis of the major forces that give rise to strategies was found in the literature to denote the strategy context, which is concerned with the 'where' of strategy. According to Webb and Pettigrew (1999), there are two different parts to context: the inner organisational context (the structure, corporate culture, and political context within the firm) and the outer environmental context (the social, economic, political, and competitive environment).

Content and context were found in the literature to be bound in a mutual relationship, where one is continually shaped by and shapes the other and the relationship between them is enabled through process (Pettigrew, 1987). Taking context, content, and process into account reminds those wishing to explore a phenomenon that it is important to consider the complexities of organisational life, and to have regard for the characteristics of the organisation's internal and external environment.

1.3.2 Process: research approach and theory. The next stage of the literature review was to define the nature of process, followed by an understanding of how process research is undertaken. Van De Ven (1992) suggested a two-step approach: firstly, define what a process

means, both from general and epistemological perspectives and, secondly, design the process research approach (see section 1.4).

Scholars (the first being Mohr in 1982) have drawn a contrast between variance approaches, which conceive explanations as relationships among dependent and independent variables, and processual ones which build explanations from observed "patterns in events, activities, and choices over time" (Langley, 2009, p. 409). The variance approach is oriented towards large sample sizes, structural explanations, and generalisable results, whilst processual approaches are qualitative in nature and oriented towards the dynamic study of behaviour within organisations, focusing on the core themes of organisational context through the temporal order and sequence of events that unfold over time (Van de Ven & Poole, 1995).

Within a variance approach, process is conceptualised as a law-like relationship between input and outcome variables: a particular value of X leads to a particular value of Y (Mohr, 1982). The process by which a certain antecedent results in a certain consequence is deduced and not directly observed (Pentland, 1999). In this interpretation, time is regarded as a constant, quantifiable unit "independent of the objects and people who experience it" (Van de Ven & Poole, 2005, p. 1388). Temporal ordering amongst independent variables is treated as irrelevant to the explanation, with the attributes of the different theoretical constructs also remaining unchanged over time (Sminia & De Rond, 2012) while the temporal ordering and sequence of process events is fundamental to process research (Langley, 1999). Scholars probing outcomes adopt a variance epistemology while investigators probing emergence, development, and growth pull on process epistemologies (Van de Ven, 2007).

In process research, three different perspectives on time are normally considered: past (tracing back), ongoing into the future (following forward), and reconstituting the evolving present. The suitable temporal periods for process research may fluctuate from a few days, weeks, or months to very long periods of time and offers explanations in terms of patterns in events, activities, and decisions over time (Langley, Smallman, Tsoukas, & Van de Ven, 2009). However, as Van de Ven (1992) suggests, it is not just the processes that are critical but also the underlying logic that gives meaning and significance to these processes. So the contributions from process studies can also be regarded as meanings which sometimes reflect the interpretations of participants, or instead recognise the researcher's own interpretive processes.

Processual research requires interpretation of both repetitive temporal patterns among activities/events - especially when they occur in socially meaningful time cycles - and the underlying logic which may explain how and why these patterns or relationships occur in particular chronological sequences (Pettigrew, 1990). In this instance, process theories supplement process patterns. Van de Ven and Poole (1995) recognised a set of four basic process theories which they propose cover the variety of theories used to describe change both individually and collectively. The four theories are categorised as: life cycle theories (grounded in the notion of genetic predetermination), teleological theories (grounded in goal-driven behaviours and learning), dialectical theories (grounded in cycles of confrontation and resolution among opposing forces), and evolutionary theories (grounded in the processes of variation, selection and retention).

Tsoukas & Chia (2002) state that organisations are multi-level phenomena; thus, processual research is appropriate in order to study them as it takes into consideration how processes at different levels of analysis shape each other (Poole & Van de Ven, 2004). In addition, little research on strategy process in the public sector has been carried out (Andrews, Boyne, Law, & Walker, 2011).

1.3.3 Strategic alignment. The existing IS literature, focusing on the literature on strategic alignment, was then reviewed. Reich and Benbasat (1996, p. 56) describe strategic alignment as: "the degree to which the mission, objectives and plans contained in the business strategy are shared and supported by the IT strategy." The literature review clearly shows that strategic alignment "continues to be elusive, and in all of the geographies it ranks in the top ten management concerns; ranking 1st in both the world and Europe" (Luftman & Derksen, 2014, p. 6), and has been a top management concern for both IS management and business executives for over three decades (Brancheau & Wetherbe, 1987; Chan, Huff, Barclay, & Copeland, 1997; Chan & Reich, 2007b; Derksen & Luftman, 2014).

Most organisations in industry and government are fundamentally dependent on their IS (Ward & Peppard, 2002). To remain successful in a dynamic business environment, organisations must determine and understand how to manage IS strategically. A key issue for a successful organisation, in such a dynamic business environment, is an effective and efficient IS strategy that supports business strategies and processes and makes a contribution to the creation of business value (Henderson & Venkatraman, 1993). Business and IS performance

improves when organisations practice strategic alignment because IS is used in a more focused and strategic manner (Chan, Sabherwal, & Thatcher, 2006; Chan & Reich, 2007b).

Initial studies of strategic alignment focused on studying the synchronisation between evolving business strategy, mission, objectives and IS strategy (Reich & Benbasat, 2000). Other research focused on creating strategic alignment models or frameworks (Henderson & Venkatraman, 1993) and on defining 'alignment integration' (Weill & Broadbent, 1998), 'bridge' (Ciborra, 1997), 'harmony' (Luftman, 1996), 'fusion' (Smaczny, 2001), 'linkage' (Henderson & Venkatraman, 1992; Reich & Benbasat, 1996) and 'business – IT alignment' (Maes, Rijsenbrij, Truijens, & Goedvolk, 2000). Alignment was then deconstructed (Ciborra, 1997) into component concepts or dimensions (Luftman & Papp, 1995; Sabherwal, Hirschheim, & Goles, 2001). Nevertheless, these early classical views of strategic alignment have been criticised as being unsuitable, inflexible, and failing to reflect today's turbulent organisational environment (Fearon, Manship, McLaughlin, & Jackson, 2013). Rather, a blending of business and IS strategies, where concurrent rather than successive strategic development happens, is suggested (Smaczny, 2001). Benbya and McKelvey (2006) reaffirmed this emphasis, arguing for the 'co-evolution' of IS and business strategies.

Strategic alignment research is also separated into distinct quantitative and qualitative streams. The former emphasises the quantification of strategic alignment in terms of inputs, outputs, and its measurement using diverse alignment criteria or maturity categories (Luftman, 2003). The latter places its emphasis on the social dimension of strategic alignment, aiming to understand rather than measure (Reich & Benbasat, 2000).

A number of scholars have tried to ascertain factors that contribute as either enablers or impediments to this process of strategic alignment (Hussin, King, & Cragg, 2002; Luftman 2003). Chan and Reich (2007b, p. 309) suggest: "It is not enough to simply understand the factors involved in alignment, one must understand the interrelationships among the factors."

Opinions in the literature differ as to whether strategic alignment is a process (King & Teo, 1997; Campbell, 2005), or an end-state (Avison, Jones, Powell, & Wilson, 2004). The latter view is dominant (Earl, 1989; Porter & Millar, 1985a; Weill & Broadbent, 1998) and therefore, the necessity to continuously maintain and sustain strategic alignment dynamically is seldom recognised. Hirschheim and Sabherwal (2001, p. 87) contend that strategic alignment is not an end-state but, rather, a "process of continuous adaptation and change"; a view with which I concurred after reviewing the literature and based on my own professional experience.

Strategic alignment is also viewed as having technical/intellectual and social dimensions which underpin the ongoing alignment of business and IS strategies (Reich & Benbasat, 2000). Most strategic alignment studies focus on the technical deliverables in relation to planning content and methodologies, that is, focusing on the intellectual/technical dimension alone. Therefore, they do not include the social dimension which would encompass communication, interpretation and integration, and how collective and departmental levels within the organisation create mutual understanding in the strategic alignment process (Balhareth, Liu, & Manwani, 2012).

Although problems with alignment of IS and business strategies in PSOs are identified as a recurring theme by government audit functions, a review of the IS strategic alignment literature indicated that most studies were concentrated in the private sector, with very few focused on strategic alignment in PSOs (Bourn, 2007; Burke & McDonagh, 2008; NAO/OGC, 2002). Indeed, perspectives on the process of strategic alignment in PSOs are largely underrepresented. Rocheleau (2006) also argues that IS in the public sector presents different challenges than those faced within the private sector.

Academics also distinguish between the content and process aspects of strategy-making in an IS context (Das, Zahra, & Warkentin, 1991). Sabherwal and Chan (2001) established that strategy content centres on what strategy the organisation is following, while strategy process is concerned with how an organisation forms and executes its strategy. The majority of studies on strategic alignment within the IS field focus on strategy content, with particular interest in the methods and measurement of strategic alignment between business and IS strategies (Burn & Szeto, 2000; Chan et al., 1997; King & Teo, 1997). A content approach is generally associated with variance research (Van de Ven, 2007). IS/Business strategy, from a processual viewpoint in this research, provides a more accurate understanding of strategy execution.

Where strategic alignment is viewed as an end-state, variance approaches are used to clarify how strategic alignment can be realised by using a number of variables. Outcomes can then be detected and measured (Reich & Benbasat, 2000). A difficulty that remains when using the end-state viewpoint singularly to evaluate strategic alignment is that it does not specify how strategic alignment can be continued over time within the organisation (Baker, Jones, Cao, & Song, 2011).

The lack of understanding of strategic alignment as a process makes processual research the most appropriate epistemological and research approach. In line with Tallon (2007), I felt

that a processual view of strategic alignment was important because it could point to the key phases in which the degree of strategic alignment was high or low, and when and where it requires more remedial managerial attention. It could also address the situation wherein the business setting is constantly changing, causing challenges within the organisation, and requiring changes to the process of aligning business and IS strategies (Galliers, 2004).

Processual studies within the field of IS generally do not abound. In a survey of IS impact research, about 80% of articles in leading IS journals were found to have used a variance approach (Paré, Bourdeau, Marsan, Nach, & Shuraida, 2008). Only 20% of articles used a processual approach and were almost entirely found in just one journal (*Information & Organization*). Referring to strategic alignment, specifically, the majority of studies take a variance approach (Sabherwal & Chan, 2001). Ciborra (1997) supports this, suggesting that much of the strategic alignment discussion assumes that organisational reality can be captured objectively and controlled and made predictable via linear cause and effect chains which, as this research subsequently proves in chapters 6 and 7, is not always the case. Another challenge with the majority of variance strategic alignment studies is the supposition that there exists a business strategy to which an IS strategy can be aligned (Chan & Reich, 2007b).

Most research on strategic alignment takes a static or cross-sectional approach, with a paucity of studies investigating the dynamic processes of development and change from a longitudinal perspective (Chan & Reich, 2007b). This suggests that most research on strategic alignment fails to embrace the complexity and dynamics of the socio-technical, co-evolutionary aspects of real world and strategic alignment processes. Research by Baker, Jones, Cao, and Song (2011) encourages IS researchers to examine strategic alignment challenges from a longitudinal and dynamic perspective.

At this point of the literature review, I was able to detect a distinct gap: the paucity of understanding of strategic alignment as a process and the impediments to that process in PSOs. Its exploration showed that a robust theoretically valid definition of process was needed, that the process of strategic alignment required it to be understood at multiple organisational levels, and the concept of process explored from specific strategic and theoretical perspectives. IS researchers must be exposed to the practical contexts in which IS-related usage and management behaviours unfold in order to make IS research relevant (Benbasat & Zmud, 1999).

Processual research inspires researchers and practitioners to evaluate the collaborations between the IS function and business collectively to see how they facilitate the co-evolution of IS and business strategies (Agarwal & Sambamurthy, 2002). From the review undertaken, I concurred that strategic alignment is a continuous and dynamic process (Luftman, 2000), rather than a rational-oriented approach to just business objectives (Avison et al., 2004). While there has been substantial research over the last three decades addressing the issue of strategic alignment, the majority of studies have attempted to reduce the inherent complexity of strategic alignment to allow the investigation of direct causal relationships (Peppard & Campbell, 2014).

Therefore, this dissertation addresses the shortcomings of the strategic alignment literature, focusing on the impediments to the process of aligning business and IS strategies in PSOs. Within it, I contend that greater attention should be given to strategic alignment in a PSO setting using processual research, with the intention of developing a processual model that captures the impediments to strategic alignment at multiple levels. Consequently, this work positions itself at the intersection of the strategic alignment and strategy process research literature. It aims to shed light on the strategy work processes or phases in which PSOs engage within the strategic alignment process and the impediments to that process. Processual research that examines how strategic alignment unfolds in practice, and how various events evolve across phases and interrelate with current organisational contexts, presents opportunities to develop a dynamic knowledge of how to advance the process of strategic alignment in PSOs.

Accordingly, this study addresses the following research question: *What are the key impediments to the process of aligning business and IS strategies in PSOs?* The literature review chapters (2 and 3) give greater detail about how this research question emerged.

1.4 Research Methodology

The research paradigm adopted was an in-depth interpretive qualitative case study approach (Stake, 2005; Yin, 2009). Qualitative approaches are vital for theory-building in emerging fields (Denzin & Lincoln, 2000), such as strategic alignment in PSOs.

A processual approach was the overriding research methodology. Processual research typically takes on the form of generating a story with respect to the unit of analysis to offer an answer to the research question (Langley, 1999). It is the specific interpretation of process, or process theory in use, that informs how this story will be assembled (Sminia, 2009). Distinct

from variance research, processual research seeks to capture the internal reality of the process in flight, which allows the present to be explored in relation to the past and the emerging future.

The question of how to conduct processual research is a matter of considerable debate (Welch & Paavilainen-Mäntymäki, 2013). Making sense of its data is a challenge (Langley, 1999) due to its complexity. The researcher must document the temporal sequence of events pertinent to the processes studied; necessitating a longitudinal approach to address actual change in the principal variables over time. Longitudinal research may study phenomena by tracing them backward into the past, by following them forward into the future, by probing how they are created, or by doing all of these at the same time (Langley et al., 2009).

In macro level studies of processes, such as strategy-making, the researcher is often obliged to combine historical data collected through the analysis of archival data, secondary documentation, and retrospective interviews with current data gathered in real-time. While the first type of data is sparse and synthetic, focusing on memorable moments and broad trends, the second is richer and finer grained (Langley, 1999).

The data sources for processual research typically include some or all of the "big three" of qualitative investigations: observation, interviewing (retrospective or real-time), and secondary documents (Dawson, 1997; Sminia, 2009). Observations are excellent for highlighting evolving patterns of interaction and behaviour (Dawson, 1997), whilst archival data and secondary documentation are an important source of data on key event chronologies and often provide records of arguments and justifications (Pettigrew, 1997). Interviews give an advantage in facilitating access to the personal experiences of interviewees (Dawson, 1997).

Most processual research involves combinations of these sources permitting the integration and cross-validation of contextual and temporal data to provide useful insights into organisational events and processes (Dawson, 1997). Therefore, it creates large data sets for the researcher to analyse. One consequence of the multitude of data and the structuring of complex processes is "death by data asphyxiation" as an initially good and clear idea becomes a big, sinking mess of processes (Pettigrew, 1990, p. 281). To overcome this challenge, an iterative process is undertaken going back and forth between the data, the literature, and the emerging results.

According to Langley (1999, 2007), the key objective of data analysis in processual research is to generate patterns requiring explicit methods in order to build synthetic models out of complex, multi-layered, and temporarily-embedded data and also identify the

interconnections between diverse levels of strategic actors and organisations. To do that, Langley (1999) proposes seven generic strategies that highlight the challenges in realising all the features of a good theory - narrative, quantification, alternative templates, grounded theory, visual mapping, temporal bracketing, and synthesising.

This research involved a longitudinal in-depth case study to obtain rich data (both real-time and retrospective) from which a detailed process narrative was produced. I chose a single PSO that was involved in the IS strategy-making process at the time of the research and had instigated previous IS strategies. The selected organisation was the Northern Ireland Civil Service (NICS). It is responsible for the delivery of core public sector services to 1.7 million people and employs 25,000 administrative staff spread across 12 departments (Wickens, 2013).

My aim was to collect processual, historical, and contextual data. The data was not only gathered longitudinally but was also primary and secondary in nature, reflecting the need to gain both an understanding of the strategy-making process context and the views of participants at multiple levels of the organisation representing the PSO collectively and in individual departments. Therefore, it was collected through observation, interview, and archival and secondary documentation, permitting both the combination and cross-validation of contextual and temporal data to provide useful insights into organisational events and processes. The time series encapsulated within this research focuses on strategies for two periods: 2004-2010 and 2010-2014. The specific details of how the data were gathered and analysed are discussed in chapters 4 and 5.

1.5 Research Contribution

In linking my findings and process model with previous empirical and theoretical work, this research offers a number of contributions which will be useful for both academia and practitioners alike.

1.5.1 Empirical. By examining the impediments to the process of aligning business and IS strategies in a PSO, I have responded to a need within the IS research field which was reported by Chan and Reich in 2007. They concluded that more research and exploration were required into the means or antecedents of strategic alignment and that the process view of alignment was under-represented. They also stressed that it is important to not only list potential impediments to strategic alignment, but also identify the relationships between those impediments and towards strategic alignment.

The goals of this research were to identify a set of impediments to the process of aligning business and IS strategies, position them into a holistic model, and explore the relationships towards strategic alignment. Furthermore, as suggested by Chan and Reich (2007a), I also attempted to uncover key social and intellectual/technical impediments to the strategic alignment process within the confines of a single PSO case study setting. The findings supported many of the impediments to strategic alignment that have been found to exist in the literature. Moreover, it uses process theory (teleological and dialectical) to explain those impediments.

As the analysis of the case study demonstrated, events in the process of strategic alignment exhibit different distinctive patterns with significant differences in how certain key events influence the process of strategic alignment. Also, the focus was on the temporal and interconnected nature of strategic alignment and the influence of subjective attitudes and perceptions on that process. The model highlights specific conditions under which certain impediments could be expected to occur. Furthermore, it recognises that strategic alignment is a long-term, evolutionary, and dynamic process. As Henderson and Venkatraman (1993, p. 482) stated, "the most important lesson to keep in mind is that strategic alignment is a journey and not an event".

Applying the processual lens to the study of strategic alignment contributes to both the strategic management and IS literature. The findings integrate concepts from strategy-making and the IS strategic alignment literature to provide a holistic, conceptual model of strategic alignment. There was a continuous interplay between the academic literature and detailed empirical description of emerging processes and impediments; out of which, phases with distinct characteristics were defined and a model developed.

Whilst strategic alignment has remained a persistent management concern, and despite the discovery of some theoretical and artificial constructs to explain the process of strategic alignment, prior research does little to reveal the messiness of everyday reality (Ciborra, 1997).

Furthermore, the strategic alignment literature indicates that most empirical evidence was based on studies conducted in the private sector. Researchers have not focused their attention on PSOs (Chan & Reich, 2007b). The lack of studies in this context also provided the rationale for this study and its contribution to knowledge. This current research offers not only a succinct and holistic review of the extant literature on strategic alignment, but also specifically studies it within the PSO context. The case study tells its own story of how strategic

alignment unfolded in practice in the NICS and how the phases, with their distinct characteristics, interconnect and overlap in shaping the dynamic journey of strategic alignment.

1.5.2 Theoretical. From a theoretical perspective, this study develops a valid conceptual processual model in a PSO (Van de Ven, 1992); thus extending the application of processual research. Consequently, it attempts to extend the existing research on strategic alignment by considering the impediments to business strategy and IS strategy alignment in PSOs using process theories.

Moreover, the presence of teleological and dialectical behaviours within the process of strategic alignment delivers to business executives and IS executives the insight that the strategic alignment process is not linear and prescribed and cannot be planned totally beforehand. Furthermore, the model extends strategic alignment theory to the levels within the organisation at which strategic alignment unfolds during different phases. In addressing the social dimension of strategic alignment, the study focuses on the human dimension to determine the core social work enacted and the degree of interaction between levels within the organisation (Baets, 1996).

Process causality also requires consideration. Taking into account the progressive phases and inter-relationships identified in the phased model of strategic alignment, process theory is used to discuss the process behaviours that describe how the progressive characteristics inter-relate within each phase, adding a layer of theoretical understanding and offering a theoretical contribution. Yet again, pulling from process theory, the theories (that is, teleological and dialectic) are identified in chapter 7 for each phase of the process of strategic alignment. These process theories offer a theoretical explanation for the entire strategic alignment process, which is the primary contribution discussed in this section.

1.5.3 Practical. Although the research is situated in a specific PSO contextual situation, the contribution will shed light on a globally persistent IS management concern for the past thirty years. A phased model of strategic alignment is presented as a tool for IS strategy-makers and practitioners in PSOs in general. It was created based on the NICS case, but is proposed to have a wider application to other PSOs. Due to the nature of the research undertaken and the resulting phased model of strategic alignment, the following contributions are proposed to strategic alignment management practice. The model considers both the intellectual/technical and social dimensions of strategic alignment in a way that is useful and relevant for IS strategy-makers and practitioners. Incorporating a processual analysis that included those dimensions,

it generated knowledge not only of the phases of strategic alignment, but also why and how various impediments arise. My conceptual model is of help to practitioners because it facilitates reasoning about complex and multi-level IS phenomena such as strategic alignment.

While addressing the impediments to strategic alignment is not "a simplistic, one-answer solution" (Luftman, Papp, & Brier, 1999, p. 23), identifying and minimising them through the various phases of strategic alignment can aid and improve the organisation's decision-making process with regard to the strategic alignment of business and IS. Having a clear understanding of the phases and their various characteristics, including impediments, is a significant step towards successful strategic alignment. Examining the model's components will aid researchers in the strategic alignment area to further develop models with concrete measures on how to overcome impediments in the various phases in order to achieve more successful strategic alignment. Furthermore, since within any strategic alignment process there is likely to be conflict and competing demands at different organisational levels, how the organisation collectively and at an individual department level addresses such conflict, and the perspectives of the business and IS executives in this respect, will also offer insights.

The study also raises awareness about the importance of business and IS executives being familiar with each other's environment, open and trustworthy communication, shared commitment and support, close collaboration, and strong relationships between business and IS executives. This awareness can be used by practitioners to better understand their organisations, and potentially overcome the challenge of the impediments before embarking on the process of strategic alignment. Moreover, they could benefit by using the model developed in this research to identify the areas of concern at different phases of the strategic alignment process; thus reducing the impediments to strategic alignment to produce a positive adaptation.

In essence, as strategic alignment can be considered an on-going process resulting from not only deliberate strategic decisions but also emergent decisions (Galliers, 2006), some unforeseen impediments may surface. How these impediments are identified and neutralised is also worth exploring and capturing.

Therefore, from the practitioner's view point, this study will be valuable to business executives and IS executives regarding their real relationships with each other (the social dimension) and the achievement of best practice in managing the process of aligning business and IS strategy within the organisation for which they work (the intellectual/technical

dimension). A deeper understanding by business executives and IS executives of the complex interconnection of intellectual/technical and social dimensions and processes in the phased model of strategic alignment will lead to relevant cross-fertilisation of goals and the reduction of unnecessary duplication of effort.

1.5.4 Methodological. Most of the existing research studies take a largely positivist variance approach. Although there has been some strategic alignment process research, how the actual process has been conceptualised has not drawn explicitly from the definitions and concepts introduced by the process theory and process research literature. This research presents an interpretive processual case study of the key impediments that impact strategic alignment, using a phased model. Examining strategic alignment through a processual (as opposed to a variance) lens facilitated the analysis of the impediments to the process of strategic alignment of business and IS strategies from an interpretive perspective, whilst also taking into account the 'messiness' alluded to by Ciborra (1997).

In line with arguments by Chan and Reich (2007b), adopting an interpretive position liberates the research process from the constraints of prior IS research approaches which depended on inflexible strategic alignment frameworks and measurement metrics. They also note that the temporal dimension has been under-researched and by adopting a longitudinal approach in this research, subtle processes and nuances of strategic alignment that unfold over time are revealed. This approach describes the strategic alignment process as a progression of phases with distinct characteristics, providing a more valid process theory to support the conceptualisation of the strategic alignment process. Identifying strategic alignment process phases and their progression, from both a collective and departmental perspective, fosters a deeper and more conceptually supported narrative of strategic alignment.

Using this perspective, I collected and developed a rich interpretation of events and unfolding knowledge of the process of strategic alignment in two temporal periods through an iterative process of data collection and analysis using observations and interviews. The combination of observations and interviews in this research enabled cross-validation as well as the integration of contextual and temporal observations with the more perceptual and attitudinal data gathered from interviewees; rather than focusing on positivist quantification. The subsequent narrative in detailing a phased model of the strategic alignment process is different from previous and current studies by virtue of the fact that it utilises narrative strategy to describe the phases of strategic alignment and impediments as they unfold. This deep and

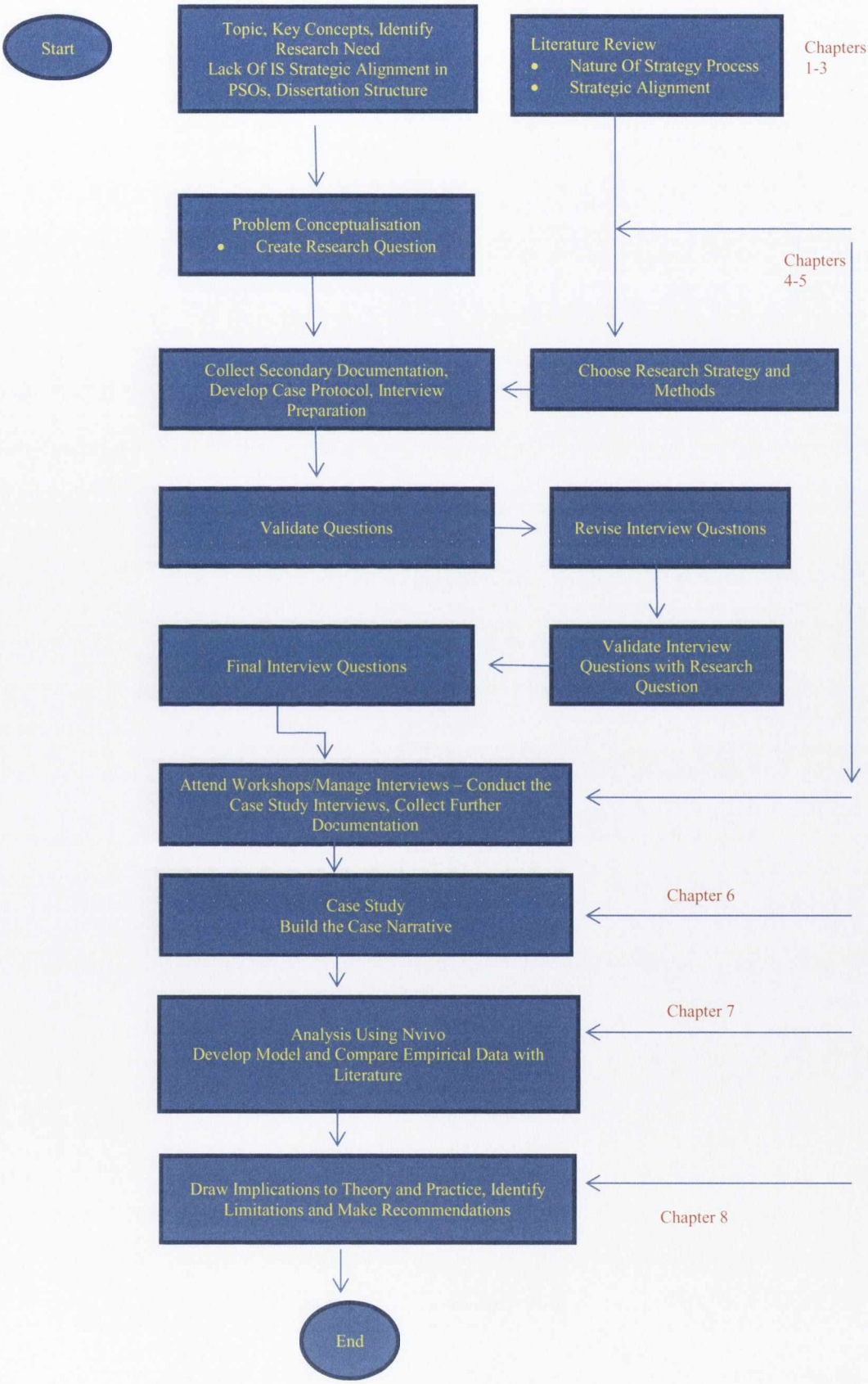
multi-level narrative (see chapter 6), whilst of value, only provides a description rather than an analysis of relationships or causal effects within the process. The use of process theories in chapter 7 enables a deeper consideration of the process narrative, enriching it.

The next proposed contribution that arises from narrative analysis is the identification of the interdependencies and sequences of phases of strategic alignment. Decomposing the process of strategic alignment by temporal phases (known as temporal bracketing) not only makes the whole process of strategic alignment easier to understand, but also facilitates the identification of initial impediments and managerial implications. Showing the strategic alignment process in the tabular form of a phased model, which presents a sequence of phases with distinct characteristics and different interdependencies and inter-relationships, adds a valuable layer of process meaning and is a feasible contribution. To understand the influences of the different levels of engagement on strategic alignment, it was necessary to explore the core social work that occurs at each level and how each level influences other levels as well as the process of aligning business and IS strategies. Therefore, at each level I explored the core social work and interactions among levels.

1.6 Dissertation Structure

Each chapter of the dissertation begins with chapter goals which suggest what is expected to be accomplished by the end of the chapter, to help remind the reader of what the research is about, what is being attempted, and how this is relevant to the research question. At the end of each chapter is a summary of these expected achievements and the extent to which the objectives are met in that chapter, including some critical emerging messages. The dissertation is structured around eight chapters.

Figure 1.2 Dissertation structure diagram showing the different parts and chapters of the dissertation



Chapter 1: Introduction. This chapter sets out the wider context for the dissertation, introducing the topic and key literature streams, and outlining the research approach, contributions and dissertation structure.

Chapter 2: The nature of the strategy process. This chapter presents a critical review of the existing literature on the nature of strategy process. It intends to clarify the concept of strategy, discuss the nature of the strategy process, present the three major schools of thought in relation to strategy process, and argue that, whilst the processual school once constituted the minor tradition in strategic management, well-developed precedents have been established.

Chapter 3: The nature of strategic alignment. This chapter comprehensively reviews the theoretical basis for strategic alignment and investigates, using a processual lens, how it and the impediments to its process have been conceptualised in the IS literature. It culminates in the identification of a theoretical gap in the understanding of the strategic alignment process in a PSO setting and formalises this gap as a process-orientated research question with potential contributions.

Chapter 4: The choice of method. This chapter concentrates on justifying the chosen research method as being the most suitable to research the strategic alignment process and explains my ontological, epistemological, and philosophical positions in selecting a research design situated within an interpretivist longitudinal qualitative processual perspective. Methods to assess 'research quality', especially in case study research, are explored.

Chapter 5: Research in practice. This chapter describes the design and implementation of the process study, using a processual approach as opposed to a variance one. It covers the detailed case study selection process and protocol refinement, data collection process, triangulation of data, and the principles and techniques used to analyse the case data.

Chapter 6: Case study: NICS. The purpose of this chapter is to present the NICS case study with the aid of narrative strategy and temporal bracketing. The case context is emphasised, describing the organisational history before presenting the strategic alignment process narrative for the two temporal periods comprising of four phases. Each phase is described by using process-orientated attributes to illuminate the collective and departmental actions and activities performed which form the narrative and tell a rich story. This approach allowed the data to speak for itself and the story of the process of strategic alignment (and impediments) within the NICS, over two temporal periods, to emerge inductively.

Chapter 7: Model development. This chapter provides an analysis of the longitudinal data collected during two temporal periods of the NICS case and presented in chapter 6; drawing on both process research analysis techniques and theories, and culminating in the creation of a four-phase model of strategic alignment. Comparisons with previous research are made. The chapter also pays particular attention to research value and contributions in terms of theory, methods, and managerial practice.

Chapter 8: Conclusions, implications, and limitations. This chapter provides a general conclusion to the dissertation's research question and summarises its implications for theory and practice as well as reflecting on the practical implementation of processual research. Finally, it presents some limitations of the research and provides directions for future research.

Besides the chapters presented above, the dissertation includes a reference list and appendices.

1.7 Conclusion

This chapter introduced the focus and main interest of the dissertation, the research objectives, how the study was designed, its importance and contribution to theory and practice. The chapter also presented the main perspectives on strategic alignment, proposed that strategic alignment is not a state but a "process of continuous adaptation and change" (Hirschheim & Sabherwal, 2001, p. 87), and noted the fact that there is a paucity of research into strategic alignment in PSOs. The next chapter presents the theoretical foundations of the study and introduces the concept of strategy-making with an overview as to how it has been researched within the strategic management domain and applied in an organisational context.

Chapter 2 - Literature Review: The Nature of Strategy Process

2.1 Introduction

The objective of the literature review is to critically examine the existing research literature to confirm and further define the research gap as identified in chapter 1. My research question is: "*What are the key impediments to the process of aligning business and IS strategies in PSOs?*"

Section 2.2 outlines the approach to the literature review in this chapter and chapter 3. Sections 2.3 to 2.5 discuss an overview of the schools of thought in relation to the strategy domain. The processual view of strategy and its various components are reviewed in section 2.6. Strategy-making in PSOs is explored with a particular emphasis on its distinctive characteristics in section 2.7. The processual school and its theoretical bases are synthesised in section 2.8, together with onward linkages to chapter 3. The conclusion is presented in section 2.9.

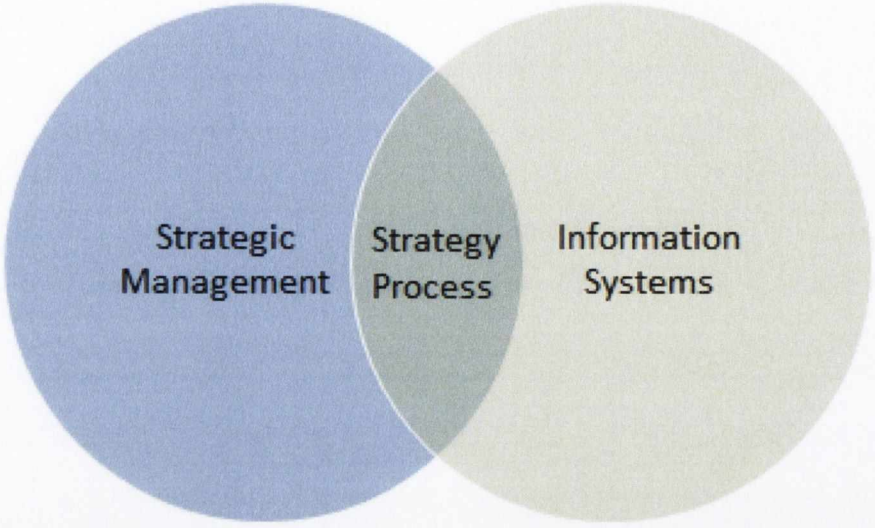
2.2 Approach to Review of Literature

The aim of the literature review is to examine the existing research literature to confirm and further define the research gap as identified in chapter 1. To this end, chapters 2 and 3 have the following objectives:

1. To explore the nature of strategy process
2. To investigate, using a processual lens, how alignment and the factors that impede it have been conceptualised in the IS literature.
3. To develop the research design for subsequent empirical casework.

In order to address the research question, two domains of literature were investigated. These domains are graphically illustrated in Figure 2.1.

Figure 2.1 Literature Domains



Strategic management is the literature domain within the management research stream wherein studies about the nature of strategy process are published. Process research within the strategic management domain focuses on strategy-making, which has conventionally been conceptualised as the consequence of decision and/or planning processes. It is carried out in a number of discrete events beginning with information gathering, developing, selecting, implementing, and evaluating alternatives of choice (Sminia, 2009). The purpose of process research is to find an answer to the question of how a strategy actually unfolds over time and diverges from the main strategy research stream, which is mainly occupied with strategy content. IS, as a domain, is concerned with the strategic alignment of business strategy and IS strategy as well as factors that impede this alignment. IS research spans a broad spectrum of research perspectives - positivist, interpretivist, critical (Myers, 1997).

To summarise, I applied a processual lens to my review of research into the specific temporal phenomenon called 'strategic alignment'. This provides a framework for understanding how process has been studied thus far.

Initially, I identified a number of sources of literature that were potentially relevant for my review (see Appendix A). These included a number of highly rated academic journals (based on The Association of Business Schools Academic Journal Quality Guide), selected based on their relevance to the literature domains to be investigated. With respect to my research question, I have identified several key search terms that are listed in Appendix A.

2.3 An Overview of the Schools of Thought within the Strategy Domain

There is much debate as to the origins of the strategic management domain. It is argued that formal strategy-making was initially introduced in the mid-1950s by big organisations and multinationals (Steiner, 1979) and was situated in the business policy domain. Schendel and Hofer (1979) are credited with rechristening this domain as strategic management in the 1970s, and introducing a new paradigm centred on the concept of strategy (Nag, Hambrick, & Chen, 2007).

Within the field of strategic management, several scholars (Andrews, 1971; Ansoff, 1965; Chandler, 1962; De Wit & Meyer, 2010; Drucker, 1954; Mintzberg, 1972; Pettigrew, 1977; Porter, 1980) have offered diverse approaches to strategy-making as well as multiple definitions for strategy. Among the many definitions widely used, strategy has mainly been conceived of as a group of management decisions on how to conceive and direct the organisation in achieving its goals (Drucker, 1954). The study of management decisions began gaining force in the 1960s when many big organisations started expanding (Chandler, 1962). There was then a need to help managers translate the kaleidoscope of events and decisions they faced on a daily basis in a logical way and evaluate the position of the organisation within its environment (Porter, 1983).

After Drucker (1954), the next pioneers in addressing strategy as a management term were Alfred Chandler (1962) and Igor Ansoff (1965) who assumed a 'rational' perspective on the strategy process (Ackoff, 1974; Steiner, 1979). However, there are several schools of thought with respect to strategy. Three of the most influential are: 'Rational', 'Emergent', and 'Processual', which will be discussed below.

A review of the literature would also suggest a distinction be made between the 'process' and 'content' of strategy. This entails studying the approaches as to whether they focus on strategy content or the strategy-making process (Rajagopalan & Spreitzer, 1997). Content is concerned with the type of strategic decision that leads to success. This approach is directly linked to what is known as the 'prescriptive' stream of strategy research. Content prefers a more systematic and linear interpretation of the strategy-making process, establishing a prescription of how strategy-making should be done (Sminia & De Rond, 2012). In contrast, process focuses on its formulation and implementation – a consciously shaped organisational process that can be divided into various events; thereby correlating partly to the 'descriptive' branch of strategy research (Andrews, 1971; Cyert & March, 1963). Some academics have

contended that the separation between content and process is artificial and that they are best explored concurrently (Pettigrew, 1992).

Another major distinction that exists in the strategy world concerns the differences between those who advocate the 'deliberate' view on planning and those who adopt a more 'emergent' viewpoint. Scholars such as Ansoff (1965), Porter (1980) and Barney (1991) created influential models and techniques concentrating on a 'planning' or 'positioning' point of view. In contrast, 'emergent' strategy implies learning through experimenting and taking actions one by one to search for workable patterns which then become the strategy. The next sections will be devoted to the discussion of the most influential scholars forming the different schools of thought within the strategy domain.

2.4 The Rational School

2.4.1 Igor Ansoff. Ansoff (1965) exerted a major influence on the practice of strategic management into the 1970s and his work spawned the corporate planning movement, proposing a formal, 'mechanical' process for strategy-making. He stated that, in order to understand strategy, it is crucial to comprehend the decision process. From his viewpoint, the term pertains to the relationship between the organisation and its environment. It can be perceived as an intelligence activity that focuses on understanding the organisation's external competitive position, and ensuring that its products and markets have been wisely selected and investigated. Selecting suitable goals and keeping in mind that the external environment could raise challenges are fundamental in his view. He suggested that strategy comprises of different levels of focus: the *strategic* level, focused on the external environment; the *administrative* one, based on the internal environment, and the *operational* which is focused on operational matters. This provides a hierarchical view of organisation.

Ansoff designated strategic decisions as being those concerned with external rather than internal issues. Examples of these types of decisions are: deciding in what business the organisation is situated, what business it wishes to situate itself, or defining its long-term aims and goals. In contrast to strategic decisions, administrative and operational decisions are internally focused; engaging much of the organisation's time and effort since they relate to its day-to-day operations like resource allocation, scheduling, monitoring performance and marketing.

Ansoff's work is in the prescriptive tradition and promotes a sequence of rational, consecutive stages through which organisations can decide on their best strategy. This is known

as the rational planning approach since the underlying intellectual framework is an optimisation routine using rational choice theory. Its main elements consist of: a sequence of prescribed rational stages, the identification of strategic choices, and the application of a decision routine to detect the optimum strategy; with the stress being placed on studying the competitive environment and reacting correctly by obtaining and positioning organisational resources.

Ansoff was one of the first scholars to make the distinction between the process of strategy and its content. The distinction between the various tasks, on the one hand, is helpful for accurate analyses, but on the other hand assumes that strategy processes in practice actually follow a sequential scheme; an assumption challenged by Mintzberg (1973).

2.4.2 Michael Porter. Another perspective on strategy was launched in 1980 from the field of economics by Michael Porter (Porter, 1980). He retained the structured prescriptive elements of earlier scholars like Ansoff, but stressed the significance of placing emphasis on the strategy content. Porter's most significant contribution is the model of competitive analysis, the concept of the value chain, and his three generic strategies. With this perspective, the economic context of the strategic decision remains central, and strategic positioning is regarded as a matter of gaining an enduring competitive advantage against others in the market.

Porter's typology identifies three generic strategies that might lead to the success of the organisation: cost leadership, differentiation, and focus (Porter, 1980). Organisations that are 'cost leaders' sell their products at prices below those of their competitors. 'Differentiation' is a strategy of creating products perceived by customers as unique. 'Focus' involves competing in a narrow segment of the market, through either cost leadership or differentiation. If an organisation does not choose one of these three approaches, it is 'stuck in the middle' which, Porter has argued, will lead to poor performance. Regarding activities, in his 1996 work, he suggested that strategy is about combining activities to create a unique and valuable position, which is needed to realise differentiation from competing organisations.

Porter and Millar's (1985b) value chain is a tool to recognise and expand organisational competitive advantage. It is principally evaluated in terms of consecutive mutually dependent activities from which a competitive advantage can be generated. The advantage can be created since there is successful synchronisation between these activities and the optimisation of their interconnections. An organisation's value chain belongs to a wider value system that includes the upstream value chains of suppliers and the downstream value chains leading to the end

customer. Value chains of organisations performing in the same business sector can diverge from one another as each reflects the history, strategy, and individuality of each organisation. Such a particular competitive set can be a possible basis of competitive advantage.

Certain critics believed that whilst developing typologies of strategic content may provide useful analytic metaphors, they do not capture the complex and dynamic relationship between strategy content and context (Webb & Pettigrew, 1999). Mintzberg, Ahlstrand, and Lampel (1998) also criticised Porter's ideas as being directed towards economic rather than social issues and mostly just suitable for big organisations working in steady business environments.

2.4.3 Jay Barney. The emergence of a growing acknowledgement that internal processes and capabilities are directly related to competitive advantage was led by Jay Barney. As organisations develop, increasingly in a more unpredictable manner with product life cycles shortening, the pursuit of sustainable competitive advantage moved away from industry analysis and market positioning to internal capabilities. Thus, organisations competing in the same industry frequently performed differently depending on the distinctive abilities they held. This theoretical slant describes the dissimilarities of outcomes between organisations by means of their diverse strategic assets or resources (Barney, 1991).

An organisation can establish a continuous competitive advantage if it controls physical, personnel, or organisational assets that are valuable, rare, inimitable, and non-substitutable – a Resource-Based View (RBV). Barney (1991) explains these characteristics as follows:

- Valuable. The resource can enable an organisation to perceive or implement strategies that increase its efficiency or effectiveness.
- Rare. The valuable resource should not be controlled by a great quantity of competing organisations.
- Imperfectly imitable. The valuable resource should not be effortlessly copied.
- Non-substitutable. The valuable resource should not be effortlessly substituted by other substitutes.

The RBV diminishes the basic suppositions of rational planning and can be regarded as complementary to the rational planning and positioning approaches since it focuses on issues

'internal' to the organisation. Resources are described as strengths to create and implement strategies and can be categorised as physical, human, and organisational capital. Physical capital resources comprise of physical technology, plant and equipment, geographic location, and access to raw materials. Human capital resources comprise of the training, experience, judgment, intelligence, relationships, and insight of the individual managers and employees of the organisation. Organisational capital resources comprise of the formal reporting structure, formal and informal planning, controlling and co-ordinating systems, and the informal relations among groups within an organisation and between an organisation and other agents in its environment. The attention of the RBV is centred on the connection between organisational resources and performance (Barney, 1991).

This organisational RBV remains quite dominant in the strategic management literature (Kearns & Lederer, 2003). It is different from the earlier economics-based theory of the organisation which focused mainly on alignment with external environmental factors in explaining organisational profitability. The RBV, in comparison, argues that the organisation's internal resources are the main identifiers of better financial performance (Wernerfelt, 2007). As strategy is the driving factor that intercedes between the organisation and its environment, it is then argued that it is the main alignment tool, and the organisational structure must be aligned to it if a competitive advantage is to be gained (Bergeron, Raymond, & Rivard, 2004).

The schools of thought discussed above are prescriptive in respect of strategy-making. However, there has been a paradigm shift in the strategic management field due to a number of studies by academics such as Mintzberg (1977) and Pettigrew (1977), highlighting the ways in which strategy is not rational since organisational decisions are considerably influenced by cultural, political and power-behavioural situations (Mintzberg, 1987a; Pettigrew, 1987; Pettigrew & Whipp, 1991).

2.5 The Emergent School

Henry Mintzberg. One way to deal with the deficiencies in the rational model is to examine other process models that comprise and assimilate strategy-making in organisations. Early studies of organisational politics were important for drawing attention to how change initiatives were connected to the majority of individuals in an organisation, not just senior management (Mintzberg, 1980). One of the most distinctive criticisms derives from Mintzberg and his research colleagues (Mintzberg, 1978; Mintzberg, 1994; Mintzberg & McHugh, 1985; Mintzberg & Waters, 1982; Mintzberg & Waters, 1985). Their reflections originate from

several empirical research projects in which they establish that the strategies actually realised often did not match with those originally intended. Mintzberg (1978, 1994) has continuously argued that strategy does not evolve neatly from careful analysis and implementation. In addition, both organisational RBV (Barney, 1991) and the theory of competitive strategy (Porter & Millar, 1985b) are criticised for not taking into account the role of time, i.e. the dynamic forces brought by a particular time period.

Mintzberg advocated an organic and incremental perspective on strategy. It was driven by organisational as opposed to economics-based theory and is focused on establishing how organisations form strategies in reality; this in turn leads to the notion that strategies are patterns of behaviour that emerge and become systematic over time. This is contrary to the supposition of strategies as analytically shaped processes, where long-standing objectives and action plans are developed and then implemented. These patterns of decisions and actions do not just derive from senior management; rather they can originate anywhere in the organisation, until they multiply and are shared following an emergent bottom-up process of strategies (Mintzberg & McHugh, 1985).

Mintzberg (1977) suggests that strategy may be a conscious evolutional process before specific decisions are made, or strategy may form gradually as decisions are made one by one. According Mintzberg et al. (1998), learning performs a chief role in strategy development because the environment in which an organisation participates is too intricate and ambiguous to be fully analysable and henceforth controllable prior to actually participating in it. Therefore, it seems more sensible to progress in small stages and build on the acquired experience and the errors made to learn and improve action in the next stage or endeavour. Failures are thus key enablers of strategy as they permit learning by doing, which in Mintzberg's opinion is better to learning prior to doing.

Mintzberg (1994) identified a difficulty with the traditional mechanistic rational approach in that it can lead to narrow thinking. This contradicts the previous model of think before you act and recommends act before/while you think. Indeed, he posited that thinking (strategy-making) and acting (strategy implementation) often occur concurrently. There is good reason behind this, in that it can be risky to assign to some actors the role of thinkers and to others the role of implementers. Instead of strategy formulation, he favoured placing emphasis on the wider process of strategy formation; signifying the emergence of a distinct and oriented pattern of actions, motivated by the interchange between action and thought and

regarded as more as an act of synthesis than one of analysis. Then strategic decisions do not need to be precursors to all organisational actions (Mintzberg & Waters, 1990).

Therefore, strategy may be intended or unintended; in other words, a strategy may be 'formulated' through a conscious process before specific decisions are made or may 'form' gradually as decisions are made one by one. Often, strategies have developed in purely retroactive ways; that is, they have emerged with no deliberate intentions and sometimes even without conscious recognition. They are 'emergent' strategies and can be explained by the fact that several unconnected activities gradually move towards a combined cooperative pattern, which has developed unintentionally. In addition, Mintzberg (1977) argued that strategy formulation and implementation are intertwined without much clarity around the start and end points of both. In the implementation phase, if *intended* strategies are not realised, they may ultimately become *emergent* strategies (Mintzberg, 1987a; Mintzberg, 2003; Mintzberg et al., 1998).

Mintzberg and Waters (1985) elaborated further on strategy-making by presenting the view that 'realised' strategy is the coming together of 'intended' and 'emergent' strategy. They suggested that the interplay between these is at the centre of the strategy-making process. However, they also stated that it is uncommon that realised strategies would be composed of just 'intended' strategies or 'emergent' strategies alone. Rather, the majority of 'realised' strategies are somewhere on a continuum between the two extremes - full intentions by management at one end to pure emergence at the other. Where precisely on the continuum these 'realised strategies' can be found is contingent on factors such as the degree of central control, mutually common and identified intentions, and predictable environmental activities.

As espoused by Mintzberg and McHugh (1985); Mintzberg and Waters (1982); Mintzberg and Waters (1985), this emergent approach unlocks a more comprehensive and nuanced assessment of strategy. It deviated from the traditional strategy research approach, which was and still is engrossed with strategy content, to focus on the strategic management process (Sminia, 2009). Mintzberg is perceived as being one of the first scholars to pose the general research question of how strategy is actually realised clearly on the strategic management research agenda (Sminia, 2009).

Mintzberg's work also focused on the definitions of strategy. Mintzberg et al. (1998) researched the literature on the issue and described five different notions of strategy (also known as the Five Ps for strategy): "a plan (intended), a pattern (realised), a position, a

perspective, and a ploy" (Mintzberg et al., 1998:9). While these can be considered to be competing, they also complement each other. Each definition conveys fresh viewpoints to the understanding of strategy. It is the time perception that differentiates between a plan and a pattern. Mintzberg's outlook inclined towards strategies as patterns; however, he contended that strategy is actually comprised of all of the five Ps. Besides, it would be too one-dimensional to view strategy as only one of these five terms. Their interrelated definitions are required to deal with this complex field.

The review of the literature so far has shown that with the traditional mechanistic rational approaches to strategy-making, the internal processes of the organisation remain largely unexplored. So, the economic context of strategic decisions was added to the equation (Porter's typology on competitive strategy), and Mintzberg has contended that strategies are seldom based on complete information or made by such rational processes.

Undoubtedly, the strategy-making process means different things to different people, depending on the particular school of thought to which they subscribe. The fact that the strategy-making process can be described in such a variety of ways not only makes the actual work more complex for practitioners, but also provides some challenges for scholars in terms of how strategy-making can and should be researched. The processual school of thought is considered in detail in the next section.

2.6 The Processual School

As seen above, the mechanistic rational approach and emergent approach are near opposites and their advocates strive to establish their respective validity. Regardless of that apparent separation, the third perspective - the 'processual' perspective - can be seen to integrate both (Chakravarthy & White, 2002). Strategy process is often iterative and, in reality, it may be very problematic to determine the exact roots of a choice or action. Senior management-led decisions may actually have been instigated further down the chain in the organisation while rational analysis may be retrospective. Organisations are seldom stable and consecutive episodes of stability and change defines the classic life cycle of organisations. Therefore, strategic management is concerned with sustaining stability and then managing to lessen the disruption caused by change. It is suggested that the process of strategy-making will encompass both 'rational' and 'emergent' perspectives as context and situation vary (Mintzberg, 1990). Processual research does not ignore structures and content – the 'what' of strategy- but, importantly, adds the 'how' to strategy research (Pettigrew, 1992).

Whittington (2007) contended that two overlapping ranges, categorised as 'outcomes' and 'processes', represent the outcomes of the strategic process and the nature of the process itself. The outcomes are profit maximising or pluralistic and the processes are deliberate or emergent. Accordingly, he considers the four quadrants (schools) of strategic thinking or behaviour, which are defined as Classical, Evolutionary, Processual and Systemic. Whittington calls this four-element matrix 'Generic Strategies', and it can be seen that there are parallels between these ideas and the generic strategy ideas of Porter, in particular the concept that only certain organisations with certain specific strategies can survive. Processualists are less negative about the destiny of organisations, yet concur that planning is of little benefit because strategy is a result of a pragmatic process rather than a rational series of steps.

An understanding of strategy processes is inescapably linked to an explanation of the term process. 'Process' is an abstract term that is not easily explained. Van de Ven (1992) noted that it has been used in a number of ways in the literature on strategic management. It commonly refers to how decisions were arrived at and how strategic change is implemented. Van de Ven (2007) suggested that process could be defined either as a category of concepts/variables or a narrative description of development and change. However, it is possible to differentiate between three meanings of process, with each definition associated with a particular type of process research: input-output, change, and processual (Poole, Van de Ven, Dooley, & Holmes, 2000; Van de Ven, 1992; Van de Ven & Poole, 2005).

Firstly, with input-output, a process can be denoted by a line of logic that explains the causal relationship between a number of independent and dependent variables (or outcomes). This type of research views process as an explanation and is described as a variance approach to process. The independent variables are taken as contributing factors to a certain outcome or dependent variable. The process per se is not part of the research, but is purely understood to be there to explain the implicit cause and effect relationships. Therefore, process is conceptualised as a law-like relationship between input and outcome variables: a particular value of X leads to a particular value of Y (Mohr, 1982). The process, by which antecedent X results in consequence Y, is deduced and not directly observed (Pentland, 1999) and in this approach is not crucial to the explanation. In this interpretation, time is regarded as a constant, quantifiable, and independent unit (Van de Ven & Poole, 2005).

Secondly, a change process can designate a category of concepts or variables referring to individual or organisational actions. The attention of such an approach does not rest on how

changes take place but only on whether a discrete change of process variables takes place. This type uses 'process' as a category of concepts denoted by some process variables that are inserted into a cause and effect model through which change can be observed. In this case, the process effects are part of the research but are still similar to a variance approach. In a way, this is a static representation of a process and does little to explain the variable nature and transience of the research object.

Lastly, process can be perceived as a developmental sequence of events and activities that describes how things change over time (Langley, 1999; Miles & Huberman, 1994). Scholars probing the first two meanings of process adopt a variance epistemology while investigators probing emergence, development, and growth draw on process epistemologies (Van de Ven & Poole, 2005). They contend that these are in some way complementary as the inquiry from a variance model has an underlying process explanation. A content approach to strategy-making is more usually allied with a variance model in strategic management research, which perceives organisations as stable structures and change within them as driven by deterministic causation (Van de Ven & Poole, 2005; Van de Ven, 2007). In contrast, processual research focuses empirically on evolving phenomena and draws on theories that openly integrate temporal progressions of activities as elements of explanation and understanding (Langley, Smallman, Tsoukas, & Van de Ven, 2013). A processual approach to process works in terms of events that lead to an outcome. Events are taken to contribute in some way to the continuity and change of the object being researched and are at the centre of any process explanation (Peterson, 1998).

An explicit and different quality of processual research is that the unit of analysis is assumed to change in content and/or form through time (Sminia, 2009), and time ordering is crucial to understanding how an outcome is generated (Sminia & De Rond, 2012). They do not seek to measure the variance in a dependent variable; rather using temporal sequences of events as the basis for tracing how and why the change emerged (Dawson, 1994). Events, not variables, are the unit of analysis (Langley, 1999) and add to the continuity and change of that under study, being at the centre of the process explanation (Sminia, 2009). Events can be perceived as paths that progress.

An advantage of processual research is that it can generate understanding, not just of the processes and outcomes themselves but also of why and how outcomes are differentially formed by processes (Van de Ven, 1992). It attempts to explore the intricate, dynamic, and

differing ways in which strategy develops, aiming to create a framework that permits acknowledgement of contradictory rational frameworks, aims and actions. Thus, process questions draw the scholar into a conceptual landscape of events, activity, temporal ordering, fluidity, and change (Langley et al., 2013). Therefore, processual research is concerned with what organisations actually do, not with what they should do.

2.6.1 Content, context, and process. Literature shows that strategy has been researched from two angles, *content* (what is the strategy?) and *process* - how is the strategy made and implemented? (Hofer & Schendel, 1978). Other academics (Pettigrew, 1997; Chakravarthy, & White, 2001) differentiate between three central dimensions: strategy process, content, and context (Pettigrew's Triangle). They are mutually dependent and therefore the actual strategy content will be influenced by process and context. The strategy process is the manner in which strategies come about and is concerned with the *how*, *who*, and *when* of strategy (Pettigrew, 1992).

The product of a strategy process is denoted as the content of the strategy itself (its substance) and is concerned with the 'what' of strategy. It is concerned with the type of strategic decision, the actions taken by the organisation, and the particular areas of transformation studied (Pettigrew, 1992). Content models focus on the linkages between environmental and organisational conditions, strategies, and results (Fahey & Christensen, 1986).

An analysis of the major forces that give rise to strategy can be denoted as the strategy context and is concerned with the 'where' of strategy. There are two different contexts: the internal organisational and the wider environmental (Webb & Pettigrew, 1999). The latter refers to the external context with which the organisation interacts, while the former is demarcated by its principal internal resources (Barney, 1991; Pettigrew, 1992). With these two different contexts, an organisation is categorised by its strategic context, denoting the strategic situation and moves of the organisation (Hutzschenreuter & Kleindienst, 2006). Thus, process research is inherently context-related, reflecting the organisational context and the behaviours of strategic actors (Langley et al., 2013). Strategic processes are viewed as the reflections of organisational context and the behaviours of strategic actors (Pettigrew 1992; Van de Ven & Poole, 2005).

Chakravarthy and Doz (1992) differentiate strategy process research from strategy content research by labelling content research as a subfield which centres wholly on finding

organisational strategic positions that lead to optimum performance under unpredictable environmental contexts. On the other hand, strategy process research is concerned with how organisational administrative systems and decision processes affect its strategic positions.

Content research describes desirable outcomes and the strategic positions that have led to optimal performance, but does not describe how to achieve those outcomes. The job of strategy process scholars is to explore and explain the journey in achieving those outcomes (Chakravarthy & White, 2001). Therefore, process researchers attempt to solve the problem as to how strategic change arises, grows, develops, or concludes over time (Van de Ven & Poole, 1995); focusing on administrative systems and decision process influence over strategic positions (Chakravarthy & Doz, 1992).

Strategy content is based on a variance model of explanation (Sminia, 2009) that utilises contingency thinking (Porter, 1980, 1985), and the semantics of conditions and situations to conceptualise the 'fit' between the resource base of an organisation and its strategic position within a competitive setting (Webb & Pettigrew, 1999). This perspective is condemned as being too coarse-grained (Tsoukas & Shepherd, 2004) to encapsulate the intricate and vibrant associations between strategy content and context (Webb & Pettigrew, 1999).

Whilst a division is made between process and content research, it is not always conceivable to compartmentalise them. Indeed Pettigrew (1992) regarded the 'what', 'how', and 'why', and the 'content', 'process' and 'context' as inseparable; and viewed as artificial the separation between process and content. This gives the advantage of considering both the formal (situational factors in context) and informal components (political factors over time) relating to the processes involved in strategy-making.

2.6.2 Strong vs. weak process. While processual research is distinct from variance research, there has in more recent times been an attempt to define two further types of process research, by mapping epistemology - variance or process narratives - with ontology -as primarily things or processes (Chia & MacKay, 2007; Tsoukas & Chia, 2002; Van de Ven & Poole, 2005).

Van de Ven and Poole (2005) proposed that reality can be regarded as being comprised of either 'things' or 'processes'. Weak process views the world as being made up of things that exist independently of others, and process as change in entities (with models that describe stages of development). However, research espousing this ontological perspective could also characteristically apply the variance theorising methodology. An advantage of this outcome-

driven explanation approach to process research is the ability to observe and empirically investigate processes, but the focus on changes to things, rather than on the processes themselves, and on the characterisation of time as a series of intervals has been criticised as a weak definition of process.

In comparison, strong process sees a world where things are considered to be subordinated to and constituted by processes (such as organisations and structures) and are no more than temporary instantiations of on-going processes, continually in a state of becoming (Tsoukas & Chia, 2002; Van de Ven & Poole, 2005; Langley, 2009, 2013). The ontological assumption of this perspective is that the world is made up of processes rather than things. It usually adopts an event-driven approach (Pentland, 1999; Van de Ven & Poole, 2005). The 'strongest' form of process theorising is grounded in the anti-positivist ontological position, which considers the social world as comprising of processes rather than of substances (Rescher, 1996). Thus, the process approach ranks action over matter, process over product, change over persistence and novelty over continuity (Rescher, 1996).

2.6.3 Processual theorising/generative motors. While Langley (2009) observed that not all studies based on process data actually result in process theory, Van de Ven and Huber (1990) suggested that they are necessary in order to better know organisational life and test theories of its processes. Process theories could embrace a number of diverse forms of effects into their explanations, such as: key events and critical moments, background influence, formative patterns that give general trend to the change, and causal factors that affect the sequencing of events (Van de Ven & Poole, 2005). Four theories - namely life-cycle, teleology, dialectics and evolution (Van de Ven, 1992) - explain the roots of strategy process. Van de Ven and Poole used the term 'generative motor' to describe these process theories. These process theories/generative motors are briefly explained below.

The 'life-cycle 'theories (single entity and prescribed) understand process as moving forward - a predictable and completely logical, cumulative sequence of events or phases. According to this theory, activities exist that are rule-following characteristics of different phases in a given process, and some are required before others can happen. Objects change and progress through certain patterns towards the end state. This theory classically results in research concentrating on a set of preliminary circumstances rather than the end state or process of change towards the end state. Examples include innovation models and group decision-making phases (Van de Ven & Poole, 1995).

The 'teleological' theories (single entity and constructive) support the majority of normative models in strategy and assume progress to be the result of an intended or inevitable end state with the process being drawn towards it, frequently arranged by managerial intent. The teleological view is that the organisation is one discrete entity that shares a common goal. Constraints and requirements exist in order for that entity to attain its goal. Development thus takes place as a result of goal formulation, implementation, evaluation, and modification of goals based on what was learned or intended. Teleology is based on the assumption that the developing entity is purposeful, adaptive, and socially constructs an envisioned end state, selecting from alternatives a course of action to reach it. Examples include theories related to strategic planning (Van de Ven & Poole, 1995).

'Evolutionary' theories (multiple entities and prescribed) are represented by the ecological models and view process as proceeding through a continuous cycle of variation, selection, and retention, placing prominence on environmental conditions. They centre on cumulative changes in structural forms of systems. In other words, loosely joined links between components of a system emerge as something that is selected by its environment (Van de Ven & Poole, 1995). By taking into account the unpredictability of environmental influence, evolutionary theories are not as predictive as life-cycle or teleological concepts.

Lastly, 'dialectical' theories (multiple entities and constructive) are based upon the on-going conflict among coexisting but opposing actors and entities, suggesting that it is these that push process forward. The dialectic viewpoint considers the activities of two or more entities that oppose one another. Dialectics assume that the developing entity exists in a pluralistic world of colliding events, forces, or contradictory values that compete with one another for domination and control. The dialectic motor starts with conflict and leads to a synthesis that forms out of this conflict (Van de Ven 1992; Van de Ven & Poole, 1995).

Most processual research is based on one or a combination of these four theories/generative motors (Sminia & De Rond, 2012), and there can be a rationalisation for using a quad motor that pools insight from the life-cycle, teleological, evolutionary, and dialectical theories (Van de Ven & Poole, 1995). They are not solely for the use of process researchers but are also utilised by rational/planning scholars such as Ansoff (1965), Barney (1991), and Porter (1980) whose expectation that strategy-making is a deliberate process of rational decision-making effectually places them in the teleological theory camp.

Processual research usually, takes on the form of generating a 'story' with regard to what is being examined, provide process explanations to the research problem (Langley, 1999) with a sequence of identified events, interpreted in various ways at different organisational levels and by different organisational participants, culminating with some final formalised outcomes that have a transferable application (Pentland, 1999). Pentland has stated that explanation necessitates a 'generic story', and such stories can be understood as process theories that strive to expound how a sequence of events unfolds over time. Process theories integrate different types of effect in seeking to understand the phenomenon; for instance, critical events and turning points, contextual influences; formative patterns that give overall direction to the change, and causal factors that influence the sequencing of events (Van de Ven & Poole, 2005). Therefore, processual research can "provide the story that explains the degree of association between predictors and outcomes" (Newman & Robey, 1992:250). The events of the unfolding process can vary in meaning, dependant on the perspectives of different actors and the organisational level of analysis (Poole et al., 2000).

They also posit that process theory centres on dynamic phenomena, and includes three elements necessary to their explanation: process, change and development. The 'process' element explains how phenomena change over time using cause and effect logic. The 'change' element observes differences in the form and state of the phenomenon over time. The 'development' element centres on the sequence of change events over time.

2.6.4 Previous empirical research into strategy process. A number of early empirical studies on strategy process focused on a few, large, mature organisations. Mintzberg and Waters (1982) and Pettigrew (1985) studied strategy-making processes in a chain of grocery outlets and a manufacturing group respectively. These studies centred on decision-making and change. Pettigrew viewed the process of strategy-making as one of change. His study focused on the strategic development of ICI, one of the United Kingdom's (UK) largest manufacturing organisations at that time. By contrast, Langley and Truax (1994) studied strategy process in small manufacturing organisations. They concluded that the strategy-making process was "influenced by a dynamic set of contextual elements that interact with one another over time" (p. 619).

These early process researchers promoted an approach that is sensitive to the political and cultural modes of analysis, and is neither overly-voluntarist nor overly determinist in its

worldview. This early work also signifies another contradiction, infrequently acknowledged in the strategic management literature: that of strategic decision-making versus implementation.

2.6.5 Strategy decision-making vs. implementation. The distinguishing supposition of whether process is implementation or implementation is one of the process types is a significant concern. Some strategy process scholars like Mintzberg (1978), and Pettigrew and Whipp (1991) have argued that strategy-making and implementation are interwoven without much transparency as to the start and end points of both. The earlier offerings from processual scholars very much concentrated on the scholarship of strategy decision-making and strategic change (Eisenhardt, 1989; Mintzberg, 1978; Pettigrew, 1985a, 1992; Quinn, 1980). The reason given for this is due to the high importance of decisions (Eisenhardt & Zbaracki, 1992). Eisenhardt (1989) established that inclusiveness and degree of analysis positively influenced decision speed and effectiveness.

Langley (1990) demonstrated that formal analysis in strategic decisions aids convergence towards action. Eisenhardt and Zbaracki (1992, p. 17) describe a strategic decision as one that "is important in terms of the actions taken, the resources committed, or the precedents set". Since organisational strategy can at any point echo the innumerable choices that have taken place over the years (Mintzberg, 1978), shifting from a 'plan' to a 'decision-based' view of strategy makes practical sense.

It is essential to note that authors like Johnson, Melin, and Whittington (2003), and Jarzabkowski and Spee (2009) understand implementation as a separate process to strategic decision-making. There are others who consider the strategy implementation process as one type that is a part of the wider strategy-making process (Chakravarthy & White, 2002; Sminia, 2009) akin to Mintzberg (1978) and Pettigrew and Whipp (1991). Mintzberg (1978) claimed that, conditional upon variances in strategy-making patterns, implementation can either be a separate stage or can end in the emergence of strategies through feedback. Whittington (2007) claimed that Mintzberg's work does not aid managerial practice principally due to the absence of strong hands-on procedures as a result of the reduced value allocated to strategic practices and the detachment of organisational outcomes from strategic intentions; therefore, leaving strategy process as a black box with interminable haphazardness.

The processual view of strategy implementation has been influenced by academic conceptualisation of implementation within the strategy process (Hutzschenreuter & Kleindienst, 2006; Sminia, 2009). The main concerns associated with this approach are

intentionality and rational structuring versus the emergence of strategy and how distinctive strategy implementation is reflected in the strategy process (Chakravarthy & White, 2002).

2.7 Strategy in Public Service Organisations

The fundamentals of strategy are central to the strategic management literature in general (Mintzberg, 1988; Pettigrew, Thomas, & Whittington, 2001) and to public management in particular (Boyne, 2004; Perry & Rainey, 1988). Scholes and Johnson (2001) argue that concepts of strategy and strategy-making are just as important in PSOs as in the private sector. However, strategy-making in a PSO presents different challenges than those faced in the private sector and a considerable amount of literature on strategy in PSOs has evolved since the early 1980s (Boyne & Walker, 2004). However most of this academic work has been more oriented to introducing the tools of strategy implementation than elaborating on the nature of strategy itself (Johanson, 2009). Before discussing the concept of strategy from a PSO perspective, it is first necessary to distinguish the differences between the public and private sector.

PSOs face specific challenges that distinguish their strategic management from that of private sector organisations and seminal studies have suggested that "strategic management in the public sector may be extremely difficult" (Ring & Perry, 1985:281). These challenges include ownership patterns, financing systems and methods of social control within PSOs. In a private organisation, shareholders are the ultimate owners of that organisation, whilst in a PSO there is no single owner. Instead, there are multiple stakeholders frequently having conflicting, rather than converging, interests – for example, service users, their families, citizens in general, other PSOs and politicians (Bryson, 2004).

In PSOs, operational and strategic management unfolds within the presence of more intensive political influences (Rainey, 2009), where decisions and actions by politicians may overrule decision-making by management (Boyne, 2002). Whilst not subject to economic markets and outputs, PSOs are also subject to public financing regimes and have little or no autonomy in decision-making within these regimes (Rainey, 2009).

These challenges make strategic management far more difficult for PSOs than private organisations. PSO strategy must consider multiple interests, manage the needs of many stakeholders, and take into account consensus-related priorities (Osborne, Radnor, & Nasi, 2013). Boyne (2002) found that PSOs were more bureaucratic, showing less flexible and more risk-averse structures, due to the challenges outlined.

Rainey (2009) discussed the main challenges facing public managers in strategy-making and argues against the rational school as follows: strategy processes within PSOs involve higher complexity and dynamism with more intervention and interruption than private organisations as a result of power issues, more diverse objectives, political intervention and constraints. In addition, irrespective of the context, strategy processes that encompass changes in structure, accountability, roles, identity, perceptions, and behaviour are very complex. Therefore, public sectors managers cannot adopt highly rationalised decision-making processes in these situations.

In the private sector, the economic health of an organisation's customer base, competitor behaviours, decisions by regulators, and new technology development are deemed to be the factors that enable and/or impede strategy-making (Dean & Sharfman, 1996). By contrast in PSOs, the most distinct external factors are identified as the absence of economic markets and outputs as well as external control by politically-constituted authorities, and the presence of more intensive external political influences (Rainey & Chun, 2005).

According to Llewellyn and Tappin (2003, p. 956) the organisational culture in the public sector has not been receptive to strategic thinking. They identify three factors that have made strategic formation a low priority in the public sector agenda, namely:

1. The public sector has a monopoly over the provision of services.
2. There are habitual ways of providing services, which have become inflexible.
3. There are inconsistencies in the public's demand for services.

They also argue that the public sector has had to contend with inconsistent needs, demands and aims in an environment where they work within limited budgets. Sminia and Van Nistelrooij (2006) identify greater goal ambiguity on the organisational level than in the private sector due to controversial and conflicting goals. In addition, organisational structures in PSOs can be subject to more red tape and it is more likely that external regulators will interrupt or codetermine processes. These findings are supported by a meta-analysis of several studies carried out by Boyne (2002) who found that PSOs are indeed more bureaucratic, showing less flexible and more risk-averse structures, due to external requirements.

Fernandez and Rainey (2006) suggest that team-related factors that may impede or enable strategy-making are determined by the fact that public managers have to balance external political relations with internal management functions. They further contend that in

comparison to the private sector, public managers have a more political, expository role which involves more meetings with interest groups and political authorities. Regarding their administrative authority, public managers have less decision-making autonomy and weaker control over subordinates and lower levels. Authority is seldom delegated by politically-appointed public managers, but at the same time they are subject to more frequent turnover. This might explain the weaker organisational commitment of public managers, which Boyne (2002) found in his meta-analysis, and the stronger engagement of career civil servants (Holzer & Callahan, 1998).

Since extrinsic incentives seldom exist in the public sector, managers and employees show a lower valuation of monetary rewards. In contrast to the private sector, public managers have stronger altruistic motives and express a sense of involvement and influence on decisions (Boyne, 2002; Perry & Rainey, 1988). Considerable efforts have been made to adapt existing conceptualizations of strategy to fit public sector contexts (Andrews, Boyne, Law, & Walker, 2009; Boyne & Walker, 2004; Johanson, 2009; Meier, O'Toole, Boyne, & Walker, 2006; Modell, 2012).

However, the majority of contemporary theory around the fundamentals of strategy in PSOs has emerged from empirical and theoretical insights from product-dominant management theory derived primarily from the manufacturing sector rather than the services sector. This is acknowledged by Osborne et al. (2013) as a 'fatal flaw' in the literature that has viewed public service as manufacturing, rather than service processes; and that are created by professional design and input and then delivered to the user. They argue that the business of PSOs is, by and large, not about delivering pre-manufactured products but rather 'public services'. When considering the application of any body of research and theory from the private sector, the distinctiveness of public services must be remembered. While public services have increasingly adopted models and insights from the private sector, it has rarely been a simple or mechanistic task and not all models or insights are always appropriate. Developing a business to make a profit is somewhat different from developing a PSO to meet a social or economic need, even if both do require some form of economic sustainability.

There is a body of research around strategy content in PSOs. Within PSOs, "[S]trategy content can be defined as the patterns of service provision that are selected and implemented by organizations" (Boyne & Walker, 2004, p. 231). Strategy content is different in PSOs as it is likely that they are much more likely to have strategy content imposed upon them (Bozeman

& Bretschneider, 1986; Nutt & Backoff, 1993; Ring & Perry, 1985). Second, even if strategy content is not directly imposed, PSOs are likely to be highly regulated by the political sponsors that provide their funding (Hood, Peters, & Lee, 2003). The main justification for such high political regulation of PSOs has traditionally been that of safeguarding the interests of the public from the adverse consequences of organisational behaviour (Barrow, 1996; Johanson, 2009). Therefore, relatively detailed regulatory frameworks have evolved in most first world countries and have been long legitimised as a necessary evil of democratic accountability and control (Hood, 1991).

While strategy content has been researched in PSOs, there is a paucity of research into strategy process within them. Jones and Thompson (2007) asserted that taking the underlying complexity of strategy processes into account, the issue of strategy is the most neglected area within public management research. Brown (2010) argues there is no need for a separate theory of public sector strategy, but rather that there is a need to harness existing theories from other disciplines to inform strategy practice.

2.8 Synthesis

It is evident from the preceding review of the strategic management literature that the rational perspective to strategy-making does not always inform strategy content. In fact, strategy-making is an organic and continuous process in which senior management uses its knowledge and best judgment on a daily basis to develop strategy; something that has been reiterated by scholars such as Mintzberg, Pettigrew, Van de Ven, and Langley. What seems to impact organisational performance is the presence of an ethos that immediately and repeatedly stimulates action, and that is adept at realising a diversity of strategies that sustain an enduring vision aligned with external demands and competitive actuality.

Currently, there is a mindfulness of the existing paucity of process research in organisational studies and this has stimulated topical persistent questions about "how and why things emerge, develop, grow, or terminate over time" (Langley et al., 2009:1). Sminia (2009) analysed the process of strategy-making, through extensive literature research, in relation to the work of Mintzberg, Pettigrew, and Van de Ven. He concluded that future research should more specifically examine the 'how' with respect to strategy-making towards a means of strategy process analysis, in addition to evaluating the usefulness of management intervention events.

PSO strategy research has also been evolving since the 1980s and much time has been spent on adapting private sector strategy frameworks to the public domain. It is acknowledged that PSOs are different in comparison to private organisations – the main differences being ownership, funding, level of regulation, risking-taking, political influence, commitment of employees, etc. Whilst quite a proportion of PSO strategy literature deals with strategy content, there is a paucity of literature around the area of strategy process.

In this research, the term process is regarded as "a sequence of events that describes how things change over time" (Van de Ven, 1992, p. 169). This definition provides opportunities for opening the black box between the intended and realised strategy in the practice of strategy-making. This is different from the variance thinking commonly found in much of the strategic management literature that condenses different issues to variables.

Pettigrew (2012) also stressed that process scholars should transcend the identification and explanation of patterns and focus on how processes can and do shape outcomes. Langley (2007, p. 7) emphasised that outcomes in process research can be considered as inputs due to their "rather artificial staging points amid never-ending processes" and depending upon their temporal nature and the accuracy of managerial decisions. It is also vital for processual analysis to remain open to teleological, dialectic, evolutionary and life-cycle style approaches towards change (Van de Ven & Poole, 2005). This consideration of temporal dynamism and outcomes is absent in most strategy process literature (Pettigrew, 2012).

2.9 Conclusion

This chapter presented the theoretical background to the study of the nature of strategy process. First, it introduced the concept of strategy before discussing the nature of strategy process and presenting the three major schools of thought in relation to strategy process. It argued that whilst the processual school once constituted the minor tradition in strategic management, it is now well-established. The difference between strong and weak process and the theoretical roots of the strategy process literature, namely teleology, life cycle, dialectics and evolution have been discussed. Also explored was one of the main concerns associated with the processual school - intentionality and rational structuring versus the emergence of strategy and how distinctive strategy implementation is reflected within the strategy process. In addition, strategy from a PSO perspective was explored. The differences between strategy-making in PSOs and the private sector were highlighted, pointing to the paucity of literature around the area of strategy process in PSOs.

As the interest of this research lies in the strategic alignment of business strategy and IS strategy, I examine in the next chapter how strategy has been defined in the extant strategic alignment literature. Irrespective of the school of thought adopted in strategy-making, the importance of aligning business and IS strategy has remained an area of undisputed concern among IS academics and practitioners for the past two decades, and this too is explored further in chapter 3. Also addressed in the next chapter is how processual research offers an alternative means for analysing longitudinal data, and is frequently more significant and applicable in a practice-oriented field such as IS research.

Therefore, the next chapter discusses strategy within an IS context and then reviews the literature around the strategic alignment of business strategy and IS strategy, taking a processual perspective.

Chapter 3 - Literature Review: The Nature of Strategic Alignment

3.1 Introduction

With the rise of e-business, organisations have become increasingly reliant on Information Systems - IS (Huang et al., 2013). The alignment between business and IS strategy, hereafter referred to as strategic alignment, has long been regarded as necessary to ensure that organisations are able to survive and thrive (Renaud, Walsh, & Kalika, 2016; Walsh, Renaud, & Kalika, 2013). However, it has continued to be a major concern of IS executives over the last three decades (Chan, 2002; Derksen & Luftman 2014; Peppard & Campbell, 2014); and various studies have highlighted the different influential factors (Teo & Ang 1999; Luftman & Brier, 1999; Reich & Benbasat, 2000).

Since my research question asks "*What are the key impediments to the process of aligning business and IS strategies in PSOs?*", this literature review is focused on investigating, using a processual lens, how strategic alignment and the factors impeding it have been conceptualised in the IS literature. The processual approach is used because it provides a framework for understanding how the strategy-making process, a specific temporal phenomenon, has been treated in existing studies on strategic alignment within the IS domain. Understanding strategy-making processes leads to a reflection on what may enable or impede alignment (Luftman, 1996).

Firstly, in section 3.2, I introduce a processual perspective to strategic alignment, outline the relationship between business and IS strategies and the various terms and frameworks used in the literature in relation to IS strategy, along with presenting the importance of strategic alignment. IS from a public sector perspective is explored in 3.3. The concept of strategic alignment is discussed in section 3.4, following which, in 3.5, the focus is on models of strategic alignment and some counter arguments. Section 3.6 explores the development of the strategic alignment concept, taking a processual perspective in order to provide a greater understanding of the various approaches that underpin previous strategic alignment research (namely process and variance). In section 3.7, I discuss the various impediments to the process of strategic alignment and synthesise these using a processual lens in section 3.8. Section 3.9 identifies the gap in research to date and the ensuing contribution to knowledge, together with the onward linkages that inform the choice of method in chapter 4. The chapter concludes in section 3.10 by summarising the key elements from chapters 2 and 3.

3.2 Business Strategy, IS Strategy, their Relationship and the Importance of Aligning IS Strategy and Business Strategy

As discussed in chapter 2, strategic management researchers (Pettigrew, 1990, 1997; Van de Ven 1992; Langley, 1999) have made a significant contribution to the methodology of processual research in organisations (Elo, Halinen, & Tornroos, 2010), but it could be questioned as to whether the methods developed for the study of organisational processes can be directly applied to the study of strategic alignment processes. Given that strategic alignment is quite a wide area of research with overlapping definitions, this section offers an overview of principal concepts related to strategic alignment within the context of this research.

The first concept to be defined is business strategy within the IS domain. According to Croteau and Bergerson (2001), it is the product of decisions to guide organisations with respect to the factors affecting performance, while Henderson and Venkatraman (1993, p. 474) defined it as decisions "pertaining to product-market contributions in the output". In this study, it is conceived as "the determination of the basic long-term goals of an enterprise, and the adoption of courses of action and allocation of resources necessary for carrying out these goals" (Chandler, 1962, p. 13).

Another important concept of the IS domain is IS strategy. It is a term that is used freely; yet, it is moreover one that is not completely understood (Chen, Mocker, Preston, & Teubner, 2010). Usually it is a practical strategy within a hierarchical set of organisational plans. They note that occasionally it is understood as a support to business strategy; while at other times is viewed as a master plan of the IS function. Earl (1989) defines it as a long-term plan to apply IS and align it to business needs. In fact, it is used somewhat interchangeably with Information Technology (IT) strategy and Information Management (IM) strategy, and these are even combined, i.e. IT/IS strategy (Henderson & Venkatraman, 1993). Irrespective of the terms used, it is agreed that in order to manage an IS-based system, it is important to have an appropriate strategy that firstly defines the systems and secondly provides a means to manage them (Issa-Salwe, Sharif, & Ahmed, 2011). In this research, IS is considered to be such a broad term.

Other expressions encompassing strategy around IS are, for instance, Information Systems Strategic Planning (ISSP) and Strategic Information Systems Planning (SISP). ISSP is conceived as activities to recognise opportunities for applying IS, establishing resource requirements, and developing strategies for realising those opportunities (Boynton & Zmud,

1987) or also as plans to form decisions on IS (Earl, 1989). SISP is defined as a process to establish organisational computing objectives and application needs (Lederer & Sethi, 1988). Earl (1989) sees SISP as a combination of IS strategy (aligned with business goals, and exploited for competitive advantage), IM strategy and IT strategy, while Galliers (1991) views it as just a portion of SISP, together with the IT, IM, management of change, and human resources strategies.

Regarding the conceptual frameworks of IS, there have been different propositions. Earl (1989), for example, depicted three levels of strategy in IS - 'IS strategy', 'IT strategy', and 'Information Management (IM) strategy'. IS strategy is the application ('what') or the business areas that are to be supported by IS. IT strategy is the delivery mechanism ('how') or the necessary technologies and guiding principles that support and govern the implementation of applications. The IM strategy is about the 'wherefores' ('which way', 'who', 'where') or the role of the IS function within the company and the responsibilities in carrying out its tasks. This framework reflected the prevailing IS centric perspective of the time and did attempt to differentiate the concepts of IT, IS and IM.

Galliers (1993) expanded that framework by depicting the IS strategy as embracing four sub-strategies. In contrast to Earl's separate partial strategies, he proposed an 'IT strategy' (how?), an 'information strategy' (what?), an 'IM strategy' (who?), and a 'change management implementation strategy' (which coordinates technical implementation and associated change), plus the relationships existing between them. This framework highlighted the key role held by 'information strategy' in linking business and IS strategy processes. The organisational business strategy was at the core and was situated in a business environment that refers to political, economic, social, technological, and economic forces that are not within the control of the business and will impact on its function.

In 2004, Galliers modified his framework and did away with the separation of IS and business strategies, making the former an integral part and prerequisite of the latter. IS strategy is described according to areas of concern and dispositions of strategising. There were three problem areas of strategy that needed to be addressed: 'exploitation', 'exploration', and 'change management'. The 'exploitation strategy' deals with the application of IS for predetermined operational purposes. The 'exploration strategy' is tasked with exploring new business potentials, while the 'change management strategy' is equivalent to the

'implementation strategy' of the original framework, but with less emphasis on the technical implementation of technology and more on the organisational change induced by IS.

Irrespective of the framework used, the prevailing view of strategies around IS has been that of a functional-level strategy, essentially subordinate to the organisation's chosen business strategy. Bharadwaj, El Sawy, Pavlou, and Venkatraman (2013) made the argument that, given the impressive improvements in information, communication, and connectivity technologies, it is time to rethink the role of IS strategy from a functional-level, aligned but essentially always subordinate to business strategy, to a fusion between it and business strategy into an overarching phenomenon which they termed 'digital business strategy'. Consequently, while IS strategy may be positioned as a functional-level strategy, digital business strategy should not be positioned below business strategy but treated as business strategy itself for the digital era. Over time, as organisations become digital in nature and rely on information, communication, and connectivity functionality, digital business strategy will be the business strategy. At that juncture, there would be no separation between them.

Considering the existence of different types of strategies within organisations, strategic alignment has emerged as a key issue for both IS management and business executives for more than three decades (Brancheau & Wetherbe, 1987; Chan et al., 1997; Chan & Reich, 2007b; Cumps, Viaene, Dedene, & Vandenbulcke, 2006; Derksen & Luftman, 2014; Luftman & Ben-Zvi, 2010a, 2010b; Luftman, Kempaiah, & Nash, 2006; Luftman et al., 2012; Luftman & Zadeh, 2011; Niederman, Brancheau, & Wetherbe, 1991; Reich & Benbasat, 1996). In 2013, strategic alignment of IS and business remained elusive, and in all geographical regions it ranked within the top ten management concerns; ranking first in Europe (Derksen & Luftman, 2014). Given the complexity of government structures, managing public sector IS is considered to be increasingly important (Van Grembergen, 2004) as is public sector IS strategic alignment.

3.3 Public Sector and IS

IS in the public sector has mainly been discussed in the literature as an aid to delivering new and better services to citizens (Bekkers, 2003), increasing efficiency and transparency, and improving accountability in PSO procedures and management (Dunleavy & Margetts, 2000). In 1986, Bozeman and Bretschneider in a review of the scholarly literature argued that there were important underlying differences between public and private sector IS. They specifically noted that public sector IS essentially give much more consideration to issues such as accountability, openness, and representativeness than private sector IS. However, IS in the

public sector has been mostly influenced by private sector experiences (Cordella & Bonina, 2012) and there has been an assumption that management models developed for the private sector can be directly applied to PSOs without significant alteration (Rocheleau, 2006). Notwithstanding what PSO IS management have learnt from their private sector counterparts, IS management within PSOs has faced and continue to face numerous challenges, for example excessive cost, project failure or unrealised value. A New Zealand study of PSO IS projects found that only 38 percent of these projects were a success, with 59 percent experiencing problems and a further three percent either a complete failure or abandoned (Goldfinch, 2007). This is also borne out in my review of VFM studies emerging from government audit functions (Burke & McDonagh, 2008) referred to in chapter 1. Cordella and Bonina (2012) contend that PSO IS is a complex phenomenon that cannot be studied solely by drawing on private sector experiences. Rocheleau (2006) suggest that if private sector IS strategy-making is designed with a primary emphasis on competition with PSO IS strategy-making being framed primarily around accountability and openness principles, then there may be important sector differences with respect to a wide-range of aspects including the degree and amount of investments on expensive and risky new IS, the degree of sharing, and investments in IS training. From my own career experience and review of the VFM studies and the academic literature in chapter 2 (section 2.7), I contend that it is important to distinguish between IS strategy-making in PSOs and private organisations and, further, that it is worthy of its own empirical research.

3.4 Definitions of Strategic Alignment

What is strategic alignment? As there are multiple schools of thought for strategy, similarly there are a number of views on the nature of strategic alignment; producing numerous terms for, and definitions within, the IS academic literature. A sample of the papers reviewed refers to strategic alignment in one or more of the following ways: 'fit' (Porter, 1996), 'integration' (Weill & Broadbent, 1998), 'bridge' (Ciborra, 1997), 'harmony' (Luftman, 1996), 'fusion' (Smaczny, 2001), 'linkage' (Henderson & Venkatraman, 1992; Reich & Benbasat, 1996) and 'business – IT alignment' (Maes et al., 2000). Others simply refer to 'alignment' (Chan & Reich, 2007b) or 'strategic alignment' (Henderson & Venkatraman, 1993).

The following table details some definitions of strategic alignment in the literature.

Table 3.1 Definitions of Strategic Alignment

Source	Definition of Strategic Alignment
Henderson & Venkatraman (1992)	The extent to which the IS strategy supports and is supported by the business strategy
Henderson & Venkatraman (1993); Luftman (2003)	A continuous process of conscious and coherent interrelation of all components and personnel of the business and IS in order to contribute appropriately and timely to the business goals and needs over time
Papp & Luftman (1995)	The appropriate use of IS in the integration and development of business strategies and corporate goals
Reich & Benbasat (1996, 2000)	The degree to which the IT mission, objectives, and plans support and are supported by the business mission, objectives, and plans
Strassmann (1998)	The capacity to demonstrate a positive relationship between IS and the accepted financial measures of performance.
Tallon & Kraemer (1999)	The extent to which the IS strategy supports, and is supported by, the business strategy
Luftman & Brier (1999)	Applying IS in an appropriate and timely way and in harmony with business strategies, goals, and needs
McKeen & Smith (2003); Croteau & Bergeron (2001)	Deemed to exist when goals, activities and processes of business organisations are in harmony with the IS supporting them
Campbell, Kay, and Avison (2005)	A situation where business and IS are working together to achieve a common goal
Abraham (2006, cited in (Chan & Reich, 2007b)	When everybody in the boat (an analogy for business) is rowing in the same direction
Chan & Reich (2007a)	The business and IS working together to reach a common goal
Teubner (2013)	When business and IS strategies are developed in mutual alignment, as two sides of the same coin.

These definitions range from considering strategic alignment to be a simple link between business strategy and IS strategy (Henderson & Venkatraman, 1991; Henderson & Venkatraman, 1993; Luftman, Lewis, & Oldach, 1993), to a more inclusive term that covers

aspects such as cultural values, leadership, market position, etc (Reich & Benbasat, 1996, 2000). However, all agree that strategic alignment concerns the integration of strategies relating to the business and its IS (Avison et al., 2004). For this research, strategic alignment is defined as the congruence between business and IS strategy within the organisation: the degree to which the mission, goals, and plans for IS support and are supported by the mission, goals and plans for the business (Reich & Benbasat, 1996). Failure to align business and IS strategy may result in misused resources and failed IS projects, culminating in negative financial and organisational outcomes (Chen et al., 2010; Gerow, Grover, Thatcher, & Roth, 2014; Ravishankar, Pan, & Leidner, 2011). What is not clearly explained yet is how business and IS strategies can be fitted together or integrated effectively or whether the strategies being aligned are the intended or realised ones. In the next section, the focus is on how the concept of strategic alignment has surfaced in the extant strategic alignment literature.

3.5 Previous Research of Strategic Alignment

3.5.1 Strategic alignment models. Towards the end of the 1980s, a variety of models were proposed in the literature to measure the degree of strategic alignment between business and IS functions, giving support to the concept of IS resource connection with business unit structures (Henderson & Sifinos, 1988; Henderson & Venkatraman, 1991). One of the first and most widely adopted is the Henderson and Venkatraman strategic alignment model - SAM (Avison et al., 2004; Renaud et al., 2016), which was developed to address the concern of exploiting IS capabilities in a competitive role and for the strategic management of IS. It was expanded through its application to various organisations and/or the amendment of each domain component (Henderson & Venkatraman, 1992; Henderson & Venkatraman, 1993; Henderson & Venkatraman, 1999). SAM places IS at an equal level to business. It was expanded to form the Strategic Alignment Framework (SAF), which is an improved and interrelated explanation of various aspects of SAM, in particular IS strategy, IT infrastructure and processes, strategic fit and functional integration (Luftman et al., 1993).

SAM/SAF is centred on developing the inter-relationship between business and IS during the business strategy-making process. It is founded on two distinct dimensions/levels of strategic alignment: strategic level (strategic fit) and operational level (functional integration). The former covers the alignment between business strategy and IS strategy, providing a strategic fit between the external domain wherein the organisation competes and the internal domain in which it performs. The internal domain includes components such as

organisational infrastructure, human resources, and business processes. Strategic fit recognises the necessity to manage decisions that place the organisation in an external marketplace and choose how best to structure internal activities to implement this market-positioning strategy.

The operational level covers the alignment between business processes and organisation, and IS infrastructure and organisation. This dimension distinguishes the business and technology domains and is the matching horizontal connection between them at strategy, infrastructure and process levels (Luftman et al., 1993) by means of four interrelated domains – business strategy, IS strategy, organisation infrastructure and processes, and IS infrastructure and process. Functional integration gives IS the prospect of delivering competitive advantage to the organisation (Henderson & Venkatraman, 1991; Henderson & Venkatraman, 1993; Luftman, 2000) in addition to gaining business value (Kearns & Lederer, 2003).

Combining strategic fit and functional integration levels, SAM defines four 'quadrants' of strategic choice that correspond to its domains. Respectively, each of these has its principal components. On the strategic fit level: scope, competences and governance, and on the functional integration level: infrastructure, processes and skills. The alignment is about creating fit between the domains, business and IS, and the perspectives - external on the strategic level and internal on the organisational one.

SAM also includes four strategic approaches to achieving alignment: (1) competitive potential, (2) technology potential, (3) strategy execution, and (4) service level. These approaches are classified into two quadrants that include business strategy, as the driver that comprises the strategy execution and technology potential approaches, and IS strategy as the driver that comprises the competitive potential and service level approaches (Henderson & Venkatraman, 1991; Henderson & Venkatraman, 1993; Luftman, 2000). Each approach includes three domains: anchor quadrant, mean (pivot quadrant) and effect domain - area of impact quadrant (Coleman & Papp, 2006) in the shape of a triangle. The anchor is the sturdiest area of the business, while the pivot is the weakest, subject to transformation through realignment. The area of impact is that which will be directly affected through the modifications made in the pivot area through realignment and is also impacted by the transformation started by the anchor quadrant (Avison et al., 2004).

When the business strategy drives the change, it serves as the driver within the domain. It has two cross-domain relationships that are denoted by the strategy execution approach and the technology potential approach (Henderson & Venkatraman, 1993; Luftman et al., 1993).

The former suggests that the business strategy is the driver of both the organisational infrastructure and processes, and the IS infrastructure and processes. This strategic alignment approach is the most common and widely-recognised approach for management that addresses how strategic advantage can best be achieved (Luftman et al., 1993). It highlights the necessity for a management framework with a top-down view of the organisation which determines the critical areas for organisational success (Henderson & Venkatraman, 1993; Luftman et al., 1993). With this approach, the IS infrastructure and processes (the impacted domain) must experience change as a result of modifications within the business process (Coleman & Papp, 2006). Using this tactic would lead to investing in IS that supports the strategic objectives of the organisation and Sawyer, Hinnant, and Rizzuto (2008) suggest it is probably the implied model for numerous governments that participate in digital government activities.

The technology potential approach suggests that the business strategy is the driver of both IS strategy and IS infrastructure. It attempts to find the greatest likely IS capabilities via suitable placement in the IS marketplace and, in addition, ascertaining the equivalent internal IS systems architecture (Henderson & Venkatraman, 1993). Its emphasis is on creating a strategic fit for IS where the IS strategy is used to enable a fresh business strategy. That emphasis highlights the worth of IS that is visible in its input to the organisation's ultimate product or service (Coleman & Papp, 2006; Henderson & Venkatraman, 1993; Luftman et al., 1993).

According to Henderson and Venkatraman (1993) the competitive potential approach is concerned with the development and use of evolving new IS capabilities to enable novel business strategy; consequently generating competitive advantage for the organisation. This strategic alignment approach attempts to ascertain the most appropriate set of strategic choices for business strategy and the matching set of choices relating to organisational infrastructure and processes that ultimately cause the change in the former.

These authors contend that the service level approach focuses on how to provide superior IS services to the organisation. It entails both business executives and IS executives appreciating the external dimensions of the IS strategy and the matching internal design of the IS infrastructure and processes. Senior management attempts to successfully balance short-term decision-making to respond to customer needs with long-term decisions on investment in infrastructure by stating how best to apportion the limited resources both inside the organisation and in the IS marketplace (Henderson & Venkatraman, 1991; Henderson &

Venkatraman, 1993; Luftman, 2003). This approach can lead to a position where the organisation is confronted with an assortment of possibly mismatched systems which reduce its capability to establish a common IS infrastructure; a condition confronting many organisations with big legacy system investments (Sawyer et al., 2008).

While SAM provides a framework to understand the practical information necessary to align business and IS strategies, it does not reflect the dynamic aspect of strategic alignment. To address that, Henderson, Venkatraman, and Oldach (1996) identified four processual mechanisms for executing, evaluating and tracking different aspects of strategic alignment. They are value management, governance, technological capacity and organisational capability. Value management is the organisational mechanism for guaranteeing that IS resources, invested throughout the organisation, provide expected or better returns. The governance mechanism stipulates the allocation of decision privileges for IS activities to the different decision-makers within the organisation as well as to external partners. It is concerned with the dissemination of decision rights that is consistent with the logic and perspective of strategic alignment. Technological capability deals with the administrative process for generating the necessary IS capability for supporting and shaping the business strategy. Organisational capability relates to the administrative processes for generating the necessary human skills and the capability for supporting and shaping the business strategy.

Luftman and Papp (1995) enhanced SAM by describing its twelve perspectives or components. Features of the model in particular highlight: (1) IS strategy as distinct from IS infrastructure and processes, (2) the concept of strategic alignment as distinct from bivariate fit (relationships involving two domains), and (3) cross-domain strategic alignment as a central element of organisational transformation. They also designed a six-step approach in 1999 to make strategic alignment work in an organisation (see Table 3.3 in section 3.7.2). The process mirrors the rational strategy-making process by setting the organisational goals and establishing a team, understanding business-IS linkages, analysing and prioritising gaps, specifying actions for project management and choosing and evaluating success criteria.

In another effort to operationalise integration between business and IS strategies, Teo and King (1996) describe a four-stage strategy-making model:

1. Separate business and IS strategy-making with administrative integration
2. One-way linked strategy-making with sequential integration

3. Two-way linked strategy-making with reciprocal integration

4. Integrated strategy-making with full integration.

Chan et al. (1997) developed another model, known as the Strategic Orientation of IS (STROIS), centring on the strategic dimension of alignment. It is based on the earlier Strategic Orientation of Business Enterprises (STROBE) model of Venkatraman (1989) which views business strategy from a broad and holistic perspective, as proposed by Miles and Snow (1978) and Mintzberg (1978). The study measured business strategic orientation, IS strategic orientation, and strategic alignment and investigated their implications for perceived IS effectiveness and business performance. It found empirical support for modelling strategic alignment as a moderation or synergistic approach, rather than a simple matching or mirroring approach. Chan et al.'s conceptual model includes a new variable for IS strategy named "strategic orientation of the existing portfolio of IS applications" (STROEPIS), or realised IS strategy and it is defined as: "The strategy evident in IS investment decisions and IS deployments, as contrasted with vocalized or documented IS strategy" (1997, p. 126).

Papp (1999) further expanded the twelve perspectives of Luftman and Papp (1995). He afforded managers a number of steps by which they may evaluate or achieve strategic alignment. This involves assessing the organisation's perspectives using SAM, learning to recognise and leverage IS to maximum efficiency, incorporating financial measurements suitable for the particular industry, giving each individual a role to facilitate synergy between IS and the business and, lastly, continuous review of strategic alignment and evaluation. However, Avison et al. (2004) noted that, although these might be wise steps to take, the steps are a little general in nature and there is not enough in the steps for managers to use in practice.

Luftman and Brier (1999) developed the Strategic Alignment Maturity Assessment (SAMA) framework which proposed that strategic alignment is best understood by measuring six criteria — communications, value, governance, partnership, scope, and architecture and skills — and then placing these on a five-level maturity model, where level 5 is the highest maturity:

1. Initial/Ad Hoc Process

2. Committed Process

3. Established Focused Process

4. Improved/Managed Process

5. Optimised Process. (Luftman, 2000:10)

Reich and Benbasat (2000) suggested that strategic alignment should be viewed as an end-state or outcome of a business process or activity. One of the motivations for such a perspective is their intention of measuring the degree of strategic alignment, which could involve observing a number of well-defined variables. They can be observed in two distinct dimensions: the 'intellectual/technical dimension', concerning the consistency and validity of IS and business objectives; and the 'social dimension', concerning the mutual understanding and commitment between business and IS executives in an organisation, with regard to each other's missions, objectives and plans. The intellectual/technical dimension is defined as "the state in which a high-quality set of interrelated IT and business plans exist" Reich and Benbasat (2000:82). For simplicity, the term 'technical' will be used going forward in this dissertation to describe this dimension. The technical dimension of strategic alignment requires that business and IS strategies are internally consistent with mission, and that they are externally valid, i.e. comprehensive and balanced to external business and IS environments (Avison et al., 2004). The social dimension focuses on the people involved in the creation of alignment, whilst the technical dimension concentrates on the content of plans and planning methodologies (Reich & Benbasat, 1996). Avison et al. (2004) described these dimensions as including linking mechanisms to achieve alignment with a social element (who is involved) and a technical element (methods and techniques). Reich and Benbasat (2000, p. 82) argue that "both dimensions are important to study and are necessary for an organization to achieve high levels of alignment." Campbell et al. (2005) moved a step further and suggested that researchers should not study either the technical or social dimensions of strategic alignment in isolation, and through their research illustrate the various relationships between the technical and social dimensions of strategic alignment as understood by participants in the strategic alignment process. Preston and Karahanna (2009) noted that although antecedents of the technical dimension of strategic alignment have been studied to some extent by prior researchers, very few studies have explored the effects of the social dimension of strategic alignment. Studying the technical and social dimension together will reveal the complexity and challenges of strategic alignment (Chan & Reich, 2007b).

Luftman and Kempaiah (2007) presented positive correlations between the maturity of the strategic alignment and IS's organisational infrastructure, the Chief Information Officer

(CIO)'s reporting structure and organisational performance. They focused their research on understanding the persistent problem of attaining strategic alignment between IS and business, and found that there is no single cause for this problem. After measuring the six criteria developed by Luftman and Brier (1999) for global organisations in the United States (US), Latin America, Europe, and India, it was found that most organisations are at level three on the five-level maturity model. They also found that: 1) federated IS infrastructures are associated with higher strategic alignment maturity than centralised or decentralised infrastructures, 2) organisations with CIOs reporting directly to the Chief Executive Officer (CEO), president or chairman have significantly higher alignment maturity than those where the CIO reports to a business unit executive, the COO, or the Chief Financial Officer (CFO) and, 3) higher strategic alignment maturity correlates with higher organisational performance.

Whilst other researchers were also carrying out extensions on the SAM during this time as a way of understanding the relationships that exist between IS and business (Chan et al., 1997; Kearns & Lederer, 2000; Papp & Luftman, 1995), SAM itself was not without its detractors. The applicability of the model may vary, for instance, relative to how IS-intensive an industry is which, argues Burn and Szeto (2000), may mean the assumptions of the SAM do not always hold. In addition, SAM does not help management to determine the right strategic alignment approach for their particular organisation in a particular set of circumstances. The model also assumes a more static business environment than is often not the case. The main critics of SAM are Mae (1999), Ciborra (1997), Burn and Szeto (2000), Smaczy (2001), Hirschheim and Sabherwal (2001), Bricknall, Darrell, Nilsson, & Pessi (2007), and Bharadwaj et al. (2013).

3.5.2 Counter arguments against strategic alignment and SAM. Ciborra (1997) debates as to whether the implied domination of a structured strategy process is the solution in a time where doubt and flexibility prevail and the enunciation of strategic intent is problematic. There is an innate presumption with strategic alignment that management is in complete control and that the IS infrastructure can be aligned deliberately with developing management perceptions, but Ciborra considers that strategic alignment is not a given product because strategy is simply placing different things together to generate something. Meanwhile in everyday business, the IS infrastructure tends to 'drift' and is frequently 'out of control' since IS is always shifting, a view also held by Earl (1992). Ciborra then suggested an alternative approach to rationalistic models and plans to address the problem of strategic alignment between business strategy and IS in real life organisational practice and daily experience. He

recommends using a new language that consists of three concepts. The first is 'care' - dealing with the world as it is, but in a manner that is honest and free of preconceived ideas. The second is 'hospitality' - the idea that the organisation hosts the IS, in much the same way that a host welcomes a guest. Third is 'cultivation', which is allowing IS to grow in a way that is reactive to the requirements of the organisation rather than a predetermined plan.

Maes (1999) suggested that SAM is incomplete because it only deals with issues such as organisational and IS infrastructure and processes, and does not include other important dimensions such as operations and information. Maes argued that it is critical to include operational considerations and not just those relating to infrastructure, as is the case in the internal domain of SAM; and further suggests that the successful integration of business strategy and IS is reliant on information and information sharing. In an attempt to counter its weaknesses, he proposed a modified strategic alignment framework (called the generic framework), which fine-tuned SAM into more in-depth levels. It differentiated between strategic, structural, and operational alignment. In the generic framework, the internal level of the strategic fit dimension is split into two – structure and operation. This is driven by the fact that the structure of operational processes must first be determined before they can be executed.

Burn and Szeto (2000) argued that effective strategic alignment of IS and business strategies can be attained by means of SISP. They suggested that, by coordinating the objectives and views of business and IS executives, organisations can perform without strategic alignment and discover that there are discrepancies of view regarding the diverse difficulties in implementing the alignment of business and IS strategies, despite the shared views on drivers and the need for alignment. This gives backing to the argument that the theoretical view is not supported by real-world implementation.

Another alternative model to SAM was developed by Smaczny (2001) who argued that a strategic alignment model should have constant synchronisation among business strategy, IS strategy, business operational plan, and IS operational plans. Smaczny believes synchronisation between business units and the organisation, and fusion between business and IS executives could guarantee more efficient and effective strategic alignment. In his opinion, it is vital to use a strategic approach that is capable of handling a messy environment and offers a fast response. SAM, as proposed by Henderson and Venkatraman, is not flexible or reactive enough to provide essential results in a fast-changing organisational environment. Thus, a concept of fusion should be used as the new paradigm for integrating the role of IS in an organisation.

Hirschheim and Sabherwal (2001) have remarked that while SAM is theoretically and conceptually consistent, the problems related to its practical application in terms of attaining and sustaining strategic alignment over time have been significantly miscalculated. Bricknall et al. (2007) did not discover robust backing for the values of the SAM when they analysed in considerable detail strategic alignment in a multinational pharmaceutical organisation.

3.6 IS Strategy-making Perspectives

When discussing strategic alignment, it is also necessary to examine the strategy schools of thought. Despite prescriptive schools dominating this stream of research, many scholars have highlighted, as discussed in chapter 2 that very few organisations use the traditional rational planning approaches when making major changes to strategy. Instead, strategies often form from fragmented, incremental, and largely intuitive processes (Mintzberg, 1978, 1994). However, the traditional literature on strategic alignment is grounded in a prescriptive, rational, top-down approach to strategy-making (Walsh et al., 2013). This approach emphasises a variance view of strategic alignment (Mohr, 1982); that is, strategic alignment is viewed as a quantitative construct with an emphasis on capturing direct causation.

Pyburn (1983) noted the existence of strategy-making patterns among his case organisations. Explicitly, within a 'written-formal' system, a rational (structured) process of written rules and procedures, top–down planning flow, budgetary focus, and narrow participation profiles are present. In comparison, he also found evidence of a 'personal-informal' system reflecting a more adaptable approach based on few guidelines or policies, bottom–up planning flow, creativity focus, and wide participation profiles. Pyburn designates that successful IS strategy-making requires a cultural fit between business and IS, and is a precondition for successful IS strategy-making.

Similarly, Earl (1993) suggested that despite the more formal and rational endeavours of IS executives or business executives at large, the reality may be a continuous interaction of formal methods and informal behaviours and intended and unintended strategies. He posited that one consequence of this view might be the recognition and acceptance that strategies may arise without a formal strategy-making process. Earl distinguished strategy-making approaches centred on degree of rationality and adaptability built into the strategy-making process. His 'organisational approach' reflected IS strategies that seemed to emerge from on-going organisational activities. Consistent with Pyburn's observations, Earl noted that the hybrid

'organisational' system of strategy-making seemed to be a more effective form than highly structured and less-adaptable rational approaches.

As argued in chapter 2, organisations seldom use the more traditional rational-planning approaches when they make major changes in strategy. Instead, strategies frequently develop from disjointed, incremental, and mostly intuitive processes (Quinn, 1980). Mintzberg's (1985) understanding of strategy-making is comparable. It accentuates small project-based multi-skilled teams, cross-functional liaison devices, and selective decentralisation.

Two other early concepts proposed were: 1) The IT Strategic Grid (McFarlan & McKenny, 1983) that helped managers position their organisation in relation to the strategic advantages they could obtain from IS and, 2) the idea of a value chain which concentrated on the role of technology and organisational competitiveness (Porter & Millar, 1985). The first concept was widely adopted due to matching the potential of IS with the organisation's strategy, the affordable choices for senior management, and the recognition of the changes to the organisation's external environment.

Earl (1993) concluded that his concept of the 'organisational approach' offered the best prospect for attaining alignment wherein IS decisions are made, through continuous integration between the IS function and the rest of the organisation. Henderson and Venkatraman (1989) may have indirectly argued for the 'organisational approach' when they called for an iterative, on-going IS planning process to build and sustain partnership. They suggest partnership mechanisms, cross-functional teams, multi-tiered and cross-functional networks, and collaborative planning.

The rational perspective ignores both the social aspects of the strategic alignment process and the effect of business dynamics (Ciborra, 1997). Arguing against the rational perspective, Earl (1993) and Ciborra (1997) contended that organisations must use less formal or less structured approaches to ISSP for business-IS assimilation to be effective. Systematic, standardised, and structured ISSP approaches do not inspire improvement, learning or knowledge-sharing and are powerless to deal with the grey areas of the work practices, principles, standards, procedures and values essential in framing IS strategy. It has also been debated whether the strategic process is made too rigid by the application of perceptions such as strategic fit between resources and opportunities, generic strategies of low cost versus differentiation versus focus, and the strategic hierarchy of goals, strategies and tactics (Avison et al., 2004). Jarvenpaa and Ives (1994) proposed that too tight a fit between intended IS and

business strategies may lead to reduced strategic flexibility. Avison, Cuthbertson, and Powell (1999) have suggested that real life and real strategising is 'messy' and that human thinking and actions do not often follow exacting modular concepts. Maes (1999) argued that strategic alignment is illusory, indeed inexpedient; while Ciborra (1997) perceived strategic alignment to be more akin to a process of bricolage, improvisation and tinkering than the execution of an intended strategy.

However, there are instances where academics take into account perspectives other than the rational perspective. For example, Markus and Robey (1988) distinguished between three conceptions of causal agency: 1) the technological imperative, 2) the organisational imperative, and 3) the emergent perspective. The technological imperative views IS as a force that determines and constrains the behaviour of individuals and organisations and is a cause of organisational change. The organisational imperative, in turn, assumes that behaviours are chosen according to a set of consistent preferences and the impact of IS on organisational change is a result of the motives and actions of the IS designers. The emergent perspective on the relationship between IS and organisational change assumes that complex social interactions determine the uses and consequences of IS.

Despite the recognition that strategic alignment is a process and not an end-state, it is evident that the majority of research on strategic alignment to date takes a rational perspective regarding strategy-making. It is still overly-deterministic, giving little insight into how to 'sustain' the dynamic and continuous process of adaptation and change between business and IS strategies (Peppard & Campbell, 2014). Rational perspectives to strategic alignment (like Henderson & Venkatraman 1993; Maes 1999) assume an external strategy to 'align to', and the relationship to business strategy is sequential, following the 'IS follows business' mind-set.

3.6.1 Strategic alignment – process vs. end-state/outcome. Different opinions exist in the literature (Avison et al., 2004) as to whether strategic alignment is 'a process', as referred to in the definitions of King and Teo (1996) and Campbell (2005), or if it is 'an end- state'. The latter view was dominant (Earl, 1989; Porter & Millar, 1985b; Weill & Broadbent, 1998) and therefore, the necessity to continuously maintain strategic alignment dynamically was seldom recognised. This research typically tended to centre principally on measuring strategic alignment and relating such measurement to organisational performance and return on investment (Kearns & Lederer 2000). Academics, such as Henderson and Venkatraman (1993)

and Papp (1999), have defined strategic alignment as an ongoing process or journey rather than an end-state. Maes et al. (2000) interpret strategic alignment as a continuous deliberate and coherent interconnection between the organisation's constituents, personnel, and IS systems contributing to its performance over time. Hirschheim and Sabherwal (2001) concurred that alignment is not an end-state but a process, and as far back as 1994 they suggested that studying strategic alignment over time would help in understanding the evolution of strategic alignment.

Reich and Benbasat (1996, 2000) argue that strategic alignment can be advanced from both perspectives and has technical and social dimensions; the latter is less studied with most researchers treating strategy as a rational process. As strategic alignment is the extent to which the IS mission, goals and plans support and are supported by the business mission, objectives and plans, it is a end-state or outcome and its determinants are processes (Avison et al., 2004).

It is suggested that as most organisations are on-going enterprises devoid of conventional ends, the notion of strategic alignment as an end-state is a fundamental misconception (Dulipovici & Robey, 2013). In addition, strategic alignment should be understood as a process of change over time which necessitates continuous adaptation and monitoring (Henderson & Venkatraman, 1993). This process view of strategic alignment is premised on understanding strategic alignment rather than measuring it. Peppard and Campbell (2014) contended that, as business strategies change, IS strategies must modify to reflect the bottom-up emergent strategies that may result. Therefore, when organisations need to change business or IS strategies, all the facets of strategic alignment also should be altered.

It is also argued that strategic alignment does not occur in just one project, but as evolving portrait of how IS infrastructure and technology contribute to organisational achievement (Noel, 2004). It is a superset of multiple, simultaneous and on-going activities of continuous adaptation and change, where the business and IS strategies influence each other at multiple levels and managers must recognise the necessity of evolving from one strategic alignment perspective to another, centred on changes in the organisational setting (Henderson & Venkatraman, 1993). To attain success, organisations should realign their IS and business strategies (Burn & Szeto, 2000).

Where strategic alignment is viewed as an end-state, variance approaches are used to explain how it can be achieved by manipulating a number of antecedents (Baker et al., 2011). The outcomes can then be observed and quantified (Reich & Benbasat, 2000). One limitation that exists when using the end-state perspective alone to assess strategic alignment is that it

does not indicate how strategic alignment can be sustained over time within an organisation (Baker et al., 2011).

3.6.2 Dynamic strategic alignment. Other research studies discuss dynamic strategic alignment (Ciborra, 1997; Labovitz & Rosansky, 1997). Smaczny (2001) has asserted that no studies centre on how organisations actually achieve strategic alignment or, indeed, whether it is the right way to look at the issue. Most models of strategic alignment assume that organisations are built on mechanistic principles and management uses structured, planning-oriented approaches to business objectives. Within such organisations strategic alignment may work, but not in others (Avison et al., 2004). IS research has focused hugely on the basic description of existing relationships among IS and organisational variables, and between these variables and organisational performance, but has principally overlooked the strategy events and activities from which these relationships originated (Teo & Ang, 1999). This approach identified the key alignment inputs and categorised these as critical alignment success factors. The early work on strategic alignment processes essentially viewed organisations as homogeneous, while a small number of studies recognise that organisations have different resources that they are differently able to marshal. Tallon, Kraemer, and Gurbanaxi (2000) suggest that as strategic alignment is one of the most important issues facing business and IS executives, focused organisations will achieve alignment more easily. Sabherwal and Chan (2001) use the 'punctuated equilibrium' model to study the dynamics of strategy-making processes as well as the evolution of strategic alignment over time.

3.6.3 Realised vs. intended strategy. Strategic alignment is oversimplified in most of the literature by adopting the assumption that strategies developed in a formal process will be implemented as intended (Peppard & Campbell, 2014). Similarly, Campbell (2005) has suggested that those who support this intended strategy view assume that strategies are developed only within a formal planning process and implemented as planned. However, if attaining strategic alignment was so straightforward then it would just be a matter of improving IS strategy-making methodologies (Lederer & Sethi, 1988), and ensuring that business and IS strategies are formally integrated (Teo & King, 1997). Peppard and Campbell (2014) posited that given a dynamic environment, asserting that IS strategies are based on business strategies and expecting them to be realised explicitly, is very likely to result in misalignment.

Some academics do recognise that it is more appropriate to take the realised view of alignment, as the intended strategies may not have been applied for the actual system being

studied (Velcu, 2010). For example, Byrd, Lewis, and Bryan (2006), in their research, used both the intended and realised perspectives of strategic alignment. Strategy emerges as a pattern in a sequence of decisions about 'fit' at a particular juncture and may be either deliberate or emergent (Mintzberg, 1978; Quinn, 1980). Campbell (2005) found that the main concern of practitioners with regard to strategic alignment lies in dealing with the uncertainty surrounding the business strategies actually in use. Arvidsson, Holmström, and Lyytinen (2014) have argued that it is essential to maintain tight linkages between an organisation's strategic intent, its ensuing IS strategy implementation, and its de facto realised strategy.

3.6.4 Strategy content and process. The literature on strategy as discussed in chapter 2 suggests that strategy-making approaches are focused either on its content or the process of making it (Rajagopalan & Spreitzer, 1997). Similarly various IS scholars have focused on different parts of the Henderson and Venkatraman (1989) SAM, either the process or the content (Avison et al., 2004). These include linking mechanisms to achieve alignment with a social (who is involved) and technical dimension (methods and techniques). However, the majority of studies on strategic alignment within the IS field focuses on strategy content, with particular interest in the methods and measurement of strategic alignment between business and IS strategies (Burn & Szeto, 2000; Chan et al., 1997; King & Teo, 1997; Sabherwal & Chan, 2001). Content studies have approached strategic alignment from the perspectives of RBV (Baker et al., 2011; Chan & Reich, 2007b; Galliers, 2011) and dynamic capabilities (Chen, Sun, Helms, & Jih, 2008; Sun & Chen, 2008). Implicitly or explicitly, the RBV is one of the theoretical underpinnings of strategic alignment research (Chan & Reich, 2007b). From its perspective, strategic IS alignment can generate competitive advantage when it signifies a multifaceted organisational process that is both heterogeneous and immovable (Kearns & Lederer, 2003). When strategic alignment is perceived through the lens of the RBV, worth comes not from duplication but from inimitability (Tallon, 2007).

However, Das et al. (1991) made the distinction between the content and process aspects of strategy-making in an IS context and recognise four dimensions: formality (structure in the strategy-making process), scope (evaluation of completeness), participation (managers' actions and influences on stakeholders' ones), and co-ordination (examination of strategy-making process corrections). Sabherwal and Chan (2001) established that strategy content centres on what synchronises business strategy with IS strategy, while strategy process is concerned with how an organisation forms and implements its business-IS practices.

Jenkin and Chan (2010) focused on developing an understanding of project alignment using a process approach as opposed to a variance approach. The authors noted that while previous strategic alignment process research by Sabherwal et al. (2001) focused on the strategy-making processes as well as the evolution of strategic alignment over time, their analysis focused on the IS-enabled end results of strategic alignment and the processes to get there.

3.6.5 Technical and social dimensions. Strategic alignment is viewed in terms of technical and social strategy dimensions that underpin the ongoing alignment of business and IS strategies (Reich & Benbasat, 2000). There is increasing interest in developing the strategic alignment concept in terms of social strategy work processes that go beyond the concept of planning content - the technical dimension (Benbya & McKelvey, 2006). The traditional way of thinking has often limited the strategic alignment concept to looking at the technical dimension alone. The view focuses just on processes around planning content and methodologies. Therefore, it does not include strategy work processes that consider communication, interpretation and integration, on how individuals, groups and organisations create mutual understanding in social strategy work processes (Balhareth et al., 2012). They argue the need to recognise that while strategies can be developed; these may be misinterpreted in their implementation due to the limited understanding as to how strategies are developed and used by people in a social interface.

3.6.6 Concluding remarks on the processual perspective to strategic alignment. Much of the research on the process view of strategic alignment proposes that certain structures, processes, and relationships require constant adjustment. Baets (1996) determines that strategic alignment is a collaborative process, comprising business strategy, business organisation, IS infrastructure, and IS strategy components while Rondinelli, Rosen, and Drori (2001) recommended that organisations should constantly realign and readjust their strategic constituents (business strategy, market penetration decisions, management processes, and organisational structures) and since chasing strategic alignment is intricate and often messy, it is not sufficient to understand the factors that enable or impede strategic alignment; it is imperative to understand the interrelationships among the factors.

Strategic alignment is seen as a process requiring continuous adaptation and coordination in which the intended IS strategy is an essential, but not the only, contributor to effective strategic alignment (Reich & Benbasat, 2000). It is still, however, a rather

'procedural' or prescriptive view, and requires supplementing by an approach that focuses on actual alignment processes as witnessed on the ground in real organisations. Therefore, I embrace Henderson and Venkatraman's (1993) perspective of strategic alignment as a dynamic process of adaptation and change. IS strategy itself within the strategic alignment process should be considered as an on-going process based on learning, improvisation, unexpected consequences, and implemented IS solutions (Galliers & Newell, 2003). The main objectives of this process would therefore include the IS priorities, capabilities, decisions and actions to support those of the entire business (Chan, 2002). Furthermore, the harmonious fit of all these facets should be periodically disrupted in order that it will adapt to changes (Miller, 1993).

It is still unclear how to achieve and sustain the process of strategic alignment over time. The extant research can be criticised, in that while recognising the difficulties in achieving strategic alignment, the majority of the literature has attempted to reduce this inherent complexity to permit exploration of direct causal relationships (Peppard & Campbell, 2014). The argument for using a processual lens in the study of strategic alignment is that it cannot be definitively achieved when the business environment is continually changing; thus, giving rise to new information needs within the organisation and necessitating changes in business strategy (Galliers, 2004).

Applying a processual lens to strategic alignment has been a very rare occurrence in the IS research literature. The literature reviewed in this section provides a wealth of inspiration, ideas and constructs as the basis on which to build further research. The next section addresses the factors that impede strategic alignment.

3.7 Impediments to the Process of Strategic Alignment

3.7.1 The complexity of strategic alignment. It is acknowledged that the complexity of strategic alignment increases in accordance with the nature of the industry and its dependence on IS (Burn & Szeto, 2000). In addition, the proliferation of e-business channels has made it difficult to maintain strategic alignment (Luftman & Brier, 1999). As previously discussed, strategic alignment is recognised as a dynamic and on-going process, frequently chaotic, with different dimensions that include social and cultural elements (Baets, 1996; Rondinelli et al., 2001; Chan & Reich, 2007a). Even when technical impediments are resolved, cultural and social issues may persist (Brancheau, Janz, & Wetherbe, 1996). Besides, it is not

clear how to achieve strategic alignment or the possible impact of not having strategic alignment (Papp, 1999; Sabherwal & Chan, 2001).

Alignment between business and IS strategies is not easy to accomplish or maintain (Ciborra, 1997). When one aspect of strategic alignment is altered, it is important to revise all aspects of its process to ensure alignment is maintained. However, this rarely happens, as organisations typically only alter one aspect while ignoring the others (Hirschheim & Sabherwal, 2001). It is recommended when aligning business and IS strategies that neither strategy should be taken for granted and both should be regarded as problematic (Ciborra, 1997).

Aligning IS and business strategies generates fresh roles for IS and business executives and employees (Papp, 1999). Chan (2002) underlined the necessity for organisations to understand strategic alignment as an unfolding process necessitating that decision-makers be on guard for deviations and challenges. Luftman (1996, 2000) highlights that the changing business environment requires that organisations reflect on the proper manner to link their IS and business strategies.

A number of researchers have endeavoured to ascertain the factors that contribute to this alignment of business and IS (Luftman, 2003). The next section of the chapter reviews in historical order the related research on the enablers and impediments to strategic alignment. The factors identified in common by multiple researchers are then discussed.

3.7.2 Research identifying impediments. Since the 1980s, researchers have been interested in establishing what factors (also described as antecedents, drivers, inhibitors, enablers, impediments) are determinants in fostering or impeding strategic alignment. The conclusions made from the literature review focused on this issue are presented in this section. While discussing factors as being either enablers or inhibitors/impediments, it is necessary to clarify that impeding/inhibiting factors are the inverse of enabling ones (Luftman, Papp, & Brier, 1999).

During the 1980s, researchers like Pyburn (1983) and Nath (1989) concluded that factors such as senior management commitment and decision-making, as well as the ability of IS executives to keep up with advances in IS are significant in order to achieve strategic alignment between business and IS strategies. Lederer and Mendelow (1989) discovered four key reasons to explain why strategic alignment is challenging: unclear or unstable business mission, objectives, and priorities; lack of communication; absence of IS executives from the

business strategy-making process; and unrealistic expectations and lack of sophistication of user managers.

Over the next decade, Broadbent and Weill (1993), Reich and Benbasat (1996), Teo and King (1997), and Teo and Ang (1999) expanded the understanding of what factors influence organisational strategic alignment. Among their conclusions, it is possible to identify enablers of strategic alignment (e.g. business competence of the IS executives, enhanced communication, interconnected business and IS strategy-making processes, and senior executive commitment, knowledge and confidence) and its inhibitors (organisational structure and accountability). Luftman et al. (1999) produced a comprehensive view of what may enable or impede strategic alignment. These factors are outlined in the table 3.2 below:

Table 3.2 Business – IS Alignment Enablers and Inhibitors

Enablers	Inhibitors
1. Senior executive support for IS	1. Business/IS lack close relationships
2. IS involved in business strategy development	2. IS does not prioritise well
3. IS area understands the business	3. IS fails to meet its commitments
4. Business/IS partnership	4. IS does not understand business
5. Well prioritised IS projects	5. Senior executives do not support IS
6.IS demonstrates leadership	6. IS management lacks leadership

Note. Adapted from Luftman et al. (1999)

To minimise the effects of inhibitors to strategic alignment and maximise the effects of enablers, Luftman et al. (1999:115) proposed a six-step approach that mirrors the rational strategy-making process as follows:

Table 3.3 Six-Step Approach to Maximise the Effects of Enablers and Minimise Inhibitors

1.Set the organisational goals and establish a team
2 Understand the business-IS linkage
3. Analyse and prioritise the gaps between the current and future states
4. Specify the actions necessary to carry out recommendations
5.Choose and evaluate success criteria by revisiting the strategic goals and selecting measurements to assess the implementation of the project plans
6. Sustain the synchronisation throughout effective IS governance

Note. Adapted from Luftman et al. (1999)

The dawn of the 21st century brought research studies that deepened the identification of factors related to strategic alignment. For example, Reich and Benbasat (2000) found that shared domain knowledge and integrated strategy-making were the greatest critical factors to achieving short-term strategic alignment, while shared knowledge was found to impact long-term strategic alignment. Therefore, they proposed the following research guidelines:

1. Business and IS practitioners and alignment scholars should direct their energies towards understanding shared domain knowledge between business and IS leadership, as this factor has a strong impact on the alignment of business and IS strategies.

2. Strategic alignment scholars should examine the factors of 'trust' and 'commitment' in the context of the alignment of business and IS strategies.

3. Scholars should examine the fashioning of an IS vision. For short-term alignment to exist it is necessary to have business direction (in relation to the business and IS strategy-making process).

In the same line of research, Hussin, King, and Cragg (2002), using Luftman's Strategic Alignment Maturity Model (2000), analysed what factors influence strategic alignment in the setting of small organisations and found that IS maturity, technical IS sophistication, and the CEO's software knowledge were the most influential. Linkages between IS and business strategy-making processes, strategy-making sophistication, and IS sophistication are similar factors to the research of Chan, Sabherwal, and Thatcher (2006); Hussin et al. (2002); Reich and Benbasat (2000).

Farrell (2003) contributed to the understanding of factors involved in strategic alignment by organising factors in categories (management planning, business, and technology), while Broadbent and Kitzis (2005) found that a well-integrated business and IS strategy is fostered by a CIO who spends productive time with business colleagues; a senior management team that develops informed expectations for an IS-enabled enterprise; clear and appropriate IS governance; and taking an IS portfolio management approach to balance risk and return.

D'Souza and Mukherjee (2004) suggested four critical steps upon which the leadership must embark to improve strategic alignment:

- Take measured steps.

- Identify critical factors that affect the organisation's strategic alignment.
- Employ a phased process of implementing strategic alignment processes.
- Be prepared to make structural changes to the organisation.

Communication with business executives was found to be significant in aligning strategies (Campbell, 2005) and centralisation of decisions related to IS as affecting strategic alignment indirectly, through its impact on business executives knowledge of IS and involvement of IS executives in the strategy-making process (Kearns & Sabherwal, 2007). Studying the significance of strategic alignment, Gartlan and Shanks (2007) concluded that addressing factors similar to the ones mentioned above could bring significant benefits to many kinds of business organisation.

Chan et al. (2006) found that: 1) strategic alignment increases organisational performance, 2) where business and IS executives understand each other's environment the positive effects on strategic alignment are significant, 3) organisational size influences strategic alignment, 4) shared domain knowledge exerts a high influence on strategic alignment that is swayed by strategy-making sophistication, 5) Small Medium Enterprises (SME) are generally inclined to be organised around roles and use centralised structures to synchronise subunits, 6) central coordination in general reduces the requirement for other obvious tools to stimulate functional alignment and, as a result, the organisation lacks strategic alignment, and 7) in big organisations, the decentralised governance structures makes harmonisation more problematic and, subsequently, more tools to stimulate strategic alignment are required and additional resources are needed to invest in these.

Bartholet, Budd, and Turisco (2009) also described the factors for achieving strategic alignment while Gutierrez, Orozco, and Serrano (2009) contrasted the factors influencing strategic alignment between SMEs and bigger organisations concluding that, despite SMEs and large organisations having diverse resources and IS capability, the factors that affect strategic alignment are similar irrespective of organisation size.

Ooi and Darmawan (2011) researched the impact of employee alignment on strategic alignment and found that the following had a positive and significant relationship to strategic alignment: the human factors related to employees, such as 'perceived' organisational trust, 'perceived' communications around business and IS strategies to employees, and 'perceived' knowledge about business and IS strategies.

To summarise, the literature reviewed shows that there are dimensions and factors involved in the attainment of strategic alignment. Technical and social dimensions have been identified as reflecting the intricate social processes that impact the ways in which IS is really used (Dulipovici & Robey, 2013). Likewise, a number of factors have been identified that encompass the relationship between the business and IS executives in realising a mutual understanding and commitment to achieving the defined business objectives.

Table 3.4 presents a summary of the research mentioned in this section. As discussed previously, Reich and Benbasat (2000) describe the technical dimension as referring to the existence of interrelated business and IS strategies. On the other hand, the social dimension refers to the understanding and commitment of business and IS executives to an organisation's business and IS strategies. The social dimension is important to the understanding of strategic alignment and, consequently, Reich and Benbasat (2000) recommend scholars examine it together with the technical dimension to discover the complexities and challenges of strategic alignment.

To the social dimension, Reich and Benbasat (2000), Luftman et al (1999a), and Luftman (1997, 2000), ascribe a number of factors. These factors mainly encompass the relationship between the business and IS executives in realising a mutual understanding and commitment to achieving the defined objectives of the organisation. These factors are: partnership in strategy making; shared domain knowledge; IS executives understands business; business executives understand IS; business/IS communication; and senior management support. Other factors can be classified as technical, being of a more technical and less social nature. These factors are: organisational size; strategy-making processes; IS sophistication; external IS expertise; governance; and IS implementation success. The factors identified in the studies now are grouped under the technical and social dimensions in the table 3.4.

Table 3.4 Literature Overview of Factors in Attaining Strategic Alignment

Dimension/ Factor	Weiss and Anderson (2004)	Reich and Benbasat (1996, 2000)	Feeny et al. (1992)	Sledgianowsk and Luftman (2005)	Teo and Ang (1999)	Luftman et al. (1999)	Chan et al. (2006)	Avison et al. (2004)	Gallupe (2006)	Silvius (2007)	Preston and Karahanna (2009)	Lederer and Mendelow (1989)	Choe (2003)	Broadbent and Weill (1993)
Technical														
Organisational Size							√							
Strategy-Making Process							√							
IS sophistication														
External IS expertise														
Governance														
IS Implementation Success		√					√							
Social														
Partnership in Strategy-Making			√			√		√				√		
Shared Domain Knowledge		√			√		√	√	√	√	√			
Business/IS Communication	√	√	√	√	√			√	√	√	√	√		√
Senior Management Support	√		√		√	√						√		
IS executives understands business						√								
Environmental Uncertainty							√						√	
Business executives understand IS														

Dimension/ Factor	Smaczy (2001)	Teo and King (1999)	Bassellier et al. (2001)	Hirscheim and Sabherwal (2001)	Tallon et al. (2000)	Hussin et al. (2002)	Kearns and Lederer (2003)	Ross (1996)	Baker (2004)	Campbell (2005)	Broadbent and Kitzis (2005)	Sabherwal and Kirs (1994)	Ooi and Darmawan (2011)	
Technical														
Organisational Size														
Strategy-Making Process														
IS sophistication						√								
External IS expertise						√								
Governance											√			
IS Implementation Success														
Social														
Partnership in Strategy-making		√			√		√	√						
Shared Domain Knowledge		√	√							√			√	
Business/IS Communication	√	√		√						√			√	
Senior Management Support		√			√	√			√	√	√			
IS executives understands business														
Environmental Uncertainty				√								√		
Business executives understand IS							√							

3.7.3 Impediments to strategic alignment. In reviewing the literature, I identified four primary social and two technical factors impeding alignment:

- Lack of strong leadership and senior management support for IS (social)
- Weak business/IS communication and shared domain knowledge (social)
- Absence of partnership in strategy-making (social)
- Lack of prior IS success (social)
- Absence of planning sophistication (technical)
- Poor governance (technical)

Lack of strong leadership/senior management support for IS. Lack of senior management support is a potentially impeding factor to alignment. The CEO's views and attitudes towards IS have been powerfully related to the degree of IS use (Tallon et al., 2000), and senior management opinions have been described as fundamental to the understanding of how IS impacts an organisational performance. Weill and Broadbent (1998) felt there were limited senior executive routes which included accountability for IS. Luftman et al. (1999) recognised support from senior management as one of the chief ranking enablers of alignment. If senior management has confidence in the IS department's competency to deliver suitable systems critical for the successful implementation of organisational strategies, the role of the IS department will more probably be raised from a supporting role to a more strategic one (Teo & Ang, 1999). Hackett Best Practices found that organisations in which the CIO reported to the CEO showed greater strategic alignment than those operating under a different reporting structure. These organisations lowered their user costs by seventeen per cent compared with organisations whose IS was not aligned with business (Cosgrove Ware, 2002). In summary, gaining commitment is a key enabling factor described in the literature.

Weak business/IS communication and shared domain knowledge. Both business IS/Communication and Shared Domain Knowledge are discussed as being significant in the literature, as shown in table 3.4. By nurturing shared-domain knowledge and establishing communication between business executives and IS executives, the latter understands more about the organisation and business executives becomes acquainted with current and potential uses of IS in the context of the organisation and its industry (Peppard & Breu, 2003). IS

executives' knowledge directly affects the development of shared understanding with business executives (Preston & Karahanna, 2009).

Bassellier, Reich, and Benbasat (2001) determined that business executives need 'IS competences' to have an understanding of the opportunities offered by IS to business and the more business executives knows about IS, the more likely it will be to champion it. Increasing the IS expertise of business executives considerably adds to creating a shared vision about how it can create value within the organisation (Preston & Karahanna, 2009). Kearns and Sabherwal (2007) suggested that business executives knowledge of IS has the most impact on strategic alignment via strategy-making behaviours. They also recommended that business executives should obtain additional IS knowledge and acquaint itself with how IS can help the organisation, as such knowledge has sweeping consequences, ultimately increasing the business benefits from IS.

In addition, fixed get-togethers with the CIO and other IS executives would deliver understanding of the technical perspectives and business executives would help IS executives in their understanding of how the organisations and its competitors are using IS; finding ways to additionally leverage it as a central capability (Kearns & Sabherwal, 2007). Business executives knowledge of IS is observed to enable not just the circumstantial factors and strategic-level planning behaviours, but IS project planning as well. This leads the organisation via a route that ultimately yields actual strategic benefits.

Organisations lacking a high level of shared domain knowledge engaged in decreased degrees of communication and low levels of short-term strategic alignment (Lederer & Mendelow, 1989). Coughlan, Lycett, and Macredie (2005) carried out research regarding strategic alignment from a communication perspective. They established that business and IS divisions must implement improved tools of communication in order to increase alignment. It is unlikely that strategic alignment will be successful without advanced communication systems, as such systems enable organisations to share the required real-time information between one another (Abareshi, Martin, & Molla, 2011). Luftman et al. (1999) recognised the need for business executives to understand IS as one of the chief ranking enablers of strategic alignment.

Since the technical dimension of business-IS alignment depends upon the existence of interrelated IS and business plans (Reich & Benbasat, 2000), both business executives and IS executives should be aware of the importance of maintaining a close working relationship, particularly during strategy-making, facilitating business, and IS strategic alignment

(Campbell et al., 2005). Partnership in strategy-making and appropriate planning in business processes leads to an increase in shared domain knowledge and eventual strategic alignment. While business executives should contribute to the preparation of the IS strategy and support technological innovations, the IS executives should also participate in business strategy developments (Luftman & Brier, 1999). Tallon et al. (2000), in their process-oriented model, suggested integrated management practices as the main determining factor of IS capabilities. They demonstrated how business executives with more informed objectives for IS could better use IS. So, participation of the CEO in IS strategy-making is fundamental to strategic alignment and an overriding factor in clarifying its use strategically (Kearns & Lederer, 2003). Avison et al. (2004) considered it vital that there is co-operation between the business and IS departments, and that IS investments and business objectives together maximise investment in technology. Better alignment between business and IS strategies has been established to arise where is purposeful communication of the strategic direction of the organisation throughout functional areas. (Broadbent & Weill, 1993).

Lack of prior IS success. IS implementation and its departmental track record (Chan et al., 2006) are factors related to the level of trust exhibited in IS departments to promote partnership relationship between business and IS executives (Gutierrez et al., 2009). Reich and Benbasat (2000) contended that prior IS success positively influenced the communication between business and IS; without it, strategic alignment is hindered. Therefore, IS executives will not be allowed to contribute to business strategy until they can first demonstrate that they can provide dependable, effective and efficient services to the organisation. Typically, IS is treated as a cost centre rather than an enabler of business value (Avison et al., 1999). Burn and Szeto (2000) describe a set of perspectives that should be understood and identified by both business and IS executives to increase the chance of IS success. Business executives should prioritise to find the best way to allocate resources within the organisation; IS executives should direct the IS function to achieve strategic roles; and performance criteria for strategy implementation should be based on a 'cost/service centre' model.

Absence of planning sophistication. Chan et al. (2006) highlighted the influence of strategic planning on the development of shared knowledge and, consequently, on strategic alignment. They contended that sophisticated business planning and IS planning processes bring business and IS executives together repeatedly in an attempt to manage IS-related opportunities and challenges. This on-going communication helps to improve IS alignment. Luftman and Brier (1999) also found that clearly-defined business goals and visions facilitate

strategic alignment. Reich and Benbasat (1996) asserted that the level of knowledge-sharing within an organisation affects communication among executives and linkages among planning processes. Executives seeking to improve knowledge-sharing can do so via their IS planning or business planning processes. Chan et al. (2006) have stated that practitioners are more likely to reap important strategic alignment rewards when they utilise sophisticated planning approaches to enhance knowledge-sharing.

Poor governance. Governance, as a concept, defines who makes IS decisions and set priorities to allocate IS resources (Luftman and Kempaiah (2007). It is not concerned with day-to-day operational decisions, but with the dissemination of decision rights in a manner consistent with the logic and perspective of strategic alignment (Henderson et al., 1996). Clear and appropriate IS governance is needed to ensure the existence of clear expectations as to who is responsible for what, thus enabling faster and more effective decision-making (Broadbent & Kitzis, 2005; Chan & Reich, 2007a).

Concluding thoughts on impediments to strategic alignment. Six alignment impediments emerged strongly from the literature: the lack of strong leadership and senior management support for IS, weak business/IS communication and shared domain knowledge, absence of partnership in planning, lack of prior IS success, absence of planning sophistication and poor governance (Luftman, 2003). These factors are not equal, and do not normally occur in isolation; they are interwoven. Insights into the intricacy of this strategic alignment process and the factors that enable or impede it tend to be rather limited. There is a need to understand the interrelationships among the factors (Chan & Reich, 2007b; Johnson & Lederer, 2010). It would be insightful to carry out exploratory research in the form of a case study, to gain a better understanding of the impact of the identified factors on strategic alignment and outline their interrelationship. This study therefore follows the above line of thought.

3.8 Synthesis

From the literature review, it is clear one of the most enduring challenges for organisations is achieving strategic alignment between business strategy and IS. While substantial research over the last three decades has addressed this problem, the majority of studies attempt to reduce the inherent complexity of strategic alignment to allow the investigation of direct causal relationships, adopting a variance approach with little impact since it does not provide an overall understanding of the nature of a complex process (Peppard & Campbell, 2014).

SAM has remained to this day the model most often applied in organisations and most frequently used in the literature (Avison et al., 2004). Recognising that strategic alignment is not an end-state but a dynamic 'process' in which business and IS strategies are evolving over time, it represents the dynamic alignment between the business and IS strategic contexts. However, SAM remains premised on the assumption that business and IS strategies are separate and distinct (Bharadwaj et al., 2013). Notwithstanding the acknowledgement by various scholars that strategic alignment is a process and not an end-state, its formation is still overly prescriptive, with little understanding available as to how to sustain the dynamic and continuous process of adaptation and change between business and IS strategies (Peppard & Campbell, 2014).

The majority of research on strategic alignment takes a prescriptive (rational school) approach, assuming the strategies being aligned are intended ones. However, plans and strategies are rarely implemented as intended (Mintzberg, 1994). Campbell (2005) has suggested there is an assumption, made by those supportive of the integration of planning, that strategies are developed only within a formal planning process and those strategies contained within the plan then will be implemented. With a dynamic environment, insisting that IS strategies are based on business strategies, and then anticipating that these will be implemented explicitly as intended, is more likely to result in misalignment rather than realising the preferred outcome (Peppard & Campbell, 2014). Therefore, there is a need for research to concentrate on realised as opposed to intended strategies – realised strategies being somewhere on the continuum between intended and emergent strategies (Mintzberg, 1994).

Langley et al. (2009) suggested that without a knowledge of process, variance knowledge can be very difficult to use as the 'how' is missing. Similarly, from a strategic alignment perspective, I contend that additional advances in 'how' to sustain and explain the dynamic and continuous process of adaptation and change between business and IS strategies (Peppard & Campbell, 2014) are more likely to arise from adapting a processual research approach to studying strategic alignment. Strategic alignment research must incorporate more real-world process thinking, viewing phenomena dynamically – in terms of movement, activity, events, change, and temporal evolution (Langley, 2007). There is a pressing need to address 'how' and 'why' things change, act, and evolve over time as strategic alignment is not an end-state, but rather a dynamic 'process' in which business and IS strategies continuously evolve over time.

A number of researchers have endeavoured to ascertain the factors contributing to this process of business and IS strategy alignment and the literature offers a number of factors (e.g. Luftman, 2003). However, scholars have commented that, despite knowledge of these factors, the problems related to achieving and sustaining strategic alignment over time have been greatly underestimated (Hirschheim & Sabherwal, 2001). It is necessary to further explore the impediments causing this continued misalignment.

So how does an organisation go about aligning its IS and business strategies? What processes are involved? What factors impede strategic alignment? How does the organisational context influence strategic alignment, and how does this context exert influence to modify all or some of the intended strategies? Can the research stream on process research within the strategic management domain provide a theoretical lens through which to view the alignment process? These were the questions leading to this literature review.

Based on the review of the strategic alignment research, a number of influential factors were synthesised: strong leadership and senior management support for IS, business/IS communication and shared domain knowledge, partnership in planning, prior IS success, planning sophistication and governance. These factors were woven together by the common thread of realising and sustaining strategic alignment. The research on strategic alignment clearly indicates that attaining and sustaining strategic alignment is highly dependent on social dimensions rather than technical dimensions alone. The social dimension of the dynamic process of strategy-making has been well described by Pettigrew (1992).

The research described in this dissertation is of a 'process' nature rather than 'variance'. I am interested in describing the temporal sequence of events leading to an outcome rather than explaining statistical correlations and variances between variables in accordance with Van de Ven and Huber (1990). Unlike variance research, which is designed to predict variance in outcome variables given a set of independent variables, process research focuses on the sequences of events within processes and includes theorising about how and why the process evolves in a certain way (Langley, 1999; Mohr, 1982; Newman & Robey, 1992; Van de Ven & Poole, 1995).

This research highlights three dimensions – time, multi-levels of analysis and impediments to the process of strategic alignment. Multi-level analysis in this instance involves examining interaction: among individuals at a collective and a departmental level, between

individuals and IS, between business and IS domains, and between the organisation and its environment.

3.9 Contribution

The preceding literature review has provided a critical appraisal of both the nature of strategy process (chapter 2) and that of strategic alignment, taking a processual perspective in this chapter. It analysed different theoretical developments and established the major research gaps and calls for further study which will be addressed by this research, contributing to the body of knowledge.

Firstly, the literature review reflects the need to apply a processual perspective as a new lens for theorising about the dynamic, complex, and interdependent relationships between IS strategy and business strategy, leading to a potential contribution to knowledge. The compatibility of strategic management concepts with the theory of strategic alignment within the IS domain is required. That perspective provides a rich tapestry upon which to address the research problem of this study. In addition, by looking at the strategic management literature and exploring whether the strategies being aligned are intended, emergent, or realised, I am responding to academics like Sabherwal and Chan (2001) who have proposed more research on strategic alignment.

Secondly, while there is a body of literature on the nature of strategy process research, little of it has focused on the area of strategic alignment. At the present time, there is not a great understanding of the strategy process and strategic alignment. The contribution of the processual school of thought has been diverse and allows for an appreciation of the 'softer' elements of strategy. This lack of emphasis on the strategy process is very noticeable in the case of strategic alignment. Strategic processes and strategic alignment are both genuine areas of investigation but, as highlighted in the literature review, they have had a tendency to date to progress in seclusion. There is a virtual scarcity of systematic research-supported findings in this area (that is, the process of IS strategy-making) in journals such as '*Management Information Systems*'. There are very few in-depth studies as to how IS strategy unfolds and indeed very few studies have focused upon the process of IS strategy-making, with the exception of the niche strategies of Porter (1980) which surface repeatedly in studies on strategic alignment. In addition, there has been a preoccupation with strategy content, rather than strategy process as highlighted by numerous empirical studies aimed at identifying 'success' and 'failure' and which fall squarely in the strategy content space.

From the literature, it is evident that the processual view of strategic alignment has been under-represented in studies to date. Initial studies of strategic alignment focused on investigating the synchronisation between evolving business strategy, mission, objectives, and IS strategy (Reich & Benbasat, 2000). Nevertheless, these early 'classical' views of strategic alignment have been criticised for being unsuitable, inflexible and failing to reflect today's turbulent organisational environment (Fearon et al., 2013). Instead, a fusion of business and IS strategies is recommended where simultaneous rather than sequential strategic development occurs (Smaczny, 2001). This emphasis is reverberated by Benbya and McKelvey (2006) who have argued for the 'co-evolution' of IS and business strategies.

Campbell et al. (2005) have undertaken some work in this area but it would be interesting to explore it in more depth. The question is whether strategic alignment is indeed possible and the nature of the viewpoints of the various players regarding the concept. It is argued in the literature that, to date, academics have inadequately examined the processes and degrees of strategic alignment (Chan & Reich, 2007b) and thus there is scope to carry out more in-depth work into the alignment process. The necessity for additional investigation is supported by Hussin et al. (2002). In addition, Tallon (2007) recommended that researchers build on the processual approach in future research with a view to longitudinal or longer-term analysis since most strategic alignment research has been of a cross-sectional nature, thereby overlooking the longitudinal element and foregoing the opportunity to analyse how strategic alignment unfolds over time. The majority of strategic alignment research views strategic alignment as a static end-state rather than a "moving target" (Avison et al., 2004, p. 229).

Fourthly, the literature review has established the importance of aligning business strategy and IS strategy and examined many of its features (Chan & Huff, 1993; Choe, 2003; Henderson & Venkatraman, 1993; Kearns & Lederer, 2000; Teo & King, 1997). The literature indicates that there are two benefits to strategic alignment: IS effectiveness (Chan, 2002) and IS higher performance (Sabherwal & Chan, 2000). Whilst a number of researchers have endeavoured to ascertain the factors contributing to this process of business and IS strategy alignment, and the literature reflects this, scholars have commented that the problems related to achieving and sustaining strategic alignment over time have been greatly underestimated (Hirschheim & Sabherwal, 2001).

Fifthly, Henderson and Venkatraman (1993) developed a SAM that identifies the four components for strategic alignment as being: business strategy, IS strategy, organisational infrastructure and processes, and IS infrastructure and processes and four different perspectives. Depending on the perspective used, the authors described the overall strategic alignment process as essentially starting with either the business strategy or the IS strategy. From SAM and its four different perspectives, it can be deduced that strategic alignment can be divided into several phases, each having its own specific work processes (the activities to reach the next phase in the strategic alignment process): technical and social. Thus, a potential contribution from this research is to provide some implications for strategic alignment research and IS executives by clarifying the key phases and processes in aligning business strategy and IS strategy in an organisation.

Lastly, reading the relevant literature, I have become increasingly aware that there has been very few empirical studies of the strategic alignment process within PSOs. Indeed, there is no research study with an explicit investigation into the factors affecting strategic alignment in PSOs. Additionally, as highlighted in sections 2.7 and 3.3 there are differences between strategy-making and IS strategy-making in particular in the public and private sector. Accordingly, by adopting a longitudinal processual perspective on strategic alignment I will contribute to the existing literature by providing theoretical insights into the factors that impede the strategic alignment of business and IS strategy in a PSO over time, clarifying the key phases and processes in such alignment in that context. This will also answer the calls for further research on how to achieve and sustain strategic alignment. In addition, by taking a processual perspective to strategic alignment, this research fulfils the call to use established theories from other disciplines (other than IS), namely strategic management. I will also be addressing the overemphasis in the extant literature on strategy content when studying strategic alignment and the tendency for research on strategic alignment and strategy to progress in seclusion.

3.10 Conclusion

This chapter presented the theoretical background to the study of strategic alignment. It introduced the concepts of business and IS strategy and highlighted the importance of the strategic alignment of these. An exploration of IS in the public sector followed. The concept of strategic alignment was then discussed along with a presentation of the major strategic alignment models and counter arguments against strategic alignment and the seminal SAM. A

number of IS strategy-making perspectives were presented in order to firstly provide the theoretical background to the strategy schools of thought that dominate the IS literature and, secondly, provide support to the proposed processual perspective to be used in this study. This chapter also discussed the factors found in the extant literature that impede the process of strategic alignment. The next chapter presents the research methodology and epistemological assumptions upon which this study is based.

Chapter 4 - The Choice of Method

4.1 Introduction

This chapter aims to justify the chosen research method as being the most suitable to address the research question of this study: *What are the key impediments to the process of aligning business and IS strategies in PSOs?* In it, the philosophical reasoning for selecting a research design situated within an interpretivist processual perspective is explained. The research design is discussed; in particular, the reasons for using a qualitative longitudinal single case study approach. The data analysis process is described and justified. Also examined is the generation of theory from the data analysis, along with the challenge of research quality and the steps that may be taken to support the trustworthiness of a piece of research.

4.2 Philosophical Paradigms

As this research is located in a relatively new IS academic discipline in comparison with other academic disciplines, the choice of research methodology is particularly important (Benbasat & Zmud, 1999). A review of the IS literature indicates a growing interest on the part of the IS community over the past two decades to improve the scientific relevance and rigour of the discipline with respect to philosophical and methodological assumptions (Carroll & Swatman, 2000; Chen & Hirschheim, 2004).

The IS academic discipline centres around how IS systems are developed and how individuals, groups, organisations and markets interact with IS (Sidorova, Evangelopoulos, Valacich, & Ramakrishnan, 2008). Over time, the IS discipline has shifted from technological to managerial and organisational questions (Benbasat, Goldstein, & Mead, 1987). Mingers (2001) contended that, given the nature of the IS discipline, it is difficult to find the most appropriate research methodology suitable for a given research question. However, within the academic literature, it is possible to identify a number of papers in which their relevance and rigour are not in question (Benbasat & Zmud, 1999). In any discipline, it is important for a researcher to clarify the philosophical assumptions being made and the possible paradigms that will flow from such assumptions (Guba & Lincoln, 1994).

4.2.1 Research paradigms. What do researchers mean by paradigms? Paradigms denote a set of beliefs about how we view the world and conduct research (Guba & Lincoln, 1985). Burrell and Morgan (1979) claimed that knowledge is paradigmatic, encompassing a distinct worldview and rationality governing research strategies and methods. Mingers (2001)

stated that a paradigm reflects the ontological, epistemological, ethical, and methodological assumptions about phenomena.

Essentially, different philosophical beliefs influence our understanding of the world. Orlikowski and Baroudi (1991) contended that there are three distinct paradigms in IS research: positivist, interpretive, and critical. Each differs from one another in its epistemological, ontological, axiological and methodological assumptions (Cavana, Delahaye, & Sekaran, 2001). Therefore, I will next examine the key differences between these three alternative research paradigms of IS research which underpin the choices faced by a researcher among different research strategies (Easterby-Smith, Thorpe, & Lowe, 2002).

Positivist paradigm. Ontologically, positivists believe that reality exists objectively and independently from human experience (Burrell & Morgan, 1979). Epistemologically, they have proposed that beliefs emerge from causal relationships and should be studied through empirical testing (Hirschheim, 1985). Positivist research chiefly serves to empirically test theory in an effort to increase predictive understanding of phenomena, following the natural sciences approach (Lee & Hubona, 2009; Orlikowski & Baroudi, 1991).

However, its application to the social sciences has been challenged due to the many uncontrolled and unidentified variables involved (Hirschheim, Klein, & Lyytinen, 1995; Kaplan & Maxwell, 2005). Since positivism holds that reality can be understood and tested, it attempts to confirm hypotheses as facts or laws through mathematical propositions about the functional relationships between variables (Guba & Lincoln, 1994). IS research can be classified as positivist if there is evidence of formal propositions, quantifiable measures of variables, hypothesis testing, and the drawing of inferences about a phenomenon from a representative sample to a stated population (Orlikowski & Baroudi, 1991).

Interpretive paradigm. There now exists the view that researchers need no longer justify their research by adopting inappropriate positivist criteria (Klein & Myers, 1999). As an alternative, an interpretive paradigm can be used in IS research if it is assumed that the researcher's knowledge of reality is gathered only through social constructions such as consciousness, shared meanings, documents, tools and other artefacts (Klein & Myers, 1999; Berntsen, Sampson, Østerlie, & Trondheim, 2004). Ontologically, interpretivists believe that the subjective meaning of reality is constructed and reconstructed through a human and social interaction process (Burrell & Morgan, 1979). Organisations are not static and the relationships between people, organisations, and technology are constantly changing (Klein & Myers, 1999).

Interpretivist research attempts to understand phenomena through accessing the meanings assigned to them by participants (Orlikowski & Baroudi, 1991). Interpretivists acknowledge their own subjectivity as part of the interpretive process (Darke, Shanks, & Broadbent, 1998). Compliance with the imperative for rigour is achieved by selecting and applying research methods aimed at ensuring that the influence of the subject is explicit (Klein & Myers, 1999).

Problems associated with interpretivist approaches centre around the following issues: humans are poor processors of data; our short-term memory has a limited capacity; conclusions are drawn from limited data and more attention is paid to recent evidence and information from influential informants; we have a poor understanding of causality and basic statistical properties; and do not always consider disconfirming evidence (Eisenhardt, 1989). These factors can have a negative impact on the validity of interpretivist research, unless the interpretations of the participants' subjective understanding are based on the researchers' interaction with them and their immersion in the research situation (Carroll & Swatman, 2000).

Critical research. The third paradigm is critical research (Orlikowski & Baroudi, 1991). Criticalists advocate a reality that is constituted within a social-historical context (Ponterotto, 2005). Critical theorists assume that people can consciously act to change their social and economic conditions (Klein & Myers, 1999). Its ontological assumption is that social reality is historically constituted and that is produced and reproduced by people (Myers, 1997). Critical theory suggests that many forms of social, cultural and political powers can affect the ability of people to act against social and economic changes (Myers & Avison, 2002). Mingers (2004) has explained that objects, entities and structures exist that generate observable events.

IS research can be classified as critical if the main task is viewed as being one of social critique, with the restrictive and alienating conditions of the status quo being brought to light (Klein & Myers, 1999). Criticalists view reality and events within power relations and use their research inquiry to help free oppressed groups (Ponterotto, 2005). They accept that human ability to improve conditions is restricted by various forms of social, cultural and political domination, as well as natural laws and resource limitations (Klein & Myers, 1999). Critical research also aims to challenge and emancipate established social institutions and conditions (typically enabled and supported by IS), and reveal and transform oppressive forms of control that prevent the realisation of humane and liberated organisations and society. However, it should be noted that:

> the liberatory and emancipatory purposes as a hallmark of the critical approach has, however, been disputed in IS research. Charges range from utopianism, to arrogance, to illegitimacy of research objectives, to the impossibility of achieving the desired emancipatory outcomes (Cecez-Kecmanovic, 2005, pp. 23-24).

Whilst I do believe that social reality is constituted with a social-historical context, the principal aim of my research is not that of social critique and it is not helping to liberate or emancipate any oppressed group, therefore I am of the opinion that critical research was not a suitable philosophy to adopt for this particular research and, consequently, discarded it.

4.2.2 Variance and processual doctrines: A dichotomy. While being a doctrine rather than a theory or methodology (Rescher, 1996), process-based research spans a range of disciplines and different sets of ontological and epistemological assumptions (Van de Ven & Poole, 1995, 2005). Researchers, like Mohr (1982), have drawn a contrast between *'variance'* approaches, which conceive explanations "in terms of relationships among dependent and independent variables", and *'process'* or *'processual'* approaches which build explanations from observed "patterns in events, activities, and choices over time" (Langley, 2009, p. 409).

The variance approach is oriented towards large sample sizes, structural explanations and generalisable results, whilst the processual one is qualitative in nature and oriented towards the dynamic study of behaviour within organisations, focusing on the core themes of organisational context through the temporal order and sequence of events that unfold over time (Pettigrew, 1992; Van de Ven & Poole, 1995). Through the variance approach, process is conceptualised as a law-like relationship between input and outcome variables: a particular value of X leads to a particular value of Y (Mohr, 1982). The process by which a certain antecedent results in a certain consequence is deduced and not directly observed (Pentland, 1999). In this interpretation, time is regarded as a constant, quantifiable independent unit (Van de Ven & Poole, 2005). Time ordering amongst independent variables is treated as irrelevant to the explanation, with the attributes of the different theoretical constructs continuing unchanged over time (Sminia & De Rond, 2012).

In contrast, the focus with a processual approach is on the temporal and interconnected nature of evolving phenomena and the influence of the subjective attitudes, perceptions, and outcomes of the phenomena. The ontological assumptions guiding a processual approach include viewing the world itself as fundamentally made up of processes rather than things. In this view, entities - such as organisations and structures - are no more than temporary

instantiations of on-going processes that are continually in a state of becoming (Tsoukas & Chia, 2002). Scholars probing the antecedents and outcomes adopt a variance epistemology while investigators probing emergence, development, and growth draw on processual epistemologies (Van de Ven, 2007).

In a processual approach, it is not only the processes that are critical but also the underlying logic that gives meaning and significance to these processes. This approach involves the interpretation of repetitive temporal patterns in events, particularly when they occur in socially significant time periods, and the underlying logic which may illuminate how and why these patterns or relationships arise in specific chronological sequences (Pettigrew, 1990). This is where process theories, motors and mechanisms complement process patterns.

According to Pettigrew (1985a), useful research should explore the three dimensions of context, content, and process of change – or, Pettigrew's triangle. The three dimensions in the model are mutually dependent, with the strategy content being influenced by the process and context. How strategies come about is the strategy process, which is concerned with the *how*, *who* and *when* of strategy. The product of a strategy process is the content of the strategy itself, which is concerned with the '*what*' of strategy. Content refers to the areas of transformation being examined (Pettigrew, 1992). Focusing on just content, however, sometimes ignores the role of the human agent in forming and implementing the plan. An analysis of the major forces that give rise to strategy can be denoted as the strategy context and is concerned with the '*where*' of strategy. There are two different parts to the context: the *inner* organisational context (the organisation's structural, cultural, and political framework) and the *outer* environmental context - social, economic, political, and competitive environment (Webb & Pettigrew, 1999). Content and context are bound in a mutual relationship where one is continually shaped by and shapes the other, and that relationship is enabled through process (Pettigrew, 1987). Taking process, content and context into account reminds those wishing to explore a phenomenon that it is important to consider the complexities of organisational life and have regard for the characteristics of the organisation's internal and external environment.

From a theoretical viewpoint, the processual approach is complex as the emphasis is on how concepts interact. It typically takes on the form of generating a story - Golden-Biddle and Locke (2006) described a story as referring to the elements of qualitative research frequently at the centre of processual studies - with respect to the unit of analysis in order to offer an answer to the research question (Langley, 1999). It is the specific interpretation of process, or

the process theory in use, that informs how this story will be assembled (Sminia, 2009). Distinct from the variance approach, the processual seeks to capture the internal reality of the process *in flight* which allows the present to be explored in relation to the past and the emerging future. It may be aligned to an interpretivist epistemology since, through the use of a mixture of multi-level, longitudinal and qualitative data from multiple sources, it attempts in particular organisational contexts to explain badly defined flows and patterns of action characterised by messy and iterative change processes driven by a diversity of stakeholders (Langley, 1999).

It is asserted that the processual approach to explanation can be organised around six principles (Pettigrew & Whipp, 1991): embeddedness (studying processes across a number of levels of analysis); temporal interconnectedness (studying processes in the past, present and future); explaining context and action; searching for holistic rather than linear explanations of process; linking analysis to the location and explanation of outcome; and balancing scientific distance and empirical closeness.

The processual approach is not lacking in limitations and censures. Scholars such as Pettigrew have admitted that qualitative research, especially when there is a lack of explicitness in relation to theory of method, can be vulnerable to having the reliability and validity of its knowledge base questioned (Pettigrew, 1997). As processual research normally takes on the form of constructing a story, there may be potential limitations with retrospective accounts, such as memory loss and rationalisation of narrators that make event chains appear more rational than they were at the time (Langley, 2009). Besides, Langley (2013) has suggested a principal challenge with processual research is in untangling processes as they occur, so as to gain an understanding of their underlying logic while supplying a theoretical interpretation that goes beyond description and is relevant to other circumstances. Another challenge is the necessity for processual scholars to move beyond the identification and explanation of patterns in processes and establish in what way, and to what degree, processes can, and do, shape outcomes (Pettigrew, 2012). Sminia (2009) has supported these arguments and also suggests that strategy process literature is too descriptive and requires research that provides information for process patterns that help improve outcomes.

4.2.3 Empirical studies in selected IS journals. Positivist research has in the past dominated IS research, at least in North America. Orlikowski and Baroudi (1991) found that static, snap-shot, cross-sectional studies were the predominant form of research in IS and these studies accounted for 90.3% of the articles they sampled, with longitudinal and multiple time

period studies accounting for only 4.5% and 3.9% of the sample. From my review of the scholarly literature in terms of variance and process doctrines, it is clear that the majority of IS studies adopt a variance doctrine (Peppard & Campbell, 2014; Paré et al., 2008). Processual studies have been carried out in IS, but only in very small numbers (Sabherwal & Chan, 2001).

Walsham (1995) argued that more interpretive research was needed to take into account the human meanings and interpretations central to IS and the investigations of IS researchers. In addition, interest in qualitative research in IS has grown for several years as the difficulties in reducing the complex social and technical phenomena in the IS field to quantitative figures have been acknowledged (Goldkuhl, 2012).

Interpretivist research represents something of a tradition in European IS research (Galliers & Whitley, 2007). Dwivedi and Kuljis (2008) and Avison and Fitzgerald (2012), who reviewed the research paradigms used in papers published in the *Information Systems Journal* (ISJ), have supported this view. ISJ is amongst the six top research journals and carries the official approval of the Association of Information Systems (AIS) which represents the international information systems academic community. The results of this review are shown in table 4.1 below:

Table 4.1 Types of Research

Positivist vs. Interpretive	Volumes 1-6 (%)	Volumes 7-12 (%)	Volumes 13-17 (%)	Volumes 18-22 (%)
Positivist	23.2	32.3	32.1	37.8
Interpretive	76.8	67.7	67.9	62.2

Note. Taken from Avison and Fitzgerald (2012, p. 187)

As can be seen in table 4.1, the ISJ (a European IS Journal) has published predominantly interpretive research (62%) over a time period of 25 years. However, other empirical evidence suggests that many North American IS journals continue to publish studies dominated by the positivist paradigm and the use of quantitative methods (Galliers & Huang, 2012).

4.2.4 Positioning this study. Amongst the different philosophical paradigms discussed above, I found that the interpretivist paradigm was the most appropriate to answer the question posed by this research. The research is not amenable to replication as in the natural sciences; mainly because validation must involve specific organisational contexts for which, by definition, duplicates can never exist. For example, an organisation similar to that in this study is unlikely to exist; hence a replication of this research is infeasible. Therefore, this study

clearly does not conform to the positivist paradigm. Moreover, as pointed out above, I am not offering a social critique or helping an oppressed group thus the critical paradigm is not an option.

As with all research of this nature, the researcher assumes a certain ontological perspective. In this research, my ontological perspective is one that studies the subjective and inter-subjective meanings used by the people participating in the research to construct and understand their reality as they interact with the world around them (Orlikowski & Baroudi, 1991). In other words, I seek to "uncover the socially constructed meaning" (Cavana et al., 2001, p. 9). My research seeks to understand the key impediments to the process of aligning business and IS strategies in PSOs. This focus implies a complex social phenomenon as it involves multiple subjective meanings of IS, evolving interactions and relationships among people and between people and their environment. Therefore, the organisational and strategic context impacts the factors that influence the process of aligning business and IS strategies in PSOs and I intend to convert the respondents' subjective experiences into a "public language" (Taber, 1991). In support of the arguments of Chan and Reich (2007), positioning my study as interpretivist, as opposed to positivist, allows my research process to be free of the constraints of earlier positivist IS research studies which relied heavily on rigid strategic alignment frameworks and measurement metrics (Fearon et al., 2013).

The processual approach can be defined more fully as the dynamic study of behaviour in a PSO, focusing on both outer and inner organisational contexts, sequences of incidents, activities and actions that unfold over time (Van de Ven, 1992; Pettigrew, 1992). It has important implications for IS researchers since it provides a holistic explanation in which causation is neither linear nor singular. Therefore, the search is not for final causes or single grand theories; rather, the pursuit is for multiple intersecting factors which link features of context and process to certain outcomes (Pettigrew, 1997). In particular, by adapting a processual approach to explore holistic explanations and understand the dynamics of (organisation-specific) strategic alignment processes, my study is better positioned to examine how certain factors, at extra- and intra-organisational levels, influence strategic alignment processes. It is argued that having multiple levels of analysis enables the capture of the emergent and situational nature of process under the given context. This analysis helps in understanding how outer and inner contexts surrounding the organisation level processes shape the dynamic of strategic alignment. In addition, in IS research, the contribution of the contextualist approach is considered important, as defining the context has often been found to

be problematic (Avgerou, 2001), and by extrapolating this notion to strategic alignment, context could be defined as a set of factors that affect strategic alignment and, in turn, influenced by it.

Owing to the complex nature of strategic alignment, I am adopting a processual approach. Thus, the aim is not to produce a case history, as historians and storytellers do, but a case study that provides a more extensive and deeper explanation of the extra- and intra-organisational factors that are likely to impede strategic alignment in a PSO. In fact, this research explores the IS strategy-making process on different levels which include the factors impeding strategic alignment, actors engaged in the process at different levels (collective and departmental), temporal issues and the significance of individual events in the overall process of strategic alignment. Besides, processual research offers an excellent means for analysing longitudinal data, particularly from case study research, and is especially significant and applicable in a practice-oriented field such as IS research. It can be meaningful to the stakeholders involved in strategic alignment as it provides more guidance for action than the variance approach (Shanks, Bekmamedova, & Johnston, 2012).

4.3 Research Design

The design of this study is based on the research question, philosophical paradigm, approach to explanation, and research methodology adopted. Since the first three elements have been discussed above, this section is focused on methodology which refers to the procedures used to acquire knowledge about the phenomenon being investigated (Iivari, Hirschheim, & Klein, 1988). It must meet a number of requirements. Firstly, as the relationship between context and content is enabled through process, the research methodology must be able to take strategy content, context and process into account (Pettigrew, 1992; Van de Ven, 1992). Additionally, it must also enable the gathering of data on all three, since these may indicate contingent factors within the strategic alignment process. Secondly, the research methodology should facilitate the collection of data of sufficient quality, quantity and detail in respect of the research question.

IS researchers have employed a plethora of different research approaches that can be broadly grouped into two categories, 'quantitative' and 'qualitative' (Chen & Hirschheim, 2004). In Appendix B, it is evident that North American journals are seen as leaning heavily towards positivist paradigms and favouring quantitative approaches and survey methods.

European journals, however, have been found to be more likely to favour interpretive approaches, qualitative approaches and case study methods.

As part of my own review of 176 papers on strategic alignment from 1992 to 2013 (see full table in Appendix B), I found the research methods most frequently used in strategic alignment research were as follows:

Table 4.2 Research Methods Used in Strategic Alignment Literature

Primary Research Method	%
Survey	74
Qualitative case study	54
Interviews	34
Frameworks and conceptual models	29
Secondary data	11
Literature review	7
Focus groups	3
Field study	2
Delphi method	2
Action research	2
Ethnography	2
Grounded theory	1

However, it should be noted that a number of papers cited more than one research method as being used. The two most frequently used research methods identified in my review are survey and case study. The next sections will focus on justifying the qualitative case study method used to support the research activities in this study.

4.4 Qualitative Research Approaches

Using a qualitative approach for this study was more appropriate than a quantitative one, owing to the processual nature of the research question. Qualitative research approaches are focused on describing and explaining people's experiences, behaviours, interactions, and social contexts (Strauss & Corbin, 1990). Their aim is to address questions concerned with developing an understanding of meaning, and experience dimensions in human lives and social worlds (Fossey, Harvey, McDermott, & Davidson, 2002). In qualitative research, hypotheses are generally developed after the researcher has commenced the research (Atkins & Sampson,

2002) and data sources are all documented in a non-numeric fashion, textually, or by audio recordings (Berntsen, Sampson, & Østerlie, 2004). This approach is pivotal for discovering deeper processes in individuals, teams and organisations, and understanding how these processes unfold over time (Bluhm, Harman, Lee, & Mitchell, 2011). Although surveys and statistical analysis methods are much used in strategic alignment research, as highlighted in Appendix B and table 4.2, it was concluded that a quantitative research approach is best suited to large-scale data gathering.

Justifying the use of the case study method. As the study focuses on how the process of strategic alignment evolves in a particular context and identifying the impediments to the strategic alignment process, the literature suggests that the qualitative case study research method is particularly appropriate (Pettigrew, 1990; Yin, 2009). The case study research method investigates predefined phenomena but does not involve explicit control or manipulation of variables: it centres on in-depth understanding of a phenomenon and its context (Cavaye, 1996). Benbasat et al. (1987) noted that the case study research method is viable in IS research for two reasons: the researcher can study IS in a natural setting allowing them to answer exploratory questions, and is a suitable way to research an area in which few preceding studies have been carried out.

It would seem from the literature that researching key impediments to the process of aligning business and IS strategies in PSOs would not only be more suitable for qualitative methods of analysis, but also to the single case study approach in particular. Consequently, I considered the case study as a research method to be the most logical approach when compared with the other potential qualitative research options of action research and ethnography. Ethnographers are required to spend a substantial length of immersion time in the field (Myers, 1997), whereas action researchers have the intention of effecting change while conducting the research (Benbasat et al., 1987). I did not have the time required to carry out an ethnography, nor the intent to effect change while conducting the study.

Apart from demanding less immersion time, case studies have been found to be supportive in ascertaining the causal chain that leads to the success or failure of an IS (Benbasat et al., 1987). In addition, because of the inherent strength of case studies in considering both the contextual and temporal dimensions whilst studying the phenomena, they thereby define and provide a holistic view of the process (Pettigrew, 1990, 1997). Therefore, my decision to use a case study as my research method was fostered by the need to gather data that would

facilitate the accumulation of deeper insights and meanings from participants while providing information about the organisational context (Benbasat et al., 1987). In using a case study method, the objectives of the interpretive research are achieved and my research question can be answered.

Like other research methods, the case study has identifiable strengths and weaknesses. The main criticisms of using the case study is that it can be unscientific and anecdotal (Miles & Huberman, 1994), and there are difficulties with the subjectivity of researcher interpretations (Stake, 2005). Guba and Lincoln (1994) listed particular challenges in the reliability of case study research, arguing that the distinct nature of the organisation makes the results of analysis unique to its particular location; thus they are largely non-generalisable. Generalisation to a larger population is called into question when a study focuses on a single entity (Jensen & Rodgers, 2001). In other words, how can a single case yield findings that can be applied more generally to other cases? The response is that case studies, like experiments, can be generalisable to theoretical positions but not to populations or universes (Yin, 2009). A case study does not represent a sample. The goal is to expand and generalise theories (analytical generalisation), not enumerate frequencies (statistical generalisation). This level of interpretation, with methodological rigour but applied to a single qualitative case, lends itself to very little direct generalisability but possibly quite a high degree of general understanding (Miles & Huberman, 1994).

The quality of qualitative research rests on the coherence and cohesion of the overall research process, including decisions about the research topic, theoretical approaches, and methodological choices made by the researchers about the selection of cases, participants, data collection and data analysis (Guba & Lincoln, 1985; Tracy, 2010). Consequently, proponents of case study research advocate adherence to systematic procedures and an analytical approach in the conducting of the case design, fieldwork and analysis (Eisenhardt, 1989; Yin, 2009) to enhance research quality. I will discuss the use of reliability, validity and confirmability as quality controls for this research in section 4.8. Yin (2009) has recommended several ways to ensure the rigour of case study research, such as proper research design and the use of detailed case study protocols.

4.5 Conducting the Case Study.

This section includes a discussion of the type of case study design selected and provides a justification for the choice of a holistic, longitudinal single case study as an appropriate

research method for this study. Data collection methods, documentation analysis techniques, interview techniques, and strategy are also discussed. Finally, the strategy of recording data in a case narrative and case study database is examined in depth.

4.5.1 Deciding on the type of case study design. When considering case study research, account must be taken of the types of case study described in the literature. Case studies can be divided into 'snapshot', longitudinal (focusing on the dynamics of change) and 'prepost' (before and after an event) case studies (Jensen & Rodgers, 2001). Process research should be sensitive to the passage of time; therefore, process-oriented case studies should be longitudinal rather than cross-sectional in nature. I consider the case study required in this research to be that of a unique exploratory instrumental case (Stake, 2005; Yin, 2009) since its focus is on the questions of 'what' (such as, 'what are the key impediments to the process of aligning business and IS strategies in PSOs'), and 'how' (such as, 'how to align IS and business strategy').

The number of cases may be single or multiple (Benbasat et al., 1987). In general, the fewer the number of cases in a research study, the greater the opportunity for depth of observation. Yin (2009) has suggested that single case studies are appropriate if: it is a 'revelatory' case (a situation previously inaccessible to scientific investigation); it represents a 'critical' case for testing a well-formulated theory; and/or it is an 'extreme' or 'unique' case. Darke et al. (1998) wrote that single cases provide for in-depth investigation and rich description, whereas multiple case designs allow for literal or theoretical replication and cross-case comparison. With the 'multiple mini-case', breadth of approach is traded off against depth (Martin, 2003) while the 'deep' or 'classic' single case study has the capacity to be 'paradigm creating' or 'paradigm challenging' (Dyer & Wilkins, 1991). Eisenhardt (1991) welcomed a single case setting when scholars use multiple sources of information. However, the limitations of a single case setting in terms of external validity are acknowledged since a single case may result in misjudgement or exaggeration as it is based on a single event and the generalisation of the conclusions developed from one case may be limited (Yin, 2009). There remains the possibility of generalisation from a single case as concepts, theories, and specific implications or insights can be revealed (Walsham, 2006).

While conscious of these acknowledged limitations of the qualitative, single-context case study, I chose a single case study method to gain in-depth insight into the processual nature of strategic alignment, thus making the trade-off with concerns for external validity

(Eisenhardt, 1989; Walsham, 1995b; Yin, 2009) in favour of demonstrated empirical richness, explanatory power, and internal consistency (Van de Ven, 1992). A full picture of IS strategy-making can be illustrated by a single case study, as it supports rich data collection in an organisational context. In addition, using a single case design is appropriate for the purposes of revealing the micro-mechanisms associated with strategy-making processes, and can richly describe the existence of a phenomenon.

The case should have a clear boundary that sets out the nature and time period covered by the case study (i.e. its scope, beginning, and end); the relevant social group, organisation or geographical area of interest to the researcher; the types of evidence to be collected; and the priorities for data collection and analysis (Yin, 2009). From a processual research perspective, it is necessary to (re)construct a chronology of events. It is important to decide where to start, where to stop, and what to look for. From my review of the existing literature, it was clear that in order to answer my research question, it was necessary for my case to involve a PSO that was at the time involved in the process of IS strategy-making over the timeframe of the proposed research. It was also imperative that the organisation had previous IS strategies, and that I would have access to documentation, be able to attend meetings, and interview the key players. In other words, I would be using an 'instrumental' case in which the particular case selected is not as important as choosing a case that allows the researcher to investigate an issue or phenomenon (Crowe et al., 2011).

4.5.2. Longitudinal single case study and processual research. Mintzberg and Waters (1985) found that tracking a strategy involves extensive case studies of single organisations with the aim of describing strategy as a pattern in a stream of actions over a long time period. The past can be explained in terms of successions of events. With any research, time is a consideration. Historical process narratives indicate the significance of the events and describe their successions and the forces, human and otherwise, that influence them (Van de Ven & Poole, 2005).

There are two different approaches that may be taken. In the first instance, there is the cross-sectional study which relates to the research of a unique phenomenon at a particular time. The second is the longitudinal study concerned with change and development in the research phenomenon (Saunders, Lewis, & Thornhill, 2006). The vast majority of research on strategic alignment has taken a static or cross-sectional approach, with relatively few studies examining dynamic or longitudinal alignment (Chan & Reich, 2007b; Henderson & Thomas, 1992;

Hirschheim & Sabherwal, 2001). A number of researchers have noted the potential usefulness of assessing how strategic alignment is sustained over time (Agarwal & Sambamurthy, 2002; Chan & Reich, 2007b; Sabherwal & Chan, 2001) and even encouraged IS researchers to investigate strategic alignment issues from a longitudinal and dynamic viewpoint (Baker et al., 2011).

The appropriate temporal windows for processual studies may vary from a few days, weeks or months to longer periods of time. Longitudinal research may study phenomena by tracing them backward into the past, following them forward into the future, probing how they are created, or doing all of these at the same time (Langley et al., 2009). The question, then, becomes one of understanding the types of longitudinal research that appropriately examine the dynamic nature of the study's principal substantive constructs (Ployhart & Vandenberg, 2010). Particularly in macro level studies of processes like strategy-making, the researcher is often obliged to combine historical data collected through the analysis of archival data and retrospective interviews with current data collected in real-time. While the first type of data is sparse and synthetic, focusing on memorable moments and broad trends, the second is richer and finer grained (Langley, 1999).

A benefit of reviewing the past is that the outcome is already revealed, providing the investigator with an indication about what the process will clarify. Reviewing processes retrospectively also means less data gathering. Nonetheless, observing processes in action is a very dissimilar practice from examining archival data. With real-time data, there is a greater richness of temporal recording when reviewing exchanges between people and their insights and understandings at different points in time (Langley et al., 2009). Therefore, it is necessary to use a longitudinal approach for this research to explore the key impediments to the process of the strategic alignment of business strategy and IS strategy as this approach allows for the exploration of impediments that have emerged over time in both real-time and retrospectively.

4.5.3 Data collection: sources and principles. Consideration was given to the extent to which research on IS, taking a processual perspective, can be successfully undertaken and what data collection sources have been identified in the literature to do this effectively. This research uses interviews and observations as its primary data and archival data, with government and other documentation such as government reports, emails and websites as its secondary data.

Multiple data collection methods are characteristically employed in case research studies (Benbasat et al., 1987). Data sources for processual research usually involve some or all of the 'big three' sources of qualitative research: observation (participant or non-participant), interviews (retrospective or real-time; individual or group) and archival documents - internal or external; public or private (Dawson, 1997; Mintzberg, 1979; Sminia, 2009). Data triangulation of different sources provides greater support to findings and can enable researchers to address a broader range of behavioural and historical events, capturing the contextual complexity (Benbasat et al., 1987; Yin, 2009). Therefore, data triangulation was applied in this study.

In relation to longitudinal process research, Pettigrew (1990) recommended data collection in adherence with the principles of longitudinal process research; that is: longitudinal engagement with the research site; participant observation; multiple sources of data; systematic data gathering; and reliable data recording or transcription. From a temporal perspective, observations are embedded in the present, whilst archival data and secondary documentation are embedded in the past, and interviews are temporally versatile to the degree that interviewees can remember and connect temporal phenomena across time (Langley et al., 2009).

Regarding interpretive case studies, Eisenhardt (1989), Pinsonneault and Kraemer (1993), Walsham (1995b) and Yin (2009) have viewed the interview as being most effective when sensitive or complex data is needed. There are three types of interview: structured, unstructured and semi-structured. Cunliffe (2011, p. 659) notes that

> within an objectivist ontology and positivist epistemology, structured interviews are used to discover 'facts'; data are often coded, categorized, and analysed statistically. Within a subjectivist ontology and interpretivist epistemology, semi-structured and unstructured interviews are used to explore different meanings, perceptions, and interpretations of organizational members.

Structured interviews are criticised for providing no room for participants to highlight their own views apart from answering what is asked, while unstructured interviews carry the risk of not covering any relevant material. In contrast, most researchers favour semi-structured interviews as these have a pre-arranged agenda to ensure the relevant material is covered, yet allow freedom to the participants and interviewer to explore a topic. However, using semi-structured interviews presents a number of difficulties. The social world in which the

participants live is not one of objective, tangible structures existing independently of their awareness and appreciation (Burrell & Morgan, 1979). Organisational behaviour will always be an interpretive process, involving the motives and reasons that influence people to act in certain ways. Therefore, in order to allow researchers to cultivate a deep understanding of the subject matter required in order to develop pertinent and significant semi-structured questions (Cohen & Crabtree, 2006), semi-structured interviews could be preceded by unstructured interviewing.

Although interviews imply difficulties related to the meanings their participants bring to the concepts being investigated (Denzin & Lincoln, 2000), they are necessary in case studies due to their focus on human affairs (Yin, 2009). The interview is a way of discovering and raising new possibilities about, and dimensions of, the considered issues. In a review of published case studies in IS journals, 88% had used interviews as their primary data source (Dube & Pare, 2003).

Whilst most organisational research involves the collection of stories through interviews, in which narrative accounts are deliberately solicited from participants in an artificially created conversation, naturally occurring story performances captured through the observation of in vivo interactions offer the greatest potential to explore and understand how narrative can contribute to strategy praxis (Fenton & Langley, 2011). Consequently, another common method of data collection is observation which, as a primary research method, is particularly useful when seeking to establish how people actually behave (Baker, 2000), and is a very effective way to highlight evolving patterns of interaction and behaviour (Dawson, 1997).

Historical archives and documents are also well recognised in the case study method in both the historical and contemporary context (Yin, 2009). They can enable longitudinal research to cover a considerably longer period of time to observe process and change, and provide the thick descriptions required by qualitative studies (Pettigrew, 1990, 1997). Archival data and secondary documentation are an important source of data on key event chronologies and often provide records of arguments and justifications (Pettigrew, 1997). Most processual research involves combinations of these sources, permitting the combination and cross validation of contextual and temporal data to provide useful insights into organisational events and processes (Dawson, 1997).

4.5.4 Designing a case study protocol. Yin (2009) has recommended the use of a detailed case study protocol to enhance the rigour of case study research. It enables the researcher to focus on the case study subject and conduct the study in a rigorous way by defining issues such as the audience, participants, necessary data, and time involved before beginning the empirical work. He suggests that the protocol should contain the following sections: an overview of the case study project, field procedures, case study questions, and a guide for the case study report. This approach is used in this study.

4.5.5 Developing a case study database: recording the data. Yin (2009) has described a case study database as a collation of evidence separate from the final case study report, highlighting the importance of demonstrating a 'chain of evidence' to increase the reliability of information, and recommending the database be structured following the line of inquiry in the case study protocol, so that all evidence is assembled in the same place. Benbasat et al. (1987) pointed out the need to be meticulous in record-keeping so that other researchers can work with the gathered data. Similarly, Darke et al. (1998) recommended that the database should be organised in a way that will ensure ready access to the case data at any point during or after the study. The final case study should then draw from this database, presenting critical portions but citing the data as findings and not interpretation (Yin, 2009).

4.6 Data Analysis

The strength of the case study depends on the quality of the data analysis (Miles & Huberman, 1994). The key objective of data analysis in processual research is to generate patterns that require explicit methods in order to build synthetic models out of complex, multi-layered and temporally embedded data (Langley, 1999). However, several characteristics of this type of data cause difficulties in analysis and theorising. Firstly, it may be problematic to identify the sequences of 'events' that constitute appropriate conceptual entities. Secondly, it may be challenging to determine the boundaries between multiple levels and units of analysis. Thirdly, it may be tough to interpret the temporally embedded data because of the differences in retrospective vis-à-vis real-time data. Finally, it may be difficult to theorise from this type of complex data.

Analysing case study evidence is problematic because data analysis strategies and techniques are not well defined for case study research. Miles and Huberman (1994) described helpful analytic techniques such as: putting information into different arrays; making a matrix of categories and placing the evidence within same; creating data displays, for example, charts

and graphs; tabulating the frequency of different events; examining the complexity of, and relationships in, the tabulations and; using a temporal scheme to order the data. Pettigrew (1985a) recommended the following guidelines: comprehensive analysis to identify underlying structures and patterns of the organisational process; temporal analysis to aid in contextualising findings by placing events and situations in a narrative structure; and informant feedback to ensure that the case description and researcher's interpretation were considered accurate and meaningful to the organisational actors.

Langley (1999) drew upon previous studies of organisational change when she described and systematised seven different strategies that can be employed in order to organise and analyse process data: narrative, quantification, alternative templates, grounded theory, visual mapping, temporal bracketing, and synthetic. While these strategies are not mutually exclusive, Langley proposed that they highlight the challenges in realising all the features of a good theory.

Narratives are the closest presentation of the raw data and a quantifying strategy helps in data reduction, which permits theoretical conceptualisation. Although they can be seen as the two opposite ends of a spectrum in a process study, they do complement each other through their different focuses (Langley, 1999). Visual mapping strategy strives to make it possible to represent large quantities of information in a condensed diagrammatic way; thus, gaining the advantage of obtaining an overview of the process under investigation as well as facilitating the identification of patterns within and among events (Miles & Huberman, 1994; Langley, 1999). Commonly, however, qualitative process researchers also rely on more integrative forms of 'temporal bracketing', a replicating strategy that does not mean analysing predetermined events typical of life cycle process research, but instead refers to arranging any structure or relation between non-linear events allowing duality between events and structures (Langley, 1999). It aims to divide the stream of events in the systems development process into a sequence of shorter episodes. Langley further added that temporal bracketing can convert ill-defined data into a series of distinct but linked blocks and this helps to reveal patterns that underlie the observed change in subsequent events. Thus, events constitute comparable units of analysis for process theorising. Finally, grounded theory is a useful first step in developing some basic concepts and ideas from raw data with theory being derived by inductive bottom-up coding from the data.

It is possible to analyse and theorise from process data combining different strategies and consequently build stronger theoretical arguments, rather than merely restating what stands in one analysis strategy such as the narrative (Langley & Sloan, 2012; Van de Ven & Poole, 2005). This is also strongly recommended since it avoids a partial account of a complex phenomenon (Van de Ven & Poole, 1995). Within this study, I followed Langley's (1999) idea of combining narrative strategy and temporal bracketing strategy in my data analysis. Narratives are widely used as vehicles for reporting organisational life and link antecedent with action - or a sequence of events or processes, and with consequence - or pattern of outcomes (Dawson & Buchanan, 2005); while the influence of temporal bracketing essentially rests in its ability to facilitate the identification of particular theoretical mechanisms recurring over time (Langley et al., 2013; Tsoukas, 1989; Van de Ven, 1992).

4.6.1 Generating a detailed case narrative. A case narrative - also known as a *case study report* (Yin, 2009) is a basic data analysis strategy that highlights the relevant and emergent themes from the collected data. Case narratives can assist in the initial stage to chronologically organise data (Eisenhardt, 1989). While the narrative strategy allows for precise sense-making of a case, it is frequently deficient in simplicity and generalisability for theorisation (Langley, 1999).

Yin (2009) highlighted that, unlike other research strategies, there is no uniformly acceptable outline for the formatting of case study reports. The typical case study report is a complex and lengthy narrative. Walsham (1995b) has recommended that the following should be documented in relation to the case: details of the chosen research sites; the reasons for this choice; the number of participants interviewed; what hierarchical or professional positions they occupied; what other sources of data were used; over what period the research was carried out; how the field interviews and other data were recorded; how they were analysed and; how the iterative process between field data and theory took place and evolved over time. This study documented the areas outlined above in relation to the case.

4.6.2 Coding and categorising the data. As qualitative data is not numerical by nature, the difficulty of an unformulated form of analysis emerges (Miles & Huberman, 1994). However, Miles and Huberman (1994) offered a number of guidelines in relation to coding wherein codes should be interrelated and form a governing structure. Strauss and Corbin (1998) explained the coding process as consisting of conceptualising and reducing data, and elaborating categories in terms of their properties and dimensions. The comparison between

the elements resulting from the coding process allows the identification of patterns and root causes or consequences.

An iterative and cyclical process characterises the interaction between data collection and the three components of data analysis: data reduction, data display, and conclusion drawing (Miles & Huberman, 1994). Pettigrew (1990) suggested that the techniques of data reduction and display are crucial mechanisms for structuring and thereby simplifying data. Data reduction refers to the process of selecting, focusing, simplifying, abstracting and organising the data that appear in written-up field notes or transcripts in such a way that final conclusions can be drawn and verified while the reduction activities consist of coding, writing summaries, and identifying themes and clusters (Miles & Huberman, 1994).

Data displays are another technique used in case study analysis and allow data to be organised and condensed in a way that permits conclusion drawing. These also help the researcher to see patterns. The process of writing up conclusions calls for further analytic moves in the data displays, which in turn drive further conclusions. Data reduction and data display are iterative throughout the data analysis stage of the research. The process also includes re-coding, which entails revisiting the previously developed codes to make necessary adjustments and modifications in order to reflect the reality (Easterby-Smith et al., 2002). The third type of analysis is conclusion drawing and verification. Conclusions should not be drawn too early because cause and effects may not be the same as research progresses (Miles & Huberman, 1994).

There should be a circular linkage between the sections describing the research questions, methodology, data collection and interim analyses (Miles & Huberman, 1994). The final stage is the interpretation of the meaning of the case (Creswell, Hanson, Clark Plano, & Morales, 2007) and the final aim of the analysis in processual research is to reach beyond the detection of patterns to develop plausible explanations (process theories) for temporal dynamics (Langley, 1999; Langley et al., 2009). A combination of the guidelines discussed above was used in the coding and categorising of data in this study.

4.7 Theorising from Case Evidence

Processual research usually takes on the form of generating a story with regard to what is being examined to provide process explanations to the research problem (Langley, 1999) and such 'generic' stories can be understood as process theories (Pentland, 1999). The 'why' of processual research (or the process of sense making) is about establishing what has led to what

and putting some form of causality into the course of events. Sminia (2009) has suggested that this will be a compromise between what the data will tell about critical events or event sequences and what causal patterns can be expected to operate. This process of sense making has sometimes been called an "intermediary step between the raw data and a more abstract conceptualisation" (Langley, 1999, p. 702).

Process theories strive to expound how a sequence of events unfolds over time. Such theories integrate different types of effects in seeking to understand the phenomenon and generate the story, for instance: critical events and turning points; contextual influences; formative patterns that give overall direction to the change; and causal factors that influence the sequencing of events (Van de Ven & Poole, 2005). Scholars such as Cavana et al. (2001), Collis and Hussey (2003), Eisenhardt (1989), and Walsham (1995a) have debated the role played by theory in interpretive research. Theory plays a crucial role in interpretive research and is used in a different way than in positivist research; interpretive researchers are not as interested in 'falsifying' theories as in using theory more as a 'sensitizing device' to view the world in a certain way (Klein & Myers, 1999). Walsham (1995b) has argued that theory can be used as an initial guide to design and data collection, as part of an iterative process of data collection and analysis, or as a final product of the research.

Van de Ven (1992) noted that most depictions of organisational processes in the literature seem to use life cycle representations, forecasting linear progressions or teleological theories forming normative systematic guides, and criticised this literature for its atheoretical character and inadequate rigour, and counselled the contemplation of a wider set of process theories, comprising dialectical and evolutionary process theories. Consequently, Van de Ven (1992) and, later, Van de Ven and Poole (1995) proposed four process theories/motors or generative mechanisms (life-cycle, teleological, evolutionary, and dialectical) that vary from one another with different approaches to generate a mechanism, unit of analysis (single or multiple entities), and mode of change (prescribed or constructive). The 'life-cycle' theories (single entity and prescribed) understand process as moving forward, a predictable and completely logical cumulative sequence of events or phases. It was their contention that life-cycle theories of organisational entities often explain development in terms of institutional rules or programmes that require developmental activities to progress in a prescribed sequence.

The 'teleological' theories (single entity and constructive) support the majority of normative theories in strategy and assume progress to be the result of an intended or inevitable

end-state with the process being drawn towards it, and frequently arranged by managerial intent (Van de Ven & Poole, 1995). The 'evolutionary' theories (multiple entities and prescribed) are represented by ecological theories and view process as proceeding through a continuous cycle of variation, selection, and retention, placing prominence on environmental conditions. They centre on cumulative changes in structural forms of systems; in other words, loosely joined links between components of a system emerge as something that is selected by its environment (Van de Ven & Poole, 1995). Lastly, 'dialectical' theories (multiple entities and constructive) are based on the on-going conflict between the coexisting but opposing actors that push process forward (Van de Ven, 1992; Van de Ven & Poole, 1995). Most process research is based on one or a combination of these four theories (Cule & Robey, 2004; Sminia & De Rond, 2012). There is a rationalisation for the use of a quad theory/motor which pools insight from the life-cycle, teleological, evolutionary, and dialectical theories (Van de Ven & Poole, 1995).

Process theory was used in this research in explaining the impediments identified and the subsequent model developed.

4.8 Quality of the Research Design

Unlike the data collected and considered in positivist and variance research, the research results from interpretive and processual research are not often consistent and not necessarily generalisable. In addition, challenges in meeting the standard expectations of validity and reliability in research and what to select from the wealth of data collected have been identified (Guba & Lincoln, 1994). Consequently, the data collected is more complex and challenging to analyse. Sminia (2009) suggests that the quality of processual research should be judged on the basis of the effort put into the production of an account that is free from specific interests and values, or at least recognises which interests and values it represents. Klein and Myers (1999) argue that interpretive field studies have a philosophical basis for abstraction and generalisation.

Reliability, validity and confirmability are important at all stages of the qualitative research process (Seale, 1999) and consequently, these dimensions are considered in this section. Reliability can be achieved by justifying that the research carried out is credible, transferable, dependable, and confirmable (Lincoln & Guba, 1985). Validity is concerned with generating the most accurate answer (Yin, 2009) and confirmability refers to the ability to satisfy external observers that the research was carried out in the way described by the researcher (Miles & Huberman, 1994).

4.8.1 Reliability. It requires that the key steps of the study should be capable of being repeated with similar results when different researchers carry out the same study at different times (Miles & Huberman, 1994). Reliability can be achieved by establishing a case study database and using a case study protocol, emphasising field procedures, case study questions, and a guide for the final write up (Yin, 2009). This is how it was approached in this study to improve credibility, transferability, dependability and confirmability.

4.8.2 Validity. Yin (2009) has described how to achieve rigour of validity in empirical social research, including case study research, by means of construct validity, internal validity, and external validity.

Construct validity. Construct validity refers to correct operational measures for the concepts under study and is best controlled during the data collection and composition stages of case study research (Yin, 2009). To ensure construct validity, researchers should use multiple sources of evidence to establish construct measures which then define the construct and distinguish it from other constructs (Lincoln & Guba, 1985; Miles & Huberman, 1994; Yin, 2009). The construct, its definition, and measurement emerge from the analysis process itself in interpretive research, rather than being specified a priori as in positivist research (Eisenhardt, 1989).

Internal validity. It establishes a causal relationship, as distinguished from spurious relationships, and is also known as credibility. From a processual perspective, internal validity refers to the degree to which results are 'true' for the particular place and moment in time to which they refer, at least to the participants in the process under investigation (Pettigrew, 1985b). Discussion of the results and conclusions with other researchers can add to internal validity (Lincoln & Guba, 1985; Yin, 2009). Other activities to demonstrate internal validity include expert peer debriefing as suggested by Lincoln and Guba (1985) and Yin (2009). Eisenhardt (1989) proposed that internal validity could be increased by comparing research findings and results with other studies that produced similar and contradictory results and findings, while also encouraging additional reflections and ideas of why differences existed. In longitudinal process research, participant validation is pivotal in ensuring that the case descriptions are meaningful for the practitioners (Pettigrew, 1985, 1990).

External validity. This is associated with the notions of transferability or generalisability. Eisenhardt (1989) and Miles and Huberman (1994) argued that external validity in a single case refers to the ability of an independent investigator to replicate the case

study in the same way as performed by the researcher. A common criticism of the single case study method is that it is not capable of providing a generalising conclusion (Eisenhardt, 1989; Miles & Huberman, 1994; Yin, 2009). Although that is true to populations or universes, it is not to theoretical positions (Yin 2009). Therefore, external validity of single case studies just has a different focus.

Confirmability. Defined as the ability to satisfy the expectations of external researchers that the study was carried out in the way described by the researcher (Lincoln & Guba, 1985; Miles & Huberman, 1994). The method for ensuring confirmability is to develop a record of data collected in great detail to allow other researchers to observe a chain of evidence in the study. Miles and Huberman (1994) have emphasised that detailed and accurate documentation of the methodologies and techniques used in case study research, as well as the field notes during data collection, is extremely critical to demonstrate confirmability and also reliability and validity. They suggest that maintaining an audit trail, which affords an external observer the chance to understand and trace the whole research project from the evidence presented to the conclusions drawn, is vital. This study approached the concepts discussed in the manner suggested in this section.

4.9 Conclusion

This chapter has provided a detailed justification of the choice of method adopted to most effectively answer the formulated research question. It first identified the philosophical positioning of this research, along with the critical assumptions made. Then, it discussed: a) the research strategies used within the IS discipline in order to design the research process; b) a comprehensive framework, within which to position the research strategy used; c) the research strategy chosen; d) the reasons for choosing a longitudinal processual single case study design; e) how to conduct the case study, and f) how to assure reliability, validity, and confirmability. This sets the stage for presenting the practical implementation of the methodological choices made (in chapter 5), the detailed case narrative (in chapter 6), and a novel theoretical model and its validation (across chapters 7 and 8).

Chapter 5 - Research in Practice

5.1 Introduction

The study incorporates an empirical investigation of a PSO that examines the strategic alignment of business strategy and IS strategy at multiple levels. Chapter 5 presents the research method applied in this study, which was justified in chapter 4 as being ideal for studying such a multifaceted phenomenon as strategic alignment. The research in practice described in this chapter involves an interpretive paradigm executed via a longitudinal qualitative case study with an embedded process orientation to obtain rich data (both real-time and retrospective) from which a detailed process narrative is produced.

5.2 The Starting Point

The starting point requires an initial definition of the research question that sets out a well-defined focus for the study. Following a comprehensive review of the scholarly literature on the alignment of business and IS strategy, gaps in the literature were evident in terms of the process of strategic alignment, the nature of strategic alignment in PSOs, along with the impediments to the process of strategic alignment. To encapsulate these observations around impediments to strategic alignment, and the process of strategic alignment in PSOs, the research question was framed in broad terms so as to investigate "*What are the key impediments to the process of aligning business and IS strategies in PSOs?*" The main aim of this study is to develop a model around the impediments to the process of aligning business and IS strategies in a public service context and, therefore, the nature of the dissertation is exploratory by way of selecting a case study research method to pursue a process inquiry.

5.3 Conducting the Case Study

In chapter 4, the case study research method was justified as being the most appropriate to address my research question. This section focuses on the procedure for conducting the case study and includes: a) a discussion of the detailed criteria that guided the selection of the target organisation for the case; b) the time series covered by the research; c) the design of the case study protocol; d) the data collection methods; and e) the strategy of recording the data in a case study database.

5.3.1 Case selection. The objective of this research was the identification of the key impediments to the process of aligning business and IS strategies in PSOs. The NICS, as a system

of civil departments, was selected as the research setting. NICS is responsible for the delivery of core public sector services to 1.7 million people and employs 25,000 administrative staff spread across 12 departments (Wickens, 2013). The organisation in question was particularly well suited for this study, for several reasons.

First, it was about to enter an IS strategy-making process in which it would be involved over the period of the research, and had previously put IS strategies in place. Second, I would have access to documentation, be able to attend meetings, and interview the key players. I had a number of contacts within the NICS through an MSc alumni, as did my supervisor; therefore the NICS was accessible and geographically convenient (Yin, 2009) making the NICS not only appropriate for this reason but also amenable to the conduct of research (Stake 2005).The process of gaining access, entails strong elements of chance, luck and serendipity (Walsham, 2006). Finally, the NICS was large enough to make a detailed analysis of strategic alignment at various levels across the PSO.

The NICS was the focus of a longitudinal qualitative case study with an embedded process orientation. The case study clearly served a revelatory purpose, insofar as it allowed deep insights to be generated into how the NICS aligned its business strategy and IS strategy over two time periods. Being in a position to take a holistic view of the organisation provided an excellent opportunity to analyse the phases and the events involved in strategic alignment over two different periods of time and the impediments to it at each phase.

5.3.2 Time series and context. Processual research must be sensitive to the passage of time; therefore, case studies should be longitudinal rather than cross-sectional in nature. When adapting a processual approach, it is necessary to explore the phenomenon as a continuing system with a past, present and future. Therefore, process studies may trace processes backwards into the past or follow them forward in real-time (Bizzi & Langley, 2012) and for this research both the retrospective data and real-time data used cover two periods: 2004 to 2010, and 2010 to 2014.

Regarding the last temporal period, I closely followed the IS strategy-making process from January 2010 to September 2013 and at the same time collected retrospective data related to the first period and origins of the NICS. This timeframe provided me with ample time to develop an in-depth understanding of the case without placing the undue burden on NICS personnel that intensive data collection over a shorter period might. In addition, it allowed for intervals of data collection to be interspersed with periods of reflection so gaps in the data

could be identified and rectified while emerging impediments could be explored. Exploring two time periods facilitated comparing and contrasting the process of strategic alignment over time.

5.3.3 Case protocol. In order to ensure rigour in the research, I applied case study guidelines as recommended by Maimbo and Pervan (2005) and Yin (2009); in particular, the use of a case study protocol (Appendix C). This makes it possible to repeat the study either in the same context or elsewhere. The function of the protocol is to guide the researcher, as well as participants to the relevant issues in the investigation undertaken. As qualitative researchers can in fact strive for reliability and validity in their findings, the case study protocol also serves as the procedure to be followed while writing reports on investigated cases, so that clarity generates trustworthiness and meaning throughout the research (Yin, 2009). I developed a protocol prior to the semi-structured interviews. The protocol contained information about the study and procedures.

The first draft of the interview questions were critiqued by research colleagues for length, structure, completeness and clarity and then piloted in an interview conducted with the IT Manager in my own organisation (not part of the research) to check timing, structure, flow, and participant acceptability. The Chief Technical Officer (CTO) in the NICS also reviewed the questions (see Appendix D). However, the questions were continuously refined based on the past interviews and the rank of the interviewee i.e. Departmental Heads of Technology (DHOTs) were asked different questions as compared to the PS.

5.3.4 Collection of evidence. The aim of data collection was to gather processual, historical, and contextual data. This meant conducting interviews and observation (attendance at internal workshops) and obtaining archival and secondary documentation (organisational and publicly available); thus, permitting both the combination and cross-validation of contextual and temporal data to provide useful insights into organisational phases and processes across the two time periods.

The data collection method for this case study was configured as follows:

1. Information gathering from publicly available sources regarding the history of NICS.
2. Initial consultations with project manager in the Department of Finance and Personnel (DFP) Information Strategy and Innovation Division (ISID) regarding the current strategy-making process.

3. Information gathering from terms of reference, correspondence with consultants, interviews carried out with representatives of departments and the collective centre by the project team as part of the IS strategy development.
4. Observation of initial workshops.
5. Review of initial strategy documentation and feedback from workshops.
6. Review of comments on the next version of the IS strategy.
7. Interviews with DHOTs.
8. Observation of follow up workshops.
9. Follow up interviews with project manager, CIO and CTO.
10. Review of final IS strategy and IS reference architecture.
11. Follow up interview with CTO regarding progress of IS strategy implementation.
12. Review of previous IS strategy, strategy development document, reports from other agencies (NAO).
13. Interviews with former senior management regarding previous IS strategy.
14. Review of governance minutes.
15. Interview with PS, CIO regarding current IS strategy and impediments.
16. Review of progress evaluation of IS strategy documentation.

5.3.5 Primary data. I conducted twenty-four interviews (11 unstructured and 13 semi-structured) that produced a vast quantity of data. Additionally, I was given extensive access to IS strategy-making documents. In January 2010, I completed my first in depth unstructured interview with the Deputy Director (DD) from DFP (Grade 6), who was acting as project leader for the IS strategy-making process, to obtain richer insights into the organisation of the NICS and the preparatory work for the process. Pan and Tan (2011, p. 157) suggest that

> the first interview, in particular, should be with an informant who can provide an overview of the phenomenon under study. This allows the researcher to validate and, if necessary, modify his/her mental concept of the phenomenon at the earliest available opportunity. While the first informant does not need to have detailed knowledge of all

aspects of the phenomenon under study, he should have a good idea of who the researcher can interview subsequently to obtain the required pieces of information.

I interviewed the DD three times face-to-face and once by phone until he retired in July 2010, with one last face-to-face interview in 2013 after his retirement. I had one in-depth unstructured interview with the CIO and five with the CTO as the strategy development and implementation continued to unfold from August 2010 until September 2013 under his leadership. These interviews ranged in length from two to four hours and all were used in the data analysis.

From the in-depth unstructured interviews emerged suggestions for documentation to draw upon and other stakeholders to interview. These stakeholders were four DHOTs in NICS departments, the PS of DFP, and six current and former senior managers with knowledge of current and prior strategies. They were selected based on being key stakeholders in the current or previous IS strategy-making process and interviewed from May to June 2011. The different points in time at which the key stakeholders were involved in specific strategy work in either strategy-making period highlights the fact that this research into the unfolding strategic alignment process is in essence an interweaving of the NICS's past, present and future (Langley, 2009).

Prior to each interview, I emailed an interview invitation to each participant (see Appendix E). It contained information about me, a description of the focus and purpose of the case study, and other practical information related to the interviews. It should be noted that I already knew most of the interviewees. At the start of each interview, I reiterated the purpose outlined in the email and reassured the interviewee as to confidentiality, following Walsham's (2006) suggestions. Each of these semi-structured interviews lasted approximately two hours. Data was collected until such a point where new sources could not add any data value to the research question. Table 5.1 presents those interviewed, with their department title and position.

Table 5.1 Interviewee List

Department	Interviewee Position	No. of Interviews	Type of Interview
DFP	DD[1] Retired	3 (unstructured) 1 (unstructured) 1 (semi-structured)	Face-to-Face Telephone Face-to-Face
DFP DARD	CIO[2] Grade 3	1 (unstructured) 1 (unstructured)	Face-to-Face Face-to-Face
DFP	CTO	5 (unstructured)	Face-to-Face
DOJ	DD	1 (semi-structured)	Face-to-Face
DFP - ESS	Director IT Services	2 (semi-structured) 1 (semi-structured)	Face-to-Face Telephone
DCAL/DEL	Retired Permanent Secretary	1 (semi-structured)	Telephone
DHSSPS/ DSP	Head of IT Group	1 (semi-structured)	Face-to-Face
DOJ	Head of ICT business services	1 (semi-structured)	Face-to-Face
DFP	Head of ICT	1 (semi-structured)	Face-to-Face
DFP	Former CEO BDS	1(semi-structured)	Face-to-Face
DFP	Grade 3/CIO[3]	1 (semi-structured)	Telephone
DFP	PS	1 (semi-structured)	Telephone
OFMDFM	Retired Head of CITUNI	1(semi-structured)	Face-to-Face

As sequence is critical to processual research, I documented the historical context of each interviewee by a general discussion of their background in the NICS or elsewhere, IS experience level, roles and responsibilities at work, etc., in an attempt to understand and obtain deeper insights into the various factors that influenced their interpretations and understandings of IS and the IS strategy. In fact, this was necessary, and at the same time useful to help me to understand how the historical background (i.e. context) influenced the then current IS strategy-

[1] This person was interviewed initially in their position as DD and then further interviewed post-retirement.
[2] This person was initially interviewed in their position as CIO and later interviewed when they changed position within the NICS.
[3] This person became the new CIO after the previous CIO changed position in the NICS (see footnote 2).

making process, and helped provide the rigour and breadth of understanding to fully address the research problem in the case study.

Following this general discussion, the interviewees were asked to discuss the IS strategy-making process. I questioned them about how they perceived the IS process, and probed in such a way that they would detail the most prevalent impediment to the alignment of business and IS strategy (if any) they perceived. Various opportunities arose to find sources of data during the interviews as participants offered documentation and introductions to other potential interviewees.

To enhance the necessary interviewee confidence, I did not record the interviews (Rubin & Rubin, 2011), and concurred with Walsham (2006) that tape-recording could make the interviewee less open or less truthful. Instead, I took extensive hand-written notes and typed these up within 36 hours. To improve credibility, each transcription was emailed to the relevant participant to comment on the validity of the transcript and provide clarification where necessary. In general, the participants perceived that I had understood and transcribed them correctly. Most of the comments focused on clarifying some details and giving an update on the progress of the strategy-making process since the interview occurred (Appendix F).

The semi-structured interview questions covered a wide range of key concepts to ensure that there was no pertinent information missing which would call into question the internal validity of the study. I created a list of these key concepts prior to the interviews as part of the case study protocol (Appendix C). These concepts were based on the factors identified in the literature that impact strategic alignment identified (Luftman et al., 1999) and my interviews with the DD/CTO/CIO from DFP; these were used to develop the questions as prompts for me as interviewer and to ensure validity of data collection (see Appendix D). Whilst having these concepts allowed me to retain a logical thread in asking questions, other interesting concepts emerged during these interviews.

Being an outside observer meant that distance could be maintained between interviewees and myself. Whilst being neutral, I was always aware, as highlighted by Walsham (2006), that this did not mean I was unbiased - as everyone is biased by their own background, knowledge, and prejudices to see things in certain ways. Being neutral simply means that the participants did not perceive the researcher as being aligned with a particular individual or group within the organisation, being paid for consultancy, or having pre-existing views of specific people, systems, or processes based on previous work in the organisation.

As part of my data collection, I also attended the four internal IS strategy workshops held during 2010. At these, I noted who the participants were, any content or process information related to my research question, the physical surroundings, and my impressions and reflections; especially with respect to the internal organisational context and emerging impeding factors. My participation at the workshops was as a neutral observer. I had the opportunity to understand the key role of the various participants in contributing to the strategy-making process through shared deliberations of ideas among them. I documented detailed field notes for subsequent analysis. These were also sent to the project manager for feedback on my observations. Observations of this type were a way for data provided by key participants to be triangulated and augmented (Lincoln & Guba, 1985; Miles & Huberman, 1994; Yin, 2009).

The notes were immediately typed up after each interview and observation (Eisenhardt, 1989; Yin, 2009) before sending them to the individual participants for validation. This helped to maximise recall and facilitated follow-up and the filling of gaps in the data. In the interests of obtaining accurate results, some of the key participants - e.g., the project manager, CIO and CTO - were consulted multiple times to confirm the evolving case narrative (Eisenhardt, 1989; Yin, 2009).

5.3.6 Secondary data. This study explicitly utilises secondary documentation as a source of data. By using it to complement the primary data, the reliability of the findings was improved (Lincoln & Guba, 1985; Miles & Huberman, 1994; Yin, 2009). It also enhanced their richness as well as ensuring validity through the process of triangulation (see Section 5.6).

In a processual study, having retrospective data is vital (Bizzi & Langley, 2012). Therefore, background information was collected about the NICS (i.e., its history, the specific business, and IS strategies pursued at various points in time) and the constraints imposed on it by the evolving political situation and UK government. A range of over thirty organisational documents was reviewed for the study. I was also given access to the interview notes created by the IS strategy team with the DHOTS and key business users prior to the first internal workshop, as well as various iterations of the evolving IS strategy: IT architecture; the then current PFG; departmental NICS IS strategy documents; and other documents mainly in the form of presentations prepared by the IS strategy-making team, email correspondence, and Information Technology Governance Board (ITGB) minutes. I developed a broad understanding of the NICS, its history and operations; in accordance to Yin's (2009) statement that documents produced in the ordinary course of management are excellent sources of highly

specific information to corroborate and augment data from other sources. The major secondary documentation obtained for this research can be seen in Appendix G.

5.3.7 Developing a case study database: recording the data. A complete case study database for this research was maintained using NVivo 10 qualitative data analysis software which allows the storage and retrieval of qualitative data and offers a coding, memo, sorting, and searching facility (Bazeley, 2009). The case database created for this research contained a complete set of research project-related material, including the field notes (Eisenhardt, 1989) that recorded data gathered from interviews, observations and secondary sources.

5.4 Data Analysis

Data collection and analysis using a processual approach creates large data sets for the researcher to analyse. One consequence of the multitude of data, and the structuring of complex processes is "death by data asphyxiation", in which an initially good and clear idea becomes a big and sinking mess of processes (Pettigrew, 1990, p. 281). This section discusses the data analysis strategies used in this research to avoid that.

5.4.1 Transcribing raw data into field notes and the case database. Qualitative data is often rich, multifaceted and intense. It is challenging to condense the various sources of data appropriately to make sense of events or deal with an ever growing bulk of data. Field notes were typed out after attending the IS strategy workshops and conducting the various interviews. As the primary and secondary data were collected, it was necessary to review the data to gain a deep understanding of the strategy-making processes as they unfolded in both time periods.

Eisenhardt (1989) suggested data collection and analysis should be undertaken simultaneously. This was managed in this research by an iterative and inductive process - going back and forth between the data, the literature, and the emerging findings (Yin, 2009). Therefore, data analysis must be executed in a well-organised manner, and the data collected stored carefully in order to achieve rigour in research (see Section 5.6). When analysing data, precautions must be taken in how it is segmented into units and rearranged into categories (themes) for the purpose of facilitating pattern-matching, comparison and in-depth insight between segment data.

Secondary documentation was analysed for its content, form, and change over time. It served as a source of corroboration or contradiction to accounts given by the participants about the NICS's strategy-making process (past and present). Each document was thoroughly

reviewed, catalogued, and analysed based on relevant themes grounded in the literature and those that had emerged from the participant interviews. They were analysed for their level of formalisation, manner and frequency of communication, and frequency of strategic change. For instance, documents generated during the strategy-making process provided insight into the NICS's level of formalisation (written plans, delineated and phased processes, etc.), revealed what tactics and tools were used during the process, showed evidence of stakeholder participation, and confirmed the NICS's intended strategies.

The interview and workshop data was analysed using a similar iterative process (Eisenhardt & Graebner, 2007) focused on narrative strategy and temporal bracketing. The former examined not only sequential patterns but also actors and their narrative voice (Pentland, 1999), providing a thick description of the NICS case (Lincoln & Guba, 1985) and clarifying the importance of contextual factors (Pettigrew, 1997). The latter gave longitudinal depth to my research, and also allowed for the data to be analysed in phases in order to describe linear evolving patterns by focusing on 'restorying' the case in detail from the raw data so it was possible to cope with the amount of data (Eisenhardt, 1989).

The data analysis began by placing the data onto a timeline (temporal bracketing) and developing a narrative around that timeline in order to arrive at a processual view. That allowed the demarcation of themes and aggregate dimensions by comparing key events (Nag, Corley, & Gioia, 2007). This involved putting some semblance of order into sequences of events, multiple levels of analysis with ambiguous boundaries, variations in temporal embeddedness, and 'eclectic' data (Langley, 1999). I developed a detailed story from the raw data (narrative strategy), and decomposed the overall two timelines into the four phases (temporal bracketing) of strategic alignment. After providing a description of what happened in the two time periods across the four phases, I carried out some preliminary analysis to explore why events unfolded as they did and identify some impediments to the process of aligning business strategy and IS strategy.

5.4.2 The coding process. The large amount of data at hand encouraged me to analyse it using consecutive steps similar to those defined by Miles and Huberman (1994): start list, data display, and data reduction. I began with an initial analysis looking for evidence of impediments to strategic alignment as identified by the individuals interviewed (including me as part of this research) or observed at the workshops. After printing copies of notes and transcripts, I conducted line-by-line analysis of the content and made notes of possible codes.

After this, I organised the importation of the data into the software programme, NVivo 10 (QSR International Pty Ltd, 2012). The analysed relevant documents were organised into groups (subfolders) according to the type of documentation to which they belonged. Transcripts of the 24 interviews were split between those involved in the project team (IS strategists) and others. Seven folders were created, with each folder comprising of a number of documents. Assembling the documents in this manner facilitated both the retrieval and coding of individual documents and allowed coded content to be sourced at a glance.

At this stage, analytic decisions were taken, with the research question in mind, to determine which data segments to code and examine for subsequent patterns that seemed to emit from them (Miles & Huberman, 1994). Groups of meanings emerged from the data which could then be classified into themes (Creswell et al., 2007). Grouping the meanings from the data segments and classifying the themes involved a mixture of deductive and inductive analysis. Since the current research has identified common patterns and a number of factors that impede the process of strategic alignment, the analysis was rather deductive. However, I myself inductively discovered and named some of the patterns or themes and collated all data segments that appeared pertinent to the research question into codes as initial coding using NVivo (see appendix Y.1).

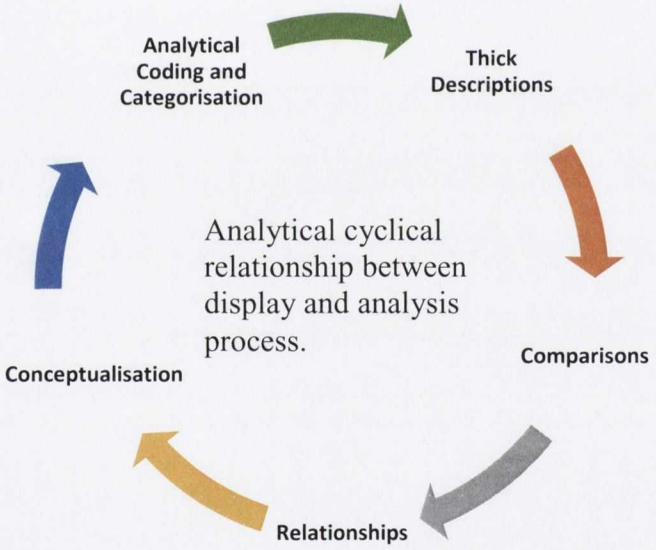
Thus, the coding process began with the identification of a start-list of sixty-four codes into which segments of text from the case were aggregated for second level analysis. I decided on the codes based on the research question, literature review, interview guide, and nature of the data. The code list grew to one hundred and thirty-seven as the coding process progressed and additional dimensions of the case data revealed themselves (Appendices Y.2). I repeated the coding process with line-by-line analysis, using NVivo to cross-reference codes from one piece of data collected to another. I assigned a description to each code in order to ensure that the code remained consistent over time (Maykut & Morehouse, 1994). Some higher-order categories started to emerge.

The next stage of the analysis, data display, included assembling information to assist conclusion drawing. This meant a process of clustering codes in parallel with the initial coding to find similarities which became theoretical categories to move from the start list to data display and, finally, to data reduction in which codes are re-arranged around theoretical categories (Miles & Huberman, 1994). Categorisation of codes entailed reordering the identified themes coded previously, into categories of codes (parent codes) with associated

themes (child codes) and arranging these into a data display that aided additional analysis of the data.

This process also included refining, re-naming, and amalgamating categories so that the names and rubrics for inclusion correctly mirrored the coded data. At this coding stage, the level of abstraction expanded with the objective of discovering patterns between the categories originally coded. Consequently, preserving the data's original meaning and context was a challenge and the display must be exhibited in a clear and concise way that allows the reader to draw similar and valid conclusions. This was useful as there is a cyclical relationship in which the data display can suggest further analysis which can then lead back to even more data displays (Miles & Huberman, 1994). Figure 5.2 shows the cyclical nature of this stage of the process:

Figure 5.2. Coding Process



When all the data collected had been coded, I again reviewed the codes and completed the data display phase by focusing specifically on the remaining start list codes. During this stage, I renamed, moved, or merged codes to create consistency which reduced the number of unstructured concepts to a more limited set of meaningful themes (Corbin & Strauss, 2008). The full structure of hierarchically ordered codes of this research is illustrated in appendices Y.1-Y.3.

Next, I reviewed all the interviews and other data collected several times more, looking for similarities and differences and, eventually, conceptual patterns; refining the 'start list'. The

usefulness and soundness of this coding arrangement was then continuously verified using successive data and collapsing and expanding codes into child codes (second order themes) which where needed to move into aggregate dimensions. Emergent patterns and concepts were constantly compared and contrasted with the extant literature during the data display stage. When all of the data was coded and analysed, I examined how it answered the research question.

Distinct sets of codes emerged from the data display stage as outlined in the table below:

Table 5.2 Extract from NVivo

Theme	No. of Sources	No. of text blocks
Approval from senior management	8	12
Building IS capability	2	9
Business - IS partnership	28	48
Communication	47	278
Consultation	3	3
Continuous process	1	1
IS human resources	33	80
IS leadership	15	48
Meeting with consultants	2	2
Meeting with politicians	1	1
Meetings with departments	2	2
Meetings with DHOTs	3	3
One to One interviews	2	3
Presentation to IS leadership	1	2
Satisfaction	11	33
Senior executive support for IS	22	53
Time period	12	32
Workshop	6	6
Align departmental IS strategies	14	23
Amend business polices and processes	3	5
Analyse current IS	5	11
Appoint project sponsor (SRO)	16	28
Assess technology opportunities	10	26
Design IS reference architecture	24	68
Develop business principles	14	20
Develop communication plan	1	1
Develop corporate strategy	8	18
Develop project portfolio	5	8
Establish a governance structure	60	395
Evaluate IS strategy	15	28
Implement projects	11	27
IS fails to meet commitments	17	29

During the data reduction phase, the codes and associated data were again sifted through to achieve a further level of refinement. Additional patterns were sought within the concepts and case data, to build a coherent set of phases of strategic alignment, key deliverables (later renamed key technical deliverables), key events (later renamed core social work), and ensuing impediments that would unify the concepts abstracted from the analysis of the data and the case narrative. In line with Pettigrew (1990), interpretations of the temporal (i.e. the how and when), the spatial (i.e. the why and where), and the content (i.e. the what) aspects of a social phenomenon were the guiding principles for uncovering the phases of strategic alignment, the technical deliverables, core social work, and impediments to strategic alignment. The clustering of impediments was a matter of grouping and conceptualising data. The search for impediments took into account both stated connections and iterative or shared interpretations.

Conclusion drawing and verification is the final stage in the data analysis and is the step wherein the researcher interprets the data displays and induces meaning while protecting analytical validity (Miles & Huberman, 1994). In this phase, I identified and followed various levels of abstraction. Firstly, I examined the case narrative compiled from each participant interview and their reflections on one or both strategy-making periods. Secondly, I reviewed the technical deliverables/core social work coded from the data sources and reflected on their applicability with respect to other organisational contexts. These technical deliverables and social work were then grouped under one of four phases (new codes): *establishing, endorsing, embedding, and evaluating*. I then reviewed the codes in the data display phase which described impediments, reflected on those that appeared most prominently during each phase, cross referenced once more with the extant literature and, finally, settled on eight impediments that seemed to have a clear link with a particular phase. The eight codes were labelled in the data reduction phase as: *planning, governance, IS structure, and value realisation, leadership, partnership, commitment, and culture.*

In establishing linkages between phases and impediments, a further level of abstraction was achieved. In addition, I checked that there were sufficient individual quotes to exemplify and underpin the validity of the linkages found between phases and the impediments. Before deriving the conceptual model described in chapter 7, I once more reflected on the specifics of the NICS context, referred back to the extant literature, and evaluated the transferability of my phased model of strategic alignment towards other organisational (private and public) contexts.

5.4.3 Case narrative. Because enormous amounts of data were collected for the case study, it was gradually constructed over the whole period of data collection. The case was thoroughly described in a final case report (see chapter 6) with the aid of temporal bracketing and a narrative strategy (Langley, 1999). Its description focuses on the history of the NICS, its organisational structure, and government departments and included an overview of both strategy-making periods, together with the strategic alignment of the business strategy and IS strategy story of the NICS across four phases for each time period. Lastly a number of emerging themes including emerging impediments from the case narrative were explored.

5.5 Theoretical Development

Existing theories and themes were considered in pattern matching and my research findings and results were similar to related research in the literature with some findings being new. Eisenhardt (1989) suggested that comparing research findings and results with existing literature may increase internal validity, by linking to similar and conflicting findings in addition to encouraging further reflections and ideas as to why such differences existed. Thus, comparing my research findings with those of others helped me to see where I could potentially fill existing gaps and identify the contribution and new knowledge that could be added to the literature. Therefore, the use of theory in the later stages of this research was central to drawing deeper insights and implications of the studied phenomenon in the larger context of existing theories and related research. Based on the case and the findings that emerged, a process model of strategic alignment was produced.

In developing my model, I examined the case data and identified technical deliverables and core social work in the NICS cases. While these were not exactly the same for both temporal periods (Table 5.2) from a comparison of both time periods, it was possible to distinguish distinct technical deliverables and core social work and, through the use of the temporal bracketing strategy, structure these under distinct phases, resulting in the classification of four different phases of the strategic alignment process. Identification and demarcation of phases was determined by detection of periods within which there were similar technical deliverables and core social work in both temporal periods. To further validate and support the demarcation of phases, I searched the data for and identified other key characteristics (*dominant focus, level of engagement, and degree of alignment*) that punctuated the end of one phase and marked the transition to the next.

I then explored how, and why, the flow of core social work unfolded and where impediments within the flow could be detected. Identification of impediments was determined by detecting key core social work that instigated a change in how the process of strategic alignment was perceived, managed, and controlled. Ultimately, this led to the identification of specific technical and social impediments within each phase. I also analysed for each phase the nature of the behaviours (to be explained by process theories) that sustained strategic alignment/misalignment within that phase. Van de Ven and Poole (1995) identified four-process theories - lifecycle, teleology, dialectic, and evolution - that differ in event sequences, and organisational levels; the underlying logic of what drives the process. By analysing which behaviours were present during which phase (I found two: teleological and dialectic) and how these interconnect over time helps explain very complex strategic alignment processes.

Therefore, there was a continuous interplay between data, emerging themes, and existing knowledge to develop a deeper understanding of the strategic alignment phases in the two temporal periods under examination. During the case analysis of each temporal period, a detailed empirical description of technical deliverables, core social work and impediments emerged out of which new concepts were refined and interpretations developed.

I have placed particular emphasis on collating the details from the data gathered from my research together with a detailed narrative of what has been said, and observed to enable the transferability of my results. Although it was quite challenging to interpret and handle the vast quantities of textual data in this research, the breadth found in the data has provided me with detailed descriptions of the reality as experienced by my interviewees. Indeed, they allowed me to explore the particulars and, most critically, merge them to create a holistic understanding that can possibly be transferable to other PSOs, and in fact other types of organisation. In developing my phased model of the process strategic alignment, I distinguished between four phases; each with seven distinct characteristics.

5.6 Quality of the Research

This section describes the approach to quality control for this research in terms of reliability, validity and confirmability.

5.6.1 Reliability. It was achieved by utilising both a case study protocol detailing the study in overview, field procedures, case study questions (see section 5.3.3), and a case database (see section 5.3.7). NVivo 10 was used as the case database to record all information such as extensive notes from interviews and observations, and documents from all stages of the

research effort. Gathering all the data related to the research phenomenon into a single database ensured the reliability of the research for later scholars.

5.6.2 Validity. This research achieved rigour of validity through the following approaches: construct validity, internal validity, and external validity (Yin, 2009).

Construct validity. This was addressed by the use of multiple sources of evidence. Another aspect that improved the construct validity was the establishment of a chain of evidence in the data collection phase. It was established by describing the data collection and analysis procedures in detail in this chapter. To further increase the construct validity, initial drafts of the interview notes were submitted to interview participants in order that they could go through them and suggest corrections. Only a handful of minor comments were received, and these were then taken into account. In addition, the presence of multiple periods within the case enabled a more extensive replication (Langley, 1999).

Internal validity. This was addressed by building the research on the theoretical basis of the existing literature on strategic alignment, which is complemented with the theoretical approach of process research. Multiple levels of strategy-making were taken into account to improve the explanation, and build a more extensive perspective on strategy processes in PSOs. An extensive understanding of the phenomenon studied was also achieved by interviewing participants (current and former) holding different perspectives on the NICS, and who hold/held different positions at different organisational levels within the NICS. This provided variety and somewhat rivalling explanations of the phenomenon.

Throughout the process, I ensured the reliability of the coding by presenting the results of the different steps at conferences, meetings, and internal colloquiums. In addition, I discussed the developed model and possible theoretical conclusions with individual research colleagues and my supervisor.

External validity. Transferability to other PSOs is an important element of the external validity of this research. Similar to other longitudinal researchers, I had to rely in part on retrospective accounts by participants (some former) that may be subject to post-rationalisation, and therefore potential biases. However, I took several precautions to avoid erroneous results. First, I used retrospective data to investigate past facts and behaviours rather than beliefs and intentions, focusing on key events and most important processes. Second, participants were selected due to their lead position in the organisation or strategy-making process under analysis, and I interviewed multiple participants on the same periods to avoid

informant bias. Participant bias was further reduced by the fact that the key participants could be considered highly knowledgeable, able to view the focal phenomenon from different perspectives (Eisenhardt & Graebner, 2007), and identify the key overall contextual factors and events. In addition, the negotiated access was likely to raise the motivation of the participants to deliver reliable data. However, it should be acknowledged that as the interviewees comprised mainly of PSs, Grades 3, 5, 6 and DHOTS, this might slightly emphasise teleological patterns as opposed to more evolutionary patterns in organisational behaviour, as well as deliberate rather than emergent strategy processes.

Confirmability. This research has made provision for satisfying the confirmability requirement by maintaining a complete case database which contains the data and related information of the whole project (see Section 5.3.7).

5.7 Conclusion

This chapter considered the application in practice of a longitudinal qualitative case study with an embedded process orientation from which a detailed process narrative was produced. The research strategy, methodology, and specific data collection methods were described in detail along with the process of analysing the data. In addition, measures to ensure the reliability, validity and confirmability of the results were described. The next chapter describes the case outlining the phenomenon under study in some detail, and presents the preliminary approach to the data analysis reinforced with selected quotations to enable the reader to make their own interpretations from the research.

Chapter 6 - Case Study

6.1 Introduction

This NICS case study is presented with the aid of a narrative strategy and temporal bracketing (Langley, 1999) as discussed in chapter 5. This chapter provides: an overview of the NICS origins and executive/administrative powers in order to place IS strategy-making in this context (section 6.2), a historical examination of IS strategy-making within a NICS context and the impact of the British Government (section 6.3), a description of strategy-making events and exploration of two periods of IS strategy-making and strategic alignment (section 6.4) and, finally, a focus on some preliminary themes and impediments to the process of aligning business and IS strategies to emerge from the two time periods (section 6.5).

As described in chapter 2, process research is concerned with understanding how events evolve over time and why they evolve in the manner in which they do (Van de Ven & Poole, 1995). This case narrative then consists of the story constructed from the raw data as to what happened for the two periods of IS strategy-making in the NICS and who did what when, i.e. tracking the activities, events and decisions in a largely chronological order. In essence, this chronology highlights sequences across levels of analysis suggesting causal linkages between levels and establishes early analysis themes (Pettigrew, 1990) - i.e. key events and impediments - and whilst it is the initial step in the sense-making process, it also acts as the intermediary database for the identification of phases (temporal bracketing). Fundamentally, process research in strategic management focuses on the manifestation of strategies, which are usually conceptualised as the result of decisions or planning processes where work of a social nature resulting in a technical deliverable is carried out in distinct phases, starting from information gathering, developing, selecting, implementing, and evaluating alternatives of choice (Fredrickson, 1986). The case narrative also gives an understanding of the process of aligning business and IS strategy by providing a second-hand experience of a real setting (the NICS) in all its richness and complexity (Guba & Lincoln, 1985). The contextual detail that follows should highlight the transferability of the findings in chapter 7 to other situations. The narrative aims to highlight as completely as possible the different viewpoints on the events that took place over the two periods, thus comparing and contrasting the process of strategic alignment over time.

6.2 Case Context: NICS

Process data is fluid in nature and spreads out over both time and space (Pettigrew, 1992). As explained in chapter 4, one of the principal reasons for taking a qualitative processual approach is to take the context into account (Pettigrew, 1992; Yin, 2009). With this in mind the origins of the NICS, government hierarchy, the historical context of NICS IS strategy-making are described in the following sections.

Origins

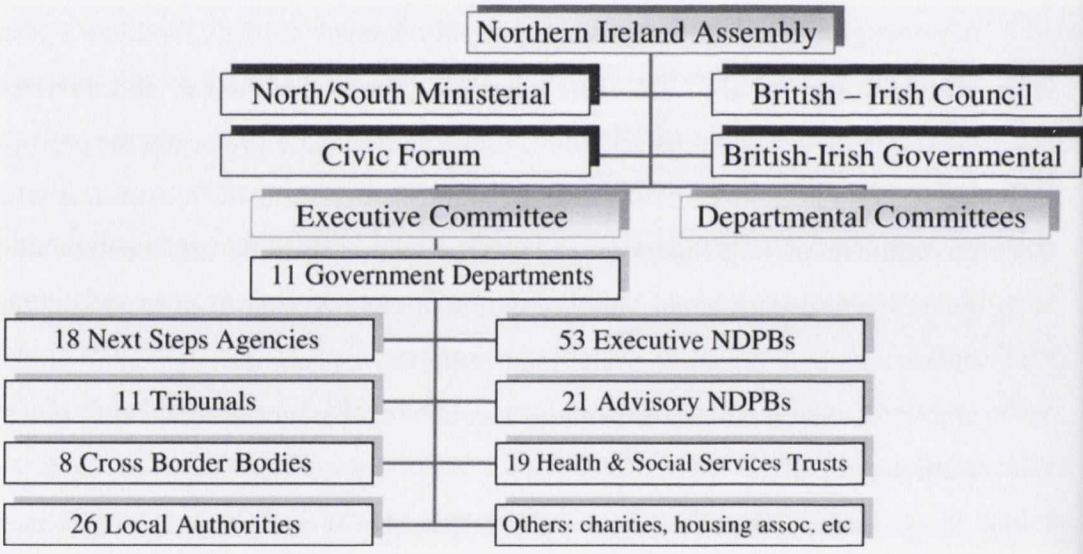
Following Partition in 1921, the NICS had the standing of an 'independent civil service', distinct from the British Home Civil Service, which it retained during the periods of Direct Rule from Westminster (Birrell, 2012). Carmichael (2002) outlines that there are three distinct phases in the history of the NICS, namely Devolution (1921–72); Direct Rule (1972–99); and Devolution-to-date (1999–). Due to extensive public discontent and political conflict over religious and civil rights (commonly known as the 'Troubles') from 1972 to 1999, Northern Ireland (NI) was governed by 'Direct Rule' (i.e. administered by the British Government at Westminster). The 'Troubles' of the late 1960s and the prorogation of Stormont led the NI Parliament (1972) to enact significant administrative reforms which divested local government of key functions and vested responsibilities in a central NI Executive of six government departments. Many of the functions divested from local government (e.g. health, education, and housing) were then supplied by non-departmental public bodies run by appointed boards; this caused many accountability issues (Parry, 2005) in a system of only 1.7 million people.

Under Direct Rule, a new NI Office (NIO) was formed, jointly based in London and Belfast. It was headed by a Secretary of State with Cabinet status and up to four junior ministers and constituted only part of the Secretary of State's brief (Carmichael, 2002). Following the historic 1998 Belfast Agreement, government returned to NI in 1999. The Belfast Agreement resulted in a devolved power-sharing NI Executive and a regional NI Assembly. This, in turn, motivated a fundamental reorganisation of government (Knox & Carmichael, 2006). The British government saw devolution as central to a broader, modernising approach to renewing and reforming public services. It aimed to ensure that policy-making was more 'joined up' and strategic. Public service users, not providers, were the focus of its activities and public services were high-quality and efficient (Cabinet Office, 1999).

Devolution in NI reconfigured the government departments responsible for public services and extended them to ten departments with an extra department (Office of the First

Minister and Deputy First Minister, OFMDFM) to manage the Programme for Government (PFG) and the new Executive's agenda (Knox & Carmichael, 2005). The NI Secretary and the NIO retained responsibility for reserved powers: policing, prisons, security, and criminal justice (Carmichael, 2002). This department was also responsible for national security in respect to NI as well as its human rights, elections, and legacy issues (e.g. current on-going public inquiries). However, on 12 April 2010, the Department of Justice (DOJ) was established as part of the devolution of justice matters to the NI Assembly (P6, 2011). See Appendix H for a list of the twelve departments, their responsibilities, and respective Ministers. The political history of NI has led to a robust central government structure and a very restricted devolution to local government (Greenway, Steenson, & Deyermond, 2008).

Figure 6.1 Public Administration in NI



Source: Knox and Carmichael (2006, p. 945)

The British government officially devolved powers to NI in 1999. However, in the period up to 2007, devolution was prorogued and Direct Rule was reinstated due to boycotts, controversies over weapons decommissioning and a general lack of political progress (Rice, Somerville, & Wilson, 2013). However, since the signing of the St. Andrew's Agreement in 2006, an intricate (but functioning) devolved, power-sharing administration has governed NI (Rice et al., 2013). Devolution was restored on Tuesday, 8 May 2007 following the election of a four-party Executive of 12 ministers.

Before the period of devolved government, a Review of Public Administration (RPA) examined roles and organisations across the entire public sector. This RPA recommended

significant changes to the organisation of the public sector, particularly in the field of local government – and the boundaries of responsibility between central and local government.

Formally launched in June 2002, the Executive decided to review NI's system of public administration with a view to establishing modern, accountable, and effective arrangements for public service delivery. The review has been a root and branch examination of how government in NI is organised. The review examined, inter alia, the requirement for the then 11 Departments, and how they interacted with each other. The RPA was a comprehensive examination of the arrangements for the administration and delivery of public services in NI. The review covered over 150 public sector bodies, including the 26 district councils, four Health and Social Services Boards and 19 Health Trusts, five Education and Library Boards, and approximately 100 other public bodies.

Direct Rule Ministers announced decisions on the RPA in November 2005 in relation to Health, Education, and Local Government and in March 2006 concerning the remaining public bodies. However, with the return of the Executive and Assembly, departmental reviews on the RPA were completed and further decisions agreed. After a wide consultation process, the RPA recommended a modernisation of public services in NI, including a restructuring of government agencies, a reduction in quangos, and an amalgamation of councils so that their number was reduced from 26 to 11. A summary of those decisions is shown in Appendix I (Review of Public Administration, 2009).

However, the implementation of the RPA was delayed due to divergence within the Executive on concerns such as local government boundaries and the financing of the reform programme. Consequently, the 2011 Local Government elections proceeded on the basis of the pre-existing 26 councils and not the 11 councils recommended by the RPA (Keating, Cairney, & Hepburn, 2012).

Government Hierarchy

The NI Assembly (The Assembly)

Established as part of the 1998 Belfast Agreement, the Assembly debates and makes laws; it also scrutinises and makes decisions about NI governmental departments. It consists of 108 elected Members of the Legislative Assembly (MLAs). MLAs are members of political parties and are elected by people in a constituency to be their voice in the Assembly. Elections are held every four years; eighteen constituencies elect six MLAs each.

The British Government retains decision-making powers (to be administered by British Ministers and the Home Civil Service) concerning 'Imperial' matters such as International Relations, Space Exploration, Defence, Nuclear Power, Income Tax, and Excepted Matters (Carmichael, 2002).

The NI Executive (The Executive)

The Executive is the devolved government of NI which is drawn from among the Assembly's 108 members and subject to scrutiny by its statutory committees. These are complemented by standing committees and a number of ad hoc committees, established by the Secretary of State to guide him on reserved matters (Wilford, 2010). It is responsible for many issues: economic and social matters, agriculture and rural development, culture, arts, education, health, social services and public safety. The Executive Committee meets to discuss significant issues and proposes new laws for the Assembly to consider (DirectGov, n.d.). A small group of MLAs, known as Ministers, take charge of particular areas (e.g. health or education) and are allocated based on parties' numbers of seats in the Assembly. The Assembly tasks these ministers with approving the Budget and PFG. A First Minister and Deputy First Minister (with equal powers) head the Executive Committee.

The NI Civil Service

The NICS is responsible for delivery of core public sector services to 1.7 million people (Robinson, 2009; Wickens, 2013), including health, social services, economic development and regional investment, agriculture, transport and education. It supports devolved government and delivers its policies and services as efficiently and effectively as possible (while, at the same time, staying politically neutral). It provides Ministers with evidence-based policies and citizens and businesses with information and services - either directly or indirectly via non-departmental public bodies (P1, 2010).

It employs 25,000 administrative staff in 12 departments and operates a federal system of control (Wickens, 2013); overall political direction is given by the OFMDFM; finance and human resources are managed centrally by the DFP. Departments have autonomy in delivering their respective Line of Business (LOB) policies and services. The most senior civil servant in each department is the Permanent Secretary (PS). The Head of the NICS also heads the OFMDFM and is Secretary to the Executive. However, this position has limited influence; in fact, it is a leadership role with no authority (P8, 2011). Each PS is the accounting officer of their department and is accountable for the monies allocated to that department (P1, 2010). The

Permanent Secretaries Group (PSG) is comprised of the 11 Departmental Permanent Secretaries and chaired by the NICS Head. The NICS, like the British civil service, is historically based on military hierarchical structures of command and control (P11, 2012).

A major issue facing the NICS has been the fact that it has executive functions without any official obligation for collective responsibility from its constituent parties. This has noteworthy consequences for the mechanisms of the Executive, particularly in the 'competition rather than cooperation' that ensues between Ministers (Birrell, 2012). This system of departmental 'fiefdoms' generates real problems in the implementation of key cross-departmental strategies, such as 'A Shared Future' (community relations), 'Lifetime Opportunities' (social inclusion) and 'First Steps Towards Sustainability' (sustainable development) – all initiated under Direct Rule (Wilford & Wilson, 2009). Since departments have autonomy in delivering their respective LOB policies and services, it can be difficult for Ministers to agree on an overall strategic direction.

6.3 The Historical Context of NICS IS Strategy-Making

A summary of the historical context of IS strategy-making within NICS is presented in the following table.

Table 6.1 History of IS strategy-making within NICS

Mid-1980s	1. Mumby Review of IS 2. Ownership of IS pushed from DFP to departments
Early 1990s	1. Mainframe part of Bureau sold to outside vendor 2. Heads of ISU forum established
Late 1990s	1. Devolution - 6 departments became 11 – each with a DHOT 2. E-Government Unit Set Up
Early 2000s	1. E-Government Board established 2. Assembly suspended; direct rule re-imposed 3. Junior Ministers appointed to IS 4. CIO retired; new CIO appointed 5. Policy and Service Delivery in relation to IS split between OFMDFM and DFP

IS executives realised in the mid-1980s that due to growth in demand, the existing model of central software development services and mainframe bureau was not going to meet the needs of the NICS going forward. Besides, IS was changing with the advent of mini-computers and networking (desktop devices). Steve Mumby, a Central Communication and Telecommunication Agency (CCTA) consultant, carried out a review of NICS structure in 1982 and suggested:

- IS should be pushed closer to the business of the NICS
- Central Software Development (CSD) should remain in place for 'corporate' activities, the role of individual Information System Units (ISUs) in departments was to meet the business needs of individual departments
- There would be a major growth in the IS workforce; with the creation of departmental ISU budgets

As a consequence of that review, the then PS of DFP decided to pass over ownership of IS to individual departments. So, DFP ceased as the main provider of IS to the NICS and the owner of all IS staff. It reduced its span of control and effectively handed over IS decision-making and control to individual departments; making departments more agile and innovative. However, this also meant that each department built its own (often quite similar) IS and ISUs started to grow substantially in number. An attempt was made by the de facto CIO (there was no official position equivalent to CIO until 1997/98) at this time to establish central standards and guidelines for IS, but this did not happen (P12, 2013).

Additionally, the CIO saw the potential of the Internet and how it would change the world. The NICS became an early adopter; senior civil servants in NI became world leaders in articulating what could be done with the Internet. NI was way ahead of the USA at this time (e.g. in Britain, all government transactions went through an electronic gateway). The CIO promised that NI would move all transactions through this gateway if it was given the software for free ('early adopters'). As NI was between NI governance and Westminster, there was great flexibility; the CIO could do what he wanted and travelled to other jurisdictions to ask what lessons had been learned (P12, 2013). The historical development of the adoption process is shown in the following table.

Table 6.2 History of Adoption Process

Mid-1980s	1990s to 2004
NICS was an early adopter of Internet technology	Engagement of politicians with CIO
Electronic Gateway introduced for Government Transactions	A new IS strategy for NI government (including local government) was signed off
CIO travelled on IS fact-finding expeditions to other jurisdictions	

In the 1990s, the NI Government followed the British privatisation trend within the NICS. The first intervention (around 1991) involved a decision to sell off the mainframe bureau part of the business. NICS was under Direct Rule at this time and the NI government requested nominations for market testing. The mainframe bureau, including a large number of staff, was outsourced to a company called CFM; at the time owned by ICL and now by Fujitsu. For the first time, the centre outsourced its major influence on IS. Individual departments were obliged to remove their applications from the mainframe bureau, freeing-up space on the mainframe for ICL to sell to other clients. The departments were unable to do this and as a result, ICL charged massive penalties to compensate for their lost revenue from this spare capacity (P12, 2013).

In 1997/1998, the first attempt at devolution was made and new departments, local ministers, and new budgets were created. There was much suspicion and animosity at ministerial level; collaboration between departments was frowned upon (P12, 2013). At the end of 1999, the NI political agreement resulted in devolved government. Consequently, the six old departments in NI became eleven in order that each department would have its own minister. The existing six ISUs supported those 11 departments to a greater or lesser degree of success (Lowry, 2009). Each department was (and still is) headed by a technologist called a DHOT.

The Belfast Agreement of 1998 commits the Executive to agree to an annual PFG. This PFG is comprised of a comprehensive Public Service Agreement (PSA) framework that lays down the measures and objectives for departments to take in support of the Executive's

priorities, as measured by a 'balanced scorecard'. Some existing policies date back to Direct Rule days when the PFG was called the Secretary of State's Priorities (P2, 2011).

Around this time, the CIO was tasked with driving forward the British Prime Minister's eGovernment initiative. A central policy-making body was established in OFMDFM, called the Central IT unit for Northern Ireland (CITUNI); it was later renamed the 'eGovernment unit' in 1997/98 and, around this time, the first CIO position was established (P12, 2012). The main role of this unit was to move forward the eGovernment initiative. The British Government published in March 1999 a white paper entitled *Modernising Government* (Cabinet Office, 1999) which set challenging targets for the electronic delivery of Government services. In March 2000, Tony Blair moved forward the target date for one hundred percent delivery to 2005. In April 2000, 'eGovernment: A Strategic Framework for public services in the Information Age' further defined his vision of a 'customer-focused' government.

There was another suspension of devolution; a new Minister, Ian Pearson, was appointed to DFP. He took a particular interest in eGovernment and was a great supporter of the CIO. He endorsed the CIO's view of the status of NI within Britain for IS (i.e. "with them but not of them") and allowed for a liberal interpretation of Westminster policies as applied to NI departments. For example, he lowered targets for online services from 100 percent to 80. The CIO asked departments to prioritise the services that citizens would like to have online which could be useful to government. With this intent, the 'Corporate Strategic Framework' was published in 2001 to articulate a vision of a modernised efficient government. It introduced targets for departments regarding the electronic delivery of services and focused on targets for key services rather than all. Individual departments had the discretion to identify their key services. Central guidance recommended they should include those which:

- Provide services highly valued by citizens (i.e. those services which citizens would like government to make available electronically).
- Result in a high number of transactions with citizens (i.e. those services for which government would like citizens to use IS).
- Require citizens, by law, to transact business with the public sector.

With this in mind, each government department was tasked with producing a plan that identified citizen-facing services – and how they could be improved with IS. Departments submitted these plans to OFMDFM (in which the eGovernment unit was situated). The CIO

and his team worked on these plans in conjunction with departmental boards (P1, 2013). At this time, the policy of central standards and guidance was developed and a central fund for cross-departmental projects established. Projects had to cross over more than one department to get funding. The endorsed policy included engaging SMEs with government contracts and launching the Guidelines for eGovernment Pilot Projects.

In 2001, the CIO took a series of confidence-building steps and created an alliance of like-minded people. Nigel Hamilton became the NICS Head and assumed the role of its reform. With this in mind, he formed five sub-groups (a-e); the e subgroup being a new eGovernment and Service Delivery Sub-Group of PSG.

This played a key role in determining an overall direction for reforming service delivery across the NICS. However, not everyone had positive views of the eGovernment Board and it was viewed as serving the British government intent to put everything online (P9, 2011).

CSD subsequently became part of the new Business Development Service (BDS) around 2004, which had transferred to DFP. This essentially split policy and service delivery. Policy-making moved to OFMDFM and service delivery remained in DFP. This brought a whole host of new opportunities with new people responsible for departmental IS. It also raised the status of IS from Heads of ISU to a new body at Assistant Secretary Level with the ability to make strategic decisions. Included here was the 'wider public sector': local government, police, etc. Departmental budgets once again came under pressure, so sharing was back on the agenda.

As Britain was experiencing sweeping administrative reforms, NI was engrossed in reaching a political settlement. However, the NICS has a pattern of 'policy-copying' British government reforms (Carmichael, 2002). While the NICS might maintain it had applied reform initiatives such as the 'Financial Management Initiative' (1982), 'Improving Management in Government: the Next Steps' (1988), 'Continuity and Change' (1994) and 'Modernising Government' (1999), it did so within the confines of Direct Rule from Westminster in which administrative reform was a low priority and policies were merely 'read-across'. Rhodes, Carmichael, McMillan, and Massey (2003) suggested that some of the reforms were implemented in a piecemeal, slow and selective fashion. In a similar vein, Parry (2005) noted a slow and cautious application by the NICS of British modernisation programmes. Conflict, political instability, and the absence of political will have all been proposed as reasons for these delays; nonetheless, senior NICS officials were largely supportive of various management

reforms introduced by the Home Civil Service (Carmichael & Osborne, 2003). Many major initiatives in the British civil service were adopted by the NICS: financial management, Next Steps, the establishment of the senior civil service, promulgation of a civil service code and the role of civil service commissioners.

The situation after devolution, particularly in relation to trust issues between departments, continually worsened. However, the CIO saw this as an opportunity to listen, influence, and respond. He managed to get a new IS strategy for NI government (including local government) signed off. This new strategy paved the way for issues such as collaboration, in an unthreatening and non-dictatorial way (P3, 2011).

6.4 IS Strategy-Making and Strategic Alignment Efforts

Regarding the efforts to produce IS strategy-making and strategically align them to business strategies, there have been two distinct periods: 2004–2010 and 2010–2014 each with a sequence of events for individual IS strategy-making periods. Knowledge advances with the comparative method across time (Langley et al., 2013). Using two time periods permits the constitution of comparative units of analysis for the exploration and replication of theoretical ideas (Langley, 1999). In this case it allows for patterns across the two time periods to emerge in terms of phases, key events and impediments.

Period1: 2004–2010

The data for this time period was gathered from archival data and retrospective accounts given by participants via interview. It is not as detailed in comparison to the next time period (2010-2014) in which I was able to observe first-hand many of the events that took place (Langley, 1999) and follow the strategy-making process in real-time via attendance at workshops and real-time accounts given in participant interviews.

The eGovernment Board commissioned the development of information system (IS) and information technology (IT) strategies for the NICS. In October 2003, the OGC was requested to provide consultancy support to assist with the development of the IS strategy for the NICS. Its scope was to be three years, in alignment with the corporate planning cycle. The NICS IS Strategy was originally published in 2003. In 2005, the NI eGovernment Unit, on behalf of the NICS, commissioned Gartner Consulting to produce an IT Strategy for the NICS. It was published in 2007 and was based on the business and IS principles agreed in 2003/2004. These various strategies were developed separately, with some mutual acknowledgement –

something that made them disjointed according to the consultant employed in the second strategy-making period.

The overall strategic alignment process started with the development of the corporate strategy, in other words the development of the PFG was impacted by a number of contextual factors. The development of the PFG in this time period, i.e. after devolution, framed policy in a citizen-centred, 'joined-up' way. Particular reference was made in the PFG as to how IS could be used to improve service delivery and contribute to the reform agenda. IS was to help 'join-up' the various bodies that deliver public services and reduce 'silo-based' approaches. These factors put eGovernment at the centre of public sector reform and the modernising agenda.

In July 2004, the Gershon Review ('Releasing Resources to the Front Line: Independent Review of Public Sector Efficiency') was published, highlighting possible efficiencies by sharing support functions such as finance and human resources. For NI, and the rest of Britain, the publication of *Releasing Resources to the Frontline: Independent Review of Public Sector Efficiency* (Gershon, 2004), marked a new phase and impetus for all PSOs to make sustained, cash-releasing and efficient savings by leveraging IS investments and implementing cross-cutting, innovative initiatives across existing organisational boundaries.

Also in 2004, the *Fit for Purpose* document set out a reform agenda for the NICS (Office of the First Minister and Deputy First Minister, 2004). However, the NICS pursued what it described as "a reform agenda appropriate to the Northern Ireland context" (Office of the First Minister and Deputy First Minister, 2004, p. 8). This 'unique' reform agenda included three central elements: prioritising front-line services, building capacity amongst its staff and embracing diversity in its workforce.

The identification of the governance structure was the next key event. At that time in the NICS, there was a 'centre' (at an overall collective level) which was generally viewed as those parts of the service whose primary role was to serve other departments. In 2004, two departments fit this description: DFP and OFMDFM. The organic centre (from an eGovernment/IS/IT perspective) included parts of both of these departments. There was a perceived lack of clarity over the arrangements for the management of IS/IT in NICS at this time, particularly the role of the centre. In addition, responsibility for governing and managing IS/IT affairs at a collective level was divided between a number of different bodies. Two of these were the PSG (e) group and the eGovernment Board. The PSG (e) was a sub-group of PSG with a mandate "to consider how the modernizing of service delivery can best meet the

needs of customers and the business needs of government in the 21st century" (Office of Government Commerce, 2004, p. 15). Before 2004, PSG (e) had been concerned with such issues as the Online NI e-government strategy, management of IS-enabled mission critical projects, broadband aggregation and the creation of a Centre of Excellence for project and programme management.

Previously known as the eGovernment Project Board, the eGovernment Board was composed of department representatives (at Grade 5 level). Its aim was "to develop an over-arching framework and to agree associated programmes which address appropriate aspects for the integration of information and communications technologies to deliver public services in NI; and to oversee their implementation" (Office of Government Commerce, 2004, p. 15).

The production of a consultation paper by an OGC strategic assignments consultant set the agenda for a round of interviews with representatives of all departments and the centre to develop the business principles.

At the highest collective level, the business objectives of NICS are contained in the executive's PFG. The top-level priorities of the PFG cascade into PSAs for Ministers/departments. The PSAs set out high-level objectives for each department with associated deliverables, targets and budget allocations. They also identify objectives shared with other departments. Departments respond to their PSAs by preparing corporate and business plans/strategies which show how targets will be met and money spent. The business principles framed were focused on modernising and reforming public service delivery and the drive for public sector efficiency, as called for under the Gershon Review.

After the development of the business principles, the next key event was an assessment of the existing IS organisation and services. The provision of IS services to the (then eleven) NICS departments was still largely based on the six ISUs associated with the pre-devolution departments. Strategic collaboration between NICS departments and the centre, the emergence of *de facto* standards and market forces had created a situation with a degree of commonality and interoperability between NICS departments. However, there was a desire for a corporate IS strategy, to decrease the strategic grip of outside contractors and reduce reliance on the technology market to facilitate interoperability between departments (P1, 2010).

There then followed an identification of technology opportunities. The starting point was the identification of a (then existing) list of key enabling services, taken from a review of mission-critical projects conducted for PSG (e) by PricewaterhouseCoopers. At this time, there

was a notable increase in NICS's degree of dependence on IS. As more citizen services became available online, an expectation developed that these services would offer round-the-clock availability. Consequently, there came a call for technology to enhance NICS's eBusiness/IS/IT capabilities.

In addition, the complexity of the overall network and the divided responsibility for its management make it vulnerable to failure (whether through error or by deliberate attack). The resilience and security of the IS infrastructure needed improvement. Also, at this time, there was a need to provide all NICS departments with a new set of payroll, accounting, document management and HR services to replace outdated legacy systems and provide additional functionality. The application of the Gershon Efficiency Review to NI focused on a review of IS sourcing. Accordingly, a review of back office IS service provision was commissioned by the eGovernment Board. The review examined alternative models of service provision, including the wider use of shared services.

As a result of the above events, a number of IS Strategy principles emerged to realise the business principles framed. Among them, the following:

- An enterprise IS architecture for NICS - to provide a blueprint for the provision of IS services throughout NICS and focus on citizen access, interoperability and information sharing between NICS departments.

- Key enabling services - to support the delivery of the NICS's IS-enabled business-change programmes and projects through the corporate provision of key enabling services.

- Governance and management - the programme management structure was to be centred on a programme office within the Northern Ireland e-Government Unit (NIEGU). This programme was to be directed by PSG (e), which would act as a management board and be supported and sponsored by the eGovernment Board.

- Information management - a knowledge-management framework to facilitate the sharing of knowledge throughout the NICS.

- Information assurance (IA) - By the end of the strategy period, NICS was to have developed a corporate IA framework which encompassed all aspects of information security and the IS-related aspects of business continuity.

- ICT service provision/sourcing - IS/IT service-sourcing in NICS was to be re-organised. (Office of Government Commerce, 2004)

Following the establishment of these listed IS principles, a consultation paper dated 12 December 2003 was produced, summarising the views discussed in the earlier interviews and highlighting areas of dissent. Participants commented on the consultation paper via email or by posting responses on an Internet message board. A working group of PSG (e) and eGovernment Board members met in a workshop session on 12 March 2004 to discuss the issues which arose during this consultation. These attendees agreed that IS strategy should focus on the delivery of key enabling services to ensure the success of mission-critical projects and effective operation of the NICS.

The programme management regime recommended by the strategy was then produced. The starting point was the delivery of the final draft of the strategy report. The final draft outlined the aim that real, tangible benefits from the IS strategy would be delivered by the business projects 'enabled' by the strategic IS programme, in other words successful strategic alignment.

A draft strategy was circulated among eGovernment Board members to gain their endorsement. A final draft was produced and presented by the OGC strategic assignments consultant to PSG (e) which it subsequently endorsed.

The next step was to develop a NICS enterprise IS architecture. While it was the role of a corporate IT strategy to determine which technical standards should be applied across the service, the IS strategy was to identify areas that required standards. The concept of the NICS enterprise IS architecture was similar to that of the "Blueprint for eGovernment" (as developed by the eGovernment Unit in Britain). The NICS enterprise IS architecture provided a blueprint for the provision of IS services throughout NICS. It focused on citizen access, interoperability, and information sharing between NICS departments. This was the foundation for the NICS corporate IT strategy and identified the actual standards to be applied to the components of the architecture.

There then followed the production of an IT strategy and project portfolio by Gartner Consulting. This was based on information gathered from NICS departments by Gartner Consulting (through baseline questionnaires, workshops and individual interviews). Gartner Consulting developed the IT strategy using a concept known as 'the Bricks' (elemental technology building blocks).This NICS IT Strategy was to be used as a blueprint for the

delivery of future IS services. It set out the IS Vision and defined key technology principles and policies for the subsequent three to five years. The IT Strategy also defined the missions and technologies that served as basic building blocks and processes for the deployment of NICS systems. It provided the computing foundation for data and application architectures that supported the objectives of NICS departments. The Gershon Review identified 'back office' support functions as a main area for potential savings and efficiencies through sharing arrangements. In 'Fit for Purpose', as part of the 'Putting the Front Line First' theme, four projects (HR Connect; Account NI; Workplace 2010; and Records NI) were identified as efficiencies which focused on frontline citizen services. 'Putting the Front Line First' also involved harnessing technology to develop IS initiatives. These included the planning of a single, shared ICT service for a range of generic functions and a new project (Network NI) to co-ordinate new broadband technologies across the NICS and the wider public sector. The eGovernment board took ownership of the strategy projects outlined above and set out in the ensuing project portfolio.

What happened next was the development of a HR/ICT strategy. The published 2007 NICS ICT HR Strategy was originally commissioned by the eGovernment Board and approved by Personnel Directors in May 2003. It defined a more proactive plan for the management of IS staff which benefited both staff members and the NICS. This strategy's recommendations included a revision of the 1966 NICS IS Grading Structure and Grade titles. This strategy addressed the issues of professionalising and recruiting specifically for IS. At this time, lower-grade technicians were recruited from the general civil service. Those civil servants who wished to specialise in IS could join IS by passing an aptitude test. The Skills Framework for the Information Age (SFIA) became the standard for recruiting for IS posts; it identified the skills and levels of experience required for each IS grade. This framework motivated employees by clearly stating what skills and amounts of experience were needed in order to progress to the next grade. Subsequently, IT Assist[4] was established, leading to a major redistribution of IS resources (P1, 2010). The ICT/HR strategy described a federated approach to the management of IS personnel and the creation of a Head of Profession – a leader in changing IS.

One of the key issues to emerge at this point in time in this first strategy-making period is that projects involving key enabling IS services should be grouped into a NICS strategic IS

[4] The ICT Shared Service Centre is known as 'IT Assist' and provides common infrastructure and desktop services to all departments.

programme and implemented. This event firstly involved assessing the capabilities and capacities of the organisation to deliver its portfolio successfully, highlighting the central place of mission-critical projects and key enabling services in strategy implementation.

Some of the projects to be implemented encompassed HR Connect, Accounts NI, Records NI (TRIM[5]); and the building of a single training centre (Centre for Applied Learning - CAL) and a shared service centre (IT Assist). New IS foundations were also generated. Network NI (Wide Area Network - WAN), was a single managed-network service for NICS data, voice and video communications. It was supported by IT Assist (Office of the First Minister and Deputy First Minister, 2009). Other projects were comprised of schemes like NI Direct which improved online access to public services and information; launched in 2009, this move to online self-service aimed to improve service quality and reduce administrative costs. This approach to multi-channel service delivery was set out in the NICS Channel Strategy. By March 2009, all departments had gone live with the projects outlined above – including one from a private finance initiative by the Department of Employment and Learning (DEL).

The next event was the monitoring of individual projects. All NICS programmes/projects must first begin with a Project Initiation Document (PID). PIDs provide background information and outline the rationale. They define objectives, approaches, scopes and deliverables. A brief business case is also included which identifies the known costs; more importantly, it lists the benefits which the programme will bring to the organisation. PIDs identify the roles and responsibilities of key personnel, include quality plans and describe communication strategies. Further, they identify areas of risk and include a dynamic risk register. Finally, PIDs have high-level project plans for gauging required resources (financial, time and personnel).

Until 2007, (when the Second PS disbanded the PSG (e) group), PIDs for NICS IS programmes were submitted to the PSG (e) group. This group would consider PIDs and instruct the project manager to proceed with producing business cases. In circumstances where costs were difficult to calculate, an Outline Business Case was submitted to the eGovernment board. A more detailed project plan was also provided to the PSG (e) group. Approval at this stage was a key indicator that a programme had the support of senior management. If the PSG (e) group rejected a business case or a PID, the project manager could revise, review, and resubmit

[5] TRIM is the record information management system developed by Tower Software for the NICS. TRIM stands for Tower Records Information Management.

the project – or cancel it. In either case, the PSG (e) group identified areas of weakness in documents and provided guidance on the board's expectations. Regular monitoring meetings were conducted to satisfy the PSG (e) group that projects were within budget, on-target to achieving their objectives and that no additional risks had come to light during the course of the project. As an added safeguard, a series of gateway review meetings were conducted by external, qualified reviewers to ensure projects met their targets and objectives. These reviews were not designed to find fault; rather, they were independent assessments of progress-to-date by impartial observers (P1, 2010).

Improvements to monitoring began with the establishment of an Oversight Board which met formally for the first time in September 2006. It was chaired by a non-Executive member of the DFP board and included members of other NICS departments. In December 2006, the role of the Oversight Board was clarified. The programme covered the entire civil service reform programme (including the supporting infrastructure) and was to assist the PSG in understanding the collective risks and impacts of projects/programmes. This led to the development of more-effective programme management arrangements which aligned with the best practice issued by the OGC: improved planning coordination of project delivery, risk management and communication, and benefits assessment planning. The OGC commissioned an external review of these processes in July 2007. The review endorsed the general approach, but recommended a number of changes to its operation.

Although the reform agenda has mostly been effected in recent years, a progress report by the Assembly's Public Accounts Committee in January 2009 (Northern Ireland Assembly, 2009) noted that while the Public Accounts Committee was reassured by evidence of progress in these projects, it foresaw a huge management challenge for DFP in completing the implementation of the projects and their successful operation. A main concern of the Public Accounts Committee was whether the large public investment within these projects would realise the anticipated value and if transparent evidence of the costs incurred in realising this value would be provided. The Public Accounts Committee identified a number of issues that impeded the delivery and effectiveness of the projects: inadequate in-house resources, inability to measure the value delivered by each project and inadequate project specifications. The Public Accounts Committee also highlighted a number of 'lessons', including a need to ensure staff have the necessary abilities and skills to undertake projects and a robust project specification to ensure systems are fit for purpose and deliver the required, measurable standards (Northern Ireland Assembly, 2009). The NI Audit Office found that Shared Services

projects took longer to reach contract signature than expected, due to optimistic assumptions, changes at the preferred-bidder stage and unforeseen complexity.

This last event of the first strategy-making period highlighted the reasons why strategic alignment had moved from a high degree of strategic alignment to a medium degree of strategic alignment: shortage of suitably qualified and experienced staff, lack of funding, divergence between elements of the programme (due to lack of strong leadership from the centre), and lack of support and buy-in from departments (P1, 2013).

Period 2: 2010-2014

In December 2009, it was decided that the Delivery and Innovation Division (DID) of DFP would develop a new IS strategy spanning all government departments; it used an approach developed by Gartner's CIO Research Group informally referred to as 'IS Strategy Light'. (See Appendix J: Terms of Reference). A DD from DID was given overall responsibility as Project Manager for developing this strategy. He identified critical issues and potential obstacles to the implementation of IS strategy. In a departure from the previous strategy-making approach, and in keeping with the then-current economic environment, work on this strategy was delivered almost entirely by in-house staff.

In February 2010, an IS Strategy was issued by the CIO and Deputy CIO in Britain. When the new coalition government came to power, its input had to be considered. This was done and the final strategy document was published in late 2010. While broadly similar to the original strategy presented at a CTO meeting in November 2010, some slight changes of emphasis were noted. For example, in relation to the Strategic Architecture Framework, a decision was made to move more towards Open Source standards. The British Government ICT Strategy was very much a political strategy. In comparison, the NICS IS strategy was a more operational one. However, cognisance of the Whitehall strategy and appropriate governance were applied to avoid process duplication (P2, 2011).

Data from this time period was gathered from secondary data, attendance at workshops and real-time accounts given by participants via interviews. The unfolding events identified are presented below.

The first event for this strategy-making period similar to the last strategy-making period related to the development of the PFG (2008-2011) which had the stated aim of reducing costs and eliminating bureaucracy by sharing key corporate services such as human resources,

finance and IS across departments. It was hoped that this would lead to significant savings that would be redirected to delivering key services direct to the public. The British economic situation in 2010 was expected to lead to significant reductions in public expenditure in the following three years and possibly beyond and departments would come under considerable pressure to reduce costs and curtail some programmes. There was an objective of delivering five percent efficiency savings on administration costs each year for the following three years across all government departments. The NICS was to be engaged in compelling a key programme of Public Service and Civil Service reform focused on placing priority frontline services first, building capability and embracing diversity. NI departments were tasked with delivering PSA targets and outcomes agreed by the Executive for the period 2008-2011. In so doing, they were tasked with containing expenditure within allocated budgets and reducing costs wherever possible.

The next step involved a series of interviews conducted with senior business managers (Grade 3/Deputy Secretary) and DHOTS across the NICS during the month of January 2010 to identify needs for information, reveal inter-departmental patterns of communication, consider potential uses of IS to improve productivity and service, address departmental issues and derive business principles. The interviews were structured, but open-ended, conducted within each major department and within each major departmental subdivision; see Appendix K for an example. A number of themes were identified from these interviews; the full list of which are featured in Appendix L.

In January 2010, a telephone conversation occurred between the project manager and a consultant from Gartner to discuss the results of a series of interviews conducted. DID collated and reviewed the information gathered through the various interviews and prepared a draft "straw man" strategy document. This paper set out the business principles derived from the interviews and was circulated in advance of the workshops held on 5th February 2010 which was to be the next event - gather information and engage in appropriate consultation. The Gartner consultant facilitated discussion at the workshops; the purpose of these was to challenge, validate or amend the strategy document. The workshop consisted of two parts: one for key business users and another for DHOTs.

After the Gartner consultant spoke (Appendix M), the Project Manager described the linkages between the issues raised in the interviews (Appendix N) and how these were translated into a list of principles (Appendix O). These principles were not presented in any

specific order; however, they were interlinked to support one another. As this was a NICS-wide collective strategy, these were high-level principles and applied to all departments. As such, these principles were to drive **all** IS projects; **all** IS projects and investments were to be linked to at least one of the business principles.

The Gartner consultant made the comments regarding the principles: first, the principles should be clearly connected to specific NICS successes and "not motherhood and apple pie". Second, the principles should be detailed enough to change what is done on a day-to-day basis. Third, the next step would be to hold discussions with HR. The key business users made a number of observations (Appendix P). The project manager wrapped up the morning session with the cohort, saying that the penultimate draft would be available by late February/early March 2010.

After the workshop, a penultimate draft strategy was sent (in March 2010) to all consulted. In this draft, DID boiled-down the earlier findings from the workshops (Appendix Q) to seven key principles and translated them into business language:

- *Reduce business costs:* Help departments reduce costs through IS.
- *Leverage investment in Shared Services:* Generating efficiencies through the use of shared services and centralised contracts.
- *Improve operational effectiveness:* Use IS to eliminate duplication and inefficiency from departments.
- *Improve quality and accessibility of services to citizens:* Ensure resources are focused on front-line services.
- *Embed information assurance:* Ensure information assurance is built into all systems and services, and that staff are fully aware of their legal responsibilities when handling and securing data.
- *Promote Sustainability:* Reduce cost and waste, and support sustainable approaches to all aspects of NICS work.
- *Take advantage of UK developments:* Exploit the best UK (and other European) developments that can be applied to the Northern Ireland context.

Under each principle, a few sentences indicated the issues that would be addressed by a strategy. The strategy was high-level in nature; the detail followed in the subsequent IT programme which set out exactly what was to be done (and when). Key business users would assess the principles identified in this draft, identify any gaps and confirm that these were indeed their IS priorities. Similarly, DHOTs were to share their perspectives and confirm that sufficient 'hooks' on which to hang IS projects had been provided for them to do what needs to be done.

A two-year implementation plan was to be developed by working through the various strategy items – the first issue being governance. If a governance board was formed, it would look at IS strategy and confirm its content. If approval from business leaders was not forthcoming on the establishment of a governance board, other areas of the strategy would be worked on first. This was intended to be a highly-collaborative process. A 'Drivers and Success' factors paper (Appendix V) was developed as part of the overall event to develop business principles; this listed business drivers and some ideas of what success would look like. Some of these factors were added to the final draft.

Those consulted were given until Friday, 19th March 2010 to respond (see Appendix S). A number of DHOTs commented on the lack of detailed solutions within the strategy; the Project Manager spoke to their forum on March 26, 2010 and reiterated that this strategy was about high-level collective business direction. Once the strategy was agreed upon, a detailed implementation programme would be developed; that document would set out how DID established priorities and engaged with the IS community when developing solutions.

The second (afternoon) part of the workshop, held on 5th February 2010, was led by another member of the project team; I observed an exploration of the IS consequences of implementing these business principles. The Gartner consultant discussed how these could be translated into IS principles (Appendix Q) and made a number of points in relation to the IS consequences of implementing the principles. He highlighted the importance of 'people, process and technology' and 'people, skills, and governance'. The consultant suggested that questions be asked on how to prioritise efficiency, effectiveness, etc. He also recommended that the extent of capacity of the NICS for change should be considered for every project.

The DHOTs raised a number of issues (Appendix R). This session was wrapped up with a statement that over the following four weeks, work around examining the existing IS organisation and services, and identifying technology opportunities would be completed,

discussions would be held with HR, other key stakeholders, etc. Finally, it was stated that by the end of February 2010, the penultimate draft strategy document would be ready, incorporating the business principles and IS principles. The main issues highlighted by the key business users and DHOTs are outlined in Appendix T.

The agreed-upon IS Strategy Principles at the end of this phase were as follows:

- A single ICT Architecture for the NICS.
- ICT Architecture owned by the Enterprise Design Authority (DID).
- ICT Architecture part of an overall Enterprise Architecture.
- Common ICT services provided via a single shared service approach (IT Assist).
- Avoid duplication of ICT effort across the NICS.
- Only use fit-for-purpose enterprise solutions.
- Optimise the use of existing licensing agreements.
- Ensure ICT systems are secure and comply with relevant Information Assurance policies and regulations.
- Provide ICT systems, solutions and services that are responsive, resilient and easy to use for staff, citizens and business.
- Streamline business processes by ensuring that IT systems and solutions are capable of interoperating by adopting common and open standards.
- Minimise ICT carbon footprint.

A second draft strategy document (Appendix U) was developed to issue to all those consulted. Respondents were asked if this draft strategy captured the most important issues; many offered detailed drafting changes. Business feedback was collated. In this draft, all earlier business principles were reduced to six key themes which were written in business terms. Under each principle, a few sentences indicated the types of issues to be addressed. This was not meant to be comprehensive, but indicative. Detail was to follow in the subsequent ISRA and project portfolio, setting out exactly what would be done (and when).

The project manager put the final touches to the strategy, V3.4, after processing late comments. The Gartner consultant reviewed the strategy document; his comments were

submitted to the Project Manager shortly before he retired. The note was generally supportive, but highlighted some apparent shortcomings and areas for improvement. As the Project Manager was retiring, there was an official handover from the Project Manager to the CIO and CTO on Friday, 30th June 2010. The PSG was set to meet in mid-August 2010. At this stage, the strategy was already three months behind schedule. Before it could be submitted to the PSG, it had to be first submitted to the PS of DFP. Protocol dictates that only a PS can book time at the PSG. Before this could happen, a note from the CIO had to be sent to the PS to request PSG attention. A copy of the strategy was sent to the Under Secretary, Grade 3. The Project Manager prepared a presentation for the CIO to use at the PSG when outlining the key points of the strategy. The CIO eventually presented the IS strategy to the PSG on Friday, 27th August 2010. The CIO, in his presentation, emphasised the importance of viewing IS as an enabler, but stated that processes still needed to be reengineered. The PSG was of the view that, with the advent of shared services, back office issues were sorted; it wanted customer-facing services brought to the fore. The PSG was strong in its view that the strategy should prioritise cost reduction/containment and citizen-facing services. Clear linkages were required between the strategy and the PSAs. The CIO informed the PSG about the strategy and advised that the DHOT was their go-to person in relation to the strategy. The CIO was then left with the task of writing to the DHOTs, seeking their feedback (and also that of the PSs). When the CIO wrote to the PSs to get their views on the strategy, he received very little response. The CIO had to demonstrate to the PSG how the strategy links to the PSA. The IS strategy document was modified to show increased linkages to the goals of cost-cutting and citizen-facing services and the IS strategy was finally endorsed by PSG in September 2010.

Workshops were planned (to be facilitated by the CTO) to develop an ISRA and project portfolio from the strategy. Two half-day sessions were held with DHOTs on 21st October 2010 and 18th November 2010. At the October workshop, a second draft of the ISRA was produced for discussion. A number of themes emerged from the DHOT workshop; a list of seventeen projects were identified. The projects were grouped in terms of the following: clear timelines and outcomes; impact on culture and behaviour; driving value; and those concerned with governance, control and alignment. Following the first workshop with the DHOTs, a version of the ISRA was issued to them, incorporating many of the comments raised at the workshop (many of which were, in fact, implications of the strategy). The document was further developed to include two appendices which contained a list of candidate projects. The document showed how each project linked back to the principles and each implication was

linked to at least one project. The first appendix presented a high-level view, while the second gave more detail on each project. The second workshop focused on the second appendix and on exploring the following: were the projects the right projects; were the titles, outcomes and scope correctly captured; should any projects be combined; the setting of timescales and the confirmation and/or setting of priorities; who were the obvious SROs that could be nominated and stakeholders that could be identified; was the strategy too ambitious – or not ambitious enough and; was it deliverable.

The CTO met with the DHOTs at the end of January 2011 to flesh out the projects and appoint SROs. Whilst the ISRA piece had been developed by early 2011, it was acknowledged that there would still be challenges in converting the IS Strategy and the ISRA into a workable plan; the plan would need to demonstrate how it was linked to the seven business principles (P2, 2011). By June 2011, fifty-five of the seventy-five bricks (using the approach introduced by Gartner Consulting in the first strategy-making period) were complete; another ten bricks were with IT Assist for quality assurance and a further seven were added after the review. The Enterprise Architect for IT Assist reviewed the bricks in closer detail, to shape the programme and ascertain which bricks would have a 'knock-on' effect on procurement. There was a continuous need to see DHOTs as the 'go to people' in getting things done in relation to IS. In the meantime, the RPA had failed because the business case did not stack up. Some local authorities had begun to act collaboratively, but not all.

Various pan-NICS governance arrangements existed in early 2010 to ensure cross-departmental engagement on specific issues. However, these did not include NICS IS; there was a need to review the governance of IS in the NICS to ensure its strategic needs were addressed. Governance was a priority issue to be worked on after the PSG meeting approving the IS strategy (as there was no forum at the senior level - above DHOTs - to discuss IS issues). IS Governance within the NICS was to be a shared responsibility based on a federated model; it was to have a central CIO, CTO, and Enterprise Design function which worked in concert with a cross-departmental Governance Board and the DHOTs. At the 14th January 2011 PSG meeting, the PS DFP introduced a paper seeking the PSG's agreement to the establishment of an Information Technology Governance Board (ITGB). The PSG endorsed this ITGB proposal (the Terms of References are outlined in Appendix W). The main purpose of the ITGB was to oversee NICS strategies and policies on IA, IM and IS. ITGB members were to be at Grade 3 level (though this was later changed to Grade 5). Members were to act corporately for the

whole NICS (not for their own departments) and rotate over time. The Board was chaired by the PS of the DFP.

The newly-formed ITGB indicated that it was content (through the CIO) to support the implementation of IS Strategy where senior management support was needed to progress issues and when a common NICS approach was required.

The ISRA was translated into plans and associated timescales for project implementation. Once the ITGB endorsed the strategy and project list, the projects were mobilised in terms of: confirmation/refinement/finalisation of project scope; identification and appointment of SROs and Project Managers; development of a reporting regime; creation of risk registers and issue logs; and development of a communication plan. All of the project roles were allocated. The projects were allocated a priority; however, while all projects showed signs of progress, not all were pursued with the same vigour. On a general note, it was difficult to pursue some projects due to the EDA's limited internal resources and/or its reliance on assistance from other parts of the organisation, including IT Assist.

A DHOTs Forum was established as the Architectural Review Board. The CTO updated the ITGB on the progress of projects at its meetings. The IS project portfolio was reviewed by the ITGB at its meeting to resolve any apparent difficulties.

The strategy was to cover the period 2011 to 2014 and then be reviewed at mid-2012 - this did not happen. The Head of Profession/IT Assist and the CTO scheduled an in-house strategy review for the end of 2013. The Head of Profession/IT Assist felt he had a good handle on business user expectations going forward via the various boards. RPA was expected to happen in the following two years; collaboration was imperative between central and local government if RPA was to happen (P8, 2013).

Some DHOTs considered that the strategy should have been set for a much longer period:

> Three years is simply too short if you want to make big changes. Three years is very limiting in what can be achieved taking into account the time it takes to write it and implement it. Should NICS not be looking at a period of ten to fifteen years? The strategy should be very forward looking. A lot of what is in the strategy is being already done. (P5, 2011)

The CIO was expected to talk with the department boards but this was never fully achieved. The DHOTs also failed to distribute information on the strategy within their own departments. "Individual department boards have been given presentations by DHOTs. DSD got a presentation but DHSSPS did not want one" (P9, 2011). Workshops were held in 2014 to identify common criticisms and address key strategy issues.

In 2014 a political refocus on key topics, such as reducing business costs, leveraging investment in Shared Services, improving operational efficiency and improving quality and accessibility for citizens resulted in a renewed impetus to refreshing and developing the IS Strategy to meet future NICS requirements. The Head of Profession/IT Assist led the review of the NICS IS Strategy with DHOTs across the NICS with the priority of further developing the IS Strategy. An *IS Strategy Review of Progress* provided a synopsis of the advancements already made. However, it was recognised that progress has not been consistent across all project areas, mostly due to resource constraints. Implementation of the revised strategy is to be constantly reviewed by the DFP's EDA with the help of the NICS's IT Innovation and Delivery Council. The strategy will run until 2017; however, a formal review was recommended in 2016 to keep pace with changes in technology and public services.

The next PFG (2011-15) had, as one of its themes, improving online access to government services under 'Priority 5: Delivering High Quality and Efficient Public Services' (Northern Ireland Executive, 2010). The Head of the Civil Service made this a key priority by establishing a PSG Sub-Group on Digital Services to provide strategic leadership for the development and delivery of an online culture in the delivery of citizen and business services by NICS Departments and Agencies (P14, 2013).

This PSG Sub-Group comprises five PSs with the CIO in attendance. With this clear political mandate for digital services, the CIO - as the SRO for NI Direct - is leading a 'Digital First' strategy which is to be rolled out across government departments. Whilst there is clear, outward-focused commitment to providing citizen-facing services online, the CIO hoped this would also drive internal change (P13, 2011).

6.5 Comparison of the two time periods - emerging themes

Exploration of the two time periods in section 6.4 entailed examining the strategic alignment process in depth, chronicling the unfolding of the process, and clearly illuminating the immediate sequence of events. The analysis of process data requires the conceptualisation of events and detecting patterns among them (Langley, 1999). These patterns may take a

number of different forms but the most common as described in the literature is the linear sequence of phases that occur over time to generate a certain deliverable (Van de Ven & Poole, 1995).

In the system of civil service departments, which in this case is the NICS, multiple levels of the NICS played an important role in the unfolding events in the process of strategic alignment across the two time periods. The multiplicity of levels involved included PSs, Grade 3s, Grade 5s, Grade 7s and DHOTs, as well as from a collective perspective the OFMDFM, DFP (as the departments with overarching responsibility for strategy for NICS as a whole) and the other departments, e.g. Department of Agriculture and Rural Development (DARD). Due to the complexity of the NICS, the boundaries of these levels were sometimes ambiguous. Such multiple levels have an enormous impact on the strategic alignment of business and IS strategy, particularly in relation to partnership, knowledge-sharing and trust between: the different levels of management, management and IS (i.e. DHOTs), DFP/OFMDFM and individual departments, and the departments themselves. Understanding these is a prerequisite for identifying impediments to strategic alignment. Ongoing interactions among different individuals, between individuals and departments, and between multiple levels across departments and contexts permeate and orient core social work (Langley et al., 2013). In this research in the two periods outlined above, not only did I observe a multiplicity of levels involved in the process of strategic alignment, but I also noticed that different types of events were taking place at a collective level and departmental level, which motivated social interactions among levels and between departments. In this case narrative and the subsequent analysis in Chapter 7, I seek to explore how the complex social work engaged in by different levels influenced and shaped strategic alignment. Showing the process of strategic alignment as a sequence of events that have different interdependencies and inter-relationships adds an important layer of process meaning. In summary, I could identify the emergence of **two distinct but yet intersecting levels** that influenced the process of strategic alignment: **the collective level and the departmental level**.

From the case data in the two periods **four preliminary phases** emerged. Deconstructing the process by phase (known as temporal bracketing) makes the overall process of strategic alignment not only easier to understand, but also enables the identification of initial impediments. The first temporal phase of the strategic process to emerge from the two time periods referred to the efforts made to establish business principles that would underpin the business strategy which, in essence, should have driven all IS projects. Work then tended to

focus on getting business executives at a collective level to endorse the newly-formed IS strategy. In the next phase that emerged from both time periods, the efforts were focused on embedding the IS strategy into the organisation as a whole via individual departments. Finally, the last phase to emerge referred to the process of evaluating whether value was realised from the IS strategy.

From the data, it could be inferred that a key technical deliverable and the undertaking of work of a social nature (interviews, workshops, and presentations) marked the end of one phase and the transition to the next. Langley et al. (2013) suggested that from a process perspective, outcomes are probably better understood as inputs that are made sense of in determining further activity rather than as static termination points. Technical deliverable here is described as an outcome from a number of social events, meaning that it is preceded or succeeded by another technical deliverable. Technical deliverables conveniently enable the deployment of temporal bracketing and the subdivision of events into distinct phases. Each of the later phases is directly dependent on the combination of technical deliverables from the previous phases. To observe the strategic alignment, the central focus in this case narrative was on the progression of events undergone by the NICS as the process of strategy creation and strategic alignment unfolded over time. As already outlined, this led to a number of major events being identified for each of the temporal periods; each, in turn, related to events at the collective level of NICS or at department level (Table 6.3).

Table 6.3 Chronological Events for two temporal periods

Events (chronological order)	Temporal period	Overall NICS Collective Level	Department Level
Develop Corporate Strategy (PFG & PSAs)	Both	√	
Identify Governance Structure	1	√	
Conduct Departmental and Interest Group Interviews	2	√	
Analyse Current IS	Both	√	
Assess Technology Opportunities	Both	√	
Attend/Facilitate Business and ICT Workshops	2	√	
Develop Business Principles	Both	√	
Gather Information and Engage in Appropriate Consultation	1	√	
Develop IS Strategy Principles	Both	√	
Consolidate Information	Both	√	
Design IS Reference Architecture and Work Programme	2	√	
Finalise IS Strategy	Both	√	
Get Feedback and Further Consultation	1	√	
Gain Approval from Senior Executives	Both	√	
Develop IT Strategy and Project Portfolio	1	√	
Finalise IS Reference Architecture and Project Portfolio	2	√	
Develop HR/IT Strategy	1	√	
Establish Governance Structure	2	√	
Redefine IS Organisation	2	√	
Develop Communication Plan	Both	√	
Align Departmental IS strategies and Other Strategies	Both		√
Implement Projects	Both		√
Monitor individual projects	Both		√
Evaluate IS Strategy	Both		√
Deliver Departmental IS Presentations	2		√
Conduct IS Strategy Review Workshops	Both		√
Create New Corporate Strategy (PFG/PSAs)	Both	√	

In the case narrative above, a number of events were identified in the two periods. Appendix X gives definitions to the phases and events integrating preliminary findings from both time periods. Based on the events highlighted in table 6.3, I summarise the evolution of the events in chronological order for the two temporal periods in the following sections.

Period 1: 2004-2010

During the first studied period, the following events (separated into phases) emerged.

Phase 1

During this phase, a number of events emerged as: development of corporate strategy; identification of governance structure; information gathering and engagement in appropriate consultation; and establishment of business principles.

The development of business principles enabled the process of strategic alignment to progress into the next phase of aligning business and IS strategies. From the data, it could be inferred that the key technical deliverable that marked the end of phase 1 and the transition to the next was "developing business principles".

Phase 2

The first unfolding events that emerged during this phase were: examination of existing IS organisation and services; identification of technology opportunities; and development of IS strategy principles.

All of these events were identified at an overall collective level. The events in this time period suggest that once the business principles were established, it was then essential for the NICS to engage at a collective level in the process of determining the IS competences and capabilities required to support the business principles before investigating both new technologies and novel ways to use existing technology that could enable business strategy in departments and at an overall collective level. In this particular phase, other unfolding events identified were: consolidation of information; finalisation of IS strategy; feedback and engagement in further consultation; approval of senior executives; and development of this NICS enterprise IS architecture.

The dominant focus in this phase was on the completion and endorsement of the IS strategy, and achieving this outcome required strong knowledge-sharing and buy in from relevant stakeholders which entailed on-going consultation with relevant stakeholders and

approval from senior management. The social dimension to strategic alignment emerged as being particularly prominent.

This phase consolidated information from Phase 1 and the subsequent creation of an IS strategy with a focus on business principles (and supporting IS principles) and an NICS enterprise IS architecture. This phase was predominately concerned with forming responses and identifying strategic actions for driving IS principles and supporting business principles in the form of an endorsed IS strategy.

The key technical deliveries of this phase were an endorsed IS strategy and an NICS enterprise IS architecture. The dominant focus in this phase was on the completion and endorsement of the IS strategy by senior executives.

Phase 3

During this phase, three unfolding events emerged: development of IT strategy and project portfolio; development of HR/IT strategy; and implement projects.

This phase had a predominantly social focus due to the fact that the successful embedding of the IS strategy into the NICS involved aligning financial resources and people within departments to the IS strategy. The events that emerged in this phase implied that formalising the coordination of work across departmental IS functions and aligning departmental IS strategies to the IS strategy was critical to the embedding of the IS strategy throughout the NICS in individual departments.

Phase 4

The events in this phase focused on monitoring individual projects, and creating a review of IS strategy.

The key final technical deliverable of this phase was a review of the IS strategy which marked the end of phase 4, moving iteratively again to a new Phase 1. "When the strategy was reviewed, it was evident how much was achieved – IT Assist, Account NI etc. One project, which was not successful, was Workplace 2010; but, this was due to the crash in the property/financial markets" (P8, 2011). However, a Gartner consultant in 2010 held a contrasting view and argued that the NICS IS, IT and ICT/HR Strategies were "all different and disjointed".

In summary this last phase involved rolling out and evaluating the strategy from a departmental perspective and then reviewing the alignment of the implemented IS strategy with the business principles.

Period 2: 2010–2014

During the second studied period, the following events emerged.

Phase 1

Four events emerged from the data collected. These were similar to the events identified in the previous studied period too: development of corporate strategy and business principles, gathering of information and engagement in appropriate consultation and departmental and group interviews.

All events were identified at an overall collective level. This coincided with what happened in the previous period. The emerged events imply that a common technical deliverable could be captured under the umbrella heading "developing business principles" and common core social work captured (interviews, workshops) under the heading "collaborating".

The dominant focus of this phase was again on the business principles due to the fact the NICS in this temporal period needed to agree on common business principles for it as a system of civil service departments and that coincided with the 2004-2010 period. There was evidence of deliberate intent in this phase as participants in the strategic alignment process at multiple levels (senior management, project manager, DHOTs etc.) endeavoured to establish business principles.

Phase 2

A number of events emerged from the data of this phase. These events again coincided with those that had emerged in the previous period: examination of existing IS organisation and services; identification of technology opportunities; development of IS strategy principles; creation of, and attendance at, business and ICT workshops; consolidation of information; finalisation of IS strategy; approval of senior executives; organisation of workshops with DHOTs; and development of IT strategy, ISRA and project portfolio. All were identified at an overall collective level. The emergence of these events means that it was critical to have knowledge-sharing to ensure that an appropriate IS strategy was endorsed. The key technical deliverable of this phase was an IS strategy, ISRA and project portfolio emphasising common

goals at the overall NICS collective level with stakeholders at all levels endeavouring to clarify and finalise not only the IS strategy but an IT strategy and project portfolio. Therefore, the technical deliverables from this phase that marked the transition to the next phase were the endorsed IS strategy, ISRA and project portfolio.

Phase 3

Two events emerged in this phase: Establishment of a governance structure, and implantation of projects.

The establishment of a governance structure was at a collective level whilst the implementation of projects was predominately at a departmental level. The key dominant focus of this phase was the implementation of the IS strategy. In summary, this phase involved rolling out and embedding the strategy in departments.

Phase 4

Four events emerged in this phase: monitoring of individual projects; review of IS strategy; conducting of departmental IS presentations; and creation of strategy review workshops. The key dominant focus of this phase was a follow-on review of the IS strategy and that implied again, at the end of Phase 4, the aspiration at departmental level to review the IS strategy's alignment to the agreed business principles. However, unlike the previous studied period, there was more evidence of process conflict and tension.

In summary, this last phase involved reviewing the alignment of the implemented IS strategy with the business principles.

Preliminary Impediments to IS Alignment

The compilation of the case narrative allowed me to identify some preliminary impediments to the alignment of business and IS strategies. The following table, 6.4, summarises the impediments identified from the compilation of the case narrative. Some were common to both time periods in the same phase, some were common to both time periods but different phases, whilst others appeared in one phase and recurred in a subsequent phase.

Table 6.4 Summary of preliminary impediments identified from case data

Period 1 Impediments	**Phase 1**	**Phase 2**	**Phase 3**	**Phase 4**
	Governance	Shared Domain Knowledge	Culture - Silo/Information Sharing	Culture - Communication
	IS Leadership			Resourcing and Skills – IS Infrastructure
	Business IS Partnership			Prior IS Success
				Value Realisation
Period 2 Impediments	**Phase 1**	**Phase 2**	**Phase 3**	**Phase 4**
	Planning - Lack of alignment with PFG/PSAs	Prior IS Success	Culture - Silo/Information Sharing	Culture - Communication
	Political Interest	Governance	Senior Executive Commitment	Resourcing and Skills – IS Infrastructure
	Indecisiveness over supply of IS services	Resourcing and skills – IS Infrastructure	Impact of RPA on Strategy	Culture - Silo/Information Sharing
	Business IS Partnership	Shared Domain Knowledge		Prioritisation of IS Projects
	IS Leadership	Perception of IS Value		Governance
	Governance	Planning – Continued Lack of alignment with PFG		IS Leadership
	Senior Executive Commitment for IS	Consultation re the Strategy		Planning - Alignment of Department IS strategy with IS strategy
	British Government IS Strategy			Strategy-Making Process itself
				Ownership of Project
				Value Realisation

These and related comments from participants for both time periods are presented next.

Period 1: 2004-2010

During the first studied period, the following factors were identified as impeding the alignment of business and IS strategies.

Phase 1

Governance. The consultation phase of this strategy-making period highlighted a perceived lack of clarity about IS management in NICS – particularly the role of the collective centre. Areas to be improved included: definition and creation of a 'management board' role within the collective centre and a clearer distinction between the strategy, policy, management and service provision roles in the organic centre; even a good diagram of *"who is responsible for what"* was suggested (Office of Government Commerce, 2004, p. 14). All interviewees considered clarity around governance as vital to strategic alignment.

IS Leadership. On the one hand, IS executives were described as displaying an expansionary vision and addressing IS issues at the most senior levels of authority; on the other, they were seen as very dictatorial, creating resistance throughout the NICS as a whole and within individual departments. At this time, IS leadership was both an enabler and impediment to strategic alignment.

Business/IS Partnership. The stakeholders in the NICS IS strategy were a diverse body with different interests and roles in relation to IS strategic alignment. Stakeholder groups included the relevant Minister, the Department, the DFP, OFMDFM, other public bodies that either funded or used IS services, senior- and middle-managers, staff, non-staff users of IS services, and external IS service contractors. IS executives (like the technologies they represented) were treated as "advisors to the decision-making process as opposed to being part of the decision-making process" (P6, 2011). However, IS was recognised as an enabler of business change and improvement due, in part, to the specific IS executives at that time.

Phase 2

Shared Domain Knowledge. Effective information management as a corporate resource was a main driver of IS strategy. The ability of NICS departments to deliver high quality services, develop well-targeted policies and ensure efficient governance depended on their effective use of information. A key enabler was ensuring that information was shared

effectively between people and/or departments. However, participant 11 noted, "Data was not always easily shared across all parts of government." The collective centre and individual departments often duplicated efforts, especially in their investigations of new technological opportunities. Participants reported that a number of technology trials had taken place during this time period with inadequate coordination and sharing of results. For this reason, shared domain knowledge was viewed as an impediment; but attempts were made to turn this impediment into an enabler. For example, the IS strategy principle around the NICS enterprise IS architecture created a blueprint for the provision of IS services throughout NICS with a focus on interoperability and interdepartmental information sharing. A NICS knowledge management framework was agreed as an IS principle to facilitate knowledge-sharing throughout the organisation. All interviewees agreed that improving knowledge-sharing throughout the NICS would enable strategic alignment, improve decision-making, and streamline resource-allocation.

Phase 3

Culture - Departmental Silos. Participants criticised slow decision-making and a lack of cooperation between departments.

> IS decision-making in general ... [was] very slow. Due to political considerations, a lot of time was spent in getting every last person on board with every decision. There was a lot of over-engineering of documents as opposed to getting down doing the work. Departments within the NICS do not always play happily together. (P11, 2012)

Phase 4

Culture – Communication. A review carried out by the NIAO in 2008 noted that communications, in respect to specific IS projects, had generally been seen as good; however, there had been a limitation on communications with NICS staff as a whole. There was a view that "the old strategy document was impossible to wade through" (P9, 2011). For communication to 'be an enabler, not an impediment', there should have been widespread communication with NICS staff as a whole – and the strategy document should have been easier to read.

Lack of Resources and Skills – IS Infrastructure. At this time, the lack of resources and skills was an impediment to strategic alignment. Staff resources were strained by the number of projects being carried out simultaneously (especially at a time when total NICS staff numbers were being reduced). The NICS also lacked the specialist skills that were required for

some projects; career progression paths tended to favour those with experience in a number of areas rather than expertise in one particular area. Also, departments had different priorities from DFP when releasing staff to work on projects.

Prior IS success. Not all users were satisfied with the reform project outcomes – an impediment to strategic alignment. "There are still approximately two generations of civil servants not comfortable with ICT. TRIM and HR Connect were not the best experiences for most civil servants and as a result there is a lack of confidence in the systems" (P7, 2011).

> Sometimes projects have gone live even they might not be quite ready due to political pressure [on PSG from politicians to show value for taxpayers' money spent]. For example, HR Connect went live though it was not quite ready due to 'political' pressure.....As a result, there was a significant level of faults and issues to address, end users complained and eventually most of the faults were fixed. It was nicknamed HR "Disconnect" and there is still ongoing end user dissatisfaction with the system. (P5, 2011)

There was a view that "technology is only of value when people can use it" and "a sense that the centre has been poor in helping users utilise technology. There are still difficulties in using the likes of HR Connect and Account NI" (P3, 2013).

Value Realisation. It was suggested by some interviewees that value was not always realised – which suggests that lack of value realisation was an impediment. For example, "interestingly HR Connect did not result in any redundancies which seemed quite contradictory as one of the aims of HR Connect was to cut costs" (P11, 2012). Another critic noted: "In the past when strategies were written, they were never going to happen – promised things like the "smart card" that was going to do everything" (P9, 2011).

Period 2: 2010–2014

Phase 1

Planning - Lack of alignment with PFG/PSAs. There was a view that:

> [C]ivil servants do not believe in the PFG and see it as more aspirational and not practically achievable. A high-level document that does not contain a lot of the detail. Civil servants in the front line do not always feel it is relevant to their day-to-day job. (P2, 2011)

The lack of alignment with the PFG highlights a lack of planning sophistication. Each department's PSA was not reviewed as part of the IS strategy process. In fact, "they were to identify their top two to three issues" (P1, 2010). This is an impediment since it was unwise not to have taken the time to review the PFG and each department's PSA. However, the impact is reduced by the fact that departments were asked to identify their top issues.

Political Interest. A number of challenges arose when developing the new IS strategy; the greatest one was political in nature: "Politicians are only interested in IT when it furthers their political agenda such as introducing broadband into rural areas" (P3, 2013). For example, during this time period, it was not possible to tax a vehicle online in NI; motorists obviously wanted this service. The Driver and Vehicle Agency (DVLA) only carried out manual vehicle licensing in NI. It was proposed by PSG to create an online system to be operated by the DVLA in Wales. However, this proposal would result in the loss of over 300 NI jobs. While this was clearly popular with most motorists, it created problems for politicians who wanted to be re-elected. There was a clear challenge here in satisfying competing interests: saving taxpayer money and providing improved services vs. re-election chances (P13, 2013). Political interests were an impediment to strategic alignment.

However, there is a contrasting view: "politicians now have a better understanding of IT with the advent of iPads, Wi-Fi, increased social networking and Broadband" (P8, 2013) which could mean the political situation is less of an impediment to IS today.

Indecisiveness over supply of IS services. Deciding where IS would be provided over the long term (in-house or outsourced) was also a challenge. The NICS had previously experienced problems with outsourcing. For example, in relation to HR Connect, Fujitsu claimed liquidated damages of £26 million (P1, 2010). The outsourced supply of IS services (if not managed effectively) could become an impediment.

Business/IS Partnership. There was a need to create and maintain a coherent government-wide IS partnership capable of coordinating and optimising IS decision-making across both Central and Departmental/Agency IS functions. There were no IS elements in some Departmental Corporate Plans; "there is difficulty in aligning an IT plan, as there is no objective to align to in the corporate business plan. Therefore, the IT plan says everything we do is to support the business" (P9, 2011). Similarly, in other departments, DHOTs have limited input into departmental plans. "IS generally provides high level IT support as opposed to impacting on Departmental strategy" (P5, 2011). Another participant remarked that "[M]ost

department business strategies are very high level making it quite difficult to hang an IT strategy on them" (P11, 2012).

It was also suggested by some participants that public sector strategy-making is different than that undertaken in the private sector (for various reasons).

> For example with Tesco and Sainsbury, the CIO sits on the board and is in a position to highlight the advantages of selling groceries on-line. There is close alignment between the business strategy and the IS strategy. In the public sector, the business direction can be very vague because of lack of continuity at Ministerial and sometimes senior official level. (P8, 2011)

Another issue relating to the Business/IS partnership was pointed out:

> the NI is slightly different (to Britain) in that there is an Executive with no substantial past experience on a parliamentarian/ministerial level. This requires leadership and influence at PS level. ICT has been able to shape the PFG to a modest degree. After the peace agreement, individual parties and manifestos had to agree their attitudes about certain things such as health and education. Ministers largely dependent on their PS and those who listened to their PS have generally been successful. (P8, 2011)

It was also said that strategic planning for IS was not a serious consideration in some departments.

> For example in DHSSPS, the strategic priority is cutting waiting lists. IT is seen as a utility, which is a good thing. Its reliability is now taken as a given and not seen as a problem. Reporting to the ICT committee was more important ten years ago as there were many issues. Now if the committee were never to meet it would not be an issue, as everything would just tick over. Members of the committee often do not attend. They often send deputies as there are no issues in comparison to ten years ago. (P9, 2011)

Some DHOTs considered that

> there is not a clear understanding of the ICT dependences and those who don't use Line of Business systems rarely understand their key place in operational delivery. There is a better understanding of desktop network services but only because that is the majority of people's experience of IT. Unfortunately, this is in many ways the least important business aspect and results in IT as still seen as very much back office and not business

> integrated. The 'I' in IT is not understood ... it is not seen as a corporate asset. (P6, 2011)

This leads to the suggestion that "there needs to be a stronger focus on information as opposed to IT" (P3, 2013).

Other DHOTs did not subscribe to the notion that IS was a driver. "It is not the business of IT as to how the business is run. IT is an enabler and users should be made aware of IT and its potential for delivering efficiencies" (P9, 2011). A challenge was encountered in getting business users to identify their needs.

> Ideally, IT people need to know what users want so they can then see what they can deliver and how best to govern it. There is a challenge in seeing how best to help business users to articulate their needs. It is hard to get traction with business users. IT needs to become a utility (like cloud) and be seamless in its delivery. It is extremely difficult to extract from business users what exactly they need. If this challenge is not overcome there is a danger that individual departments may drift back to doing their own thing. (P3, 2013)

It was suggested that

> the strategy is more a documentation of emerging trends. IT is there to support the business not innovate for the sake of innovation. IT should not cause the business to take risks involving public money. The key function is to give departments what they need not necessarily what they want. (P9, 2011)

All of the above would indicate that the lack of a close business/IS partnership is very much an impediment to strategic alignment. From my observation of the workshop discussions, it was clear that participants wanted stronger partnerships with other departments, business leaders and DHOTs. Respondents were encouraged to provide feedback on the draft strategy, identify gaps and specify their IT priorities. Some respondents expressed that there was merit in emphasising IS as an enabler for business change and improvement – though this would require others in the NICS to act in partnership with their IS colleagues.

Even the PS of DFP thought more needed to be done to turn business/IS partnerships into enablers of strategic alignment. For example,

whilst there are many positives in having shared services at the centre there is still a feeling of disjointedness between the centre and individual departments. IT is not always quick enough in responding to business needs. There is a lack of a forward-looking strategy – there is a sense of always playing catch up. More could be done to disseminate the possibilities of IT to senior business users in individual departments. (P14, 2013)

IS Leadership. At the DHOT workshops, I observed discussions around the current void in leadership. The need for more effective leadership was expressed by one participant as follows:

> Leadership is true of any discipline not just of IT … every soldier should believe they have a field marshal baton in their back pack … yet DHOTs have positions that are still very much reactive and are not in the ring at the outset of strategic decision-making … IT people are needed, who are part of the business and involved in decision-making at all levels … people work best when they work together … a good IT Manager is a change manager by another name … however IT people are often their own worst enemies in using too much technical jargon and holding their expertise as a personal power-base to point out obstacles to change. (P6, 2011)

It was also suggested that the CIO was "one hundred percent essential in his role as CIO to the success of the strategy – however he could and should have been more visible around departments" (P2, 2012).

There was some criticism of the IS leadership structure:

> NI Direct has been stuck under … [the] wing with the hope that it will survive. There is a real need for an expansionary type of leadership. The approach now is to stick everything under … which is not necessarily the right approach … not involved in line of business activities (individual departments are involved in line of business activities) … simply supplies back office services. There is very limited opportunity for the expression of expansionary vision … [and the CIO] role to date has been very much in providing back office services [the current CIO] is a safe pair of hands and doesn't play dangerous … [the current CIO is] supplying services to the other 11 departments … [the current CIO is] not going to hurt his world. This is the problem with not having a homogenous department. There is need for ownership of a structure with a forward-looking view. Service delivery and policy should be kept separate which is not the case

> now ... There should and needs to be a discussion around the issue. The CIO on the other hand is a career civil servant and is never going to rock the boat. The CIO is a very structured individual - a good project manager enjoying getting projects from A to B. He would not be adventurous in his role. The CIO is too operational and not strategic enough. When he was in the job he was always tied up in meetings and did not delegate enough. (P1, 2013)

The Project Manager suggested that he did not enjoy his IS leadership role in the last 18 months before his retirement: "it was apparent my job was basically going to be treading water and the fun was very much gone" (P1, 2013). This highlights that (in the main) IS leadership was viewed more as an impediment than an enabler to strategic alignment.

However, on a positive note, it was suggested that the current PS of DFP

> is more au fait with IT than many previous PSs. He shows a lot of entrepreneurial skill and has had the courage to take responsibility for IT as a whole in the NICS and has constantly demonstrated leadership and he is not risk-averse. (P8, 2013)

Governance. Another major impediment was the lack of an IS governance structure. Since the demise of the PSG (e) group, there was a lack of an authority figure at an IS cross-departmental level with cross-departmental responsibilities. Decisions needed to be made about whether IS would move out from the centre in relation to the RPA.

Senior Executive Commitment for IS. It was suggested that PSs were split down the middle when it came to their view of IS; this makes senior executive commitment both an enabler and an impediment to strategic alignment, depending on the individual involved. Some appreciate very much the capabilities of IS to enable future change; others simply see it as part of standard operations. As PSs are being reappointed, more and more of them are seeing the true value of IS as a key business enabler (P13, 2013).

Some PSs simply saw IS as a cost, and control of information as an overhead. However, information was recognised as a resource like any other; there was the question of how exactly to open up services to the public. Some held the view that there had been a strong emphasis on shared services and less on delivery of public services; however, this emphasis was changing at an increasing pace. It was also suggested that as IS had been very much a part of the NICS since the late 1980s, most PSs were very IS literate. Some held the view that PSs had a high

awareness of IS capabilities, were supportive of IS, and that this support was filtering down through senior business users in individual departments (P14, 2013).

British Government IS Strategy. Some DHOTs felt that (in a devolved administration) the British Government IS Strategy was an impediment: "we shouldn't care what the UK does …[the UK CIO's] Cloud is nothing to do with NI ... suspect there are similar feelings in other devolved administrations". It was said of the British strategy, "we should have 'Northern Irelandised it - choose the bits that suit the needs of NI PLC". For example, some felt that Britain was very impractical in its desire to go online and that the NICS should only align with British strategy where it was practical. Participants felt that NI was very different to Britain: "[we] shouldn't kowtow to Whitehall", but:

> learn from their mistakes. Due to our scale, NI can be much more flexible than UK and consequently it is easier to implement innovative solutions – i.e. Network NI, NIDirect, IT Assist, and more can be done, if we can involve the wider public sector. The NICS should have its own vision/direction for the future not just regurgitate what is already there. (P5, 2011)

Phase 2

From observing the workshops, it was clear to me that participants hoped for a number of positive outcomes from this strategy-making process: stronger partnerships across departments, between business leaders and with DHOTs; improved service quality; increased citizen satisfaction, the optimisation of IS expenditure; increased operational effectiveness; an improved ability to respond effectively to rapidly changing environmental circumstances; and more effective leadership and alignment with British IS-related strategies.

Participants in the February 2010 workshop (and subsequent interviews) suggested a number of major impediments to the implementation of a comprehensive IS Strategy:

Prior IS Success. Ease-of-use is critical to performance. At the workshop, examples of two systems were given in which this was not the case, suggesting that a lack of prior IS success was an impediment. For example, with TRIM, it is critical to file and find documents quickly; however, in some instances, it took up to five minutes to find a document. In relation to another NI system (HR Connect), navigation costs were high. Some senior managers could spend one to two days a month on this system, depending on the number of staff reporting to them; there were even greater difficulties in other functional areas. It was noted that there would be cost implications involved with changing screen layouts, etc. of the HR Connect System. Participant

comments included: "No point giving out more IT until the existing systems are correct" and "Strategy needs to have the aspiration to make systems easier to use". The participant further pointed out that "[T]echnology is only of value when people can use it. There is a sense that the centre has been poor in helping users utilise technology. There are still difficulties in using the likes of HR Connect and Account NI" (P3, 2013).

The strategy "says big things in an unthreatening way – all the hooks are there. It is not written in a way that would get a PS's back up. It could only be written on the back of showing that outcomes were achieved" (P8, 2011).

Governance. No committee existed at that time with the authority to sign off on IS strategy suggestions; the lack of governance structure was an impediment to strategic alignment. As outlined in the previous strategy-making period, there had once been an eGovernment Board and a PSG (e) group. In the three years prior to 2010, the e-Government Board and the PSG (e) group had not been operational. There was a pressing need for an interim approval process. A participant identified a need for the Technical and IM personnel to work more closely together and that business executives should take the lead in this regard. Some participants felt that engagement at PSG level was required and that a proper authority was needed to drive through the resultant IS strategy. There was no champion for citizen services or 'joined-up' government.

Available Resources – IS Infrastructure. At the time of the 2010 workshop, there were seven ISUs (including the DOJ) serving twelve departments. Some ISUs (such as those in Policy Departments) had little to do compared with other departments (such as the DARD). There was a sentiment at the IS strategy workshop that resources were ill-distributed and did not meet combined needs; participants suggested this as an impediment. Additionally, it was stated that departments' rarely thought strategically about how IS could help them achieve objectives such as engaging with stakeholders and improving communication (and collaboration) within (and between) departments, Whitehall, EU, etc. A need was expressed to re-energise ISUs in terms of exploiting IS in business.

Shared Domain Knowledge. The development of a NICS-wide IS strategy for IS could be characterised as occurring in an environment in which there are many natural barriers to inter-departmental cooperation. This suggests that a lack of shared domain knowledge was an impediment to strategic alignment. This was particularly important for NICS in relation to sharing resources and agreeing on a governance structure. The sharing of IS skills resources

and knowledge needed to be encouraged and facilitated. The need to exploit tools that drive sharing, collaboration and knowledge transfer within the IS Community was highlighted. A number of DHOT sub-groups were established to drive knowledge-sharing and collaboration: the Open Source User Group, Mobile Application Development Forum and the SharePoint User Group. Finding people with the right knowledge and skills was seen as imperative, as was understanding the latest policies and guidance. However, business processes often lacked structure; others had too much structure, or conflicting policies and too many uncoordinated stakeholders. It was deemed necessary by interviewees for staff to learn and adopt new ways of completing tasks. This could have been achieved by encouraging contributions and rewarding collaboration. Culture change was seen to play a major part in the strategy-making process. Clear definition of the strategic vision was needed; however, departments valued the retention of their identities. Sharing knowledge and experience could have become the norm by developing a culture of innovation, idea-creation and management.

Perception of IS Value. Negative perceptions of IS were highlighted as an impediment to strategic alignment. One DHOT considered that "business users tended to treat ICT as an expense" and felt this should be discouraged.

> Business people see ICT as a utility very much like electricity. The exponential growth in data is amazing and it continues to grow every day. Even five years ago if there was a data breach there would have been tremendous publicity whereas now there is a lot of downplaying of data breaches. Information/data as a corporate asset is one of those concepts that is becoming clearer in a business context - when you see it you will recognise it ... still some merit in the separation of business and IT ... business does need a bit of detachment ... IT can slow ideas down and hinder innovation. Business should be free to consider in a detached way away from the delivery experts but must now include technology in that space.
>
> A clearer distinction also needs to be made between 'data' and 'information' as there has been an erosion of language. Data was originally understood as unprocessed information. It was very much viewed, as the business owns information while DHOTs own data. The two terms are now almost totally interchangeable. This language issue will become more of an issue with questions such as providing source data to the private sector or how do we derive public service value from our information assets.

> The 'common ground' between business and IS is 'information/data management'. Business people need to understand information as commodity in the same way it is understood by the private sector. Information assurance is seen, as outside of the main business decisions yet information is critical to the business. Information is the main resource of the public sector. The space around information management adding value is common to both the public and private sector. The private sector will often identify its information assets and extract market value from such assets. The public sector does not value information assets in the same way. The growth in data has to be managed and skill sets have to be found to facilitate managing this growth in data. The technologist sees information as being owned by the business users. Information joins business and technologies and the relationship must recognise the importance of both in making decisions.
>
> There is not a clear cultural understanding of information as a valuable asset in providing services to the public, businesses, and Ministers. Not all information is the same and there is a need to measure information categories and their use. Landscape mapping of information is an imperative to its proper management. Management and decision makers who have not grasped this imperative must be less effective and efficient. (P6, 2011)

Another participant pointed out that IS was not being maximised.

> There is still a long way to go before NICS truly maximises the use of ICT. There are communication and duplication issues. Communication is vital to the successful use of ICT. The digital age still does not sit comfortably with Government. There is a need to improve the delivery strategy, monitor and evaluate the impact of ICT and apply the lessons learned. The NI Government has to catch up with the new social media approach. The NI Government might be told things they do not want to hear. The public now have the means of making their views of government known in a public forum. There is a need to involve the public in the design and delivery of services in real time. The pace has increased substantially with instant messaging, email, etc. The whole work environment has changed. The traditional approaches to strategy-making are gone. A lot of strategy-making is now done 'as you go'. A lot of policy is developed 'on the hoof'. There are forums and chat rooms stimulating creativity. There is a need to increase the opportunities that ICT can bring. Because of the public security issues,

there is often reluctance on behalf of civil servants. However, NI has led the way technology-wise for many areas. People are very busy doing things now and the time for reflection is long gone. (P7, 2011)

Planning - Continued Lack of Alignment with PFG. Some interviewees highlighted the continued lack of alignment with the PFG as an impediment.

> Seven business principles were identified from meetings with business leaders and a workshop in early 2010. It would have been an interesting exercise to map the IS strategy to the PFG. This was not done, as the PFG is too unwieldy a tool to do this presently. It might be attempted to align the IS Strategy to the PFG at the next strategy-making iteration. (P2, 2011)

Level of Consultation of the Strategy. The strategy mandated collaboration between departments. In practical terms, some DHOTs were sure it would make a real difference. "The fact it is short and has key principles is good" (P9, 2011). This would suggest that the level of consultation engaged in was an enabler to strategic alignment. Some DHOTs felt the current strategy-making process was supportive and collaborative towards IS personnel and kept activities within bounds. "The key is keeping it sensible and realistic and not being caught up in making unrealistic promises" (P9, 2011).

Some DHOTs were

> happy with the current IS strategy development process. It tried to be as collaborative as possible and seek input from all stakeholders. It has benefited from the reform programme in that the view has been taken away from PSs that they had to be precious about IT. You do not have to "own" IT to be successful. IT has gained more capacity re its own decision-making. In general, they are sympathetic and less protective of decisions being made about IT outside their own department. Previously there was a fear about a loss of power. It would have been a big thing to have your own data centre now departments can share services. There is nothing earth shattering or threatening in the new strategy. (P8, 2011)

> There were many opportunities given for consultation. Whilst the key business users were interviewed, some contributed more than others did. Collaboration is one of the key themes within the strategy. While this is laudable, the human aspect has to be taken

into account and it should be recognised that given the diverse types of people involved collaboration would not always happen. (P4, 2011)

In relation to current NICS strategy, some DHOTs primarily represented their own departments, not a broad view of the NICS. The process itself (as opposed to developing strategy) did not involve much discussion (though it required more documentation); this had already emerged over the years (aspects such as shared services, all being on the same infrastructure, etc.). It was not a difficult process. Many DHOTs felt they were influential stakeholders and though business people were met with, this was more of a formality. The senior people in some departments were happy to leave things to the DHOTs; for them IS was reliable and not contentious (P9, 2011).

Other DHOTs could not remember being involved in any major strategy decisions. As far as they were concerned, ISID made all the decisions. "DOJs were only peripherally involved – no input except at a high level, nothing agreed or disagreed. It was more of a consultation exercise as opposed to incorporation of anything" (P5, 2011). This would suggest a lack of consultation – and an impediment.

Phase 3

The Gartner consultant reviewed the strategy document; his comments were then submitted to the Project Manager. The note was generally supportive, but highlighted some apparent shortcomings and areas for improvement. These related to the areas of **governance** and **IS infrastructure (resources)**. The Project Manager considered that, given their short time together (two telephone conversations and one all-day workshop), the consultant could not possibly have grasped the subtleties of the NICS environment and how this strategy should progress within departments and the IS Community. The Project Manager acknowledged that the consultant's comments were legitimate but must be weighed against the understanding of the Project Manager, CTO and other DFP personnel regarding how the strategy would be implemented. The Project Manager was of the view that there was no need for further engagement with this consultant (or Gartner Consulting, in general).

The Project Manager expressed extreme annoyance over the three month delay in the strategy being ratified; he felt this was unjustified and that the CIO and Under Secretary needed to give the strategy the green light and make their own contributions. However, the Under Secretary only changed minutiae and did not alter the main thrust of the document. The Project Manager felt there was now a very different dynamic in the personnel responsible for IS as

compared to previous time periods. Previous IS executives "were more driven in their approach and would not have allowed a delay to happen – they would have pushed the strategy through the PSG much earlier". The CIO and Under Secretary, on the other hand, were more cautious and not as driven (P1, 2010).

The Project Manager was also of the view that "if outside consultants had developed the strategy it would have speeded up and have been presented before the PSG a lot quicker" (P1, 2010). There were delays in achieving agreement on the IS strategy. The document was available in April 2010 but was not tabled before the PSG until August. This was mainly due to work pressure within IS and resourcing issues, but also that it was not seen as a priority (P2, 2011).

The impediments identified were:

Culture - Departmental Silos. The DHOTs developed a co-ordinated work programme to avoid work duplication in early 2011. However, there was resistance from some caused by their fear of loss of power (P3, 2011). A formalised approach to coordinating work across departmental IS functions was not agreed upon, implying an impediment. Nevertheless, there was evidence of cross-departmental work: a corporate-planning system developed by DFP was used by DOE; DEL used a file management solution developed by DE; DRD joined forces with DARD and DOE to acquire a fleet-management solution (which shows how an impediment can be turned into an enabler).

Senior Executive Commitment. In relation to this point, a participant said:

> The new Head of the NICS ... is very process driven [this would imply an enabler]. He very much follows the PFG and sees the NICS's job as delivering the PFG. There is an SRO responsible for each deliverable. He feels the politicians will judge the NICS on the delivery of the PFG. (P3, 2013)

Impact of RPA on the Strategy. The RPA was at a standstill in January 2011(which could be viewed as an impediment) but there was still a need for continued awareness of the impact of changes to the then-current structures. For example, if the Housing Executive were to move into central government, it would be important to ensure appropriate connectivity to local government and understand the issues therein. A pilot project was undertaken in relation to planning; it involved connecting a number of personal computers (PCs) in planning offices to those in central government. Local government could feed into Network NI; it was possible

to provide a connection to council offices but not (under the then-existing contract) to connect with outlying ones (P8, 2011).

Phase 4

Culture Communication. The CIO did not engage enough with business executives at board level in individual departments; implying that communication was an impediment. Communication as a whole was weak, and between the EDA and departments was particularly poor since the EDA saw itself as only communicating with IT Assist. However, this changed and the EDA began updating DHOTs. The CIO considered engaging with departmental committees to rectify this (P3, 2011).

When the CIO informed the PSG about the strategy, he advised it that its DHOT was the go-to person in relation to the strategy. The hope here was to raise the profile of the DHOT at departmental board level. This did not really happen.

> The DHOTs claim their departmental board do not listen to them. This may be down to either the PS not inviting them or the DHOTs themselves not pushing themselves forward. It is possible that over-reliance was placed on DHOTs to spread the message of the IT strategy in their department. This is particularly onerous on them when they cannot get airtime with their Departmental board. The centre may have been remiss by not themselves getting airtime with individual departmental boards and inviting the requisite DHOT along. It would have been an opportunity to explain to individual departmental boards exactly what the strategy was about and how it dovetails with the work of the departmental DHOT. (P3, 2013)

> Each departmental board needs to be told about the strategy. They need to keep the IS strategy visible and report on the outcomes of the IS strategy. There is a need to go to the PS and promote collaboration of development. The PS Group is interested in cost cutting and adding value to the citizen. The CTO needs to drive it and ... [the CIO] needs to back it. There is a need for people to take risks and be entrepreneurial. (P8, 2011)

However, while IS must show demonstrable value "there is also a fear" in departments "that if savings are demonstrated they may have to be given back" (P3, 2013). It was pointed out that IS staff lacked vital communication skills.

> There is not the right level of skill sets. There is a need for more people in terms of business analysis and seeing the big picture. There is too much firefighting. Communication is generally weak. IT staff can be 'odd' or a little 'left of centre'. It all depends on who the parties to the communication are. Can be good because of the rigours of Prince II which forces regular reporting to the board but it can be done badly or well if the methodology is followed. (P5, 2011)

It was also suggested that business people found the IS strategy difficult to understand. "It is hard to say the extent to which people outside IT will read it. Individual department boards have been given presentations by DHOTs. DSD got a presentation but DHSSPS did not want one" (P9, 2011).

> The IS Strategy/ICT reference architecture is too long and technical in length for business users. Because they are quite large documents – they can be quite off-putting to business users. A two to three-page executive summary is available but it is debatable whether this is sufficiently understood. Business users want to know how ICT will serve them and deliver their needs. They want to see outcomes not documentation. Some business users appear to have not that much interest in the IS strategy. They want ICT to deliver a system that works and meets their needs. (P4, 2011)

Resourcing and Skills - IS Infrastructure

It was deemed essential for a programme to be developed to ensure that the IS staff was equipped with appropriate business and technical skills. Traditionally, the NICS IS community has focused its efforts on developing technical capabilities, with little focus (at the IS community level) on development in the areas of leadership, management and business skills. There was an on-going issue of **resourcing** across departments within NICS; implying that resourcing was an impediment. There was an urgent need to source people to drive the strategy.

Some DHOTs felt the strategy should have embraced the concept of centralised versus decentralised services. ESS is a discreet function and there were ten ISUs doing largely the same thing in each department. Some DHOTs felt there was a need to go back to a more centralised solution. There were difficulties in maintaining a competent set of resources in each department; this implies that the decentralised structure was an impediment.

> If you had a common set of services, there would be a more stable quality of service. The strategy should articulate a vision - we want to provide a centralised professional service with only local issues being dealt with by ISUs. (P5, 2011)

It was suggested by some interviewees that there existed inequity in resourcing and IS requirements between different departments, and that it might be better to centralise IS.

> The DHOTs in some departments are not really doing a whole lot. If system development were to be centralised again they should really know the business well. Small departments should be asking themselves do they really need an IT department, what systems do they have and are the IT units within their departments adding anything to the economy of NI. (P1, 2013)

In contrast,

> while there are many benefits to centralising services (IT Assist being a case in point) ... when IT Assist was established there was an initial disconnect from their customers and there was not the same closeness as when the departments provided these services to their internal customers. With applications development, it is particularly important that the developers have an in-depth knowledge of their customers, their needs and their business. If applications development were to be centralised there would be a loss of this close relationship with the business users. For example, the current IT person with responsibility for the Finance Systems knows this system inside out and understands precisely the needs of its users. (P4, 2011).

This would imply that centralisation could also be viewed as an impediment! A few supporters of the centralisation of IS resources suggested that

> There is a need for all IT staff to be owned by DFP. The NICS cannot afford to have their best people out in departments not being utilised to their full potential. IT staff need to move around and there needs to be a single solution for everything. ICT needs more professionalism. Soft skills are currently lacking. There is a need for increased communication and business skills. There is a growing need for IT people with softer skills within the Public Sector. (P8, 2011)

Culture Silos/Information Sharing. There were clear impeding factors around individual departments; they feared a loss of departmental autonomy when centralisation was suggested.

> There is a new ICT/HR strategy being developed and there is talk of centralising development/outsourcing a lot of the work currently being done by individual departments. This has created a fear that individual departments might end up down the pecking order and not get what they need. This is an issue around individual department influence. This requires a need for expertise in procurement at the centre so there are contracts in place so if a department needs something done it can be outsourced quickly. (P3, 2013)

Another possible reason developers did not want to share was that they

> do not want to expose themselves to criticism. Developers are very unusual in their outlook. In a fast-changing environment, developers are sometimes very resistant to change – possibly because their departments for too long have cocooned them. It is particularly hard to get them to collaborate – same people volunteer all the time. (P9, 2011).

Also, "within individual departments there are many silo-like information structures where the vertical emphasis predominates and the horizontal exchanges required to stimulate cross-departmental collaborations such as information and source data reuse do not happen" (P6, 2011).

Additionally,

> innovation within ICT can only happen when people who have experience and a proven record of accomplishment are given responsibility and allowed to take risks. There is a feeling that certain personnel do not want to devolve responsibility to their staff, as it would undermine their self-importance. (P4, 2011)

It was also possible that not sharing information revolved around power:

> There is a reluctance to share information accelerated by a view that information is power and encourages individuals to protect information to preserve power. The challenge then for the NICS is to establish accountability structures that support cross-departmental collaboration and accelerate a process of cultural change away from an aversion to share information and step outside their business specific areas. This is a challenge because the rate of growth of data is such that a point will be reached where it is beyond being controlled. (P6, 2011)

An alternative view as to why information sharing was not the norm was related to expediency:

> Systems Development work, for example, is very short on resources and often there is urgency with the work. Therefore, it is often quicker to go into the Microsoft Developer Network or other IT forums to get a solution as opposed to collaborating internally within the NICS. In conclusion, there is a potential for collaboration not to work and practical collaboration is not always a runner from the perspective of the people doing the work. (P4, 2011)

Another reason for not sharing may have been that it was easier:

> Large line-of-business Departments are still developing their own systems and often there is replication and duplication. It is easier for developers just to develop applications for their own department rather than doing something generic that could be used by other departments. However, I understand a little of this mind-set from my own development background. (P13, 2013)

On a positive note, some DHOTs were of the view that "there is now great commonality between departments and there is much more collaboration" (P9, 2011).

It was suggested by some interviewees that there were cultural issues in trying to 'join up' business, "specifically in getting developers within individual departments to work together. There is an inconsistency in work standards. Developers do not want to be part of a centralised department and value their independence" It should be possible to build communication in an IS community.

> However, the culture of the organisation does not lend itself to sharing. An effort is being made to build a physical development network so that all development is taking place in this space. At this time, there is very little information as to what assets are out there or indeed control over the development work that departments are engaged in. The aim is to look at development and avoid duplication but this is very much a future aspiration. (P2, 2011)

Prioritisation of IS projects. There were some positive comments about the prioritisation of projects, which suggested this was an enabling factor. "A lot of good work was done around identifying the drivers, prioritisation of projects etc." (P3, 2013). However, it was noted that "the hardest bit was in developing the implementation plan, i.e. who is going to do

what projects as the centre does not have the resources and individual departments have their own priorities" (P9, 2011), thus showing how this factor could also be an impediment.

Some DHOTs were not convinced that strategy bricks were the most appropriate approach. "Whilst there needs to be a common platform, the bricks approach has limitations in that they are more operational than strategic" (P5, 2011). "There is a need for the IT architecture to be flexible" (P3, 2013).

Resourcing was also identified as an issue: "Certain projects, such as unified communication, will be of benefit but there is a question as to where the money will come from" (P2, 2011).

Governance. There was consensus as to the need for a new governance structure. However, mixed views were expressed as to how effective it would be; implying that it could be an impediment if not effective.

"It is better to have people who are interested and engaged, rather [to have] have people on it just to represent every department" (P9, 2011). Another participant elaborated that "[I]t all goes back to governance. There needs to be a public sector ICT governance board but it needs to come under a Minister and it needs political backing" (P5, 2011). Indeed, "[A] new governance board has been established to oversee the implementation of the IS Strategy, which is a big improvement but time will tell whether it is effective or not" (P4, 2011).

It was suggested by some interviewees that the success of the Governance Board was dependent on members contributing, attending, and looking at the whole of the NICS as opposed to their individual departments.

> PS of DFP as chair handpicked the membership of the board. There is a danger that it is comprised of too many like-minded people. The people may not always have the headroom needed to think about issues. Not sure how much priority/recognition these people give attendance at the Governance Board. It would be interesting to view attendance statistics. Efforts have been made to ease the load on these people by giving them straw man documents. Issues are very much brought by IT people to the Governance Board as opposed to the Governance board raising their own IT issues. (P3, 2013)

"The success of the Governance Board is premised on members thinking and acting collectively for the whole of the NICS as opposed to individual departments" (P13, 2013).

There was some scepticism as to whether or not the Governance Board would lead to improved services and act for the wider NICS. As one respondent stated:

> It may improve in time. Who is going to pose the hard questions or raise the challenging questions? … [He] may see his role as simply improving back office services. Whilst there have been big steps forward in centralised services, who is going to do the same for citizen facing services? The members of the Governance Board are meant to think about the wider group. (P1, 2013)

IS Leadership. With the change in personnel from Project Manager to CIO, the CTO felt there was a lack of someone to 'bounce ideas off'. The Project Manager's Grade 6 post was not replaced and the CTO considered that the CIO was divided into too many pieces; suggesting that IS leadership was an impediment (in this instance).

A view was held by some interviewees that there was no

> sufficiently qualified IT person on most boards – public or private sector. As always, the private sector is moving faster but even in my time, progress has been made over the last number of years in the Civil Service. A number of people with ICT professional backgrounds now sit just one level below board level. Ten years ago, they were two levels below board level and 20 years ago, they were three levels below board level. If you can get understanding of the information changes and the right people, even the key technology dependency and expenditure can push the decision-making a grade up. An example of this is in relation to Shared Services where a number of functions IT, HR, Records Management, etc. were brigaded together along with the staff. A new post of Grade 3 which is usually Board level was established to head up ESS so things are changing. (P6, 2011)

> Even now it is quite difficult getting senior people to see that they are running a business. IT strategies tend to end up being driven by IT people. Only recently have IT personnel ended up in the top positions in the civil service. (P11, 2012)

> There is no representative of IT either on the PSG or on individual Departmental Boards. Senior people really only see IT when something is going wrong. There is a need for a brokerage type role. The business does not always prepare for change. There is difficulty in engaging senior management. There is a need to engender trust particularly around information assurance. (P3, 2013)

A CIO role was recommended at the individual departmental level (above grade of DHOT) which would work closely with business users and ascertain their needs:

> The DHOTs currently do not do this. The DHOT's forum is merely a talking shop. There is a distinct lack of systems analysis training given to IT people today. There are issues around language and common understanding between IT people and business people. There needs to be more face-to-face interactions. There is a need for a CIO within each department who understands the business issues and how IT can help. IT has done their best playing with business drivers and implications. (P3, 2013)

It was suggested that

> IT people, like the technology they represent, are treated as advisors to the decision-making process as opposed to being part of the decision-making process. As such, there are difficulties in knowing what stage to bring them into the decision-making process. (P6, 2011)

There was some criticism of "the DHOTs group over the last 10 years" in that it had

> just become a talking shop. Since 2002 up until my retirement, I would tell them what was happening re eGovernment and .... They listen as opposed to contributing ninety-five percent of the time. The purpose now of the DHOTs group should be to move the strategy on (P1, 2013).

There was a view that "DHOTs have positions that are still very much reactive and are not in the ring at the outset of strategic decision-making" (P6, 2011). It was pointed out that DHOTs should be at the forefront, taking risks and being innovative: "Technologists, of all people should be pushing the envelope and taking risks but often they become part of the same culture or fail to communicate and take business decision makers with them" (P6, 2011).

The issue of professionalising IS was raised:

> The idea of professionalising ICT was first seized upon in London, SFIA was adapted as a methodology, and it mushroomed into NI. There is also Heads of Profession Group for Engineering, Procurement, and Building etc. This has given a fresh professionalism to ICT in that ICT is being recognised as being a key part of service delivery. IT staff in NICS will have to change with the times or the profession will be extinct. Some DHOTs are open to change. (P8, 2011)

It was suggested that DHOTs did not always understand business and engage with business users. One participant suggested that "[T]hey should be constantly asking their senior business managers - have your needs been met, do you have any fresh needs? It is not possible to effect change without communication and engagement" (P1, 2013). A contrary view on the role of DHOTs was "their responsibility as managing (and in some cases dampening) expectations and keeping the show on the road without making a big song and dance out of it" (P9, 2011).

Planning - Alignment of Departmental IS Strategy with IS Strategy. No resources were "put in place centrally to ensure individual departmental strategies are consistent [and aligned with the NICS strategy] across the NICS" (P3, 2013). "Nobody looks to see if departmental strategies are lined up with the central strategy. There needs to be more collaboration with the centre. Are we all pulling in one direction? There should be no need for heavy handedness" (P1, 2013). This was viewed as an impediment.

Planning - Strategy-Making Process. The strategy should be treated more as a continuous process rather than a standalone event (P3, 2013). "The strategy itself should be an iterative process - however it is generally just stuck on a shelf" (P1, 2013). This would suggest that the lack of planning sophistication in the strategy-making process was an impediment. It was said that

> it may have been a mistake to rely so much on the DHOTs and the Governance Board to keep the strategy refreshed. Perhaps I should have pushed the PSG more in hindsight and not assumed the Governance Board was going to do it. (P3, 2013)

Another view was that the strategy was more of a defensive mechanism and that if it was outsourced it generally sat on the shelf.

> Once the strategy is produced and agreed, one or two projects are kick started and then the strategy is used as a defensive mechanism. The IS strategy should be a business-driven document with one eye on technology. The strategy should be all about direction. When IS strategy development is outsourced it is never looked at afterwards internally, it just goes on the shelf. (P1, 2013)

Some DHOTs were not entirely happy with the strategy-making process and expressed the opinion that an IS strategy should be "the star by which we steer". They also felt that the NICS IS strategy was largely the "UK Government strategy rebadged ... nobody gets sacked

by abiding with UK ICT strategy". There was "little new in the NI version" which in particular "didn't address the emerging information management profession...didn't address information assurance as a subset of information management and the links with [Freedom of Information /Data Protection Act] FOI/DPA. Strategy has to show your direction ... show your vision".

> There was a sense about the current NICS IS strategy that it was a
>
> necessary evil to get to the sexy ICT architecture. Strategy should inspire passion, should fire you up with vision ... as it stands, it doesn't rock foundations ... written to justify ICT strategy follow on ... nothing really challenging in it. At best, it is a good foundation document ... but failed to grasp certain issues. Doesn't address for example a policy on data mining ... what categories of data have value ... what tools will we use to mine data? A strategy should have strategy drivers and themes based on a future vision, set out the strategic objectives, together with an action plan and timetable. The objectives should be measurable, show the benefit to citizens, business and the Minister. Meeting a Minister's needs should be upfront in a strategy. The current fixation on controlling spending generates an environment where information and ICT activities represent a utility as opposed to an asset for development and investment. This view has a huge bearing on causing strategic focus to cluster around resources rather than outcomes" (P6, 2013).

In summary, the "document is more of a policy than a strategy – see 7.0! Strategies have to nail down vision and direction and they should not be nebulous documents" (P6, 2013).

A strategy "should be real and measurable, supporting the Minister, public, business in the community. The biggest roadblock with the current strategy is lack of vision and direction for what is emerging as a distinct profession". Some interviewees felt that in some ways there was no real connection between the IS and the ICT strategy. "IS strategy simply is a booster rocket to get into the orbit of ICT strategy". P6 also felt there was a need for better IS objectives that were agreed-upon at the most senior level; these should have been measurable objectives and information-driven business targets. In this respect, the current IS strategy was "lightweight ... almost a tick the box response" (P6, 2011).

The view was offered by some interviewees that the IS strategy was in many ways idealistic and did not always take human nature into account (P4, 2011). It was suggested that

> the strategy should articulate a big vision. The strategy should not be just for the NICS but for the whole of the public sector in NI. There should be someone from outside to pull the whole thing together to encourage the sharing of services across the board. Ideally get a Minister to set up a small working group … or a junior minister from OFMDFM/DFP. (P5, 2011)

Ownership of Projects. In relation to ownership of projects, one view was that

> certain projects need to be led by the business – for example, flexible working is IT enabled but it is not an IT project per se and needs to be led by the business. There is a need to educate business functions within departments as to how IT can be an enabler and not just a cost cutter. There is a need for various departments to take ownership of the various projects. (P2, 2011)

This implies an impediment.

Value Realisation. Whilst everything in the NICS is business-cased, there was not a great record in value realisation (P3, 2011); implying an impediment. In support of this, one participant noted that "[D]epartments are generally not great on post-implementation review or in tracking benefits. Whose responsibility is it to do this? It argued [that] it is the SRO" (P5, 2011).

It was suggested that the NICS is not sophisticated enough to measure the success of projects.

> The nature of the Civil Service is that people move on after 2 to 3 years. There is no effective mechanism for triggering a review of a project post-implementation. It should become the responsibility of the Project Support Office and the project should be reviewed 1 to 2 years after implementation. The Business Case defines when the benefits of the project are expected to come on stream. Ideally, a review should be triggered after 2 years. It should be the closing action of the board to carry out a review/study 18 months after implementation. The SRO should be contacted about benefits realisation. The success/failure of a project depends on what is delivered in the end – that it delivers what it is supposed to. In general, the user gets what they want except for minor things like reports not looking the way the user expected. (P5, 2011)

There was a view that once an IS project is complete, the project board is wound up. Also, there is no accounting afterward to if a project is still delivering benefits over the long-term:

> There is no monitoring over the next five to ten years of projects. SROs are changed far too often. Chairs of project boards often see the role as an add-on to their day job. When SROs are changed it leads to a loss of continuity. (P11, 2012)

6.6 Conclusion

The case outlined in this chapter is the NICS, which is clearly a prominent example of an organisation involved in complex strategic alignment. The reason for this lies in the complex nature of the process: diverse actors from different organisational levels (collective and departmental), conflicting IS environments and solutions, hereditary distrust amongst departments, as well as quasi-autonomous ISUs. The complexity extends deeply into both social and technical dimensions, whilst the strategic alignment context (political, institutional, organisational and technical) involves a high degree of ambiguity regarding how IS strategy can be best aligned with its business strategies. These considerations make this a highly suitable case context for research on impediments to IS strategic alignment.

In the case outlined, I identified key events in two IS strategy-making and strategic alignment time periods. The events in the second time period were described in more detail as I was able to capture the dynamic processes of strategic alignment as they happened in real-time, while the first time period events were captured through secondary data and the retrospective accounts of participants. While the events described in this case narrative were not exactly the same for both periods, it was possible through the use of the temporal bracketing strategy to structure the various events identified in the NICS, resulting in the classification of four distinct temporal phases of the strategic alignment process. The strength of this processual case narrative is in capturing the multiple realities and experiences of strategic alignment as described by the participants in context and over two distinct time periods.

The next chapter presents the research findings from an analysis of the case data, and discusses these findings in relation to the research literature reviewed in chapters 2 and 3. With this in mind, the various phases and events of IS strategy-making and strategy alignment presented in the two time periods in this chapter, together with potential impediments, are

analysed; and the applicability of the various phases and their distinctive characteristics of IS strategy-making and strategic alignment with respect to other organisational (public and private sector) contexts is subject to reflection. In addition, I analyse the process theories (teleological and dialectical) that explain the impediments within each phase to strategic alignment.

Chapter 7 - Model Development

7.1 Introduction

The central focus of my inquiry is the following question: *What are the key impediments to the process of aligning business and IS strategies in PSOs?* Therefore the main outcome of this research is the development of a model pinpointing the critical impediments that a PSO should focus on overcoming during the strategic alignment process, so that its strategic objectives are met. The processual approach to this research (Langley, 1999; Pettigrew, 1990; Van de Ven & Poole, 1995) provided a theoretical lens to delve deeper into the intricate dynamic process that is strategic alignment in a PSO setting. The result was a multi-dimensional model for categorising and explaining the impediments to strategic alignment in a PSO, across a number of phases that constitutes a processual theory of IS alignment.

The discussion below outlines the transition from case data to model development, answers the research question, presents the model derived from the data and its application in the NICS, compares the findings with the extant literature and, finally, considers the contribution made by the research to both academia and practice.

7.2 Transition from Case Data to the Model Development

As suggested by Eisenhardt (1989) and Yin (2009), the concluding stage in this case study research was the development of a phased model of strategic alignment from the detailed analysis of the case data. To reach the stage in which the existence of conceptual links among codes that generate theory are unveiled (Gregor, 2006), primary and secondary data were analysed in an iterative process (Eisenhardt & Graebner, 2007) that centred on decoupling, classifying, and recombining the data to develop, redefine, and create concepts that enabled the presentation of something new. This was achieved based on the insight drawn from the literature on strategy process and strategic alignment and on the case analysis of the two time periods.

The case narrative provided the initial analysis of the case data. Narrative has been described as being particularly useful for analysing data where an interpretive approach to theory building has been chosen (Langley, 1999). Longitudinal case studies have also been suggested as appropriate in reducing the risk of important events being omitted in processual research (Langley, Kakabadse, & Swailes, 2007). Meaningful processual research must be linked through time and the wider internal/external organisational context (Chakravarthy &

White, 2001). The case narrative in chapter 6 encompasses these requirements of processual research. As described in chapter 5, the baseline for the coding was the identification of a start list of sixty-four codes into which blocks of text (from the interview transcripts, notes from workshops, the case narrative, and secondary documentation) were aggregated in NVivo10 for second level analysis. The codes were based on the research question, literature, and collected data.

The initial focus was on identifying critical events; later renamed as core social work. They encapsulated those social events identified as being necessary to the achievement of a technical deliverable in relation to the process of strategic alignment, i.e. the development of business principles. Next, the core social work and technical deliverables were grouped under one of four phases with a predominant focus. This in turn led to the identification of distinctive characteristics of the various phases over time. In examining the dominant focus of each phase, the external and internal contexts were analysed to see how they influenced the strategic alignment process. Additionally, the main participants engaging in each of the phases were identified as to whether they were acting at a collective or departmental level. Showing the process of strategic alignment as a sequence of core social work, with its different interdependencies and inter-relationships, added an important layer of process meaning.

The impediments in each phase were identified. An impediment is referred to as a key area that if mismanaged is a barrier to strategic alignment (Luftman et al., 1999). Firstly, the emerging process model was related to earlier work on impediments (Chan et al., 2006; Hussin et al., 2002; Luftman, 2003; Luftman et al., 1999; Reich & Benbasat, 1996, 2000; Sakka, Millet, & Botta-Genoulaz, 2011) and process theorising (Langley, 1999). Next, participant interviews and the critical events coded from the data sources were reviewed (as described in section 5.4.2). The most prominent impediments were cross-referenced again with the literature before settling on eight that seemed to be clearly linked to a particular phase. Those eight impediments were labelled in the data reduction phase, as specified in section 5.4.2. Sufficient individual quotes to support the connection between the different phases and the impediments were found in the data, achieving a further level of abstraction.

Then, impediments were classified as being either technical or social. Social impediments have a direct link with people involved in the creation of alignment, whilst technical barriers have a direct link to the content and structure of strategy and strategy-making methodologies (Reich & Benbasat, 1996). The impediments were grouped under one of the

four phases if, from the empirical research in the NICS, they appeared in a phase in both time periods. If an impediment appeared in more than one phase, it was linked to the earliest one and, where an intervention was made by management within that phase, it should not then reappear in a later phase. A number of impediments were either discarded due to the fact that they only appeared in one time period or could be subsumed as part of another impediment. Finally, all these findings, together with the case study narrative, coded text blocks, and process theory, were used to draw a full phased model of strategic alignment in a PSO (Pentland, 1999; Langley, 1999).

7.3 The Model

The findings presented below led to the development of a phased model of strategic alignment in PSOs. It is composed of seven characteristics and four phases, as shown in Table 7.1. The holistic processual model is intended to identify the impediments to strategic alignment in terms of patterns in events and choices that emerge over time (Mohr, 1982), and explain how and why these impediments overlap and are interdependent (Chan & Reich, 2007b).

Table 7.1 Phased Model of Strategic Alignment in PSOs

Phased Model of Strategic Alignment				
CHARACTERISTICS	**PHASES**			
	Establishing	**Endorsing**	**Embedding**	**Evaluating**
Dominant Focus	Principles	Strategy	Projects	Value
Level of Engagement	Collective	Collective	Departmental	Departmental
Degree of Alignment	High	High	High/ Medium	Medium
Core Technical Deliverables	Developing Business Principles	Defining Enterprise Architecture	Delivering Projects	Reviewing Projects
Core Social Work	Collaborating	Sharing	Coordinating	Assessing
Technical Impediments	Planning	Governance	IS Structure	Value Realisation
Social Impediments	Leadership	Partnership	Commitment	Culture

7.3.1 Components of the Model

7.3.1.1 Conceptual characteristics. This section describes the conceptual characteristics of the model: dominant focus, level of engagement, degree of alignment, core technical deliverables, core social work, and technical and social impediments. They encompass all the main features of process research recognised by Pettigrew (1992) while also attending to the social dimension of strategic alignment and the impediments to that process. In fact, these characteristics analyse "the 'what is' as opposed to explaining causality or attempting predictive generalisations ... they describe or classify specific dimensions or characteristics of individuals, groups, situations or events by summarising the commonalities found in discrete observations." (Gregor, 2006, p. 612) and were derived from the analysis of the case data.

The ***dominant focus*** characteristic describes the principle driver of action in each phase. For the first phase, the dominant focus is establishing business principles to shape the IS strategy. The next phase is focused on endorsing the IS strategy. The third phase focuses on delivering projects emanating from the IS strategy endorsed in phase two. Lastly the final stage focuses on evaluating the value obtained over time from the strategic alignment process over the previous three phases.

The ***level of engagement*** describes the level of the organisation that is most engaged in driving the process of strategic alignment. It is based on the idea that the interpretation of reality, including the domain of human behaviour, is a social construction by human actors and depending on whether these human actors are acting from a collective or departmental level, this interpretation of reality shapes their behaviours and impacts the process of strategic alignment (Walsham, 2006). For example, the drive to establish business principles in phase one comes from business executives at the collective level, whereas the push to embed projects in phase three happens at an individual departmental level.

The ***degree of alignment*** can range from high to medium for each phase. Strategic alignment has been conceptualised as a dynamic process in which organisations go through continuous transitory periods of high and low alignment (Ravishankar et al., 2011; Sabherwal & Chan, 2001). Bergeron et al. (2004) noted that "conflicting coalignment patterns of business strategy, business structure, IT strategy, and IT structure will exhibit lower levels of business performance" (p. 1006). A high degree of alignment implies that there is a good coupling between the organisation's business and IS strategies. High/medium suggests there is some

evidence of misalignment, but on the whole the IS strategy is still strongly aligned with the business strategy. Medium infers more evidence of misalignment in certain areas/projects while there is alignment in other areas.

The ***core technical deliverables*** identify and formally document what technical products are important in each phase. They include developing and defining business strategies and principles (phase one), IS principles/strategies, enterprise architecture, project portfolios, HR ICT strategies, and budgets (phase two), deliverables to implement projects (phase three), and project reviews (phase four).

The ***core social work*** relates to socially organised human work engaged in by more than one actor in the socially constructed environment of business and IS domains. In essence, it encapsulates all events that involve a working relationship between different actors in each phase and encompasses collaborating to establish principles (phase one), sharing knowledge (phase two), co-ordinating resources (phase three) and assessing value (phase four). It concentrates on the actors in organisations by examining their beliefs, their mutual communications, behaviours, and ultimately their understanding of each other's domains (Reich & Benbasat, 2000). The core social work can be regularised, planned and coordinated. However, variations in individual and shared understanding occur across contexts and over time, as illustrated by how individuals in the NICS case view the same situation in very different ways, causing misalignment (Luftman et al., 1999).

The two final characteristics refer to ***technical and social impediments***. The strategic alignment process has high levels of technical and social interactivity. Therefore, individuals engaged in work of a social nature and complex technical deliverables become crucially interdependent. This tight coupling means that error in any particular process can quickly cascade into more significant events and potentially lead to strategic misalignment. As mentioned in section 7.2, eight codes were identified as impediments. Four of these were technical: *planning, governance, IS structure, and value realisation.* The social ones were: *leadership, partnership, commitment, and culture.* While particular social and technical impediments are shown as associated with specific phases of strategic alignment, their impact sometimes only become apparent in subsequent phases; in other words, if they are an impediment in one phase, they continue to be an impediment in subsequent phases if unresolved.

In combination with each characteristic, two processual theories (teleological and dialectical) provide a way to narrow and make explicit the processual behaviours that drive the strategic alignment process over the phases of the model. This implies that the process is driven by different concerns and shaped by different forces, some teleological and some dialectical, providing meaning to the overall process and the particular impediments at each phase. It was not clear at the outset of the research which of the theories offered by Van de Ven and Poole (1995), as discussed in section 2.6, influence the complex strategic alignment process. Therefore, each phase was revisited to identify the presence of the most predominant theories; these are referenced as appropriate below.

7.3.1.2 Phases. The model comprises four phases, which emerged from the analysis of the data.

Phase One – Establishing. The dominant focus of this phase is 'principles' or the formulation of business strategy and the establishment of business principles. The core technical deliverable is 'delivering the business principles' and external and internal contexts influence their establishment. The case data showed that the external context in a PSO relates to issues like government policies, fiscal economics, and external stakeholders like vendors, citizens, etc. The internal context relates to the circumstances within the organisation as embodied via different sections/functions (Pettigrew, 2012). The main level of engagement emanates from the 'collective' level with inputs from departments being taken to formulate business strategy and establish underpinning business principles in the form of the core social work of collaboration. The degree of alignment tends to be 'high' given that, at the starting point, there is agreement at the collective level to the overarching business principles.

In any organisation adapting a strategy execution approach to strategic alignment, the business principles - underpinning the business strategy set out in the first phase - should drive all IS projects, and investments should be strategically aligned to at least one of these business principles (Henderson & Venkatraman, 1991; Henderson & Venkatraman, 1993; Luftman, 2000).

This approach, which is generally used by numerous government organisations that participate in digital activities like the NICS (Sawyer et al., 2008), suggests that the business strategy is the business driver of both the organisational and IS structure and processes. With it, the performance criteria to evaluate IS are grounded in economic parameters; highlighting a cost centre emphasis (Henderson & Venkatraman, 1993).

For this approach, the initial point for strategic alignment is establishing the business strategy (and its underlying principles), based on the mission and long-term goals of the organisation. Business executives at the collective level take a top-down view of the organisation, determining the critical areas for its success, business strategy, and underlying business principles. Therefore, the core technical delivery for this phase is the 'development of business principles' which will ultimately be supported by the IS strategy.

The business strategy focuses first on rational observation of problems, mission and organisational goals. Next, business principles are established to respond to the observed issues; followed by IS principles relevant to the business principles (endorsed and embedded in the form of an IS strategy and IS projects). The success or failure of the IS strategy can then be evaluated in terms of value when measured against the business principles. The teleological process theory is applicable in this phase as establishing principles is akin to goal formulation (Van de Ven & Poole, 1995).

The development of business principles assumes that the culmination of this technical deliverable is the result of 'collaborating' socially through strategy development meetings and one to one interviews involving senior management (business executive and IS) at a collective level to gather information and agree on business principles to be established. Therefore, the IS executives needs to develop their capabilities in the area of leadership/management and business skills. While business executives may share some objectives, like the long-term sustainability of the organisation, they may have conflicting preferences and interests which arise from different expectations of the future, and different positions within the organisation pointing to the influence of dialectical theory.

In an ideal world the 'planning' processes around establishing business principles should be logical, concurrent with IS strategy-making processes, and therefore unproblematic. However, this ignores the social facets of the process and possible poor planning. Problems arise when the organisation lacks a formal planning process, different planning processes are not concurrent and the business strategy is not clearly defined. Business and IS executives need sophisticated strategic planning processes in order to enable strategic alignment. So, planning and leadership are the impediments to be addressed in this phase.

In summary, the establishing phase can be characterised as follows:

1. Its dominant focus is on business principles and their development is the main deliverable.
2. The level of engagement is basically collective, though the stakeholders may have conflicting views about the business principles to be established.
3. Teleological and dialectical behaviours are present even though the former is predominant.
4. Alignment tends to be high, considering that the business principles are established at the collective level. However, alignment can be hindered without concurrent planning processes for the business and IS strategies.
5. Collaboration is the core social work because it is needed to ensure a common view of the goals to be achieved.
6. The main impediments to strategic alignment are planning (technical) and leadership (social).

Phase Two – Endorsing. This phase focuses on the endorsement of an IS strategy to support the established business principles. The dominant focus of this phase is the completion and endorsement of the IS strategy at the 'collective' level, which means a partnership of key stakeholders with strong support from senior executives. This consists of the consolidation of information from the first phase, and the subsequent creation of an IS strategy with a focus on the business principles to be endorsed by the business executives. The CIO (or head of IS at a collective level) has a pivotal part here in engaging the organisation as a collective regarding IS matters and contributing knowledge concerning the IS capability position, IS technology opportunities with their benefits and limits, and other IS issues. The degree of alignment is 'high' still at this phase as there is endorsement at the collective level to the supporting IS strategy.

The IS strategy focuses on the planning and transformation of strategic IS principles into processes, applications, and structure adjusted to support the business principles. Therefore, the IS strategy does not exist in isolation; endorsing it involves a number of technical deliverables culminating in 'defining an enterprise architecture', such as identifying the main technology together with its components and resource implications to be shared across

the different departments and functions of the organisation. Roughly defined, an enterprise architecture is the systematic ordering of an organisation's IS structure (Bradley, Pratt, Byrd, Outlay, & Wynn Jr, 2012). Consequently, the enterprise architecture is defined based on the IS strategy.

Once the business principles are established, it is essential that the IS organisation engage in determining the IS competences, capabilities and resources required to support the business principles, before investigating both new technologies and novel ways to use existing technology that can enable business strategy in departments and at an overall collective level. It is also necessary to articulate stakeholder expectations of how they perceive IS will underpin the business principles before endorsing the IS strategy.

Sharing is the main core social work of this phase. It refers to the ability of the business executives and the IS executives to contribute knowledge, communicate, understand each other's challenges, and participate in the IS strategy-making process. It is important that there is an executive business sponsor for this core social work in order to drive the realisation of value from IS-related projects. This can be facilitated through IS strategy workshops and a team of business and IS executives should be assigned to facilitate them.

The enterprise architecture should be explored to see if there are any challenges in embedding the IS strategy or issues that could cause restrictions in the modifications essential to embedding it. Rigidity in the enterprise architecture in terms of centralisation/decentralisation and formal relationships among the various departments could hinder communication and lead to misalignment when it comes to embedding the IS strategy. Throughout the endorsing phase, the CIO should be able to keep the business executives appraised about issues related to IS and any implications for effective alignment with the business strategy.

Knowledge-sharing relies upon an understanding of the business. A lack of understanding of the different processes means the teleological behaviours become internally more dialectical. It is essential that IS staff understand the business principles, speak the language of the business, fully understand existing/emerging technologies, and how the new IS technologies can be integrated into the business. The IS staff must also understand the strengths and weaknesses of new technologies being considered and the organisation-wide implications of their adoption. When IS staff are not business literate, they are not able to understand business considerations, thereby negatively impacting the organisation.

IS executives should also review communication relating to IS to ensure that business executives across the organisation are well informed about, and willing to use, IS technology opportunities that might transform their businesses. Likewise, it is helpful if the business executives are able to articulate their needs from an IS perspective.

Considering that sharing has a central role in this phase, the possible expected impediments refer to the mismanagement of alignment activities. Therefore, governance and partnership emerge as the main possible barriers to strategic alignment, as the case data discussed below suggests. Governance implies a clear definition of who is responsible for what in the management of IS at the outset of the process of strategic alignment. Lack of governance causes misalignment.

As business executives and IS executives make important contributions to achieving strategic alignment, they must work in close 'partnership' to define the overall strategic direction of the organisation and the underlying business principles. Development of a positive collaboration between business and IS personnel across any organisation is essential to achieve a high level of strategic alignment. Therefore, lack of partnership leads to limited knowledge-sharing, decreased levels of communication, and reduced levels of strategic alignment. The CIO, as IS leader, should interact with other cross-departmental management, be responsible for IS staff accurately understanding business needs, and ensure that the business executives realise the IS capabilities available within the organisation.

Trust and openness are key to partnership and vice versa. Trust can be fostered through knowledge-sharing between business and IS executives and IS executives not using IS jargon. IS executives should be capable of communicating IS issues with business executives in business terms; thus increasing transparency and decreasing concerns that IS executives have hidden agendas behind IS jargon.

For partnership to become an enabler, there is a need for communication to become the norm through the development of a culture of innovation, and for engaged IS executives and business executives to promote knowledge-sharing and cross-departmental collaboration. Communication allows the IS and business executive management to ensure that their roles and responsibilities are clearly understood by one another. If communication and partnership are not addressed in this phase, it will exacerbate the process of strategic misalignment in later phases.

In summary, this phase is characterised by:

1. Its dominant focus on endorsing an IS strategy and defining an enterprise architecture is the main deliverable.
2. The level of engagement being basically collective, although the stakeholders may have conflicting views around the IS principles underpinning the IS strategy.
3. Teleological and dialectical behaviours are present even though the former is predominant.
4. Alignment tends to be high, since the IS strategy is endorsed at the collective level. However, alignment can be hindered with lack of close partnership and without a strong and goal-driven governance structure.
5. Sharing is the core social work because it is needed to ensure the strategic needs of the organisation are addressed by the endorsed IS strategy.
6. The main impediments to strategic alignment are governance (technical) and partnership (social).

Phase Three – Embedding. This phase is based on the dominant focus of effectively delivering the IS 'projects' and hence embedding the IS strategy into the organisation. It begins with the communication of the final draft of the strategy to the business executives at a 'departmental' level to achieve a clear programme of implementation, in which all concerned understand their roles and responsibilities. The degree of alignment moves from high to 'high/medium' as some flaws in the strategic alignment process become apparent when attempting to deliver projects.

The task of embedding IS strategy into the organisation entails a substantial degree of coordination, which is the core social work of this phase. It implies both a strong 'IS structure' and highly-skilled IS personnel. It is important to co-ordinate and assign specific projects with clearly defined deliverables, ownership, timeframes, resources, risks, and measurements to underpin each of the business principles. Generally speaking, ensuring that the appropriate business and IS participants formally discuss and review the priorities and allocation of IS resources is among the most important core social work.

The IS structure principally deals with the combination of IS components necessary to underpin business requirements, including resources and skills. That structure is important for

virtually all business functions and practices within an organisation; especially for the achievement of strategic alignment with the business principles.

Commitment is the social impediment of this phase. It involves the support of management at the most senior level in departments. It should dynamically support and drive strategic alignment, ensure that IS personnel are represented at senior levels and that relationships and core social work are directed to common goals (teleological theory). It is evident when the business executives works closely enough to resolve conflict among different departments, and between departments and the collective centre, and when its expectations of IS are reasonable (dialectical theory). Its lack is related directly to credibility since the business executives need to believe in the IS department in order to be committed to the strategic use of IS. Without such credibility, it will be very challenging for the business executives to co-ordinate and allocate appropriate resources for the planning and development of strategic IS applications (leading directly to the IS structure impediment). Lack of credibility is concerned with the values and beliefs of the business executives which are shaped by prior experiences. Indeed, the extent of participation of the business executives in IS strategy-making or the participation of IS executives in business strategy-making is often influenced by their perception of the IS department.

How the business executives perceives IS value can be an impediment or an enabler. A limited understanding has an adverse effect on the perception of IS value, with IS being seen merely as a cost of doing business as opposed to an enabler.

The main features of this phase can be summarised as follows:

1. Its dominant focus is embedding IS throughout the organisation in individual departments, with delivery of the corresponding projects being the main deliverable.
2. The level of engagement is basically departmental.
3. Dialectical theory is predominant.
4. Alignment moves from high to high/medium as flaws begin to appear in the strategic alignment process since departments struggle to release resources to implement IS projects.
5. Coordinating is the core social work because it is needed to get all efforts moving towards the same goal.

6. The main impediments to strategic alignment are IS structure (technical) and commitment (social).

Phase Four – Evaluating. The final phase is the evaluation of the effectiveness, continuing relevance, and strategic alignment of IS with the business strategy with the dominant focus on the achievement of 'value'. Value relates to the preferred outcomes (teleological theory) pursued by an organisation in aligning its business and IS strategies and improving performance, either through improved service to the citizen or decreased cost. The major concern in this phase is how to evaluate the IS-related business value and organisational impacts of IS. Decreases in costs will be easier to evaluate than improved service to the citizen. From a solely financial perspective, value will have been achieved if the benefits exceed investment costs. However, quantifying intangible benefits such as improved customer service is difficult.

The evaluation of value happens at 'departmental' level. There must be a structure in place to prioritise and coordinate existing resources, both financial and human as discussed in phase three. Devoid of such a structure, minor, less valuable and more operational projects will be completed, while the longer term, strategic and cross departmental beneficial projects will not be progressed to the same degree and might never be completed. Therefore, the degree of alignment moves from high/medium to 'medium' since all projects may show signs of progress, but it is not consistent across all project areas.

The core social work in this phase involves users within departments 'assessing,' and constantly checking, that the IS strategy is meeting the needs of the business. Ongoing assessment and follow up actions are needed to keep the focus on strategic alignment. This phase involves evaluating such issues as whether the organisation uses technical or business metrics for measuring IS success, whether it has formal/benchmarking practices, and whether IS has contributed to the achievement of the organisation's strategic goals.

It is vital that there is an availability of baseline information in relation to existing IS services, the existence of clear lines of responsibility, and the establishment of specific measurable key performance indicators for IS projects to monitor value realisation before, during, and after project implementation; thereby, ensuring they remain aligned with the business principles. Inability to do that makes value realisation a technical impediment.

Moreover, organisational culture may be a social impediment to strategic alignment in this phase if it does not foster communication and knowledge-sharing. If knowledge is seen as

power and therefore not communicated, the outcomes of the alignment process of the business and IS strategies are not seen as delivering value. It is essential for IS users to adopt and appreciate the value it adds to the organisation. If users fail to do so, the full value of IS will never be fully realised. Dialectical theory is foremost in this phase.

These are the main features of this phase:

1. Its dominant focus is assessing, at a departmental level, the value delivered by the IS projects and the reviewed projects are its deliverable.
2. The level of engagement is departmental.
3. Dialectical theory is predominant.
4. Alignment moves high/medium to medium.
5. Assessing is the core social work since achieving value is the focus.
6. The main impediments to strategic alignment are value realisation (technical) and culture (social).

7.4 The Findings of the Study and Application of the Model

This research used an in-depth case study to construct a process model of strategic alignment, consisting of four phases: establishing, endorsing, embedding, and evaluating. The results illustrate that PSOs face differing challenges to strategic alignment across the phases. From the discussion of the model, in section 7.3, the dynamic nature of strategic alignment is emphasised. The case analysed IS strategies for two periods that initially showed a high degree of alignment with the PSO's strategy, but were difficult to embed across departments.

The business-IS relationships across different organisational levels (collective and departmental) demonstrated that the impediments coevolved with different patterns across the four phases. Whilst each phase encompassed a number of distinctive characteristics, the model did not purport any causality among the characteristics; rather, the characteristics were advanced to be determinative elements of the multidimensional concept that is the process of strategic alignment. The findings from the case show that misalignment was not automatically the result of just one impediment in a particular phase. Instead, misalignment resulted over a period of time when a number of impediments went unrecognised and unaddressed during the different phases. Moreover, the results suggested that the kernels of misalignment commenced early: the very manner in which the business principles were established contributed to whether

or not projects aligned to these principles would be implemented. As impediments arose, repeated mismatches between attempted remedies and underlying impediments contributed to increasing misalignment as the process unfolded.

The impediments for each phase were based on the extent to which each impediment is represented in the coded data associated with each phase.

Table 7.2 Social & Technical Impediments by Phase

Phase	Primary Data Coded	Units of Meaning Coded
Establishing	**49**	**275**
Social Impediment - Lack of IS Leadership	36	133
Technical Impediment - Lack of Planning Sophistication	13	33
Endorsing	**62**	**642**
Social Impediment - Lack of Close Business - IS Partnership	50	179
Technical Impediment - Unclear Governance	60	395
Embedding	**57**	**476**
Social Impediment - Lack of Executive Commitment	33	82
Technical Impediment - Ineffective IS Infrastructure	33	80
Evaluating	**51**	**517**
Social Impediment – Culture	45	176
Technical Impediment - Lack of Values Realisation	15	136

Note. Phase coding references include other coded elements of phases – see codebook (Appendix Y3)

It can be observed in the table above that the most prominent impediment is "unclear governance", with 395 units of meaning coding. The degree of association of each impediment is set out in Table 7.3.

Table 7.3 Phases by Social versus Technical Emphasis

Phases	Social	Technical
Establishing	Higher Emphasis	Lower emphasis
Endorsing	Lower Emphasis	Higher Emphasis
Embedding	Equal Emphasis	Equal Emphasis
Evaluating	Higher Emphasis	Lower emphasis

Table 7.3 illustrates the impediments with the highest level of emphasis. From the results, it can be seen that there is different emphasis on social and technical impediments in each phase with only equal emphasis being in phase three - embedding.

The findings for each phase are presented below.

7.4.1 Phase One – Establishing. The case data showed in this phase that the business strategy was formed through a sequence of rational analytical steps, culminating in the establishment of business principles. Therefore, according to the data, the organisation's dominant focus in phase one is on establishing business principles, based on organisational mission and long-term goals.

In the NICS, a strategy execution approach was adopted to strategic alignment. At the highest collective level of the organisation, the Executive's Programme for Government (PFG) was the business strategy. There was deliberate rational intent in this process since the business executives in departments had striven to take the high-level strategic objectives of the PFG and cascade them into PSAs for each of the 12 departments. Therefore, teleological behaviour was what pushed the establishment of business principles in a certain direction. The PSAs in turn set out high level objectives for each department; including associated outcomes, targets, and budget allocations. They also identified objectives shared with other departments. Departments responded to their PSAs by preparing business strategies, which detailed how to meet targets and spend money. These strategies were the basis for establishing the main business principles for departmental information systems. Consequently, the establishing of business principles, in response to the PFG priorities, came at the overall collective NICS level.

However, the planning process was not as logical and unproblematic as expected, according to the data gathered from interviews conducted during two temporal periods (33 units of meanings coded). The business strategy-making process in the NICS was criticised by one senior manager as follows:

> Ideally, the Executive should come together as a group and logically sit down and think about key priorities. [However] … [T]here is no clear strategic direction, which is quite normal given the fact there is a five party coalition in government. (P14, 2013)

He also expressed the hope that the next iteration would be more focused on the key challenges facing the NICS:

> In the current PFG, there are 82 commitments, which is excessive. There is need for a small number of general themes leading to priorities that are more specific. The current PFG is not coherent. The themes need to create specific priorities, which lead to commitments. (P14, 2013)

In relation to the reasons why the PFG was not specifically used as a basis for establishing the business principles in the second temporal period, the following observation was made: "Civil Servants do not believe in the PFG and see it as more aspirational and not practically achievable" (P2, 2011). The case data showed that the PFG was mentioned just once in the entire IS strategy document (19 pages) during that period, while in the first period one page out of 55 was dedicated to discussing the links between the IS strategy and PFG.

An external consultant argued in the second temporal period that the NICS IS Strategy, ICT Strategy, and ICT/HR Strategy from the first period were "all different and disjointed" — again suggesting a lack of planning sophistication.

In both temporal periods, the PFG and PSA were developed much earlier than the NICS IS strategy, whereas ideally business and IS strategies should be developed concurrently and should have the same planning horizons.

Regarding the IS leadership, it was apparent that the ability of senior IS executives to build relationships with the business executives was essential to the process of aligning business strategy and IS strategy (133 units of meaning coded). There was praise for the IS executives during the first temporal period: they were perceived as "always excellent at getting issues addressed at the highest possible platform" (P1, 2013) and described as comprised of "great change leaders, who possessed a drive, arrogance, and self-confidence that led them to believe they could deliver a reform agenda on their own" (P8, 2011).

An implied criticism, in relation to the second temporal period, was that the IS executives were more reactive than proactive when it came to strategy-making: "Leadership is true of any discipline not just of IT ... yet there is a view that DHOTs have positions that are still very much reactive and are not in the ring at the outset of strategic decision-making" (P6, 2011). Another participant observed, "[T]he DHOTs are the people with responsibility for technology. The DHOTs group over the last 10 years has just become a talking shop ... They listen as opposed to contributing ninety-five percent of the time" (P1, 2013).

One participant again pointed to the importance of IS executives communicating with the business executives and demonstrating the value of IS to them. "Technologists, of all people should be pushing the envelope and taking risks but often they become part of the same culture, or fail to communicate and take business decision makers with them" (P6, 2011). It was further noted, "[I]t is an issue for the DHOTs to have more influence in their Departments" (P8, 2011).

Another participant observed, "[T]he DHOTs claim their departmental board do not listen to them. This may be down to either the PS not inviting them or the DHOTs themselves not pushing themselves forward" (P3, 2013).

In the second temporal period, one participant felt there was a very different dynamic in the IS executives in comparison to the previous temporal period, and actually blamed the IS executives for the delays experienced in getting the IS strategy approved by PSG.

So, the establishing phase in the NICS was characterised by the predominance of teleological behaviour but also the presence of conflicts produced by the inability of the leadership to conduct the planning process in an inclusive way. This caused misalignment, which appeared in phases three and four, having origins in the development of the business and IS strategies. Therefore, the main impediments for strategic alignment in this phase were planning and leadership.

7.4.2 Phase Two – Endorsing. With respect to the case data of this phase, the aim of the technical deliverable (the draft NICS ISRA) was to provide the blueprint for the provision of IS services throughout NICS once the IS principles and strategy were endorsed, with a focus on interoperability and information sharing between departments. In the first temporal period, a number of strategies relating to IS (IS, ICT, HR, Sourcing) were developed separately. In the second temporal period, the aim was to develop an implementation plan for two years and work through the various items on the strategy.

Developing IS principles was an iterative process, which focused on key priorities. Outside consultants reviewed the strategy and their comments were generally supportive, but they did highlight some apparent shortcomings or areas for improvement. In both temporal periods of the NICS case, it was agreed that the focus of the IS strategy should be on the delivery of key enabling services to citizens, ensuring the success of the mission critical projects and the effective working of the NICS. In the first temporal period, a draft report was circulated to the e-Government Board members for endorsement, based on the results of the one-to-one interviews and a workshop. A final draft was subsequently produced and presented to PSG (e) for endorsement.

In the second temporal period, a two-session-workshop was held with consultees (for NCIS business executives and for DHOTs). Participants of the workshop discussed the 'straw man' IS strategy document (developed by DID staff from the one-to-one interviews carried out in January 2010), which set out the business principles. From the workshops, it was clear that

participants hoped there would be a number of positive outcomes from the strategy-making process: stronger partnerships, improved service quality, increased citizen satisfaction, optimisation of IS expenditure, increased operational effectiveness, improved ability to respond effectively to rapidly changing environmental circumstances, and more effective leadership and alignment with British IS-related strategies.

After the workshops, key stakeholders were encouraged to provide feedback on the draft strategy, identify gaps, and confirm what their priorities were in relation to IS (see Appendix S). Next, the CIO had to get the PSG to endorse and publish the strategy. While the new CIO had the responsibility of persuading the PSG to endorse the IS strategy, "it was not at the top of [the CIO's] list as [the CIO] also had responsibility for [amongst other things NI Direct]" (P1, 2010). The PSG met in Mid-August of 2010, but the strategy was already three months behind schedule by then. There was a sense from one participant that the new CIO was having difficulties coming to grips with the strategy, which was still waiting to be ratified by the PSG. One participant expressed extreme frustration over the three month delay in getting the strategy ratified, which he felt was very unjustified. He also felt that the CIO and the business executives within the DFP should give the strategy the green light and make their own contributions. However, the business executives only changed minutiae and did not alter the main thrust of the document.

Delays in getting the IS strategy approved suggested that the effects of the impediments of planning and leadership from phase one had again emerged. This in turn led to a delay in gaining senior executive endorsement for the IS strategy and a delay in the awareness of the IS strategy by the business executives within departments. This was largely due not only to the pressure of work within IS and resourcing issues, but also the fact that the strategy was not viewed as a priority issue (P2, 2011). One participant observed "if outside consultants had developed the strategy it would have speeded up and have been presented before the PSG a lot quicker" (P1, 2010).

In his presentation of the IS strategy to the PSG, the CIO emphasised the importance of viewing IS as an enabler, but stated that processes still needed to be reengineered. Some participants interviewed agreed, but said that this would require others in the NICS to act in partnership with IS colleagues for these changes to happen.

The PSG felt that, with the advent of shared services, the back office issues were sorted and they required that customer-facing services be brought to the fore. They also considered

that strategy should address cost reduction/containment and citizens facing services as a matter of priority. Clear linkages were necessary between the strategy and the PSAs. The CIO informed the PSG that individual DHOTs were the go-to people for information concerning the strategy and the CIO was then left with the task of obtaining feedback on the strategy from the DHOTs and PSs. There was very little response from the PSs, which would suggest the lack of senior management commitment (an impediment which was to emerge more strongly in phase three).

The CIO, however, had to demonstrate how the strategy linked to the PSA. So, the IS strategy document was modified to show increased linkages to the goals of cost cutting and citizen-facing services; pointing to a high degree of alignment. Workshops with DHOTs, to develop the final ISRA from the strategy, were then organised. IS initiatives were generated from these and a work programme developed as part of an ISRA which linked each project or initiative back to the strategy. The ISRA strategically aligned the IS strategy to the underlying business principles and was thus documented. The draft ISRA based on this strategy followed a process previously applied by external consultants in the first temporal period, as described in chapter 6. This document built on the strategy by defining the rationale, implications, and obstacles relating to the IS drivers and principles.

The case data suggested that there was a clear relationship between the use of 'governance' structures and practices in relation to IS and strategic alignment (395 units of meaning coded). There was a need for a clear definition of who was responsible for what within the management of IS in relation to the process of strategic alignment. There was a perceived lack of clarity over governance and the arrangements for the management and decision-making in respect of IS in the NICS. This was a technical impediment in this phase. The decision-making authority needed to be clearly defined, which was not the case at either the establishing or endorsing phases of the strategic alignment process in either of the two temporal periods studied.

Indeed, there were negative views of the governance arrangements in the first temporal period as a whole: "The e-Government Board spent its time reporting on what went on line and what did not—a total waste of time … fell into disuse" (P9, 2011). In addition, the IS executives did not see the need for a separate governance structure at all at that time and there were huge difficulties convincing it of the need for a governance structure as evidenced by the following statement: "[the DD of DFD] himself wanted to direct operations and if he had there would be

no IT Assist today". Interestingly the governance structure (e-Government board) was never formally disbanded; the IS executives at the time "simply did not call any meetings" (P8, 2011).

In the case of the NICS IS programmes, up until 2007 PIDs were submitted to the PSG (e) group which would then consider them and give permission to proceed to the project manager to produce a business case. From 2007 to 2010, the e-Government Board and PSG (e) group were not operational. There was therefore a pressing need for an interim solution since some approval process was required. It was also suggested that the business executives should take the lead in this regard. Some participants felt engagement at PSG level was required, and that a proper authority was needed to drive the resultant IS strategy through.

As there was consensus concerning the need for a new governance structure, the 2010 IS strategy introduced formal governance arrangements in the embedding phase: "A new governance board has been established to oversee the implementation of the IS Strategy, which is a big improvement" (P4, 2010). The appointment of the governance board was the action of a collective unit, synonymous with teleological theory (Poole & Van De Ven, 2004).

However, there were mixed views as to how effective the governance board would be, as evidenced by the following comments from participants:

> Time will tell whether it is effective or not. (P4, 2011)

> It is better to have people who are interested and engaged rather have people on it just to represent every department. (P8, 2011)

> It all goes back to governance. There needs to be a public sector ICT governance board but it needs to come under a Minister and it needs political backing. (P5, 2011)

The participants were asked to comment on whether the newly established governance structure would negatively or positively impact the strategic alignment process. One participant observed:

> [The PS DFP] handpicked the membership of the board ... Not sure how much priority/recognition these people give attendance at the Governance Board. It would be interesting to view attendance statistics ... Issues are very much brought by IT people to the Governance Board as opposed to the Governance Board raising their own IT issues. (P3, 2013)

This issue highlights again the 'commitment' impediment, which was to emerge more strongly in phase three. It also points to dialectical theory, with the participant observing the need for members to act collectively as opposed to at department level.

Another participant noted, "[T]he success of the Governance Board is premised on members thinking and acting collectively for the whole of the NICS as opposed to individual departments" (P13, 2013). This concern was further confirmed by another participant who added,

> The Governance Board has done much to improve the profile of IT to business within NICS. Will it lead to improved services through technology— not so sure. It may improve in time … The members of the Governance Board are meant to think about the wider group. (P1, 2013)

The latter comment again points to dialectical theory.

Those views on governance confirm the on-going need to review the governance of IS to ensure that the strategic needs of the organisation are addressed (teleological theory). Governance arrangements were not in place in the first two phases of the second temporal period, but were done so towards the end of the third phase - embedding. These arrangements were then subsequently reviewed in phase four - evaluating (2014), and it was found that further adjustments to the overall governance structure were needed to ensure that it was correctly aligned and able to provide clear lines of authority and accountability. The 2014 review of the IS governance structure updated earlier arrangements to make them more effective, while also minimising unnecessary overlaps. This case study illustrates the relevance of governance as a means to initiate adaptations to encourage collaboration between business and IS.

The lack of close business-IS partnerships emerged a number of times (179 units of meaning coded) in the case data as an impediment that impacts on the alignment of business and IS strategy within the NICS. The strategy formation processes of the business strategies (PFG and departmental strategies) and IS strategies (collective and departmental) followed within the NICS, across the two temporal periods, were largely top-down. While IS strategies for the same periods were derived based on business principles, little opportunity existed for the IS strategy to drive either departmental strategies or the PFG. At a minimum, from the DHOTs perspective, the CIO should have been present when the PFG was discussed in the establishing phase. Besides, at the workshops held in February 2010, concern was expressed

that there was little evidence of departmental business strategies determining how IS could enable them in achieving objectives. These are examples of comments made by participants in relation to the lack of business-IS partnership and the lack of strategic alignment between departmental IS and business strategies:

> There are no IT elements in some Departmental Corporate Plans. There is difficulty in aligning an IT plan, as there is no objective to align to in the corporate business plan. (P9, 2011)

> IS generally provides high level IT supports as opposed to impacting on Departmental strategy. (P5, 2011)

> Most department business strategies are very high level making it quite difficult to hang an IT strategy on them. (P11, 2012)

> Public sector strategy-making is different to private sector strategy-making for various reasons. For example with Tesco and Sainsbury, the CIO sits on the board and is in a position to highlight the advantages of selling groceries on-line ... In the public sector, the business direction can be very vague because of lack of continuity at Ministerial and sometimes senior official level. (P8, 2011)

From the analysis of the case data, it is evident that:

- There was a lack of close working relationships between departmental boards and DHOTs since the latter were not asked to engage in the department's business strategy-making process; failing to establish a strong relationship between the PSG, CIO and the DHOTs, which is one of the prerequisites to strategic alignment.
- It would have been easier to achieve strategic alignment if a cross-functional team, including IS, created the PFG. The participants interviewed expressed opinions that both IS executives (at the CIO and DHOT level) and the business executives needed to listen to one another, communicate effectively, and learn to leverage IS to maximise value to the NICS as a whole.

Ideally, there should have been cross-functional team involvement in business-strategy-making, at both the overall collective NICS and individual departmental levels. However, this did not happen. The PFG and the PSA were developed without the involvement of IS executives. Therefore, once the development of a new business strategy had been decided, IS

executives attempted to establish the business principles ultimately to be supported by the IS strategy as best they could, without prior involvement in the PFG development process. One could argue that IS executives had a role to play in engaging with the business executives to earn the right to participate in the PFG decision-making process (impediment identified in phase one). For the business executives to be persuaded of that, the development of communication and leadership skills of IS executives must be prioritised.

From a research perspective, the case data clearly support insights that a lack of partnership is counterproductive (Luftman, 2000) and a major impediment (Peppard & Campbell, 2014) to the process of strategic alignment in PSOs and ultimately leads to misalignment in subsequent phases. In both temporal periods the case data and, in particular the interviews, highlighted that the primary issue against partnership was lack of understanding; originating from inadequate communication. The fact that IS was perceived as the cost of doing business emerged as a reason for a low level of business understanding of IS; meaning, the business executives were not as committed to spending time grasping the principal basics of IS when they were just paying for the service. While, many of the interviewees concurred that the IS investment choices were chiefly made to reduce costs and serve the citizen, there were also departments that did not regard IS as a partner. The recurrent issue of this lack of understanding was credited as being the responsibility of both the business executives and the DHOTs. Regarding this, one participant observed,

> DHOTs - do they really know the business? They should be constantly asking their senior business managers - have your needs been met, do you have any fresh needs? It is not possible to effect change without communication and engagement. (P1, 2013)

Sometimes DHOTs expressed frustration that the business users appeared not to have an adequately thorough comprehension of their own needs:

> There is a challenge in getting business users to identify their needs. Ideally, IT people need to know what users want so they can then see what they can deliver and how best to govern it. There is a challenge in seeing how best to help business users to articulate their needs ... It is extremely difficult to extract from business users what exactly they need. If this challenge is not overcome there is a danger that individual departments may drift back to doing their own thing. (P3, 2013)

The DHOTs thought that business users should better appreciate IS and its capabilities.

Although the business executives claimed to understand IS, some DHOTs suggested there were differences between what the business executives said they wanted from IS and what was actually implemented: "It is hard to say the extent to which people outside IT are using the technology as intended in the strategy" (P3, 2013) – again leading to misalignment. It was also reported by participants that a number of IS project pilots had taken place with inadequate coordination or sharing of results.

However, in contrast to the view above, one DHOT was

> happy with the current IS strategy development process. It tried to be as collaborative as possible and seek input from all stakeholders ... You do not have to "own" IT to be successful. IT has gained more capacity [regarding] its own decision-making. In general, they [the business executives] are sympathetic and less protective of decisions being made about IT outside their own department. Previously there was a fear about a loss of power. (P8, 2011)

In the second temporal period, another participant positively observed: "A lot of good work was done around identifying the drivers, prioritisation of projects etc" (P3, 2013).

The case data also highlighted that business and IS executives from different departments were inclined to trust executives from other departments when common goals existed because they expected a combined effort to work toward them. Teleological theory would suggest that the perception of individual executives that other executives would act opportunistically is diminished in these circumstances; encouraging the development of trust among executives.

As the strategic alignment process moved through the endorsing phase, broad inherent teleological behaviour was present as evidenced by the aspiration of the project team to frame an IS strategy to underpin the business principles. However, there was also evidence of process conflict and tension associated with dialectical behaviour. The different conflicts that emerged in this phase related to governance, partnership, trust, and resources. The project team in both temporal periods may have initially felt that it had full closure or synthesis as far as endorsing the IS strategy was concerned; however, the failure to fully address the conflicts then drove further conflict in subsequent phases. Therefore, the main impediments for the strategic alignment of the business and IS strategies in this phase were governance and partnership.

7.4.3 Phase III – Embedding. The core deliverable of this phase is to deliver the IS projects and embed the IS strategy into the organisation. In the NICS case, 12 departments were required to engage socially in workshops to coordinate the departmental IS functions and align the individual departmental IS strategies to the main IS strategy. From the case data, the concepts of focus, accountability, and communication of the business and IS principles were repeatedly associated with 'co-ordinating' this work, in a manner that resonated throughout departments within the NICS.

The IS structure (80 units of meaning coded), which is the combination of IS components, such as the resources and skills necessary to underpin business requirements, proved to be important to the delivery of IS projects within the NICS departments.

Due to the grade conscious culture of the NICS, it was often difficult for a DHOT to receive an invitation to address a department board since invitations were only extended to senior IS executives (minimum Grade 5). One of the participants suggested that the DHOTs also failed to distribute information about the IS strategy in its own departments and to department users. This may be due to them not networking effectively, not being as well connected as they should be within their own departments, or ISID not producing enough material for the DHOTs to distribute. This lack of effective communication was also attributed to too much bureaucracy, a lack of resources, and the questionable skillsets of some of the DHOT resources (P2, 2013).

As some departments were short on resources, this made it difficult to think about their usability by other departments when developing systems. As one participant observed of this situation,

> Systems Development work ... is very short on resources and often there is urgency with the work. Therefore, it is often quicker to go into the Microsoft Developer Network or other IT forums to get a solution as opposed to collaborating internally within the NICS. In conclusion, there is a potential for collaboration not to work and practical collaboration is not always a runner from the perspective of the people doing the work. (P4, 2011)

As was further observed, "[I]t is easier for developers just to develop applications for their own department rather than doing something generic that could be used by other departments." (P3, 2013)

In a review of the IS projects in the first temporal period, the NIAO (2008) found that there was a strain on staff resources, due to the number of projects being carried out at a time when overall NICS staff numbers were being reduced. Moreover, they found that, on a collective level, the NICS lacked the specialist skills required in some of these projects, and departments had different priorities from DFP regarding the release of staff to work on such projects (pointing to the presence of dialectical behaviour). Gaps in capacity and capability were also to be filled with assistance from the private sector in some cases. This consequently resulted in increased procurement and implementation costs. The NIAO's review also found that, several of the IS projects associated with the IS strategy experienced resistance from departments in terms of funding where the benefit was for more than one department (again pointing to the presence of dialectical behaviour).

In the second temporal period, there were seven ISUs serving 12 departments and some ISUs in policy departments had little to do in comparison to other departments. There was also little evidence of departments thinking strategically as to how IS could enable them in achieving objectives. It was felt that there was a need to re-energise ISUs about exploiting IS in the business. As one participant noted, "the DHOTs in some departments are not really doing a whole lot ... Small departments should be asking themselves do they really need an IT department" (P1, 2013). Some participants supported this perspective: "The hardest bit was in developing the implementation plan i.e. who is going to do what projects as the centre does not have the resources and individual departments have their own priorities" (P9, 2011).

However, it was suggested that departments would be at a disadvantage if IS was centralised and that, in the areas where it had previously been centralised, it had not initially been a positive experience and also negatively impacted trust. As one participant mentioned,

> while there are many benefits to centralising services (IT Assist being a case in point). When IT Assist was established there was an initial disconnect from their customers ... With applications development, it is particularly important that the developers have an in-depth knowledge of their customers, their needs and their business. If applications development were to be centralised there would be a loss of this close relationship with the business users." (P4, 2011)

Another participant also observed:

> [T]here is a new ICT/HR strategy being developed and there is talk of centralising development/outsourcing a lot of the work currently being done by individual

departments. This has created a fear that individual departments might end up down the pecking order and not get what they need. This is an issue around individual department influence. (P3, 2013)

In relation to the resource preferences for IS, the case data showed that, irrespective of department or function, participants generally preferred a large line of business services to remain within the department, while the view of the business executives was that IS should have a technical focus rather than a strategic one. However, there were some suggestions around "centralising development/outsourcing a lot of the work currently being done by individual departments". In addition, there was a view that "the NICS cannot afford to have their best people out in departments not being utilised to their full potential. IT staff needs to move" (P8, 2011). This is consistent with the view held by some participants that the business executives were not as concerned with how IS got the job done as with the notion that IS should have been available to provide support when there was an interruption to business due to an IS problem. There appeared to be a belief that having an IS structure and software development in departments would support the primary need of efficient IS support. Transforming this impediment into an enabler would require an assessment of the current and future business needs of individual departments, and identifying the resources and skills needed to address those needs. Another participant implied there was a lack of soft skills: "There is not the right level of skill sets. There is a need for more people in terms of business analysis and seeing the big picture. There is too much firefighting. Communication is generally weak" (P5, 2011).

The issues discussed in the preceding paragraphs referred to IS structure and are coordination issues and, to a greater extent, political/cultural issues (see chapter 6); however, they are basically the result of not having clear roles, responsibilities, and goals for departmental ISUs and the IS centre within DFP.

Eighty-two units of meaning were coded to commitment. There were suggestions that the business executives did put in sufficient effort in communicating and selling the reform programmes emanating from the first temporal period to the various departments (evidence of teleological behaviour). This effort had worked quite well and the programmes fell into place - with the exception of workplace 2010 - (P1, 2013). Some of the business executives also demonstrated support of IS through leading by example — such as being the first to undertake the Records NI training (P3, 2013).

In addition, a report by the NIAO on some reform projects associated with the IS strategy in the first temporal period found that stakeholders, in respect of HR Connect, had been fully engaged throughout, and the business executives within departments displayed a high level of commitment, especially in releasing good quality staff. Moreover, communications had generally been seen as good throughout on certain reform projects.

In contrast, in the second temporal period, one participant felt that senior executive management within the DFP were too focused on the minutiae, as opposed to the big picture. Moreover, when the CIO wrote to the PSs in individual departments to seek their views on the strategy in mid-2010, there was very little response. It was also suggested that the business executives would not necessarily prioritise their IS governance responsibilities as evidenced by the comment: "Not sure how much priority/recognition these people give attendance at the Governance Board. It would be interesting to view attendance statistics" (P3, 2013).

The business executives were expected to lead by example and support the business and cultural change needed to help embed the IS strategy into the organisation. It needed to demonstrate strong, consistent leadership and commitment in support of the approved IS strategy. From the above findings, it can be said that the IS structure and commitment were the main impediments to the strategic alignment of the business and IS strategies in the embedding phase.

7.4.4 Phase Four - Evaluating. The core deliverable of this phase is the reviewed projects. In 2009 (first temporal period), given the importance and cost of the shared service projects to the delivery of reform in Northern Ireland, it was deemed appropriate that the NIAO would be involved in 'reviewing projects' and in particular issues relating to procurement and implementation processes. This included the governance arrangements put in place for this portfolio of projects.

The IS strategy document (second temporal period) was expected to be reviewed in 2011/12 to confirm its continuing relevance to the organisation. However, this did not happen and it was not actually reviewed until March 2014 when the value achieved by each of the projects was checked against the original 2010 strategy. This review noted that, although all projects have shown signs of progress, it had not been consistent across all project areas, mostly due to resource constraints. In addition, a need was identified for a more consolidated approach to the management of staff and a more collaborative approach to systems development (teleological instead of dialectical). It was recommended to develop a revised and updated

work programme, in conjunction with NICS IS service providers, as well as a set of common metrics to demonstrate how the work programme added value to the business.

The core social work of this phase implies presenting the IS strategy to departments to not only help embed the strategy but highlight to business users the strategic alignment behaviours that sustain strategic alignment; such as nurturing open human communication and familiarisation with the IS strategy when utilising IS. The case data showed that presentations to departmental boards only occurred in some departments. The CIO in the second temporal period simply did not have the time to present to all boards. The DHOTs should also have presented to their boards, but in some cases did not receive the required invitation from the business executives to do so. This again points to weak IS leadership (phase one impediments) and a lack of commitment from the business executives within departments (phase three impediment).

'Value realisation' was raised as an issue in the case data (136 units of meaning coded), and the NICS was considered to not have a great record in value realisation despite everything being business cased as described in chapter six (P3, 2011). As observed by one participant, "Departments are generally not great on post implementation review or in tracking benefits. Whose responsibility is it to do this? It is the SRO" (P5, 2011).

Some participants suggested that there was a lack of monitoring the success of IS projects post-implementation.

> The NICS is not sophisticated enough to measure the success of projects ... [T]here is no effective mechanism for triggering a review of a project post implementation. It should become the responsibility of the Project Support Office and the project should be reviewed 1 to 2 years after implementation. (P5, 2011)

> When an IT project is complete, the project board is wound up. However, there is no accounting after to see in the long term if the project is still delivering benefits. There is no monitoring over the next five to ten years of projects. SROs are changed far too often. (P11, 2012)

The Assembly's Public Accounts Committee (PAC; Northern Ireland Assembly, 2009) noted in a progress report that while the PAC was reassured by evidence of progress in implementing the projects associated with the first temporal period, there was a huge management challenge in terms of DFP being able to complete the implementation and move

on to its successful operation. An important concern for the PAC was whether the large public investment in the projects would realise the anticipated value and if transparent evidence of the costs incurred would be provided. A number of issues that impeded the delivery and effectiveness of the projects were identified, including inadequate in-house resources, the inability to measure the value delivered by each project, and inadequate project specifications. The PAC also highlighted the need to both ensure that staff have the necessary abilities and skills to undertake the projects (IS structure), and a robust project specification to guarantee that systems are fit for purpose and deliver to whichever required standard can be measured.

Even when there was clear value with a project, cost was raised as an issue. "Money is always an issue. Certain projects, such as unified communication, will be of benefit but there is a question as to where the money will come from" (P2, 2011).

According to the case data, PSs were split down the middle when it comes to their view of IS. Some very much appreciate its capacity to enable future change, while others simply see it as part of standard operations. As PSs are being reappointed, more perceive IS to be a key business enabler (P13, 2013). Previous experience both with IS and within the organisation was evidenced in the interviews as having a major influence on whether IS was viewed as a cost or enabler.

Where there was evidence of previous IS projects being successful, from both a business and IS perspective, a positive mind-set about it was engendered which enhances mutual understanding and commitment from the business executives. However, this was not always the case in the NICS, with problems relating to existing IS services being raised a number of times in the case data.

Although IS had achieved a lot and developed successful reform projects, not all the business executives trusted IS development capabilities because some experiences had not been the best. Furthermore, these poor experiences decreased the level of credibility with which IS was viewed, as highlighted by one retired PS who suggested that from personal experience, "[T]here are still approximately two generations of civil servants not comfortable with ICT. TRIM and HR Connect were not the best experiences for most civil servants and, as a result, there is a lack of confidence in the systems" (P7, 2011).

Another participant said:

> Sometimes projects have gone live even though they might not be quite ready, due to political pressure … As a result, there was a significant level of faults and issues to address, end users complained, and eventually most of the faults were fixed ... It is hard to recover from such a shaky start and high levels of end user discontentment. (P5, 2011)

It was also noted that sometimes value was not always realised: "interestingly HR Connect did not result in any redundancies which seemed quite contradictory as one of the aims of HR Connect was to cut costs" (P11, 2012).

The IS function was blamed for its inability to meet its commitments in terms of meeting deadlines, budgets, or training. However, in most of the scenarios, this was because IS was overwhelmed with a heavy workload, and there were not enough IS resources or an even distribution of resources between departments (already identified as an impediment). This continued in the second temporal period, in which the review carried out in March 2014 found there were a lack of resources to carry forward certain projects.

It was also suggested that the 'culture' of the NICS (176 units of meaning coded) hampered communication and knowledge-sharing and, as a consequence, value realisation. "It should be possible to build communication in an IT community. However, the culture of the organisation does not lend itself to sharing" (P2, 2011). The fact that the business executives and IS staff across departments did not always like to collaborate and share was expressed in the following observation:

> the culture of the organisation does not lend itself to sharing. An effort is being made to build a physical development network ... At this time, there is very little information as to what assets are out there or indeed control over the development work that departments are engaged in. The aim is to look at development and avoid duplication but this is very much a future aspiration. (P2, 2011)

There was criticism of the slowness with which decisions were taken in relation to IS in the first temporal period:

> Decision-making in general … [is] very slow. Due to political considerations, a lot of time was spent in getting every last person on board with every decision … There was

> a lot of over engineering of documents ... Departments within the NICS do not always play happily together. (P11, 2012)

Tension between the departments evidenced the presence of dialectical behaviour. Moreover, another participant noted that

> many developers do not want to expose themselves to criticism ... In a fast changing environment, developers are sometimes very resistant to change possibly because their departments for too long have cocooned them. It is particularly hard to get them to collaborate – [the] same people volunteer all the time. (P9, 2011)

One participant offered the following overview of the NICS culture: "Within individual departments there are many silo-like information structures where the vertical emphasis predominates and the horizontal exchanges required to stimulate cross-departmental collaborations such as information and source data reuse do not happen" (P6, 2011). Another participant observed that:

> [I]nnovation within ICT can only happen when people who have experience and a proven record of accomplishment are given responsibility and allowed to take risks. There is a feeling that certain personnel do not want to devolve responsibility to their staff, as it would undermine their self-importance. (P4, 2011)

This was backed up by another participant who stated:

> There is a reluctance to share information accelerated by a view that information is power ... The challenge then for the NICS is to establish accountability structures that support cross-departmental collaboration and accelerate a process of cultural change ... This is a challenge because the rate of growth of data is such that a point will be reached where it is beyond being controlled. (P6, 2011)

From the case data, it can be inferred that value realisation and culture were the main impediments of the evaluating phase.

7.5 Reflections on the Impediments Identified through a Processual Lens

A key strength of the developed model is depicting the dynamic, evolving nature of strategic alignment. This model reflects the perspective that it is not to be understood as a set of deterministic causal relationships, but rather as a continuous process of interactions between people, IS, and contexts. The advantage and contribution of the model is that it considers both the traditional technical deliverables of strategic alignment along with the social dimension, incorporating actors involved in producing the technical deliverables, following a novel processual analysis of the case data that is useful and relevant for practitioners and researchers. Moreover, while the extant literature has described the factors that impede the process of strategic alignment, there is almost no systematic research that considers these impediments over a phased period of strategic alignment or uses processual theory to explain them.

An important source of learning about strategic alignment is from identifying impediments. As long as organisations attempt to align business and IS strategies, impediments will likely transpire. Impediments, although nearly unavoidable and frequently expensive, can offer insight from which to learn. Learning from impediments includes acknowledging that unforeseen, impeding events have transpired and taking time to reflect on these impediments to diminish the likelihood of these happening again (Lyytinen & Robey, 1999). Reflecting on impediments and why they occur may enable awareness that reduces misinterpretations of particular situations and recognition of failings that hinder strategic alignment. This research revealed insights into impediments using a processual lens. It also stressed the importance of on-going learning and review Galliers (2006) and, given its processual lens, the unintended consequences arising not only from the dynamic nature of alignment (Sabherwal & Chan, 2001), but also the emergent nature of strategy-making (Mintzberg & Waters, 1985).

The use of a processual lens provided an opportunity for deeper analysis of the case data than would have been possible if a variance research lens had been used. The additional analysis, which consisted of examining the data associated with each of the four phases to identify the unique characteristics of each phase and discern how these unfolded in the process of strategic alignment (see chapter 5 for details), led to distinct technical and social impediments in each phase.

The findings suggest it is phase two which experiences the highest impact of impediments to strategic alignment - unclear governance and the lack of close business-IS partnership. For practitioners both in PSOs and the private sector, this means organisations

should develop business and IS strategies together to ensure that they support each other to consequently overcome impediments and achieve a high degree of strategic alignment.

Another practical implication of this research is the need to create an IS governance structure aimed at cohesively managing all aspects of the process of aligning business and IS strategies across the organisation and at individual department level. The importance of IS governance cannot be underestimated. This case study highlighted the influence of governance and its impact on communication and partnership. Due to the complexity of the process of strategic alignment, senior management commitment and IS governance will help to develop and maintain it. Such involvement can also help improve the business executives understanding of the potential for IS to support and enhance business strategies at departmental and collective levels (i.e. achieve value).

The data further suggests that strong engaged IS executives and a culture that encourages sharing increases the level of trust in IS and promotes knowledge-sharing and integration. This research thus proposes that business-IS partnership enables communication between the business executives and IS executives and that communication between the business executives and IS executives enhances business-IS partnership. Therefore, IS executives and the business executives must find a way to communicate, in a language that both parties understand and with which they are comfortable. Hence, organisations should recognise the importance of inviting IS executives to the strategy-making table.

Another key impediment affecting alignment is the lack of credibility-building, in terms of underpinning the business principles, meeting user requirements, delivering good quality work, and managing timelines and budgets. Low levels of business executive engagement with IS, as a result of their difficulties with IS projects in the past, can lead to lack of senior management commitment. This finding is consistent with past studies; however, the data suggests that it is not only the past record of IS success that increases the strategic alignment, but also the present outcomes. In practice, organisations should ensure that IS consistently delivers results that satisfy the business needs, and that requires value realisation processes to be monitored before, during, and after project implementation. This research found that there was almost no incidence of systematic post-implementation reviews.

As discussed above, the theory underlying the model is a process one. The model describes the dynamic process of strategic alignment over four phases in which it may be impacted by various impediments. As described in chapter 6, there were 12 departments within

the NICS with an overarching IS strategy being developed over two temporal periods; leading to events which were the product of the interplay between two opposing forces: the sense making of the NICS identity as a system of civil service organisations at a collective level and individual departmental identities at departmental level with the collaborative engagement necessary between these two levels during the strategic alignment process. Therefore, the proposed model shows two levels of engagement: the level of the NICS as a collective system of civil service organisations which develop and implement an overall IS strategy and that of the departments which struggle to defend their IS needs based on the sense making processes of organisational identity.

The subsequent analysis of strategic alignment in the NICS context exhibited as predominant, teleological and dialectical behaviours explained by teleological and dialectical theories. Teleological and dialectical theories describe development that is discontinuous and unpredictable. The former reports the development and changes of a single organisational entity, while the latter describes multiple organisational entities (Van de Ven & Poole, 1995).

Teleological behaviour was found when a group of participants decided on and moved toward a shared organisational goal, such as underlying business principles. Impediments to strategic alignment occurred at various phases when participants could not reach consensus on a goal or when the conclusions reached were subject to individual and group biases – silo mind-set. In contrast, dialectical behaviour was found to apply when different NICS departments conflicted and confronted one another on an issue – e.g. prioritisation of projects, allocation of resources.

At a departmental level, each department made sense of the IS that would enable NICS as a collective system of civil service organisations achieve its business principles. The departmental decisional events further influenced how decisions were taken at the NICS as a collective level, like a specific implementation approach that would be reflected by the functionality of the NICS wide IS. Moreover, the overall events of NICS shaped departmental IS strategies given the reciprocal influence between individuals' perceptions and the social and historical context in which they have developed over time (Orlikowski, 2002). Thus, it can be inferred that the underlying processual theory for driving strategic alignment across multiple departments was dialectical and subjected to colliding forces and contradictory values that competed with each other (Van de Ven & Poole, 1995). Therefore, some of the impediments

identified in the model directly relate to the dialectical theory or departments struggling to defend their IS needs based on the processes of making sense of organisational identity.

Each impediment was designated as being explained by either teleological or dialectical theory. The analysis suggested that these two theories provided a cohesive viewpoint that linked the impediments to strategic alignment at two levels – collective and departmental. The case study in the NICS clearly shows that strategic alignment is driven by the behaviours of individuals, especially those in leadership positions, trying to create a new IS strategy and aligning it to the business principles. However, it was also evident that organisations are complex entities, comprised of many goal-directed individuals whose purposes may be incompatible. As opposing individuals interact in an effort to achieve their respective goals, organisations may change in response to negotiations or resolutions of conflicting interests. This mechanism for achieving strategic alignment is dialectical because it conceives the IS strategy as a product of the interplay between opposing forces. A teleological force occurs through an individual actor exhibiting goal-seeking behaviour. Dialectical forces result from clashes between individual teleological forces. This confirms the need for ongoing studies and examinations of processes whereby such goals are attained and to what degree process events, and those who partake in those events (Lyytinen & Newman, 2008), impact the process of strategic alignment. By analysing which processual theories are most applicable in which phases and how these connect over time, it is possible to explain very complex strategic alignment strategy work processes and impediments to the process of strategic alignment.

A comprehensive understanding of the developed model will provide valuable insights into the impediments that influence the process of strategic alignment and offers opportunities for future research in understanding the process of strategic alignment.

This research intended to answer the following question: *What are the key impediments to the process of aligning business and IS strategies in PSOs?* Based on the findings, it is possible to say that the key impediments that must be addressed by PSOs when aligning their business and IS strategies are of a technical and social nature. The technical impediments include: *planning* (establishing phase), *governance* (endorsing phase), *IS structure* (embedding phase), and *value realisation* (evaluating phase). The social impediments are identified as: *leadership* (establishing phase), *partnership* (endorsing phase), *commitment* (embedding phase), and *culture* (evaluating phase).

The links between these findings and the extant literature are analysed in the next section.

7.6 Model and Findings Relative to the Literature

When presenting a new theory, it is necessary to compare it with the existing literature to identify potential consistencies and contradictions that can strengthen, adjust, or extend the findings (Eisenhardt, 1989). The following sections aim to place the model and findings within the broader theoretical context described in chapters 2 and 3, and the related literature on Critical Success Factors (CSFs) and business model theory. The model and findings are discussed for their key implications in the strategy process and strategic alignment literature, particularly in terms of positioning the model relative to the mechanistic-emergent views of strategy process expressed in the strategy process literature. The model that emerged provided support for some of the existing strategy process and strategic alignment literature; however, some important differences also emerged and these are discussed. This is followed by a contextualisation of the key findings related to the literature on CSFs and business model theory.

7.6.1 The nature of strategy process (the mechanistic-emergent continuum). The nature of strategy process is central to strategic management literature in general (Mintzberg, 1988; Pettigrew et al., 2001), and to public management in particular (Boyne, 2004; Perry & Rainey, 1988). Chapter 2 presented the theoretical background to the study of strategy process. It introduced the concept of strategy, discussed the nature of strategy process, presented the three major schools of thought in relation to strategy process, and argued that while the processual school once constituted the minor tradition in strategic management, it is now well established.

The review of the strategic management literature in chapter 2 yielded evidence that the mechanistic/rational perspective on strategy-making does not always inform strategy content; this was also evident from the case data. Rainey (2009) discussed the main challenges facing public managers in strategy-making and argues against the mechanistic/rational school. The case data concurs with Rainey in that the PSO in question faced diverse business principles, political interventions, and resource constraints. In addition, the strategy processes involved complex changes in structures, accountability, governance, perceptions, and behaviour. Therefore, while PSO management can embrace mechanistic/rationalised decision-

making processes (Johanson, 2009) in situations similar to the case, they must also be prepared for strategies to emerge.

Considering the complexity of the strategic alignment process, this research adopted a processual approach. In chapter 3, strategic alignment was explained as a dynamic 'process' in which business and IS strategies evolve over time, representing the alignment between the business and IS strategic contexts (Avison et al., 2004). The term 'process' being a developmental event sequence (Langley 1999), implies the process approach is not always ordered or mechanistic. It is more often open-ended and emergent and is one wherein managers are frequently obliged to respond to unexpected scenarios and impediments (Sminia & De Rond, 2012).

As a result of conducting a longitudinal study, one finding of the current study relates to identifying the differing impact that impediments can exercise through the different phases of the strategic alignment process. Although previous strategic alignment research was based largely on several factors that interact linearly and, therefore, predictably (Chan et al., 2006), other researchers have recognised that strategic alignment may be best viewed as non-mechanistic in nature. As Chan (2002, p. 98) argues, strategic alignment should be viewed not as "a state, but a journey—one that is not always predictable, rational, or tightly planned".

Baker et al. (2011) suggest that strategic alignment must be iterative, reciprocal, and constant. This research supports the premise that strategic alignment is a dynamic, continuous process that evolves from high to medium over four phases. Prior research also suggests organisations can fall into the mechanistic trap where tight or inflexible links between business and IS can delay or impede the organisation's ability to respond rapidly to environmental changes (Benbya & McKelvey, 2006; Coltman, Tallon, Sharma, & Queiroz, 2015; Tallon & Pinsonneault, 2011). This research notes the existence of intended strategies in the first two phases; by phase four, however, not all projects were implemented as intended, leading to some misalignment.

Peppard and Campbell (2014) acknowledge that while strategic alignment is recognised by some academics as a process and not an event, its conception is still mechanistic, with limited understanding available on how to sustain the dynamic and continuous process of adaptation and change between business and IS strategies. Therefore, a need for the processual perspective was identified as strategic alignment cannot always be conclusively achieved when the business environment is continually changing, giving rise to new information needs within

the organisation, and necessitating changes in business strategy (Galliers, 2004). This research and the model developed view strategic alignment as a process, and the collected data reaffirmed it as an ongoing process that evolves over several phases, and not as a standalone event. Agreeing with Pettigrew (1987), the process of strategic alignment was viewed as a continuing, interdependent sequence of events and actions used to clarify the inception, continuation, and result of strategic alignment within a PSO.

7.6.2. Process methodology and process theory (the mechanistic-emergent continuum). Researchers seldom consider strategic alignment's emergent nature in IS research however this emergent nature is proposed as a reason for the difficulty in practising strategic alignment (Benbya & McKelvey, 2006). Using the case data and a review of the literature in chapters 2 and 3 (Benbya & McKelvey, 2006; Campbell, 2007; Langley, 2009; Mintzberg, 1987b; Pettigrew, 2007; Van de Ven & Poole, 2005) a model of strategic alignment is presented based on a process approach. The model provides a way to bridge the mechanistic-emergent/content–process gap in strategic alignment research by applying process theory and process methodology (Sminia, 2009). Mechanistic/rational processes are described as comprehensive, formalised processes, with a top-down flow and an emphasis on control (Segars & Grover, 1999).

In chapter 2, Mintzberg and Waters' (1985) description of realised strategy was defined as a meeting of intended and emergent strategy. The authors suggest that by incorporating intended strategy, senior management directs the strategy-making process. However, Mintzberg and Waters also allude to the reality experienced by most practitioners in the strategy-making process that strategy emerges along with many unexpected events or impediments. Therefore, the model developed in this research addresses the question of how strategy-making and strategic alignment is determined and the impediments encountered on that journey. This differs from the main strategic alignment research stream as outlined in chapter 3, which continues to focus on strategy content, centring instead on the strategic alignment process (Sabherwal & Chan, 2001). A small minority of researchers has argued that a high degree of strategic alignment seldom unfolds using only rational mechanistic top-down static processes (Benbya & McKelvey, 2006; Ciborra, 1997; Peppard & Campbell, 2014).

A major implication of the model is that it contradicts prior assumptions in the literature, in which the strategic alignment process is understood to occur as a linear progression from initial objectives to a static end-state (Avison et al., 2004). Instead, the model

developed supported that the strategic alignment process is dynamic, complex, and meandering. The model further highlights that while strategic alignment may comprise mechanistic strategy-making (developing business principles in the establishing phase and endorsing the strategy in the endorsing phase), this mechanistic element is just one part of the full strategic alignment process. Instead, the model suggests that strategic alignment needs to be viewed as an ongoing process, subject to emerging events and impediments.

The literature review highlighted the need for processual analysis to explain what drives this strategic alignment process (Mohr, 1982) through an underlying theory that functions in harmony with a particular logic (Van de Ven & Poole, 1995). As outlined in chapter 2, the aim of process methodology is to determine process theories that explain regular patterns in event sequences (Van de Ven, 1992). In the model, strategic alignment is perceived as an ongoing process, involving continuous adjustment, rather than an event with an end point (Benbya & McKelvey, 2006). Therefore, using process methodology and following strategic alignment over time makes this strategic alignment research relevant for practitioners by increasing understanding of the process through using process theories to develop conclusions about the degree of strategic alignment achieved. This research is also relevant for highlighting the phases in which interception may be necessary to reduce the impact of impediments.

This research found two process theories among those discussed in chapter 2 to be suitable for explaining strategic alignment, namely teleology and dialectics. Teleological theory views process as goal-focused, adjusting as required to realise the goal, although not inevitably premeditated (Poole et al., 2000), which differentiates it from life-cycle theory. Therefore, from that perspective, the case data evidenced that strategic alignment is driven by purposeful action and the NICS proceeded towards a goal or end state; i.e., implementation of IS aligned to business principles. The NICS established an envisioned state (business principles), took action to reach it (endorsing an IS strategy and embedding IS projects), and evaluated the progress. At the head of the NICS, the actors were the PSG that formulates goals that influence the process, the end goal being to serve the citizen in the most cost-efficient way possible by using IS. Goal-setting is part of a strategy-making process (as in the PFG and IS strategy), and the chosen path depends on the available resources and impediments encountered.

The review of teleological theory in chapter 2 also suggests the fundamental problem of individual cognitive biases, and, as outcomes are predetermined, external circumstances

may change the trajectory of change or upset equilibrium states (Van de Ven, 1992). In the case data, participants viewed the business executives as intervening based on biased views and prejudices and causing the impediment of lack of commitment. The literature suggests that dialectical theory of process contrasts, in its non-directive consideration of process or objectives, with change evolving from conflict (Pettigrew, 1990). Therefore, from this perspective, the case data found that strategic alignment involves some conflict. Conflicts grow out of structural differentiation or specialisation and were found at collective and departmental levels. Conflict could be perceived as being central to the lack of business partnership and senior executive commitment. It is reinforced or moderated by personal factors, as the business executives and IS executives have differing perceptions of IS value.

The first and second phases (establishing and endorsing) present strategic alignment as a mechanistic, rational, decision-making process. The deliberate mechanistic, rational, decision-making processes in the establishing and endorsing phases effectively point to teleological goals. The third and fourth phases (embedding and evaluating) see the overall organisation-level teleological goals shift when the individual departments begin implementing projects, dialectic process theory comes into play, and alternative strategies begin emerging.

The business principles and endorsed IS (developed because of rational mechanistic decision-making in the establishing and endorsing phases) are the benchmarks against which the value realised in the fourth phase is evaluated. The case data indicated that while projects were allocated priority in line with rational mechanistic decision making and all projects began progressing, not all projects were pursued with the same vigour.

The importance of planning processes and technical deliverables is evidenced from the case data in the establishing and endorsing phases. However, the data also suggest the effects of various impediments start to appear in the embedding phase, with strategic alignment moving from high to high/medium. This suggests that establishing business principles and endorsing the IS strategy at an overall organisational level is important, but not sufficiently so a high degree of strategic alignment is maintained over time.

The underpinning aim of the model developed from this research is to present an accurate reflection of strategic alignment and explain why and how particular impediments arise. The model also, however, seeks to give practitioners some insight into reducing the impact of impediments in different phases, thus leading to increased strategic alignment.

The model shows strategic alignment as the collusion over time of mechanistic, deliberate, and managerial intentions (goals/business principles (teleological) in the establishing and endorsing phases), the subsequent embedding attempts and the unforeseen emerging impediments, the resources allocated, and dialectical strategic positions adopted in individual departments (embedding phase (dialectical)), with only certain value being realised (evaluating phase). Rather than showing strategic alignment as a purely rational/mechanistic process executed by the organisation, the model shows the organisation involved in both teleological and dialectic processes (Cule & Robey, 2004).

7.6.3 Technical and social dimensions of strategic alignment (the mechanistic-emergent continuum). Reich and Benbasat (2000) suggested that strategic alignment should be viewed as an end-state or outcome of a business process or activity. A motivation for such a perspective is their intention of measuring the degree of strategic alignment, which could involve observing several well-defined variables in two distinct dimensions: the 'technical dimension' and the 'social dimension'. The social dimension centres on the actors involved in the strategic alignment process while the technical dimension concentrates on the content of plans and planning methodologies (Reich & Benbasat, 1996). Avison et al. (2004) described these dimensions as including linking mechanisms to reach strategic alignment with a social component (who is involved) and a technical component (methods and techniques). Reich and Benbasat (2000, p. 82) argue that "both dimensions are important to study and are necessary for an organisation to achieve high levels of alignment". Campbell et al. (2005) moved a step further and suggested that researchers should not study either the technical or social dimensions of strategic alignment in isolation. Through their research, they showed the different relationships between the technical and social dimensions of strategic alignment as understood by participants in the strategic alignment process. Preston and Karahanna (2009) noted that while antecedents of the technical dimension of strategic alignment have been researched to some degree by earlier researchers, few studies have explored the effects of the social dimension of strategic alignment.

The present research's motivation is to offer a way forward for practitioners by signifying where impediments exist. The view subscribed to in this research is that strategic alignment can best be understood by following the process over time and by also looking at the social dimension, rather than the technical dimension alone. Perceiving strategic alignment as a mechanistic, rational, technical process downplays the social aspects of strategic alignment, and overlook that strategic alignment is frequently complex, uncertain, and difficult

(Preston & Karahanna, 2009). Perceiving strategic alignment as a purely mechanistic, rational, technical process views strategic alignment as "a set of given objects and relationships, existing in themselves and capable of being grasped by exact measurement methods" (Ciborra, 1997, p. 71), ignoring the social dialectical dimension. In contrast, this model views strategic alignment from a technical and social perspective. To understand these contradictory perspectives, the model views strategic alignment, particularly the strategic alignment process, through a rational, mechanistic, technical, teleological process lens and an emergent, social, dialectical process lens. Both lenses provide important insights into the strategic alignment process.

The model based on a process approach can identify both purposeful managerial activity such as (rational/mechanistic) establishment of business principles as well as the enabling and impeding effects of social factors such as leadership, partnership, commitment, and culture. Thus, studying strategic alignment as an unfolding process with social and technical dimensions offers further insights for future research. These insights can evolve from the fundamental problem of how strategic alignment unfolds to more precise avenues for future research, such as how teleological goals and dialectical behaviour collide to result in impediments affecting strategic alignment.

Literature and this empirical research have revealed that perceiving strategic alignment as a rational/mechanistic process is inaccurate, as it does not acknowledge strategic alignment's dynamic, messy, and complicated nature (Benbya & McKelvey, 2006; Ciborra, 1997). However, the mechanistic element of strategic alignment permits a straightforward identification of the technical deliverables, core social work, and key players in the process' early phases, as well as allowing for benchmarks to be established evaluating value in phase four. The model views strategic alignment as a constant ongoing process that fuses top-down, mechanistic, rational processes and emergent processes with the overall mechanistic, teleological goal of contributing to an organisation's performance over time.

This research and the model developed endeavour to overcome the limitations characteristic in viewing strategic alignment as a technical, mechanistic, rational, and controllable process to be managed or as a social process comprising actors participating in various roles (teleological and dialectical). Instead, strategic alignment, as presented in the model, is a technical and social phenomenon, the analysis of which must address both dimensions and the relationship between them (Reich & Benbasat, 2000).

The model presents a conceptual model of the process of strategic alignment that can be used to inform a process analysis. The model delivers an understanding of strategic alignment as an ongoing emergent process with mechanistic rational processes in the early phases.

7.6.4 Impediments and process theory relative to the concept of CSFs across a project life-cycle. As discussed in chapter 3, strategic alignment is a pervasive problem (Derksen & Luftman, 2014; Luftman, 2005; Peppard & Campbell, 2014) and understanding the critical areas to be aware of will increase the degree of strategic alignment. CSFs are those factors on which executive management needs to focus (Rockart, 1979) to improve strategic alignment (Teo & Ang, 1999). CSFs can be used by organisations to identify the factors that can improve performance. This benefits both the organisation and its senior management in enabling management to recognise the pivotal phases in which to devote their resources and time in order to transform impeding factors into enabling factors. Boynton and Zmud (1984) propose CSFs as a valuable method of determining whether an organisation is achieving its strategic objectives.

While there is substantial research on CSFs, prior IS research has typically studied the CSFs of practical IS implementations, such as Enterprise Resource Planning (ERP) systems (Finney & Corbett, 2007; Holland & Light, 1999). In addition, literature on ERP implementation has been dominated by variance theories that have identified numerous CSFs for managing implementation. However, little research has adopted a process theory approach that explains how change occurs (Williams, Williams, & Morgan, 2013). Indeed, the small number of process theories applied to ERP studies have tended to be descriptive and have focused on stage models of processes that follow a sequence of steps, as found in the life-cycle process theory (Robey, Ross, & Boudreau, 2002).

While few studies specifically reference CSFs related to strategic alignment (except for Teo and Ang (1999)) several research studies since the 1980s have identified various 'factors' that impact strategic alignment, as discussed in chapter 3. In the 1990s, Broadbent and Weill (1993), Reich and Benbasat (1996), Teo and King (1997), Luftman et al. (1999), and Teo and Ang (1999) expanded comprehension of the factors that influence organisational strategic alignment. From their conclusions, it was possible to identify the CSFs of strategic alignment (e.g., business competence of the IS executives, enhanced communication, business-IS

partnership, interconnected business and IS strategy-making planning processes, senior executive commitment, and prior IS success).

The fact that the strategic alignment process can be broken down into different phases is an idea not yet discussed in the strategic alignment literature. However, in the related IS project management literature, Slevin and Pintor (1987) established a project implementation outline that comprises ten CSFs across a project life-cycle they structured into a strategic-tactical model. The CSFs were separated by characteristics that describe the planning phase (strategic) and the rollout or action phase (tactical) of a project lifecycle. Holland and Light (1999), in an ERP project lifecycle study, specify the need for a project mission, top management support, and a project schedule outlining individual action steps for project implementation. Transferring this to a strategic alignment context, the findings from this study suggest that senior management must consider both the technical and social dimension when aligning business and IS strategy. The model developed consists of eight impediments, which is like what Teo and Ang (1999) and Slevin and Pintor (1987) refer to as CSFs characterised by their social or technical dimension and organised over four phases. Whereas Slevin and Pintor (1987) group CSFs as strategic or tactical, this research groups impediments as being technical or social. The research highlights the need (similarly to Holland and Light (1999)) for business principles, endorsement of an IS strategy by senior management and a plan for embedding projects.

The existence of different phases within the process of strategic alignment is confirmed by this study. However, the impact of the various impediments varies, depending on what impediment is dealt with by the organisation in response to changes in the environment at each phase of the strategic alignment process. This study used teleological and dialectical process theories to explain the unfolding processes and the ensuing impediments. Where processes and impediments are explained by teleological and dialectical process theories, the sequence of events is not prescribed, as in the life-cycle process theory (Van de Ven & Poole, 2005). Van de Ven and Poole (2005) describe how teleological process theory assumes there are several ways of achieving a goal, and the sequence of events is not necessarily prescribed and deterministic, as is the case with life-cycle process theory. Both teleological and dialectical process theories show greater scope for iterative behaviour in processes than life-cycle process theory, with teleological processes being planned but reflexive in nature (Williams et al., 2013). Establishing business principles and endorsing the IS strategy is goal-directed and, thus, planned. However, as the strategic alignment process unfolds, the end-state is open to change

and cannot be expected to stay in permanent equilibrium, particularly as dialectical process theory becomes more apparent at the embedding phase, with competing forces vying for domination and control in individual departments (Van de Ven & Poole, 2005).

This research presents the results of an empirical study of the various impediments to the process of aligning business and IS strategies in PSO. The results indicate that planning, leadership, governance, partnership, IS structure, commitment, value realisation, and culture are the main impediments. These impediments can be also be described as CSFs in that, if management focuses on them and has an understanding of the underpinning process theories, it can transform them into enablers (i.e., leadership), thus ensuring a higher degree of strategic alignment. Therefore, these impediments identified across the four phases of strategic alignment are akin to CSFs across a project life-cycle but without the phases being prescribed or deterministic, as in a project life-cycle. This research advances an understanding of CSFs in the process of strategic alignment in a PSO context.

For strategic alignment to take place, business goals and principles must be made known to IS management (Teo & Ang, 1999). In that sense, it can be identified that formal *planning* of teleological processes ensures IS executives understand the business needs, prompts IS executives and business executives to attain mutual organisational goals and objectives via improved organisational planning and enables alignment of the organisation's IS strategy with its business strategy (King & Teo, 1997; Preston & Karahanna, 2009; Teo & King, 1999). This was not evidenced in the NICS case, in which IS was not involved in setting organisational goals but was, rather, invited only after the PFG had been developed (two years later) to work with the business executives at a collective level to establish business principles as a basis for the supporting IS strategy. Similarly, in terms of project life-cycles, Slevin and Pinto (1987) argue that the first phase of an IS project should commence with a conceptualisation of goals and a means to achieve these.

Strong leadership was found in the reviewed literature to revolve around the capability of the IS executives to act in an appropriate manner (Feeny, Edwards, & Simpson, 1992). An implied criticism from the case data in relation to the second temporal period was that the IS executives were more reactive than proactive when it came to strategy-making. Teo and Ang (1999) suggest that by coming up with creative ideas for the strategic use of IS (as opposed to being merely reactive), IS management demonstrates the strategic relevance of IS to the organisation. Campbell (2007) stated the leadership style of some business executives does

not always inspire collaboration. Rather, it sometimes encourages competition and conflict between departments and does not foster the growth of the trust that is a pre-requisite to relationship expansion, shared systems of meaning, and shared domain knowledge (teleological). This was also found to be the case in the NICS, as noted by P11 (2012): "Departments within the NICS do not always play happily together".

Governance mechanisms (teleological) help to achieve the technical deliverables of strategic alignment because they clarify the roles, responsibilities, and authority sharing of the involved parties (De Haes & Van Grembergen, 2005). The case data strongly supported the perceived lack of clarity over governance and the arrangements for the management and decision-making in respect of IS in the NICS as a technical impediment in phase two – endorsing.

From a social dimension perspective, the literature suggests the most important CSF for strategic alignment is communication between business and IS executives, which is impacted by shared domain knowledge (teleological) and IS success (Reich & Benbasat, 2000). The lack of close business-IS partnerships emerged as a CSF impacting on business and IS strategy alignment within the NICS several times (179 items of data coded) in the case data. This is entirely consistent with research that proposes including business executives in IS strategy-making (Broadbent & Weill, 1993), or crafting a logic of shared IS vision (teleological) and shared acknowledgement of business and IS goals as a way of increasing strategic alignment (Reich & Benbasat, 1996).

Rockart, Earl, and Ross (1996) propose that improved *shared domain knowledge* (teleological) is closely connected with *business/IS executive communication*, with one considerably influencing the other. The case data highlighted the primary issue against partnership was a lack of understanding, stemming from poor stakeholder communication. The lack of effective communication was also attributed to too much bureaucracy, lack of resources, and the questionable skill sets of some of the DHOT resources (P2, 2013). Teo and Ang (1999) contended that the business competence of the IS executive is a key CSF in enabling increased alignment between business and IS strategies, but noted that IS management knowledge of business was more significant than executive management knowledge of IS. Interestingly, in the case data, the recurrent subject of lack of understanding was credited as the responsibility of both the business executives and the DHOTs. It was contended that if the IS department had participated in planning the business strategy and vice versa, short-term

alignment could have been attained (Avison et al., 2004; Porter, 1991; Reich & Benbasat, 2000; Silvius, 2007; Teo & Ang, 1999). It was also evident there was a lack of close working relationships between departmental boards and DHOTs, stemming from the fact that DHOTs were not asked to engage in the department's business strategy-making process; there was thus a failure to establish a strong relationship between the PSG, CIO, and DHOTs, which was highlighted by the literature as one of the CSFs to strategic alignment. Teo and Ang (1999) suggested that where CIOs had excellent IS and business-related knowledge they were able to enjoy considerably greater participation in executive teams.

IS "structure reflects the configuration of the IS function and the locus of responsibility for IS management decisions. There are three possibilities: centralized, shared, or decentralized" (Hirschheim & Sabherwal, 2001, p. 90). In this case, there was a belief that having the IS structure decentralised (dialectical) in departments would support the primary need of efficient IS support. It was suggested that departments would be at a disadvantage if IS were centralised (teleological) and that, in the areas where IS had been previously been centralised (shared services), it had not initially been a positive experience for departments (dialectical) and had also negatively impacted on trust.

Teo and Ang (1999) found executive management commitment to the strategic use of IS to be the number one CSF that may impact aligning IS strategy with business strategy. They suggested that executive management could demonstrate their commitment by allocating suitable and sufficient resources for the implementation of IS projects (teleological). Similarly, in the project management literature, Holland, Light, and Gibson (1999) describe executive management commitment as the degree of commitment by the executive management in the project's organisation, in terms of their own involvement and readiness to assign valuable organisational resources. Various studies mention *IT success* (Reich & Benbasat, 2000) or *prior IS success* (Chan et al., 2006) as CSFs related to the degree of trust IS departments have in order to encourage a partnership link between business and IS managers and senior executive commitment. Teo and Ang (1999) suggest that if departments do not have good opinions of the IS department (dialectical), because of poor efficiency and reliability of services provided, it becomes problematic for departments (dialectical) to develop and share business strategies jointly with the IS department (teleological). However, prior IS success was not always the case in the NICS, with problems relating to existing IS services being raised several times in the case data. Even though IS had done a great deal and developed successful reform projects, not all the business executives trusted IS development capabilities because some experiences

had fallen short of expectations. Furthermore, these poor experiences decreased IS's credibility. Teo and Ang (1999) contend that if executive management believes in the competencies of the IS department to provide suitable systems that are central to the effective execution of the organisation's strategies, the role of the IS department is more likely to be raised from a supporting to a more strategic role. Furthermore, Teo and Ang (1999) argue that the extent of participation of senior management in IS strategy-making or IS management's participation in business strategy-making is often determined by senior management's perception of the IS department.

Teo and King (1999) suggest that partnership is significantly enabled if business and IS management understand each other's goals, problems, and limitations. They further contend that such understanding facilitates joint decisions on benchmarks (teleological) used to evaluate IS projects, and ensures that priority is given to developing and executing pivotal IS applications. Organisations with a higher degree of alignment are more likely to have an increased degree of performance and perceived value from IS (Henderson & Venkatraman, 1993). With this in mind, value was found to be the dominant focus in phase four; however, Tallon and Kraemer (2003) noted that, except for research by Chan et al. (1997), the empirical literature has remained silent on the degree to which strategic alignment has impacted value. Tallon et al. (2000, p. 6) suggested that "without access to hard-core metrics, executives may still rely on their perceptions in determining whether or not a particular IT investment is creating value for the corporation – a perception based as much on personal experience and peer evaluations as on underlying performance expectations".

Referring to the case data in the second temporal period, the review completed in 2014 (two years after the expected date) noted that although all projects had shown signs of progress, it was not consistent across all project areas (dialectical), principally because of resource constraints.

Whilst there is little research on the potential of organisational *culture* - and specifically the influence of the practices, interpretations, and beliefs of various subgroups to influence the process of strategic alignment - research highlights the influential and long-lasting role played by informal structural elements such as teamwork, working relationships, and the culture of an organisation (Ravishankar et al., 2011), that are embedded in the social dimension of an organisation in aligning business strategy with IS strategy (Chan, 2002). The case data suggested that the NICS 'culture' hampered communication and knowledge-sharing, and the

business executives and IS staff across departments did not always like to collaborate and share (dialectical).

This research on the impediments to aligning business and IS strategies adds to the extant literature and should also help to mitigate some of the challenges and complexity encountered in strategic alignment. Specifically, the list of impediments / CSFs and underpinning process theories enables practitioners to focus on a set of CSFs that will increase strategic alignment. By assessing the impediments/CSFs and underpinning process theories in the context of their organisation, practitioners will be better able to develop suitable strategies for better strategic alignment (Teo & Ang, 1999).

7.6.5 Evolving trends in strategic alignment - digital strategy and business models. As discussed in chapter 3 over the last three decades, the predominant view of IS strategy has been that of a functional-level strategy which must be aligned with the organisation's preferred business strategy (Bharadwaj et al., 2013). With this strategic alignment perspective (Henderson and Venkatraman 1993), business strategy is directing IS strategy. However there are also calls in the literature for organisations to recognise that IS strategy can shape business strategy and transform business processes and business scope (Venkatraman, 1989). This predominant view of IS strategy as a functional-level strategy - aligned but basically secondary to business strategy - has been echoed in numerous research studies (Chan & Reich, 2007b; Hirschheim & Sabherwal, 2001; Hussin et al., 2002; Luftman & Brier, 1999; Reich & Benbasat, 2000; Sabherwal & Chan, 2001; Sabherwal & Kirs, 1994).

However, since this research commenced, there have been notable developments in IS technologies, unleashing new functionalities and new ways of doing business (Bharadwaj et al., 2013). Thus, the last decade has seen the arrival and transformation of a plethora of net-enabled organisations worldwide - both established (e.g. Amazon, Google, Apple, Microsoft etc.) and start-ups (e.g. Airbnb, Uber) – benefiting from lower price/performance levels of IS as well as global connectivity through Internet and mobile apps allowing those organisations to adapt their business infrastructure to the new digital era. These developments are basically changing conventional business strategies, allowing organisations to extend across the confines of distance, time, and function (Bharadwaj et al., 2013). This suggests that both these organisations and their environments adjust constantly to achieve business performance (Tallon & Pinsonneault, 2011). In these net-enabled organisations IS and business strategy concepts are much more closely integrated in terms of business leadership, content, governance

and strategy evolution to the degree that the concept of a 'digital business strategy' has been presented to mirror a fusion between IS strategy and business strategy, suggesting that there should be no division between business strategy and IS strategy (Bharadwaj et al., 2013).

The implications for net-enabled businesses such as Airbnb and Uber as argued for by some researchers such as Bharadwaj et al. (2013) is a reduced role for strategic alignment but other researchers suggest this is rather unwise (Coltman et al., 2015). The difficulty rests in the perception of strategic IS alignment as the degree to which IS supports the business strategy. This perception implies as discussed previously that IS strategy is a functional-level strategy, subordinate to or lagging behind, business strategy (Chan & Reich, 2007; Hirschheim & Sabherwal, 2001; Hussin, King, & Cragg, 2002; Luftman & Brier, 1999; Reich & Benbasat, 2000; Sabherwal & Chan, 2001; Sabherwal & Kirs, 1994). In these circumstances, misalignment is generally attributable to inadequate or misapplied IS investment where the degree of IS investment may be on target but organisations have simply invested in the wrong IS (Coltman et al., 2015). If the perception of IS alignment is amended to mirror both the degree to which IS supports business strategy and the degree to which IS is organised/leveraged in enabling existing and future business strategy, it might be possible to notice occurrences of misalignment that are the result of underutilised IS capabilities (Tallon & Kraemer, 2003). This is in line with previous calls in the literature to clearly account for the bidirectional link between business and IS as articulated in Henderson and Venkatraman's (1993) SAM and what others term two-way strategic IS alignment (Hirschheim & Sabherwal, 2001; Reich & Benbasat, 1996; Rockart et al., 1996). Indeed for this research, strategic alignment was defined in chapter 2 as the congruence between business and IS strategy within the organisation: the degree to which the mission, goals, and plans for IS support and are supported by the mission, goals and plans for the business (Reich & Benbasat, 1996) that is accounting for the bidirectional link between business and IS.

Implementing digital business strategy is reliant on the capacity of net-enabled organisations to leverage IS through business processes, in which case bidirectional strategic alignment becomes a vital tool through which IS generates value (Coltman et al., 2015). Therefore, partnership (one of the key social impediments identified in this research) cannot be perceived as a connection between two separate teams but as one team working collaboratively on both the business and IS components of the organisation (El-Masri, Orozco, Tarhini, & Tarhini, 2015). Developing a digital business strategy requires the knowledge, skills and roles found not just in IS, but throughout the organisation. It demands an organisational

mind-set. Although digital business has its origins in IS, ultimately it is about the business of the organisation. Strategy-making must be owned, executed and possibly swayed by the relationship between IS and executive management (Bharadwaj et al., 2013).

As the concept of a digital business strategy becomes more commonplace, the concept of a digitally enabled business models arises. 'Business model' is a term frequently used to define the significant constituents of a given business (Hedman & Kalling, 2003). There is an ongoing debate as to the difference between a business model and a business strategy. Some researchers view them as identical and use the terms interchangeably (Al-Debei & Avison, 2010), however other researchers are of the view that business models and strategy are linked but distinct (Osterwalder, Pigneur, & Tucci, 2005). Osterwalder, Lagha, and Pigneur (2002) conceive the business model as the conceptual and architectural implementation of a business strategy and as the foundation for the implementation of business processes. Addressing the business model concept as an anchor for the identification of the impact of IS is a relatively recent phenomenon (Veit et al., 2014). It has gathered attention in a number of related disciplines, e.g., strategic management and marketing, but until recently it remained largely under researched in the IS field (Hedman & Kalling, 2003).

From a review of the literature, the term business model first became more commonly used in the IS field with the arrival of the Internet in the mid-1990s, and it has been expanding since then (Osterwalder et al., 2005; Zott, Amit, & Massa, 2011), when it became a common means of articulating the business rationale underpinning technological innovations that were occurring in that time. Awareness of the concept gained momentum in the period between 1995 and 2010 (Zott et al., 2011). It is argued that business models are a means of linking an organisation's IS strategy to its wider strategic objectives (Osterwalder & Pigneur, 2010). Osterwalder et al. (2005, p. 3) define a business model as "a conceptual tool containing a set of objects, concepts and their relationships with the objective to express the business logic of a specific firm". To develop a business model, it is essential to reflect on what value is delivered to customers, what actions are necessary to deliver this value, and the fiscal costs of these actions. In a similar vein, Amit and Zott assert that a business model "depicts the content, structure, and governance of transactions designed so as to create value through the exploitation of business opportunities" (Amit & Zott, 2001, p. 511). In both definitions, the actions of value creation (the creation of a product or service that meets customer's needs), value capture (the marketing, support, and sale of the product or service), and a well-organised value architecture (the chain of activities that link activities both within the organisation and

between its customers and suppliers) lie at the core of a business model (Kimble & Bourdon, 2013). Regarding business models, Amit and Zott (2001) describe the role of the value creation logic, Osterwalder, Pigneur, and Tucci (2005) describe business processes, and Hedman and Kalling (2003) describe the resource base and the longitudinal evolution of business.

Turning to the strategic alignment literature Sambamurthy, Bharadwaj, and Grover (2003, p. 243) et al., propose that the "business value of IT emerges primarily through its complementarity and integration with business strategies." This perspective accepts that IS can shape business models and is embedded in customer interfaces and experiences; business operations and supply chains; products and services, and in relationships with regulators and investors with it being improbable that the marketing strategy or the supply chain strategy will not have an IS component (Peppard & Campbell, 2014). Osterwalder et al. (2005) contend that the business model concept could aid the creation of a shared understanding between business and IS, lead to a strategic and functional integration, an efficient IS infrastructure, and help select the most suitable applications and the correct IS structures i.e. strategic alignment. They also contend that the business model could be the conceptual tool to capture, share, and create a shared vision of an organisation's business principles. They further propose that a good knowledge of an organisation's business model and its specifics could help to better define the IS role and structure which is one of the technical impediments identified in this research and the strategic alignment literature (Hirschheim & Sabherwal, 2001).

Although the business model concept materialised from the business environment of competition, it can be assumed if an organisation has a viable way to create, deliver, and capture value, it can then be argued it has a business model either implicit or explicit. PSOs are funded largely by taxation (Boyne, 2002), but are still accountable to deliver value to citizens. The business model has been deemed pertinent in the debate of the concerns and dynamics of IS in all organisations including PSOs (Al-Debei & Avison, 2010). The theory underpinning business models therefore could be established as a means for linking a PSO's IS strategy to its broader strategic goals. Using a basic, abstract depiction of a business model may help focus thinking on a strategy with the citizen at the centre while, at the same time, also directing consideration toward the operational and financial-related aspects (cutting costs) of the overall business equation (Kimble & Bourdon, 2013). For example in the case study the CIO was asked to show increased linkages in the IS strategy to the goals of cost cutting and improving citizen-facing services. Using a business model could help explain the existing business principles and test predetermined concepts. When the basic components of the current

business model (implicit or explicit) are identified, it becomes easier to consider new ways to do things or different ways to reconfigure current resources to meet the goals of the organisation and therefore increase strategic alignment.

Perhaps the most important reason for developing a common business model across the NICS is that it is offering important social systems (including education, health care) across several departments thus requiring a business model that can cut across departments.

The logic of digital business strategy in net-enabled organisations argues that strategic alignment may become less meaningful since IS is the strategy with IS and business strategy concepts being much more closely integrated in terms of business leadership, content, governance and strategy evolution. Therefore, IS and business strategy should be indistinguishable. In a PSO context, given the results of this research where leadership and governance are two clearly identifiable impediments there is still a way to go before a digital business strategy could replace both a PFG and an IS strategy. However, this is not to say that a catchall digital business strategy will not replace the need for a separate PFG and IS strategy in the future. Indeed, many of the services in NI to the citizen are already net enabled and with the digital divide ever decreasing more government services will become net enabled going forward.

Irrespective of which approach an organisation takes (separate IS and business strategies or a digital business strategy), the senior management team (or PSG) needs to clearly articulate the strategies/strategy and the business model and encourage everyone in the organisation to collaborate and act in partnership to achieve strategic alignment so that IS is an enabler leading to improved performance and value to the citizen to which it is accountable.

7.7 Contribution of this Study

The findings of this study suggest that this research has several contributions which will be useful for both academia and practitioners. The model offers a planning and diagnostic tool for public sector managers intending to engage in the process of strategic alignment. The research findings offer fresh insight into the strategic alignment process, and also facilitate the amalgamation of a number of assertions about the social and technical dimension of strategic alignment by comparing prior research with individual characteristics of the model.

7.7.1 Empirical. By examining the impediments to the process of aligning business and IS strategies in a PSO, this research responds to a need in the IS research field which was

reported by Chan and Reich in 2007. In their research, they concluded that more research and exploration was required into the means or antecedents of strategic alignment and also their relationships. This has been achieved by the development of a model containing four phases and a number of supporting characteristics, which elaborate on the technical and social impediments to strategic alignment. A review of the literature has shown that no prior research on the impediments to strategic alignment in a PSO context has been carried out using a processual lens; although there have been a small number of research studies in the wider IS domain in which a processual lens has been used.

The emergent theory expands the empirical research on strategic alignment by presenting a novel explanation of the impediments to strategic alignment over four phases: *establishing; endorsing; embedding; and evaluating.* Impediments to strategic alignment have not to date been presented in the context of a holistic processual model which examines their effects over time. The present study aims to fill this void in the empirical research by addressing the technical and social dimensions of strategic alignment; thereby providing an enriched understanding of the processual nature of strategic alignment. The model adds a further dimension to this by explicating the interrelationship between the impediments and the core social work/technical deliverables engaged in at the collective and departmental levels within the organisation, facilitating an in-depth exploration of the social and technical dimension of impediments as strategic alignment unfolds over time. In addition, the case data suggests that strategic alignment processes cannot be managed exclusively at the collective level.

Although the eight identified impediments have been partially acknowledged in other studies, they have not been portrayed until now as a theoretically coherent and fine-grained set of interconnected impediments that can be recognised and traced throughout a strategic alignment process. In addition, as suggested by Chan and Reich (2007), this research attempted to uncover key social and technical impediments that impact the strategic alignment process within the confines of a single PSO case study setting.

As the analysis of the case study demonstrated, the unfolding process of strategic alignment exhibits distinctive patterns, with significant differences in the way in which certain key events (core social work) influence the process of strategic alignment. The model highlights specific characteristics in the different phases under which certain impediments could be expected to occur. Furthermore, it supports the view that strategic alignment is a long-

term, evolutionary and dynamic process, like that proposed by Henderson and Venkatraman (1993).

Applying the processual lens to the study of strategic alignment contributes to both the strategic management and IS literature. The findings integrate concepts from both strategy-making and IS strategic alignment literature to provide a conceptual model of strategic alignment. There was a continuous interplay between the academic literature and the detailed empirical description of emerging events and impediments; out of which four phases with differing characteristics emerged and a model was developed.

The strategic alignment literature indicates that most empirical evidence was based on studies conducted in the private sector. The lack of studies in the PSO context also provided a rationale for this study. It specifically studies strategic alignment in a PSO context, thus complementing strategic alignment theories with a public service perspective. The case study tells its own story of how strategic alignment unfolded in practice in the NICS and how the phases, with their distinctive characteristics, interconnect and overlap in shaping the dynamic journey of strategic alignment.

7.7.2 Theoretical. Orlikowski and Baroudi (1991) advocated that the expansion and use of IS within organisations is fundamentally processual and contextual, and that these features are not always sufficiently captured by the philosophical assumptions predominant in IS research, and are also often absent in IS research. This research addressed that omission.

In chapter 2, the four fundamental process theories - specifically teleology, life-cycle, dialectics, and evolution - that clarify the strategy-making processes were described. Yet, no research in the strategic alignment literature within the IS domain has used these theories or multi-levels of analysis to explain the process of strategic alignment, and the ensuing impediments to that process. Galliers (2006) argues that taking the more processual perspective is potentially more productive in terms of knowing, knowledge creation, learning, and human interaction. This research offers an important contribution to the literature by plotting the impediments to the strategic alignment process onto a two-dimensional model consisting of four phases and seven characteristics.

This study developed a theoretical model of strategic alignment in a PSO within the broader process meta-theories (Van de Ven, 1992); extending the application of processual research. In this regard, it attempts, using these theories, to extend the existing research on strategic alignment by considering the impediments that impact business and IS strategy

alignment in PSOs. For example, the results of this research show that the two theories, teleological and dialectical, provide a cohesive viewpoint that links the impediments to strategic alignment at two levels – collective and departmental.

Moreover, the presence of these teleological and dialectical theories within the process of strategic alignment delivers to the business executives and IS executives the insight that the strategic alignment process is not linear and prescribed and cannot be planned totally beforehand. The research in NICS clearly shows that strategic alignment is driven by the behaviours of individuals, especially those in leadership positions, trying to create a new IS strategy and aligning it to the business principles. However, it was also evident that organisations are complex entities, comprised of many goal-directed individuals whose purposes may be incompatible.

The emergent theory highlights the importance of ensuring that all participants (and all departments) should have a shared vision for the organisation, including a common understanding of the business principles and a joint approach to underpinning them through agreed IS principles and IS strategy.

7.7.3 Practical. Incorporating a processual analysis that includes a social dimension generated knowledge not only of the technical deliverables associated with strategic alignment but also of why and how they are impacted by different impediments. Positing the social dimension as central to the process of strategic alignment emphasises the significance of reviewing the continuing connections between human actors and their behaviours, IS, and organisations, as these are positioned historically and contextually.

The model developed in this study proposes a framework for mapping experiences and insights from strategic alignment initiatives. It can be used in discussing, planning, adjusting, and evaluating the process of strategic alignment in various contexts. The real life case data in this study and its framing with the proposed model support the validity of the model.

However, while addressing the impediments to strategic alignment is not "a simplistic, one-answer solution" (Luftman et al., 1999, p. 23), identifying and minimising them through the various phases of strategic alignment can aid and improve the organisation's decision-making process with regard to the strategic alignment of business and IS. Having a clear understanding of the phases, unique characteristics and impediments of each phase is a significant step towards successful strategic alignment. Examining the characteristics of this model will aid researchers in the strategic alignment area to further progress strategic alignment

with concrete intercessions (e.g. developing the capabilities of IS executives in the area of leadership/management and business skills) on how to overcome impediments in the various phases in order to achieve more successful strategic alignment.

It raises awareness about the importance of business and IS executives being familiar with each other's environment, open and trustworthy communication, shared commitment and support, close collaboration, and strong relationships between business and IS executives. This awareness can be used by practitioners to better understand their organisations, and potentially overcome the challenge of the impediments before embarking on the process of strategic alignment. Furthermore, they could benefit by using the model developed in this research to identify the areas of concern at different phases of the strategic alignment process; thus, addressing the impediments to alignment in order to produce a positive adaptation.

For practitioners, this research is significant because aligning business and IS strategies involves many phases and understanding these fundamental phases is necessary for sustaining strategic alignment. Moreover, the business executives should not limit the participation of IS executives to only participating in IS strategy-making. Engaging IS executives in establishing the business strategy would enable alignment of business and IS strategies in later phases.

In following the various phases of strategic alignment, this research emphasises the significance of business and IS partnerships as a supporting tool that integrates and revolves around many organisational concerns. This not only highlights the significance of selecting the best strategy for determining what specific IS projects to implement, but also emphasises the requirement to take into account organisational concerns from the beginning to the end of the strategic alignment process. There is a basic need for organisational processes, such as post-implementation evaluation, to expand and improve the capability of the IS organisation to learn from its failings and implement processes which can improve strategic alignment in the future.

A practical model highlighting the phases and impediments to strategic alignment could end in considerably better PSO IS projects with an increased likelihood of value realisation and, consequently, improved effectiveness and efficiency in serving the citizen. In summary, this research offers practitioners a more comprehensive and fine-grained model for shaping senior management commitment in terms of explicit actions.

7.7.4 Methodological. Most of the existing research studies take a largely positivist variance snapshot approach, with numerous participants sampled and frequently ignoring time and context. Links are required that statistically connect the dependent and independent

variables, culminating in the results being compared with the hypotheses. In contrast, the model developed in this research emphasises the importance of historical, context-oriented, processual analysis and highlights the value of social and qualitative dimensions of the process of strategic alignment. Processual case research, while involving only one or a few cases, concentrates on the main processes, their sequence and timing to define and describe how context, content, and process are connected.

Examining strategic alignment and the IS strategy itself using a processual lens facilitated the analysis of the impediments to the alignment of business and IS strategies from an interpretive perspective, whilst also taking into account the 'messiness' alluded to by Ciborra (1997). Adopting an interpretive position liberates the research process from the constraints of prior IS research approaches that have depended on inflexible strategic alignment frameworks and measurement metrics (Chan and Reich (2007b). Given the plethora of positivist variance investigations in IS literature, there is a necessity to offset these studies with interpretivist processual investigations such as this one.

This research facilitated a rich interpretation of events and unfolded knowledge of the process of strategic alignment in two temporal periods, through an iterative process of data collection and analysis during observations and interviews. This enabled both cross validation and the integration of contextual and temporal observations with the more perceptual and attitudinal data gathered from the participants, rather than focusing on positivist quantification.

7.8 Conclusion

This chapter presents an emergent model of strategic alignment over four phases. Following an introduction to the chapter and a description of the transition from the case data to the model development, section 7.3 presents a model consisting of a series of phases, with each phase delineated with a set of defining characteristics. The phases are defined as *establishing, endorsing, embedding,* and *evaluating*, and each phase is delineated by seven dimensions: *dominant focus, level of engagement, degree of alignment, core technical deliverables, core social work, and technical and social impediments*. The typology forms the backdrop to identifying the impediments to strategic alignment and explaining how and why they unfold in a pattern where they overlap and are interdependent, which is central to the emergent theory which is described in detail in section 7.3 and applied in the case in section 7.4. Reflections on the impediments identified through the processual study are given in section 7.5. Section 7.6 compares the findings with the extant literature, whilst establishing its

contribution to the existing knowledge. Finally, section 7.7 considers the contribution that the research has made to both academia and practice.

The final chapter, chapter 8, discusses the research conclusions, limitations and future research recommendations.

Chapter 8 - Conclusions, Implications and Limitations

8.1 Introduction

The purpose of this chapter is to provide a general conclusion to the dissertation's research question and is broadly structured into four sections. The research question and the case are revisited and some practical implications of the developed conceptual model are provided in section 8.2. In section 8.3, a reflection on the use of processual research in practice is presented and the main findings of the research highlighted. The limitations of the study are described in section 8.4. Avenues for further inquiry are offered in section 8.5 and a final conclusion is made in section 8.6.

8.2 The Research Question, the Case and the Conceptual Model Revisited

In a review of VFM studies emerging from government audit functions across three jurisdictions (USA, UK and Ireland) and three decades, the alignment of IS strategy and business strategy persisted as an on-going challenge for PSOs (Burke & McDonagh, 2008). Therefore, a review of the literature concerning issues surrounding strategic alignment (chapter 3) was conducted. It revealed that while substantial research over the last three decades has addressed this problem, the majority of studies attempt to reduce the inherent complexity of strategic alignment to allow investigation of direct causal relationships; adopting a variance approach with little impact, as these studies do not provide an overall understanding of the nature of a complex process (Peppard & Campbell, 2014). In addition, a number of researchers have endeavoured to ascertain factors contributing to the strategic alignment of business strategy and IS strategy with the literature offering a number of enablers and inhibitors (for example, Luftman, 2003). However, scholars have commented that, despite knowledge of these enablers and inhibitors, the problems related to achieving and sustaining strategic alignment over time have been greatly underestimated (Hirschheim & Sabherwal, 2001). Based on the review of the strategic alignment research, a number of influential factors were synthesised: strong leadership and senior management support for IS, business/IS communication and shared domain knowledge, partnership in planning, prior IS success, planning sophistication and governance. These factors were woven together by the common thread of realising and sustaining strategic alignment. The research on strategic alignment clearly indicates that attaining and sustaining strategic alignment is highly dependent on social dimensions rather than technical dimensions alone. The social dimension of the dynamic

process of strategy-making has been well described by Pettigrew (1992) in the strategic management literature, but less well explored in the strategic alignment literature.

I concur with several scholars (Baets, 1996; Dulipovici & Robey, 2013; Sabherwal & Chan, 2001) who argue that strategic alignment is a process and journey to an end state, and not an end state by itself. Indeed I would agree with more recent studies, which use a processual approach (Tallon & Pinsonneault, 2011), that the alignment of IS strategy with business strategy is a moving target evolving over time through adaptive and dynamic strategy processes. The majority of research to date treats strategic alignment as a static construct, and numerous studies quantifying static, cross-sectional strategic alignment exist (Baker et al., 2011). Therefore, concurring that strategic alignment is a process and not a static construct implies its study as a process, while also showing that time is central, as in any study of processes.

In addition, while I recognise that there are similarities between public and private organisations, I agree with other scholars that there are also basic dissimilarities which cannot be underestimated (Aaltonen, 2007; Andrews et al., 2011; Boyne & Walker, 2004; Bozeman, 2000; Bryson, 2004; Bryson & Berry, 2010; Jones, 2011; Nutt, 1999; Osborne & Brown, 2005; Poister, Pitts, & Edwards, 2010; Rainey & Chun, 2005). The three main dissimilarities between public and private organisations are: firstly, their ownership; secondly, unlike their private counterparts, PSOs are funded largely by taxation rather than fees paid directly by customers; and thirdly, PSOs are controlled predominantly by political forces, not market ones (Boyne, 2002).

Consequently this research intended to examine the process of strategic alignment in a PSO over two time periods from both a technical and social perspective in order to answer the question: *What are the key impediments to the process of aligning business and IS strategies in PSOs?*

Similar to most PSOs (and indeed private organisations), IS within the NICS has undergone unprecedented change in the last three decades. Also, as with most organisations (public and private), the NICS has struggled to align its IS with its underlying business principles. Over the last 30 years, the alignment of IS strategies and business strategies has been challenging and is the most cited area of concern for business and IS executives (Derksen & Luftman, 2014; Luftman, 2005; Luftman & Ben-Zvi, 2010a, 2010b; Luftman et al., 2012; Luftman & Zadeh, 2011). Furthermore, IS, in numerous cases, is still regarded merely as a

utility by many organisations (Hirschheim & Sabherwal, 2001). The strategic alignment literature has investigated issues such as roles, structures, practices, factors and strategies and how these impact strategic alignment. Although such investigation has offered valuable knowledge, the attainment of strategic alignment is still problematic (Coltman et al., 2015). To acquire new knowledge and thereby develop the field, a need has been identified to explore not only the technical dimensions of strategic alignment but also its social dimensions, such as collaboration, partnership, and credibility.

Since the research study aimed to be empirical, there was thus a need to determine the social dimension at work in strategic alignment and the impediments to it within organisations as well as the underlying process behaviours, from a processual perspective. The strategic alignment literature helped to ascertain the extant factors that impede strategic alignment whilst the strategy process literature aided the understanding of the process theories underlying these impediments.

While a number of the results in this research were new, others had been recognised in prior scholarly literature. As a result of the extensive literature review (chapters 2 and 3) and the in-depth processual study of strategy-making over two time periods in the NICS, a phased model of strategic alignment was developed. The proposed model includes four phases of strategic alignment with seven distinct characteristics. The theory supporting the model also identifies the underlying process theories (teleological and dialectical) that explain the impediments arising in strategic alignment from one phase to the next. The results from this study advance the strategic alignment literature by presenting another model of strategic alignment. As an alternative to viewing alignment as an end-state with one set of defined activities, strategic alignment should be viewed as a phased process. This model also identifies a set of impediments that are further explained in chapter 7 using process theories. However, the perfect phased model of strategic alignment that would eliminate all impediments is just not possible. An alternative belief, therefore - which is supported by this study - is to expect that impediments will unavoidably arise across different phases and attempt to reduce their impact.

The main novel aspects of this research are identified as: a theory outlining these impediments, which is featured in the phased model of strategic alignment, and a discussion of the underlying process theories. The results show that misalignment is not automatically the result of just one impediment in a particular phase. Instead, misalignment results from

continual ineffective handling of impediments that arise during the different phases. Moreover, the results suggest that the kernels of misalignment commence early: the very manner in which the business principles are established contributes to whether or not they will be aligned with the IS strategy. As impediments arise, repeated mismatches between attempted remedies and underlying impediments contribute to increased misalignment.

My research found that the social impediment most mentioned in the empirical data which has an impact on strategic alignment is the lack of a close business-IS partnership. For practitioners, both in the private sector and PSOs, this means organisations should develop business and IS strategies together to ensure they support each other. In addition, the organisation should recognise the importance of inviting IS executives to the strategy-making table. The data further suggests that strongly engaged IS leadership and a culture that encourages effective communication increases the level of trust in IS and promotes knowledge-sharing and knowledge integration. This research thus proposes that, to overcome the impediments to achieving a high degree of strategic alignment, business-IS partnership enables communication between business executives and IS executives. These key actors must, therefore, find a way to foster a culture in which they can communicate in a language understood by both parties and with which they are comfortable.

Another key impediment affecting alignment is the dearth of senior executive support due to lack of credibility-building in terms of underpinning the business principles, meeting user requirements, delivering good quality work, and managing timelines and budgets. Low levels of business executive engagement with IS, as a result of their difficulties with IS projects in the past, can lead to misalignment. This finding is consistent with previous studies; however, the data suggests that it is not only the past record of IS success that increases the strategic alignment but also the present outcomes. In practice, organisations should ensure that IS consistently delivers results that satisfy the business needs, requiring value realisation processes to monitor value realisation before, during and after project implementation. This empirical research also found there was almost no incidence of systematic post-implementation reviews.

Another key practical implication of this research is the need to have cohesive planning processes and create an IS governance structure aimed at coherently managing all aspects of the process of aligning business and IS strategy across the organisation and within individual departments. The importance of IS governance and an appropriate IS structure cannot be

underestimated. Due to the complexity of the process of strategic alignment, both senior management support and IS governance will help develop and maintain appropriate planning processes and IS structure, thus leading to strategic alignment. Such involvement can also help to improve business executive understanding of the potential for IS to support and enhance business strategies in individual departments and at an overall collective level.

It is paramount that business executives and IS executives are able to comprehend the complexity of activity that occurs across the different levels of an organisation in establishing business principles and IS principles, in order to be able to align business and IS strategies. To enhance such understanding, the model developed in this research, as well as the illustration of how it is demonstrated in practice in the NICS case, can act as an alignment methodology for practitioners. The model identifies the distinct characteristics in the different phases at which interventions and behaviours (particularly dialectical) can be addressed. In addition, business executives and IS executives can work in partnership to impact behaviours so that they remain enablers and do not become impediments to strategic alignment. Working in partnership may be difficult since it may demand more resources, be time consuming, and require knowledge-sharing. Nevertheless, bearing in mind the negative effect on strategic alignment of the impediments identified, these efforts may be justified. Working in partnership is beneficial not only for individual departments but also for the organisation as a whole.

In short, this research helps to: identify the distinct characteristics in each phase of strategic alignment (dominant focus, level of engagement, degree of alignment, core technical deliverables, core social work, and technical and social impediments), amalgamate the knowledge of social and technical impediments, understand the interrelationships between the phases and impediments, and explain these via underlying process theories (teleological and dialectic).

8.3 Reflections on Processual Research

The study was conducted using interpretive processual research. Interpretive research is "aimed at producing an understanding of the context of the information system, and the process whereby the information system influences and is influenced by the context" (Walsham, 1993, pp. 4-5). It was chosen because the processual approach helps to observe the multifaceted and dynamic nature of strategic alignment. A case study method was also used since it allows for the conduct of an empirical investigation observing a real life phenomenon

using several sources of information. The data collection and analysis were conducted in an iterative manner (Walsham, 2006).

By taking a processual approach to the research with its focus on content, context, and process, I was able to dig deeper into why the strategic alignment process unfolded in the particular manner it did within the NICS over two different time periods. This approach, with its multi-level dimension, allowed me to consider how the core social work at different levels and across different phases shaped one another, which in turn led to the identification of various impediments to the strategic alignment process during the four phases. Using longitudinal field-research executed in the real world context of the NICS and three different sources of data collection meant the exploration of existing and historical events from different perspectives was facilitated. I was able to develop a phased model of strategic alignment incorporating process theory using a combination of Van de Ven and Poole's (1995) generative mechanisms; which will add to the literature in explaining how to sustain the dynamic and continuous process of adaptation and change between business and IS strategy that is strategic alignment.

Through this research, I was able to narrow in and identify specific phases with distinct characteristics and then examine specific impediments at different phases. The process theories (Van de Ven & Poole, 1995) discussed in chapter 7 provided additional insights into the core social work that took place in different phases. This facilitated a deeper understanding of the dynamic core social work that shapes strategic alignment. Of particular note in this study was the dialectic theory which highlights opportunities for intervention and action, and the teleological theory which suggests that different levels of business and IS executives across the organisation can work in partnership and collaborate in influencing the outcomes of dialectic behaviour. My analysis indicates that many of the impediments that I observed and documented could only be explained by examining the multiplicity of levels and interactions with a social dimension and by taking into account the existence of different process theories.

Conducting processual research is not easy. One main challenge is handling the vast quantities of textual data generated from data collection. However, the breadth found in the data collected in this case has provided detailed descriptions of the reality of strategic alignment as experienced by the various participants at various levels within the NICS across two different periods. These detailed descriptions facilitated the exploration of the particular impediments to the strategic alignment process, and aided the development of a model to

describe and analyse such impediments across different phases over time to create a holistic understanding that is possibly transferable to other PSOs and, in fact, other types of organisations. This model may also be of practical use to IS executives going forward who are engaging in the strategic alignment process.

While I used three sources of evidence permitting both the combination and cross validation of contextual and temporal data to provide useful insights into organisational events and processes in the NICS, each source had its own limitations. It could be argued that the observations within the four workshops were confined to certain participants, transitory in nature, and more critically very much dependent on the observer as conduit. Archival data and secondary documentation generally provided the formal perspective, and in some instances seemed to gloss over problems and challenges, and were contradicted by views expressed by participants. Similarly, interviews could be viewed as unnatural interactions that could have been prejudiced by gaps in memory, the attitudes of participants, and quality of the connection between the interviewer and participant. Using all three sources in combination does help to compensate for the limitations of each individual source.

With the real-time data, I had an advantage in the richness of temporal recording, particularly when it came to recording interactions among participants at the workshops and documenting participant perceptions and understandings at different points in time from the interviews. Instead of starting with known outcomes, I had access to a strategy-making process from the beginning. However, while the nature of real-time data may be richer and more detailed, longitudinal process researchers, including myself, have generally taken a perspective quite similar to that of retrospective researchers in analysing their data. In other words, I was looking at the data as a whole and attempting to theorise about how the processes examined evolved up to the point when I left the field in September 2014. Thus while a considerable amount of my data collection was real-time, my analysis could still be viewed as retrospective.

Therefore, I would suggest it is vital that researchers considering conducting processual research do everything they can to ensure, in terms of methodological rigour, that their interpretations and subsequent development of theory are reasonable and unbiased. Therefore, of paramount importance are the collection of appropriate data, the use of several sources of data gathering, the authentication of interview notes with participants from the case site, the methodical organisation of a research database, the recording of all phases of analysis, and the open acknowledgement of any biases.

As a concluding reflection, I would contend that conducting processual research has afforded me the opportunity to delve deeper into the beliefs and perceptions around impediments to the process of strategic alignment in the NICS over two time periods; I would have been unlikely to obtain these had I concentrated solely on quantifying relationships between independent and dependent variables. Conducting processual research has enabled the gathering of data and development of a rich interpretation of events and unfolding of knowledge through an iterative process of data collection and analysis.

8.4 Limitations of the Study

When reviewing these findings a number of limitations should be taken into account. Nonetheless, many of these limitations may be viewed as legitimate avenues for future inquiry. As this is an interpretive processual case study, the conclusions do not claim to be generalisable and do not assert to be verifiable facts (Walsham, 1995). The choice to limit the data to a single case was made by choosing depth over the generalisability of the findings. Selecting a single case does not mean that the findings cannot be used by other researchers or that they are invalid, but does mean that academics and practitioners should interpret the findings with the circumstances of the original case in mind.

The research was restricted to a one-off single case in a PSO and centred on interviews, observation, and secondary documentation. The NICS is unique in terms of its political history and there could be significant dissimilarities with other national contexts regarding political structures, administrative systems etc. This unique context should be recognised when reviewing the findings for transferability to other countries.

I have not conducted a positivistic test of my conceptual model, nor do I propose my model as a predictive one. In this study, I made use of a single in-depth case study and, as argued by Walsham (1995, 2006), its use does not inhibit the achievement of generalisable results. However, the question of generalising research results to different scenarios is a limitation characteristic to the dependence on a single case study and materialises to a greater extent in this type of research than other forms of qualitative research. Although it was never intended that this case study would provide generalisable results in the traditional manner, there was an intent to offer a case narrative that would add to the body of scholarly knowledge and be useful to other organisations embarking upon the process of strategic alignment. A lot can be garnered from this specific study, particularly those characteristics that may have resonance in other scenarios.

Another limitation of the study was that I had to rely in part on retrospective accounts by participants (some former employees), which may be subject to post-rationalisation and therefore potential biases/skewed opinions. However, to minimise these potential biases, various procedures were put in place to avoid erroneous results (see section 5.6.2). First, I used retrospective data to investigate past facts and behaviours rather than beliefs and intentions, focusing on the key events and most important processes. Second, participants were selected due to their lead position in the organisation or within the strategy-making process under analysis, and multiple participants were interviewed with reference to the two strategy-making periods to avoid informant bias. Participant bias was further reduced by the fact that the key participants could be considered to be highly knowledgeable and able to view the phenomenon from different perspectives (Eisenhardt & Graebner, 2007), and identify the key overall contextual factors and events. In addition, the negotiated access was likely to raise participant motivation to deliver reliable data. However, while the participants were deeply involved in strategic alignment in both strategy-making periods, it should be acknowledged that as the interviewees comprised mainly of PSs, Grades 3, 5, 6 and DHOTS, this might slightly emphasise teleological patterns as opposed to more evolutionary patterns in organisational behaviour, as well as deliberate rather than emergent strategy processes.

The study is centred on my own observation at workshops and interviews, using methods generally associated with an in-depth single case study with events and recurrent actions throughout a given temporal period. Nevertheless, I was viewed as an 'outsider' by the interviewees (Miles & Huberman 1994); in other words, a person not aligned with a particular individual or group within the organisation, being paid for consultancy, or having pre-existing views of specific people, systems, or processes based on previous work carried out in the organisation. Whilst considered an advantage on the one hand, it could also be viewed as a limitation. Participants may have been unclear as to the degree to which they could be forthcoming in their answers. However, the nature of the interviews used in this research enabled the participants to decide how much information they were content to disclose. As the political and social aspects of the NICS are complex, in an effort to help reduce the challenges connected with the interviewee's cognisance of taking part in the study, various measures were implemented (section 5.3.5). These included emailing an interview invitation to each interviewee (see Appendix E) containing information about myself, a description of the focus and purpose of the case study, and other practical information related to the interviews; thus ensuring that my intentions were clear. In addition, I reiterated the purpose outlined in the email

and reassured the interviewee as to confidentiality at the start of each interview, following Walsham's (2006) suggestions. Finally, to improve credibility, each transcription was emailed to the relevant participant to comment on its validity and provide clarification where necessary. In general, the participants perceived that I had understood and transcribed them correctly. Most of the comments focused on clarifying some details and giving an update on the progress of the strategy-making process since the interview had occurred (see Appendix F).

While I have argued that all approaches to gathering data were deliberated upon and that the approaches chosen were the most appropriate, the likelihood of the existence of single case study and researcher biases cannot be disregarded. Therefore, such biases should be to the forefront when deciding whether to use the results.

Notwithstanding these biases, I have developed a phased model of strategic alignment, and used a processual methodology that could be useful for additional exploration of the strategic alignment process. The research provides an opportunity to assess the process of strategic alignment in a PSO over two time periods and investigate the impediments to the process of strategic alignment. Therefore, the study offers a significant and comprehensible portrayal of strategic alignment in a PSO setting. While this research used a processual method grounded in an in-depth single case study, the results may be beneficial as a foundation for further variance research.

8.5 Avenues for Further Inquiry

Notwithstanding the extensive acknowledgement of the significance of strategic alignment in IS, there is a paucity of studies on attaining and sustaining strategic alignment (Chan, 2002; Luftman & McLean, 2004; Derksen & Luftman, 2014; Peppard & Campbell, 2014). The challenge explored in this study related to impediments to the process of strategic alignment. Based upon the literature review and case data, a phased model of strategic alignment was presented to improve the understanding about how to attain and sustain alignment between business and IS strategies.

Overall, this research, which investigated the impacts of factors on strategic alignment in a PSO over two time periods (2004-2010, 2010-2014), raises important conceptual and theoretical issues for future consideration in conducting research on PSOs. In particular, it sheds light on how one PSO has endeavoured to align its business and IS strategies, resulting in the creation of a phased model of strategic alignment. Continuing the pursuit of more critical research on this topic would seem particularly pertinent in the public sector given the appeal

of Chan and Reich (2007b) to extend studies on strategic alignment beyond those conducted in the private sector. Strategic alignment researchers have not focused their attention to date on PSOs. The research establishes a foundation on which future study into the process of strategic alignment can embark (see Table 8.1) which is described in detail below.

Table 8.1 Further Research Avenues

	Further Research Avenues
1	Testing the model in another PSO and other industries
2	In-depth exploration of specific impediments, e.g. IS leadership
3	Impact of IS competence of business executives
4	Exploration of trust, information sharing, IS structure, and value realisation
5	Management interventions to address and reduce the impact of impediments
6	Interdisciplinary research focused on exploring impediments from political, legal, social, and technical perspectives
7	Role of outsourcing, IS executive education, information assurance in strategic alignment
8	Inclusion of additional constructs/further exploration of identified constucts
9	Examination of identified phases and possible impediments through analyses in different contexts
10	Further use of processual approach in strategic alignment research

First, there is an avenue for further inquiry by testing the model. By exploring the impediments to the process of aligning business and IS strategy, through the examination of a real case study over two temporal periods, it is hoped that similar case research could be carried out in other PSOs using the model. Thus, comparisons may be drawn and the impediments to strategic alignment better understood and appreciated, and ultimately transformed into enablers that can be nurtured in the process of aligning business and IS strategy. Future research could investigate the impediments to the process of strategic alignment within another PSO, using two alternative time intervals. There is the question as to whether there exist differences regarding the process of strategic alignment in other PSOs and other industries. It is possible that the technical deliverables, core social work and impediments may vary depending on the type of organisation, such as manufacturing, retail, financial services, etc. A comparison study

across organisations could also yield interesting results. The phases, technical deliverables, core social work, impediments, and underpinning process theories might vary due to organisation size and it would be interesting to see how process theories underpin strategic alignment in different sized organisations.

Second, the study highlighted a number of specific impediments to the process of strategic alignment that may be worth considering in future research. The impediment of IS leadership in the context of aligning business and IS strategy merits further exploration and research; as it is a critical factor in the alignment of business and IS strategy, impacting other areas such as business-IS partnership, knowledge-sharing, credibility-building, and communication. The area of enhancing IS executive capability should also be explored.

Third, the literature suggests that senior managers possessing greater IS competence are more proactive in their participation in IS projects and their willingness to develop partnerships with the IS department. This is a potential avenue for further inquiry.

Fourth, there is a gap in the literature in relation to the exploration of trust, information sharing, IS structure, and value realisation as factors impacting strategic alignment. In order for PSOs to prosper and increase IS credibility, they should make better use of their IS structures, taking cognisance of their business strategies. This is particularly important when making choices, allocating resources and collaborating in a PSO. Information is one of the greatest assets owned by an organisation, as one participant clearly stated:

Business people [in PSOs] need to understand information as commodity in the same way it is understood by the private sector. Information assurance is seen, as outside of the main business decisions yet information is critical to the business. Information is the main resource of the public sector (P6, 2011).

Fifth, identifying a range of appropriate management interventions to address and reduce the impact of impediments would be useful further research.

Sixth, in the discussion of the case data in chapter 6, a number of political impediments to strategic alignment were identified. While interesting, they were outside the scope of this research. They should, however, be included in future research and may form part of interdisciplinary research that focuses on exploring impediments from political, legal, social, and technical perspectives.

Seventh, the role of outsourcing, IS executive education, information assurance (for example, privacy, electronic authentication via digital signatures or certificates, and sharing of information across agency boundaries), and enterprise architecture were other alternative themes that emerged from the study, but due to time constraints were not explored in any level of detail.

Eighth, further research could focus on expanding the model by including additional constructs or further zooming in on constructs already identified. For example, when applying the process theories, further operationalisation of each process theory could be useful for a better understanding of the behaviours and impediments underpinned by that theory. Zooming in further on the dialectic theory would be especially interesting since it was particularly illuminating in the NICS case. Multiple cases and further elaboration on the constructs of the model may allow the identification of impediment patterns, and these can be used as the basis to derive more specific interventions to promote strategic alignment.

Ninth, this study is based on an exploratory research design. Accordingly, an important future avenue for further enquiry lies in generalising the findings of this study by examining the identified phases and possible impediments through analyses in different contexts. Furthermore, future avenues for inquiry might centre on particular aspects of this research and expand the understanding of actions, interactions, and behavioural patterns in the strategic alignment process.

Tenth, since I identified the processual approach as useful in researching the object of interest, I suggest conducting other inquiries using a processual approach. Although the processual approach has indeed entered the strategic alignment domain, its linkage with strategic alignment theory is emerging, indicating that further development of the linkage and its implications are in order. Additional research may also establish a view of the strategic alignment process which stresses the dynamic interrelationship between different identified influencing factors (for example, communication, partnership, knowledge-sharing, IS leadership, governance, planning sophistication, trust building, executive commitment, IS structure, credibility-building, value realisation, culture) at different points in time.

Lastly, it is intended that many dimensions of this research will be of significance in undertaking other investigations and I hope to have the chance to follow at least one of these avenues further.

8.6 Conclusion

This section completes chapter 8 and the research. Strategic alignment has appeared on researchers' agendas since the mid-1970s and remains one of the main research areas in IS literature. In the last three decades, it has consistently ranked among the top three concerns of CIOs (Luftman & Kempaiah, 2007; Luftman, Lyytinen, & Ben Zvi, 2015; Luftman et al., 2012; Luftman & Zadeh, 2011). In this chapter, the research question and conceptual model were revisited, while reflections on processual research were offered. The limitations of the research were discussed and avenues for further inquiry were given for scholars who wish to extend the work completed. In general, the findings were discovered to extend the strategic alignment literature by providing a new phased model of strategic alignment. The references and appendices follow this chapter.

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Appendices

This section contains the appendices used in this report.

Appendix A

Journals and Research Terms

Table A.1 Key Academic Journals

Strategic Management Domain	IS Domain
Strategic Management Journal	MIS Quarterly
MIT Sloan Management Review	Information Systems Research
Journal of Management	Journal of MIS
Long Range Planning	Information and Management

Table A.2 Key Research Terms

Key Terms
Strategy, Strategic Management, Emergent strategy
Process, Process Analysis, Process Theories, Practice of Process Research, Processual
Information technology, Information Systems, IS Strategy, IT Strategy, Business Strategy, Strategic Alignment, Strategic Fit, Strategic Linkage, IS Alignment, Business–IT alignment, Information Systems Alignment, Strategic Alignment Model
Factors, Enablers, Critical Success Factors, Enabling and Inhibiting Activities, Antecedents

Key terms were built into expanded search strings, e.g. 'Business-IT alignment' OR 'Information Systems Alignment' AND 'factors*' OR 'enablers' OR 'Enabling and Inhibiting Activities*'; 'Strategy' OR 'Strategic Management' AND 'process*' OR 'process analysis' OR 'processual*'. Second, under the rule that those keywords should be part of the reference title, a search was performed in the journals listed in Table A.1. These searches were further augmented by obtaining additional articles that are not available in these journals. This was done through examining both the 'backward' and 'forward' cited articles. In total, 102 articles in the strategic management domain were reviewed with 43 being cited in chapter 2 and 187 articles (Table A.3) were reviewed in the IS domain with 120 articles being cited in chapter 3.

Table A.3 Strategic Alignment Articles

Author	Year	Article	Data
McFarlan	1984	Information technology changes the way you compete	Conceptual
Johnston & Carrico	1988	Developing Capabilities to Use Information Strategically	field study N = 90 interviews across 18 firms in 11 industries
Lederer & Mendelow	1989	Co-ordination of information systems plans with business plans	case study N = 20 organizations (interviews)
Grover & Sabherwal	1989	An Analysis of Research in Information Systems from the IS Executive's Perspective	literature review N = 658 published articles
Tavakolian	1989	Linking the Information Technology Structure with Organizational Competitive Strategy: A Survey	survey N = 52 matched pairs from computer components industry
Kim & Michelman	1990	An Examination of Factors for the Strategic Use of Information Systems in the Healthcare Industry	case study N = 4
Floyd & Wooldridge	1990	Path Analysis of the Relationship between Competitive Strategy, Information Technology, and Financial Performance.	survey N = 127 in retail banks; and complemented with 68 interviews with CEOs
Zviran	1990	Relationships between organisational and information systems objectives: Some empirical evidence.	survey N = 131
Das et al.	1991	Integrating the Content and Process of Strategic MIS Planning with Competitive Strategy	Conceptual Based on extensive literature review
Niederman, Brancheau et al.	1991	Information Systems Management Issues for the 1990s	Delphi survey with three rounds where N1 = 114, N2 = 126, N3 = 104
Jarvenpaa & Ives	1991	Executive involvement and participation in the management of information technology	survey N = 55 firms (matched pairs of CEOs and CIOs)
Baets	1992	Aligning information systems with business strategy	Conceptual
Lee & Leifer	1992	A Framework for Linking the Structure of Information Systems with Organizational Requirements for Information Sharing	Conceptual
Feeny et.al.	1992	Understanding the CEO/CIO Relationship	Interviews N = 12 CEO-CIO pairs
Chan & Huff	1992	Strategy: An Information Systems Research Perspective	Literature Review and Conceptual Paper
Powell	1992	Organizational Alignment as Competitive Advantage.	survey N = 113
Miller	1993	Measuring and aligning information systems with the organization	Case Study
Ives, Jarvenpaa et al.	1993	Global Business Drivers: Aligning information technology to global business strategy	Case Study +Survey
Burn	1993	Information Systems strategies and the management of organisational change - a strategic alignment model	Case Study n = 56 Organisations

Author	Year	Article	Data
Broadbent & Weill	1993	Improving business and information strategy alignment: learning from the banking industry	Case Study. Written Response Form followed by focused interviews. Board level strategic management documentation. Other organisational documentation. Annual Reports (1985-1989). Reviewing Managing Practice Questions
Henderson & Venkantraman	1993	Strategic Alignment: Leveraging Information Technology for Transforming Organizations	Conceptual
Luftman et al.	1993	Transforming the enterprise: The alignment of business and information technology strategies.	Conceptual
Venkantraman et al.	1993	Continuous strategic alignment: Exploiting information technology capabilities for competitive success	Conceptual
Jarvenpaa & Ives	1993	Organising for Global competition: The fit of Information Technology	Mixed: 25 interviews to identify salient issues then questionnaire pretested with 4 executives Questionnaire n= 109 Follow up phone Interviews with 12 IT Managers
Zahra & Covin	1993	Business strategy, technology policy and firm performance.	Survey
Yetton et al.	1994	Computer-Aided Architects: A Case Study of IT and Strategic Change	case study N = 1
Brown & Magill	1994	Alignment of the IS Function with the Enterprise: Towards a model of antecedents	Interviews Open ended Interviews 46 Managers in Total (24) IS Managers and (22) non-IS Managers. Follow up Survey. Report Confirmation
Sabherwal & Kirs	1994	The alignment between organizational critical success factors and information technology capability in academic institutions	survey
Galliers et al.	1994	Coping with Information Technology? How British Executives Perceive the Key Information Systems Management Issues in the Mid-1990s	survey N = 98 senior executives in UK (66 IS executives and 32 non-IS)
Earl et al.	1995	"Strategies for Business Process Reengineering:Evidence from Field Studies	case study N = 16 BPR projects in 4 UK organizations (semi-structured interviews with 3 -10 interviewees (senior business managers) per firm)
Yetton et al.	1995	Fit, Simplicity and Risk: Multiple Paths to Strategic IT Change	case study N = 3 organizations
Tan	1995	The responsiveness of informationtechnology to business strategyformulation: An empirical study	survey N = 88
Burn	1996	IS innovation and organisational alignment a professional juggling act	Analyst (middle manager from each organisation) analyses organisational strategy using Miles and Snow (1978) and Mintzberg (1973, 1989) and IS strategy using Earl (1989) and Nolan (1979) and McFarlan (1982).
Orlikowski	1996	Improvising Organizational Transformation Over Time: A Situated Change Perspective	case study N = 1
Johnston & Yetton	1996	Integrating information technology divisions in a bank merger Fit, compatibility and models of change.	case study N = 2

Author	Year	Article	Data
Dutta	1996	Linking IT and Business Strategy: The Role and Responsibility of Senior Management.	Case Study N = 2 Banks
Broadbent, Weill et al.	1996	Firm context and Patterns of IT infrastructure Capability	Case Study N = 26 Large Business Units (material from questionnaire, interviews, documents
Ho	1996	Information technology implementation strategies for manufacturing organizations: A strategic alignment approach	Conceptual
Lederer & Salmela	1996	Toward a theory of strategic information systems planning	Conceptual
Luftman	1996	Applying the Strategic Alignment Model. Competing in the Information Age: Strategic Alignment in Practice.	Conceptual
Ross et al.	1996	Develop Long-Term Competitiveness through IT Assets	Conceptual
Reich & Benbasat	1996	Measuring the Linkage between Business and Information Technology Objectives	Interviews in total, 57 interviews with 45 informants were conducted; the senior IS executives were interviewed several times. Documentation including a copy of the most recently produced one- and five-year business and IT plans, strategy papers, and project proposals.
Baets	1996	Some empirical evidence on IS Strategy Alignment in banking	Interviews A literature review, a simulation tool and interviews with some bank executives pilot project for one middle sized European bank was designed. In-depth research at a single bank, covering different hierarchical levels and different functions. A questionnaire with 99 questions was developed, piloted and used in four Continental European banks. The individual responses per bank were 17, 18, 16, and 3.For the analysis of individual banks only considered the first three, as the latter one had too few observations (degrees of freedom). Hence, the response rate for the sample was 90%
Day	1996	An executive's guide to measuring I/S.	Non-empirical Study
Teo & King	1996	Assessing the impact of integrating business planning and IS planning	survey N = 156 (matched pairs)
Lockamy & Smith	1997	A strategic alignment approach for effective business process reengineering	case study N = 1
Ciborra	1997	De profundis? Deconstructing the concept of strategic alignment	Conceptual
King & Teo	1997	Integrating between business planning and information systems planning: Validating a Stage Hypothesis	Survey
Chan, Huff, Barclay & Copeland	1997	Business Strategic Orientation, Information systems strategic orientation, and strategic alignment	Survey = 170 received only 164 analysed. 4 instruments initially reviewed by 15 academics and personnel at Andersen Consulting and then pilot tested on 12 North American manufacturing, banking and insurance organisations

Author	Year	Article	Data
Chan et al.	1997	Assessing realised information systems strategy	Survey Instrument development and mail survey: N = 164
Teo & King	1997	An assessment of perceptual differences between informants in information systems research	Survey N = 157 (matched pairs)
Gupta, Karimi, & Somers	1997	Alignment of a Firm's Competitive Strategy and Information Technology Management Sophistication: The Missing Link.	survey n= 213 managers 60 Defenders, 30 Prospectors, 100 Analysers, 16 Reactors, and seven unclassified Four criteria, represented by a total of 20 items, were identified for measuring IT management sophistication within firms. These were IT planning mode, IT control mode, IT organization, and IT integration.
Henderson & Sifonis	1998	The Value of Strategic IS Planning: Understanding Consistency, Validity, and IS Markets	case study N = 1
Bensaou & Earl	1998	The right mind-set for managing information technology	Conceptual
Ciborra	1998	Crisis and foundations: an inquiry into the nature and limits of models and methods in the information systems discipline	Conceptual
Mirani & Lederer	1998	An instrument for assessing the organizational benefits of IS projects.	Instrument development; cross-sectional study of 178 IS projects
Segars & Grover	1998	Strategic Information Systems Planning Success: An Investigation of the Construct and Its Measurement	survey N = 253 IT executives
Ma et al.	1998	Successful Management of Information Technology: A Strategic Alignment Perspective	survey N = 74 (matched pairs of CIOs and User Managers)
Simonsen	1999	How do we take Care of Strategic Alignment? Constructing a design approach	Action Research Study
Van Der Zee & De Jong	1999	Alignment is not enough: Integrating business and information technology management with the balanced business scorecard	Case Study
Papp	1999	Business-IT alignment: Productivity Paradox Payoff?	Case study longitudinal study (5 years, N = 500 firms)
Kanellis, Lycett & Paul	1999	Evaluating business information systems fit: from concept to practical application	Case Study/Action Research 19 interviews with business unit managers, and senior system personnel in charge of information systems development or commercial operations, were conducted. Following this phase, a questionnaire was completed by 10 user in each of the 3 sites with researcher present
Maes	1999	A Generic Framework for Information Management.	Conceptual
Kaarst-Brown & Robey	1999	More on myth, magic and metaphor: Cultural insights into the management of information technology in organizations	Ethnographic case study N = 2
Teo and Ang	1999	Critical success factors in the alignment of IS plans with business plans	Survey – 169

Author	Year	Article	Data
Segars & Grover	1999	Profiles of Strategic Information Systems Planning	Survey and post study field study
Luftman & Brier	1999	Achieving and Sustaining Business-IT Alignment	Survey: n=1,051 Data Business and information technology executives from over 500 firms representing 15 industries who attended classes addressing alignment at IBM's Advanced Business Institute. In addition to these surveys, interviews and the observations from consulting engagements
Luftman et al.	1999	Enablers And Inhibitors Of Business-It Alignment	Survey: n=1,051 Data Business and information technology executives from over 500 firms representing 15 industries who attended classes addressing alignment at IBM's Advanced Business Institute. In addition to these surveys, interviews and the observations from consulting engagements
Roepke et al.	2000	Aligning the IT Human Resource with Business Vision: The Leadership Initiative at 3M	case study N = 1 firm (3M)
Hartung et al.	2000	Information Technology Alignment in the Canadian Forces	case study N = 8 Canadian Forces (interviews with IT officers and personnel/ administrative officers)
Maes et al.	2000	Redefining business – IT alignment through a unified framework.	Conceptual
Edwards	2000	Chief Executive Officer Behavior: The Catalyst for Strategic Alignment.	Conceptual Paper
Reich & Benbasat	2000	Factors That Influence the Social Dimension of Alignment between Business and Information Technology Objectives	Case Study/Interviews. Interviews In total, 57 interviews with 45 informants were conducted; the senior IS executives were interviewed several times. Documentation including a copy of the most recently produced one- and five-year business and IT plans, strategy papers, and project proposals.
Kearns & Lederer	2000	The effect of strategic alignment on the use of IS based resources for competitive advantage	survey N = 107 matched pairs of CIO and CEO
Teo & King	2000	Assessing the impact of proactive versus reactive modes of strategic information systems planning	survey N = 157 (matched pairs)
Tallon et al.	2000	Executives' Perceptions of the Business Value of Information Technology: A Process-Oriented Approach.	survey N = 304 executives
Palmer & Markus	2000	The Performance Impacts of Quick Response and Strategic Alignment in Specialty Retailing	Survey n = 80
Luftman	2000	Assessing Business-It Alignment Maturity	Survey Facilitated Discussion Delphi
Burn & Szeto	2000	A comparison of the views of business and IT management on success factors for strategic alignment	Surveys: n = 88 Structured Interviews (2 Firms)– 4 individuals Questionnaire given

Author	Year	Article	Data
Levy et al.	2001	SMEs: aligning IS and the strategic context.	Case Study longitudinal case study N = 27 (SMEs in 3 year period)
Rondinelli et al.	2001	The Struggle for Strategic Alignment in Multinational Corporations: Managing Readjustment During Global Expansion	case study N = 1 firm (MNC) using interviews and archival data
Hirschheim & Sabherwal	2001	Detours in the Path toward Strategic Information Systems Alignment.	case study N = 3 organizations
Sabherwal & Chan	2001	The Dynamics of Alignment: Insights from a Punctuated Equilibrium Model	case study N = 3 organizations
Smaczny	2001	Is an Alignment Between Business and Information Technology the Appropriate Paradigm to Manage IT in Today's Organizations?	Conceptual
Papke-Shields & Malhotra	2001	Assessing the Impact of the Manufacturing Executive's Role on Business Performance through Strategic Alignment.	survey N = 202 with follow-up interviews
Bergeron et al.	2001	Fit in strategic information management research: an empirical comparison of perspectives	Survey n=110 CEOs
Chan	2001	Information systems strategy: structure and alignment.	Survey n=67 (CEO-CIO) pairs
Croteau & Bergeron	2001	An Information Technology Trilogy, Business Strategy, Technological Deployment and Organisational Performance	Survey Paired Questionnaires First questionnaire concerning business strategy sent to CEO. Second questionnaire concerning technological deployment send to CIOs
Croteau et al.	2001	Organizational and technological infrastructures alignment	Survey Quantitative, Structural equation modeling was used
Sabherwal & Chan	2001	Alignment Between Business and IS Strategies: A Study of Prospectors, Analyzers, and Defenders	Survey Two separate surveys pretesting involved academic reviews, questionnaire item sorting exercises preliminary factor analyses, interviews with IS executives and consultants, and pilot testing of the questionnaires with appropriate senior executives in multiple organizations. 164 X4 and 70 X 2 questionnaires—were received in the first and second studies, respectively Appendix C Factor Analysis of Measures of IS Strategy Attributes
Leiblein et al.	2002	Do Make or Buy Decisions Matter? The Influence of Organizational Governance on Technological Performance	case study based on a report of firm level activity of 176 global circuit manufacturers
Irani	2002	Information systems evaluation: navigating through the problem domain	case study N = 1
Chan	2002	Why Haven't We Mastered Alignment? The Importance of the Informal Organization Structure.	case study N = 8 organizations considered top performers (5 in Canada, 3 in the US); interviews
Hussin, King et al.	2002	IT Alignment in Small Firms	Survey

Author	Year	Article	Data
Croteau & Bergeron	2002	IT alignment in small firms	Survey = 256 usable questionnaires were returned Pre-testing with academics and research students, pretesting with managers in small firms, and pilot testing with a mailing to 50 randomly selected managers in small firms.
Cragg et al.	2002	IT alignment and firm performance in small manufacturing firms	survey N = 256 organizations
Peak & Guynes	2003	The IT Alignment Planning Process	case study within one company: 58 of 75 senior and upper-middle managers participated in the pilot process
Reich & Kaarst- Brown	2003	Creating social and intellectual capital through IT career transitions	Case Study longitudinal case study (3 years in one life insurance company with 70 informants)
Moody	2003	New meaning to IT alignment.	Conceptual
Peppard & Breu	2003	Beyond Alignment: A Coevolutionary View of the Information Systems Strategy Process	Conceptual
Kearns & Lederer	2003	A Resource Based View of Strategic Alignment: How knowledge based sharing creates competitive advantage	Survey
Wang & Tai	2003	Factors affecting information systems planning effectiveness: organizational contexts and planning systems dimensions	survey N = 156
Pollalis	2003	Patterns of Co-alignment in Information-Intensive Organizations: Business Performance through Integration Strategies	survey N = 183
Choe	2003	The effect of Environmental Uncertainty and Strategic Applications of IS on a Firms' Performance	survey N = 70 Korean organizations (of 200) CIOs as respondents
Avison et al.	2004	Using and validating the strategic alignment model	Case Study (longitudinal) N = 35 Projects; Material consisting of documents and interviews
Rathnam et al.	2004	Alignment of Business Strategy and IT Strategy: A Case Study of a Fortune 50 Financial Services Company	case study N = 1 (interviews with 10 senior executives, of which three have IT perspective)
Peppard & Ward	2004	Beyond Strategic Information Systems: towards an IS capability	Conceptual
Ndede-Amadi	2004	What strategic alignment, process redesign, enterprise resource planning, and ecommerce have in common: enterprise-wide computing	literature review and conceptual paper
D'Souza & Mukherjee	2004	Overcoming the Challenges of Aligning IT with Business.	Non-empirical Study
Croteau & Raymond	2004	Performance Outcomes of Strategic and IT Competencies Alignment	Survey N = 104 (one per firm; e.g. CEO or CIO) Web questionnaires 104 were found to be complete and usable
Willcoxson & Chatham	2004	Progress in the IT/Business Relationship: A Longitudinal Assessment	survey N = 1156; not matched pairs
Preston & Karahanna	2004	Mechanisms for the Development of Shared Mental Models between the CIO and the Top Management Team	survey N = 382 CIOs
Baker	2004	Leading Alignment	survey n= 1100 executives

Author	Year	Article	Data
Kearns & Lederer	2004	The impact of industry contextual factors on IT focus and the use of IT for competitive advantage	Survey N=161 CIOs
Weiss & Anderson	2004	Aligning Technology and business strategy: Issues & Frameworks, A field study of 15 Companies	Survey Three stage field study that included: first, identifying executives in companies Secondly, surveys were mailed to 67 IT and business executives and high level project managers. 21 responses of the 67 mailed were received. The survey was quantitative and qualitative in nature. Third, Participants were then asked in follow phone and face-to-face meetings to elaborate and provide examples
Bergeron et al.	2004	Ideal patterns of strategic alignment and business performance	Survey: n = 110 Canadian SMEs Appendix A. Items measuring IT strategy and IT structure dimensions
Coughlan et al.	2005	Understanding the Business-IT Relationship	case study (FinCo, a UK bank); semi-structured interviews N = 29 (top management for retail banking and IT were included)
Sledgiamowsk & Luftman	2005	IT-Business Strategic Alignment Maturity: A Case Study	Case Study (Longitudinal)
Martin et al.	2005	The Social Dimension of Business and IS/IT Alignment: Case Studies of Six Public-Sector Organisations	case study N = 6 (interviews; 20 executives and 48 managers)
Peak et al.	2005	Information Technology Alignment Planning - a case study	case study within one company: 58 of 75 senior and upper-middle managers participated in the pilot process
Broadbent & Kitzis	2005	Interweaving business driven IT strategy and execution: Four foundation factors.	Conceptual
Madapusi & D'Souza	2005	Aligning ERP Systems with International Strategies	Conceptual
Campbell et al.	2005	Strategic Alignment: A Practitioner's Perspective	Focus Groups N = 6 managers
Campbell	2005	Alignment: Resolving Ambiguity within Bounded Choices	Focus groups with interviews
Booth & Philip	2005	Information systems management: role of planning, alignment and leadership	Literature Review
Tan & Gallupe	2006	Aligning business and information systems thinking: a cognitive approach	case N = 6 companies (interviews with 80 people + questionnaire)
Wijnhoven et al.	2006	Post-merger IT integration strategies: An IT alignment perspective	case study N = 3 hospitals
Slaughter et al.	2006	Aligning Software Processes with Strategy	case study N = 9; semi-structured interviews
Bleistein et al.	2006	Validating strategic alignment of organisational IT requirements using goal modelling and Problem diagrams	Case Study Theoretical development and case study (Seven Eleven Japan)
Benbya & McKelvey	2006	Using coevolutionary and complexity theories to improve IS alignment: a multi- level approach	Conceptual
Weiss et al.	2006	Three IT-Business Alignment Profiles: Technical Resource, Business Enabler, and Strategic Weapon	conceptual (with examples)

Author	Year	Article	Data
Byrd et al.	2006	The leveraging influence of strategic alignment on IT investment: An empirical examination	Survey Empirical Study N = 84 pairs of plant managers and IT managers in SME (manufacturing plants)
Sledgiamowsk & Luftman	2006	Development and Validation of an Instrument to Measure Maturity of IT Business Strategic Alignment Mechanisms	survey N = 150 (8 companies)
Newkirk & Lederer	2006	The effectiveness of strategic information systems planning under environmental uncertainty	survey N = 161
Lee	2006	Outsourcing Alignment with Business Strategy and Firm Performance.	survey = 136
Chan et al.	2006	Antecedents and Outcomes of Strategic IS Alignment: An empirical investigation	Surveys n1 =164 (4 respondents per organisations); N2 = 62 (2 respondents per organisation i.e. CEO and CIO); N3 = 244
Gregor et al.	2007	Enterprise architectures: enablers of business strategy and IS/IT alignment in government	case study N = 1
Van Lier & Dohmen	2007	Benefits Management and Strategic Alignment in an IT Outsourcing Context	Case study strategy n = 6 Respondents were provided with a list of often observed outsourcing benefits. They were required to judge the importance of each anticipated benefit and the degree to which it is achieved. Respondents were then asked to state any achieved unanticipated benefits.
Huang & Hu	2007	Achieving IT-Business Strategic Alignment via Enterprise Wide Implementation of Balanced Scorecards	Case Study
Mehta, Manjari; Hirschheim & Rudy	2007	Strategic Alignment In Mergers And Acquisitions: Theorizing IS	Case Study; Interviews, internal documents, public records (i.e., SEC Filings: Schedule 13D and DEFM14A forms) and news articles were the main sources of data collection.
Silvius	2007	Business & IT Alignment in theory and practice	Interviews (Focus Groups) N = 12
Chan et al.	2007	IT alignment: an annotated bibliography	Literature Review
Chan et al.	2007	IT Alignment, What have we learned	Literature Review
Gerth & Rothman	2007	The Future IS Organization in a Flat World	non-empirical study with two examples from real-life
Luftman & Kempaiah	2007	An Update on Business-IT Alignment: A Line Has Been Drawn	survey N = 197
Tallon	2007	A process-oriented perspective on the alignment of information technology and business strategy	survey N = 241 (matched pairs of IT and business executives)
Shpilberg et al.	2007	Avoiding the Alignment Trap in Information Technology	survey N = 504 (from 452 firms) + interviews
Kearns. & Sabherwal	2007	Strategic Alignment Between Business and Information Technology: A Knowledge-Based View of Behaviors, Outcome, and Consequences	Surveys were mailed to the CIOs of 1,100 companies randomly selected from a mailing list of over 9,000 medium-to-large U.S. companies
De Haes & Van Grembergen	2008	Analysing the Relationship Between IT Governance and Business/IT Alignment Maturity (specifically practice)	Case Study

Author	Year	Article	Data
Fonstad & Sabramani	2009	Building Enterprise Alignment: A Case Study	Case Study an in-depth case study of a global insurance and financial services company
Tarafadar & Qrunfleh	2009	IT-Business Alignment: A Two-Level Analysis	Case study N = 4 firms Interviews with 30 individuals (both IT and business)
Preston and Karahanna	2009	How to Develop a Shared Vision: The Key to IS Strategic Alignment	survey N = 243 (matched pairs of IT and TMT member) + semi structured interviews with a small set of CIOs
Cumps et al.	2009	Inferring comprehensible business/ICT alignment rules.	Survey N = 641 (mainly CIOs or IT managers)
Al-Hatmi & Hales	2010	Strategic Alignment And It Projects In Public Sector Organization: Challenges And Solutions	Case Study Firstly, a review of archival records was examined. Secondly, participatory observation was completed in a pilot study.
Tanriverdi et al	2010	Research Commentary: Reframing the Dominant Quests of IS Strategy Research for CABS	Conceptual
Chen et al.	2010	Information systems strategy: reconceptualization, measurement, and implications	Conceptual 3 new concepts for IS strategy, one of which offers view that strategy must be defined at an organisational and not just functional level and opportunity to study SA through a lens that reflects the social rather than the intellectual dimension. Provides an IS strategic typology to operationalise IS strategy
Vannoy & Salam	2010	Managerial Interpretations of the Role of Information Systems in Competitive Actions and Firm Performance: A Grounded Theory Investigation	ethnographic, grounded theory approach
Chang et al.	2010	Antecedents of IS Strategic Alignment: A Nomological Network	Survey
Huang	2010	A Resource-based Analysis of IT Personnel Capabilities and Strategic Alignment	Survey – 196. Pretest Interviews in advance of survey– 37 Senior IS Managers
Chen	2010	Business-IT alignment maturity of companies in China	Survey N = 130 consisting of both business and IT executives from 22 firms; however, the analysis is at an individual level, not at a company-level
Chung et al.	2010	The Impact of Information Technology Infrastructure Flexibility on Strategic Alignment and Application Implementations	Survey N = 193 CIO or other IT Managers
Johnson & Lederer	2010	CEO/CIO mutual understanding, strategic alignment, and the contribution of IS to the organization	Survey Paired CEO/CIO survey with 202 pairs
Cuenca et al.	2011	An enterprise engineering approach for the alignment of business and information technology strategy	Case Study
Sha et al.	2011	The Implementation Success Of Healthcare Information Systems: A Business-It Alignment Perspective. Relook	Case Study
Li et al.	2011	Towards the business–information technology alignment in cloud computing environment: an approach based on collaboration points and agents	Case Study

Author	Year	Article	Data
Ravishankar, Pan & Leidner	2011	Examining the Strategic Alignment and Implementation Success of a KMS: A Subculture-Based Multilevel Analysis	Case Study: triangulated data from three main sources: (1) interviews and observations at ITS-VU, (2) interviews with informants in the rest of the company, and (3) the minutes of the KM implementation team's meetings
Ooi & Darmawan	2011	Does employee alignment affect business-IT alignment? An empirical analysis	Survey 500 hardcopy surveys were distributed to 30 manufacturing companies in Bandung, Indonesia. Out of the 500 surveys distributed, 135 were received while 14 were incomplete. Therefore the total usable questionnaire in this study was 121
Jorfi et al.	2011	Assessing the Impact of IT Connectivity and IT Capability on IT-Business Strategic Alignment: An Empirical Study	Survey n = 82 Researchers measured factors with multiple items. The items were adapted from extant literature to improve the content validity. After the questionnaire was completed, it was first tested among eight IT managers with rich experience. Table 1. Measurement items
Tallon & Pinsonneault	2011	Competing perspectives on the link between competing perspectives on the link between Strategic information technology alignment and organizational agility: insights from a Mediation model	Survey of IT and business executives in 241 firms
Tallon	2011	Value Chain Linkages and the Spillover Effects of Strategic Information Technology Alignment: A Process-Level View	Surveys simplified form of the value chain and data from matched surveys (2 per firm) targeted at IT and business executives
Wagner & Weitzel	2012	How To Achieve Operational Business-IT Alignment: Insights From A Global Aerospace Firm	Case Study
Tallon & Pinsonneault	2012	Enterprise architecture, IT effectiveness and the mediating role of IT alignment in US hospitals	Meaningful understanding of how alignment affects firm performance.
Bradley, Pratt, Byrd, Outlay & Donald	2012	Comparing Strategic IT Alignment versus Process IT Alignment in SMEs	Survey methodology with a sample of 38 SMEs in Chile and Colombia. Finally, conducted a semi-structured interview with the owner/manager of the company, and on average, each interview lasted an hour and a half. In the case of Colombian companies, the procedure only excluded the presentation and the interview was by videoconference.
Bharadwaj, El Sawy, Pavlou, & Venkatraman,	2013	Digital Business Strategy: Toward a Next Generation of Insights.	Paper argues that the time is right to rethink the role of IT strategy, from that of a functional-level strategy—aligned but essentially always subordinate to business strategy—to one that reflects a fusion between IS strategy and business strategy. Conceptual
Dulipovici & Robey	2013	Strategic Alignment and Misalignment of Knowledge Management Systems: A Social Representation Perspective	Case Study; interviews, nonparticipant observation, and documents as data sources to extract the modes and media of behavior and communication relevant to social representations

Author	Year	Article	Data
Huang, Wu, & Chen.	2013	Critical success factors in aligning IT and business objectives: A Delphi study.	Presents the results of a modified Delphi study of IT Service Management professionals on the relative importance of various CSFs in aligning IS and business.
Fearon, Manship, McLaughlin, & Jackson	2013	Making the case for a techno-change alignment: A processual approach for understanding technology-enabled organisational change.	Paper is based on adapting Chan and Reich's (2007) dimensions of IS alignment to a study of ERP techno-change within a university setting. Single exploratory case study
Teubner	2013	Information Systems Strategy, Theory, Practice, and Challenges for Future Research	Paper suggest more precise designation would actually "Strategic Co-alignment", as business and IS strategies are developed in parallel and matched interactively and continuously. Conceptual
Walsh, Renaud, & Kalka	2013	The Translated Strategic Alignment Model: A Practice-Based Perspective	Presents a new, conceptual, non-functionalist model, which integrates several streams of literature: the translated strategic alignment model (TSAM). Grounded Theory Methodological Approach

Appendix B - Paradigms and Methods Used in IS Journals

Author & Year	Geographical Region	No of Articles	Journal/Database	Time Period Reviewed	Paradigm	Method
Orlikowski & Baroudi (1991)	North America	155	Communications of the ACM, Proceedings of the International Conference on Information Systems, Management Science, and MIS Quarterly	1983-1988	Positivist 97% Interpretive 3%	Surveys (49.1%).] Laboratory experiments (27.1%) Case studies (13.5%),
Chen & Hirschheim (2004)	North America Europe	1893	MIS Quarterly, Information Systems Research, Journal of Management Information Systems, International Conference on Information Systems, Accounting, Management and Information Technology, Information Systems Journal, Journal of Information Technology, European Journal of Information Systems	1991-2001	Positivist 81% Interpretive 19%	Survey 41% Case Study 36% Laboratory Experiment18%
Palvia & Pinjani (2007)	North America And the Asia and Pacific region	435	Information and Management	1998-2005		Survey 41% Case Study 10% Field Study 9% Laboratory Experiment 9% Interview 5%
Avison (2008)	(33.4%) North America, 32.5%. United Kingdom, (19.7%) European (non-UK) 13.3% Asia-Pacific region with 1.1% (outside these broad regions.	275	Information Systems Journal	1991-2008	Positivist 29.1% Interpretive 70.9%	Library Research/Literature Analysis/Frameworks/Conceptual Modelling 34.2%, Case Study 22.9% Survey research 11.6%, Action Research 7.3% Laboratory Experiments 4.4%
Dwivedi & Kuljis (2008)	(57.3%,) (Europe, the Middle East and Africa), (27.7%) (America) (15.0%) (the Asia and Pacific region)	305	European Journal of Information Systems	1997-2007	34.4% Positivist 64.9% Interpretive 0.7% Critical	Library Research/Literature Analysis/Frameworks/Conceptual Modelling 23.8% Case Study 22.2%, Interview 17.6% Survey research 16.6%, Action Research 2.1% Laboratory Experiments 2.9% Field Study 0.8% Other 14%

Vachon et al. (2011)		202	MIS Quarterly, Information Systems Research	1984 to 1986 1996 to 1998		Conceptual articles 32 % Conceptual 26%, Survey 24 % Descriptive surveys 18%, Case study 15%, Sample survey 11%
Hasan et al. (2011)			SI Thomson Reuters, RePEc, EconoLit (JEL), Mendeley, SSRN	2008 2009 2010	77% Positivist 87% Positivist 91% Positivist	
Avison & Fitzgerald (2012)	(33.4%) in North America, 32.5% UK, with 32.5%. (19.7%) European (non-UK) 13.3% Asia-Pacific.	363	Information Systems Journal	1991-2012	Positivist 37.8% Interpretive 62.2%	Case Study 27% Survey research 21.3%, Other 13.3% Library Research/Literature Analysis/Frameworks/Conceptual Modelling 13%, Interview 12.4% Laboratory Experiments 4.5% Grounded Theory 4.5% Action Research 2.2%

Appendix C - Case Study Protocol

Key Factors That Impede the Process of Aligning IS Strategy and Business Strategy in PSOs: Case Study NICS

I. Purpose of the Study

The purpose of this study is to investigate how PSOs align their IS strategy and business strategy, and explore the key factors that may impede the process of aligning these in PSOs. Findings from this study will aid in understanding the ICT strategy-making process in PSOs and identify the key critical factors that may impede alignment which participants may use in future IS strategy-making processes.

II. Main research activities:

1. Study and review of literature
2. Case study research and analysis

III. The data collection methods for case study research:

- Documentation.
- Semi-structured Interviews
- Observation at Workshops.

Unit of analysis: NICS.

Sources of data: Documentation, interviewees

IV. Field Procedures

1. Request (see Appendix E) to participate in case study will be emailed to the interviewees.
2. Arrange with each interviewee interview dates and times.
3. Begin interview process.
4. Answer questions of participants.
5. Thank the participants by email for contributing to the research.

V. Interview Guides (see Appendix D)

1. Interview Guide for DHOT
2. Interview Guide for Retired Grade 6 and former CIO
3. Interview Guide for CIO
4. Interview Guide for PS

VI. Themes That Appear Routinely In Literature About Factors that Impact IS Strategic Alignment Broken Down Into General Concepts

- Senior executive support for IT
- IT involvement in business strategy development
- IT understanding of the business
- Business - IT partnership
- Prioritization of IT projects
- IT leadership
- Shared Domain Knowledge
- Communication
- Governance

IV. Guide for the Case Study Report

1. Case Overview
    i. Background to NICS
    ii. NICS structure
    iii. Strategy Making Processes
    iv. IS strategy making processes
2. Individual IS Strategy Making Periods (Two)
    i. Context
    ii. Content
    iii. Process
    iv. Outcomes
3. Major problems and challenges in aligning business and IS strategy
    i. Key factors contributing to aligning business and IS strategy

Appendix D - Interview Guides

Interviews (Interviewer copy) - DHOTs

Interviewee Name

Name of Department

Position in Department

Interview Questions

Part A: ***Organisational***

1. Main business activities carried out by your Department?
2. Your overall responsibilities in the Department?
3. Your professional/organisational background prior to this role?
4. Approximate annual spend on ICT?
5. How involved are ICT people with Departmental strategic planning activities?
6. How closely aligned are ICT projects to the Corporate/Business Plan and/or Departmental initiatives?
7. Who typically carries overall responsibility for ICT projects in your Department?
   - From the business side?
   - From the ICT side?
8. What is the upward reporting line for the senior ICT person in your Department?
   - The reasons for this structure?
9. Considering the nature of your Department and its business needs, do you feel you have in place the appropriate amount of ICT at the right level of sophistication?
   - Could you stop now and do no more?
   - What are the drivers to continue?

Part B: ***Projects***

10. How closely involved are key business users with your Department's ICT projects?
11. What type of ICT projects has your Department undertaken in the past three years?
12. What types of non-ICT projects have been undertaken in your Department in the past three years?
13. What similarities/differences are there between the way ICT and non-ICT projects are approached in your Department?

- Is your involvement similar or different?

14. What type of ICT projects are planned in the Department for the next three years?
    - Which are Departmental top priorities and why?
15. How is the decision made to proceed with an ICT project?
16. Is a Post Implementation Review ever conducted to see if a project has delivered its original projected benefits?

Part C: ***Managing a Project***

17. Are your ICT projects managed from within your Department?
    - By whom?
    - From where are project resources sourced?
18. Do you find project scope ever changes during an ICT project life cycle?
    - How often within a single project?
    - How often across all ICT projects?
    - What is normally the cause?
    - Can you describe an example of an ICT project where scope change occurred?
19. What is the ICT project progress reporting mechanism?
    - Its frequency?
    - Its deliverables?
    - Business/user reviews carried out?
        i. Frequency?
        ii. Who leads these?
        iii. Who is involved?

Part D: ***Current NICS Information Systems Strategy***

20. What did you perceive as your role in the current NICS Information Systems Strategy development process?
21. To what extent were the major decisions related to the current NICS Information Systems Strategy development process difficult to make or reach agreement on?
22. Who were the influential stakeholders in the current NICS Information Systems Strategy development process?
23. How was decision making conducted in the current NICS Information Systems Strategy development process?

24. How was the decision making conducted in the subsequent implementation of the current NICS Information Systems Strategy?
25. What were the major problems encountered during the current NICS Information Systems Strategy development process and subsequent implementation?
26. How well do you think the current NICS Information Systems Strategy defines the most appropriate IS principles and governance approach for the next three years
27. How well do you think the current NICS Information Systems Strategy supports opportunities to improve inter-departmental working i.e.to collaborate and share?
28. What, if anything, would you like to see changed about the next NICS Information Systems Strategy development process in 2013?

Part E: ***View of how it all works***

29. How is the overall success or otherwise of ICT projects usually measured in your Department?
30. Are you satisfied with the human resource availability and expertise for your ICT projects?
31. How effective/appropriate is the communication from ICT people during ICT projects?
    - What could be done to improve it?
32. What are the business expectations from the key business around the delivery of the ICT service, and how well do you feel they are being met?
    - Consistency of your Department's ICT projects meeting expectations?
    - Organisational benefits resulting from ICT projects?
    - What maximises success and minimises failure in ICT project delivery?
33. Do you have anything else to add to what we have discussed?

Interviews (Interviewee copy) - sent to DHOTs in advance of interview

Sample Interview Questions

Part A: ***Organisational***

1. Main business activities carried out by your Organisation.
2. Your overall responsibilities in the Organisation
3. Your professional/organisational background prior to this role

Part B: ***Projects***

1. How closely involved are key business users with your Organisation's ICT projects?
2. What type of ICT projects has your Organisation undertaken in the past three years?
3. What types of non-ICT projects have been undertaken in your Organisation in the past three years?

Part C: ***Managing a Project***

1. Are your ICT projects managed from within your Organisation?
2. Do you find project scope ever changes during an ICT project life cycle?
3. What is the ICT project progress reporting mechanism?

Part D: ***Current NICS Information Systems (IS) Strategy***

1. What did you perceive as your role in the current NICS IS Strategy development process?
2. To what extent were the major decisions related to the current NICS IS Strategy development process difficult to make or reach agreement on?
3. Who were the influential stakeholders in the current NICS IS Strategy development process?

Part E: ***Previous NICS IS Strategies***

1. What was your role in previous IS strategy development projects?
2. Who were the influential stakeholders?
3. How was decision making undertaken in previous IS Strategy development and implementation?

Part F: ***View of how it all works***

1. How is the overall success or otherwise of ICT projects usually measured in your Organisation?
2. Are you satisfied with the human resource availability and expertise for your ICT projects?
3. How effective/appropriate is the communication from ICT people during ICT projects?

Themes Given to PS in Advance

How has your perspective changed from moving as a prospective customer of shared services and strategy to that of being the SRO responsible for Shared Services and Strategy?

How has your perspective changed now you are responsible for Information Management/Information Assurance?

Do you see any change in the understanding of Permanent Secretaries in general of IT? Do most PSs view IT as a strategic resource or as a cost?

How engaged are senior business users?

As all IT Innovation brings risk, should IT Governance Board and SIRO Forum ultimately be merged?

What do think is the extent of fusion and integration between the NICS IT strategy and overall strategy for the NICS (Programme for Government)? What would you consider the key enablers and inhibitors in the NICS to this fusion and integration?

Interview Themes given to CIO in Advance

How has your perspective of Government's use/understanding of IT changed now you have moved from being a supplier to a purchaser of Government IT services?

How has your perception of Government thinking changed?

What could Government do better to manage relationships with suppliers?

Do you think the private sector has an unfair perception of Government?

How engaged are senior business users with IT?

As all IT Innovation brings risk, should the IT Governance Board and SIRO Forum ultimately be merged?

What do think is the extent of fusion and integration between the NICS IT strategy and overall strategy for the NICS (Programme for Government)? What would you consider the key enablers and inhibitors in the NICS to this fusion and integration?

Interview Questions (Former Grade 6 and Former CIO)

Interviewer Copy

Participant and Organisation Background

- Your overall responsibilities in the Organisation?
- Your professional/organisational background prior to this role?
- What would you consider some of the key principles in the ICT Strategy that have had the most impact on the NICS?
- How is the NICS organized in terms of the IT function? Who does the top IT executive or CIO report to?
- What would you consider the most important factor in improving the ability of IT to play a larger role in the NICS?
- What is the role of organisational politics and power in enabling or inhibiting the strategic processes of an IT function?

The Concept of Strategic Alignment in General

Strategy

- What did you perceive as your role in the current ICT Strategy development process?
- To what extent were the major decisions related to the current ICT Strategy development process difficult to make or reach agreement on?
- Who were the influential stakeholders in the current ICT Strategy development process?
- How was decision making conducted in the current ICT Strategy development process?
- How was the decision making conducted in the subsequent implementation of the current ICT Strategy?
- What were the major problems encountered during the current ICT Strategy development process and subsequent implementation?
- How well do you think the current ICT Strategy defines the most appropriate IT principles and governance approach for the future?
- What are the strategic goals and objectives of the current ICT strategy?
- Name some symptoms of lack of alignment between IT and the business.

- What tools does the NICS use to measure the effectiveness of the current ICT strategy?
- How does the NICS use IT to drive its business strategy?
- How often has IT management formally assessed its current ICT Strategy?
- What do you think are the weaknesses in evaluating the performance of IT within the NICS?
- Have disaster recovery processes and security processes gained prominence in the NICS?
- Describe how the implementation of IT involves change management issues.
- What factors motivate change?
- What, if anything, would you like to see changed about the next ICT Strategy development process?

IT projects

- How does the NICS evaluate project risk?
- How does the NICS de-escalate troubled projects?
- What techniques might an IT steering committee use to prioritize projects?
- How does the NICS maximize the success of delivery IT projects in the future?
- What were some of the Emerging Technologies in 2010? Now? Which were successful, which unsuccessful? Provide reasons
- What mechanism does your IT function have in place regarding suppliers? How well do they work?
- How are outsourcing decisions made in the NICS? By whom?
- What governance mechanisms are most commonly employed in managing supplier relationships?
- Describe the decision-making process when considering outsourcing arrangements.
- What are the primary roles of an IT steering committee?
- Who should be part of an IT steering committee and why?
- In regard to IT project success, what does the term 'success' mean to you?

Enterprise Architecture

- How does the NICS align its strategic priority with business/IT architecture solutions?
- What are the components of IT Architecture in the NICS?
- How has productivity increased in application development?

Public Value

- What contributes to the difficulties IT functions have in demonstrating the value technology brings to the business goals and results? What is the role of the business function in these difficulties?
- What are the major components of measurement that can be used to measure performance of IT?
- Are non-quantifiable measures of performance better indicators than quantifiable measures? What intangible items would be evidence of effective performance indicators?
- Return on investment (ROI), has always been a main focus of financial analysts. Are there any intangible benefits of IT often difficult to quantify with this measurement?
- How does managing a portfolio of IT investments compare to looking at IT projects individually.
- Are business and financial measures sufficient to value the effectiveness and level of contribution that IT provides?
- Does the NICS have an effective set of tools to measure the value of IT investments?

IT Governance context

- Describe the principles of IT governance and its importance to the NICS.
- Why is, how IT is organized, important to the entire organisation?
- Why is, how the business is organized, important to the IT function?
- Can IT be organized centrally while the business is organized de-centrally? And vice-versa?

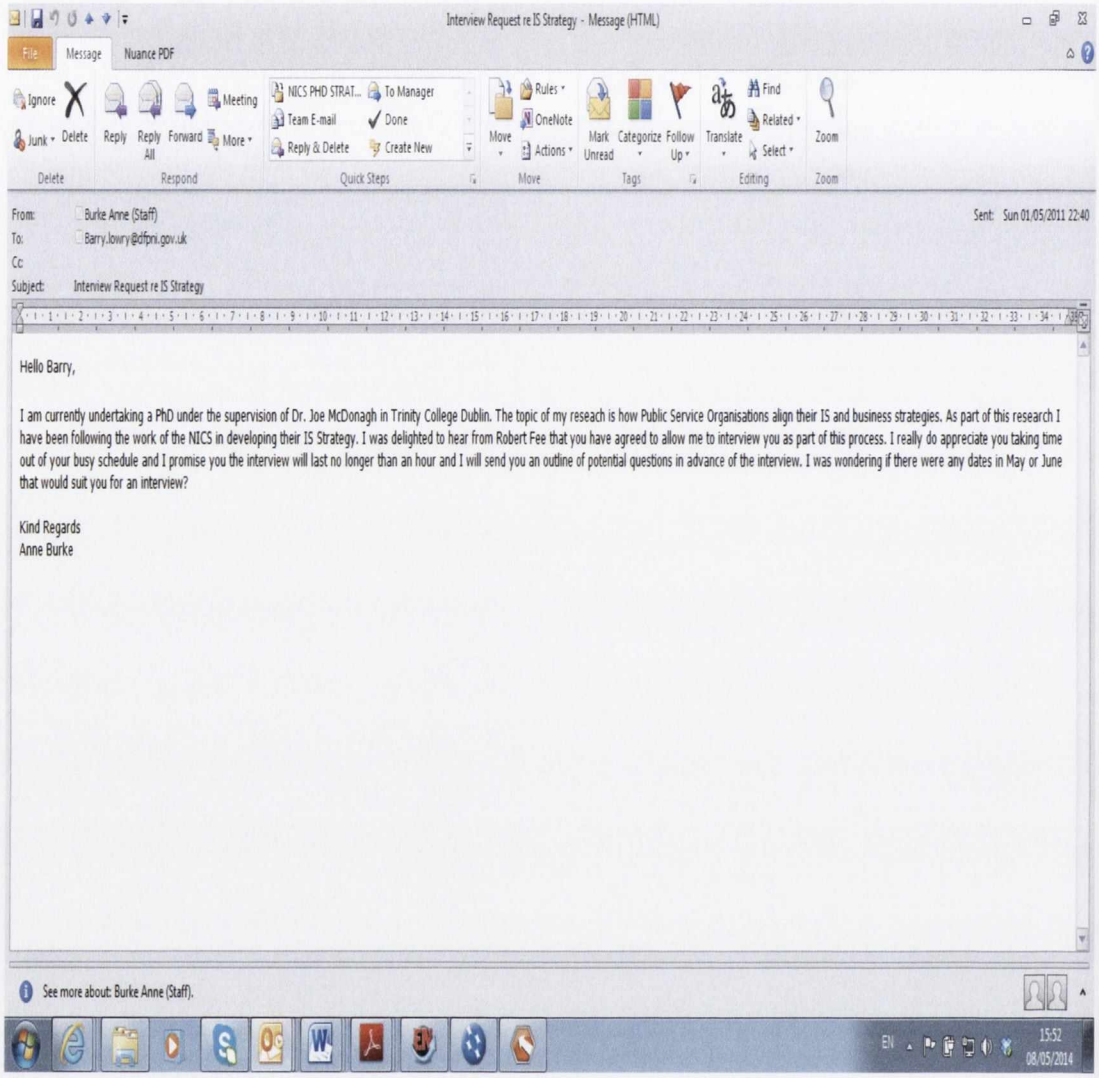
- Have you observed any symptoms of poor IT governance in the NICS? What are they?
- Are there any alternative forms of governance and what are their advantages and drawbacks.
- Why is governance important to effective management of cross-functional initiatives?
- Describe the primary leadership roles and responsibilities in IT governance.
- What considerations regarding IT governance come into play when addressing ICT strategic directions?

Knowledge

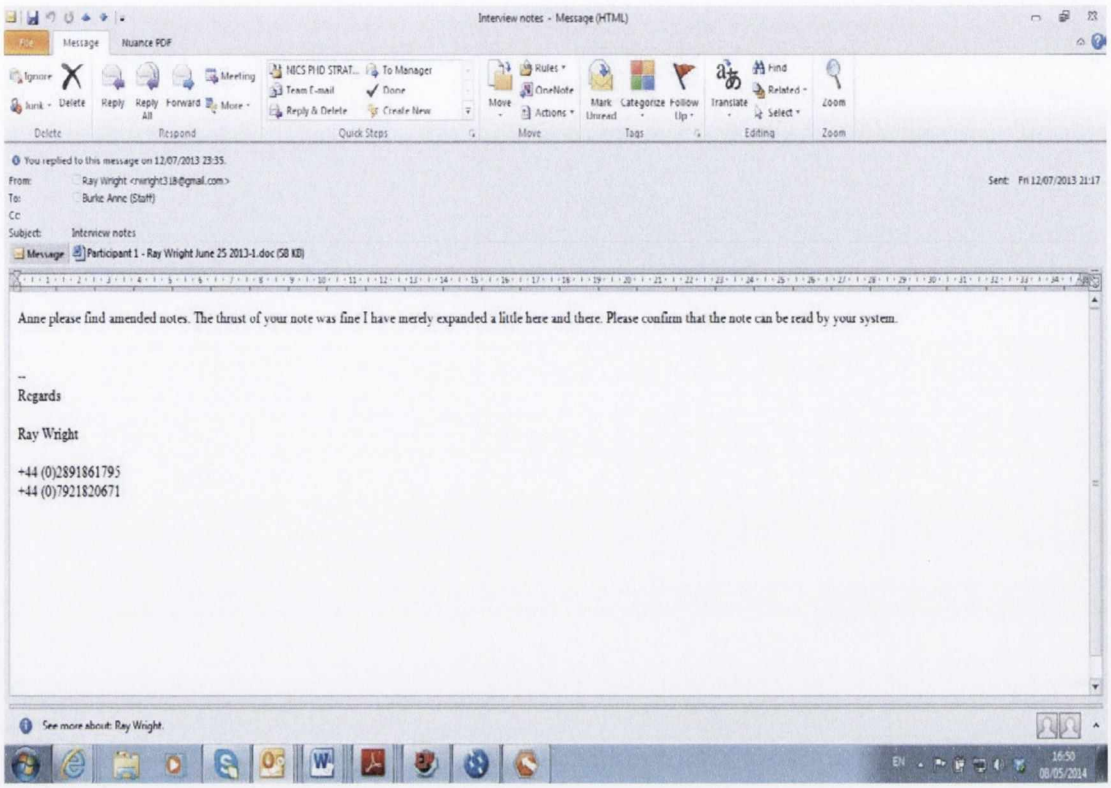
- What can the NICS do to improve the education levels of their staff? Should continuing education and cross training be required?
- What are the negative implications and issues when organisations attempt to cross train their business and IT employees.
- What tools should be developed in the future to support improved business – IT communication?
- How might a CIO get more involved in the strategic processes of the business functions in the NICS?
- What is the importance of having good communications between IT and the business?
- What are the key elements for effective communications of vision?
- How does cross training or cross education improve communication?
- What are the benefits to the NICS, if the senior business people understood IT better?
- In what ways can the NICS improve business and IT communications? Explain.
- What are the key *management* skills and responsibilities of the CIO?
- What are reporting mechanisms deployed in the NICS to ensure the effectiveness of the life-cycle of the IT projects?
- Why is business/IT planning important?

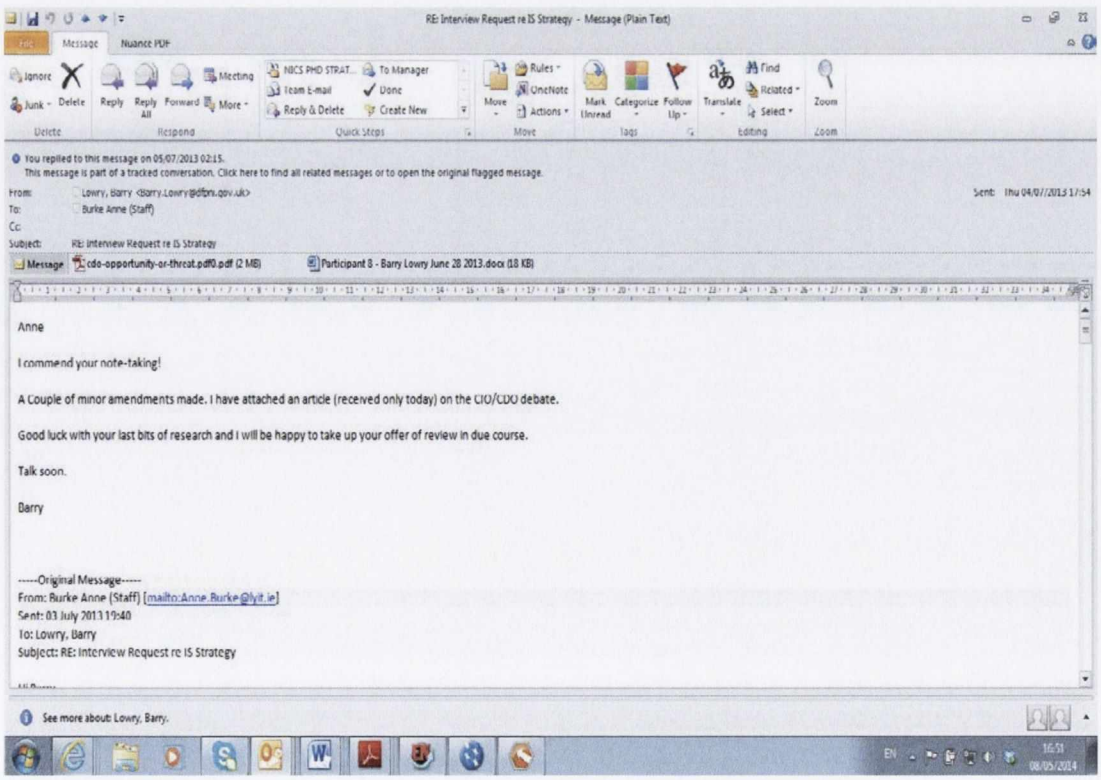
- Communicating honestly with people is one part of establishing and maintaining trust and building a strong and valued reputation. How do the CIO, the IT staff, and their business counterparts in the NICS communicate effectively with each other, so that the NICS can improve its business systems and reduce errors and waste?

Appendix E - Email Invitation to Interview



Appendix F - Interview Notes Verification





Appendix G - Secondary documentation

Terms of Reference NICS Strategy 2010
IS strategy interview notes conducted by DPF Personnel (18 in total)
Strategy Template
UK Government Enterprise Architecture 2010
Draft NICS IS Strategy V.3.0
Drivers and Success Factors
NICS IS Strategy Presentation by Ray Wright to Workshop February 2010
NICS IS Strategy – Consultation responses
Draft NICS IS Strategy V.3.4
NICS ICT Reference Architecture V 0.1
NICS Information Systems Strategy Final
NICS ICT Reference Architecture V 0.3
Excerpt email 17/11/2010 re workshop with DHOTs on ICT Reference Architecture
NICS ICT Reference Architecture V 1.0
Project Portfolio
DFP Business Plan 2011-12
UK Government Digital Strategy November 2012
DOJ Information Services Division Business Plan 2011/12
Programme for Government 2011-15
NICS Information Governance Board (IGB) Note Of Meeting (6 in total)
Terms Of Reference NICS Information Governance Board
PowerPoint Presentation to NICS information Governance Board
Minutes Of Permanent Secretary Group Meeting
Northern Ireland Civil Service Channel Strategy Version 1.0 2nd April 2009
Change Management in Practice: - The NICS Shared Services ICT Programme
Northern Ireland Civil Service Information Systems Strategy Final Report Version 1.0 (Final) September 2004
Committee for Finance and Personnel Official Report (Hansard) Flexible Working: Departmental Briefing 14 March 2012
Committee For Justice Official Report (Hansard) Overview Briefing on the Justice Delivery Directorate and Related Non-departmental Public Bodies 29 April 2010
Committee For Justice Official Report (Hansard) Justice Delivery Directorate and Related NDPBs 2 June 2011
Department Of Justice Board Minutes of Departmental Board Meeting Friday 18 February 2011 at 1.00pm
2011 NICS Information Systems Strategy: Review of Progress Paper Enterprise Design Authority March 2014
NICS Information Systems Strategy Enterprise Design Authority March 2014

Appendix H - Ministers and their Departments (Northern Ireland Executive)

Office of the First Minister and deputy First Minister

The Rt Hon Peter Robinson MP MLA, First Minister and Mr. Martin McGuinness MP MLA, deputy First Minister

Support for the Executive and liaison with the Assembly, the North-South Ministerial Council, British-Irish Council, Civic Forum and UK Departments; international relations; Programme for Government and the Executive's economic policies; promoting and monitoring implementation of equality of opportunity/good relations, tackling poverty and social exclusion, children and young people, victims and survivors, sustainable development; Maze/Long Kesh Regeneration; Review of Public Administration; Information Service; emergency planning; improving investment in infrastructure and the Statutory Publications Office.

The two Junior Ministers, Robin Newton and Gerry Kelly, will assist them in carrying out the work of their department. They will be jointly accountable to the First Minister and deputy First Minister.

Department of Finance and Personnel

Minister: Sammy Wilson MP MLA

Finance; Personnel; Civil Service Accommodation; Legal Services; Northern Ireland Statistics and Research Agency; Land Registers; Land & Property Services Agency; Central Procurement; Civil Law Reform Division; General Register Office and Building Regulations.

Department of Education

Minister: Caitríona Ruane MLA

Schools funding and administrations, pre-school, primary, post-primary and special education; the youth service; the promotion of community relations within and between schools; teacher education and salaries and school planning and provision.

Department of Enterprise, Trade and Investment

Minister: Arlene Foster MLA

Economic development policy including: business development, energy, telecoms, tourism; economic advice & research; research and statistics services; business regulation including: company law/registry, insolvency service, consumer affairs, trading standards; health and safety at work; social economy; mineral development;

geological survey of NI; Invest NI; NI Tourist Board, Health and Safety Executive for NI and the Consumer Council for NI.

Department of Health, Social Services and Public Safety

Minister: Michael McGimpsey MLA

Public health; primary care services and community health and personal social services; family practitioner services; elderly and community care; child care and child protection; family policy; mental health; learning disability; physical and sensory disability; provision of hospital services and clinics; accident and emergency services; public safety - ambulance and fire and rescue services.

Department for Social Development

Minister: Margaret Ritchie MLA

Housing programmes; urban regeneration policy, strategy and programmes; Social Security Agency; Child Support Agency; support for the voluntary and community sector; social and charities policy and legislation; Rent Assessment Officer; Office of the Social Fund Commissioner; Northern Ireland Housing Executive; Charities Advisory Committee and the Disability Living Allowance Advisory Board for Northern Ireland.

Department for Regional Development

Minister: Conor Murphy MP MLA

Strategic planning; transportation strategy; ports and public transport; roads and water policy; providing and maintaining roads; water and sewerage services.

Department of the Environment

Minister: Alex Attwood MLA

Planning control; environment and heritage; protection of the countryside; waste management; pollution control; wildlife protection; local government; local government reform; mineral resources (planning aspects); driver and vehicle testing and licensing; road safety and transport licensing and enforcement.

Department of Agriculture and Rural Development

Minister: Michelle Gildernew MP MLA

Food; farming and agri-environment policy; agri-food development; rural payments and inspection; veterinary matters; rural development; forestry; sea fisheries and rivers.

Department of Culture, Arts and Leisure

Minister: Nelson McCausland MLA

Arts and creativity; sport and leisure; inland fisheries; inland waterways; public libraries and museums; language diversity; Ordnance Survey of Northern Ireland; Public Records Office of Northern Ireland and advising on National Lottery distribution.

Department for Employment and Learning

Minister: Sir Reg Empey MLA

Higher education; further education; vocational training; employment services; employment law and labour relations; student support and postgraduate awards and careers advice and guidance.

Appendix I - RPA 2009 Summary of Decisions

Local Government

- The number of councils will reduce from 26 to 11 by May 2011
- Community planning will be at the heart of local government
- A range of functions will transfer to local government including: aspects of planning, rural development, the public realm aspects of local roads functions, urban regeneration and community development, a range of housing related functions, local economic development and tourism

Health

- The 18 Health trusts were reduced to 5 in April 2007
- Four new organisations were established in April 2009:
    - A single Health and Social Care Board replaced the existing four Health and Social Services Boards
    - A Public Health Agency incorporating and building on the work of the Health Promotion Agency
    - A Business Services Organisation providing a range of support functions for the whole of health and social care system. The Central Services Agency was dissolved and the majority of its services will be undertaken by the new organisation
    - A single Patient and Client Council replaced the Health and Social Services Councils

Education

- An Education and Skills Authority replaced the current 5 Education and Library Boards in January 2010
- A new Statutory Advisory Forum will be established as a major source of advice to the Department of Education

Libraries

- A Library Authority was established in April 2009 assuming the relevant responsibilities from the Education and Library Boards.

Appendix J - Terms of Reference for the Development of an Information Systems Strategy for the NICS 2010

(*sic* as received from NICS)

This document sets out the context within which an Information Systems (IS) Strategy for the NICS must be developed and the methodology through which it will be developed. It sets out the arrangements for management, ownership and quality assurance of the strategy.

1.0 Strategic context

1.1 The current NICS Information Systems Strategy was originally published in 2003, since when the political, economic, organisational and technological landscapes for the NICS have changed radically.

1.2 The NICS ICT strategy was published in 2005 and whilst in many respects it remains relevant, the emergence of new business needs and new technologies necessitates its review.

1.3 The NICS ICT Human Resources Strategy was published in 2007 and based on principles agreed in 2003. Since then the establishment of ITAssist has led to a major redistribution of all ICT resources.

1.4 Whereas in the past these various strategies were developed separately, with some mutual acknowledgement, this review will address the following four key dimensions holistically:

- The potential to exploit technology to support the business objectives of the NICS;
- The need for new or improved strategic information systems across the NICS;
- The structures and business processes through which those needs will be met; and
- The deployment of ICT resources with the capacity to deliver and support those needs.

2.0 Drivers for Change

2.1 Below are listed a number of drivers for change which will shape the NICS IS Strategy

- The planned reduction in public sector spending over the next three years.
- The creation of the NIDirect multi-channel service delivery programme.
- The establishment of the Shared Service Organisation for the delivery of NICS corporate services.
- The increasing importance of Information Assurance in all aspects of public sector business.
- Public expectations for better quality services and ready access to information.
- The emergence of new technologies that can empower both citizens and public servants.

3.0 Methodology

3.1 In a departure from previous approaches and in keeping with the current economic environment, this work will be delivered almost entirely by in house staff. The methodology will adopt the approach developed by Dave Aron, Vice President and Research Director in

Gartner's CIO Research Group. Dave will personally facilitate two workshops towards the end of the process. The aim of the process is to conduct a quick and effective review, which can be repeated at regular intervals as technologies and information needs develop.

3.2 A series of interviews will be conducted with senior business managers and Heads of Technology across the NICS during the month of January 2010. Discussions will focus the impact of the business drivers listed and local Departmental issues, and how these can best be addressed in each of the four strategic dimensions listed at 1.4 above.

3.3 Annexe A lists a number of themes and related topics which will be discussed. The list is not exhaustive and does not preclude business managers or heads of Technology from raising other strategic issues for ICT across the NICS.

3.4 DID will collate and review the information gathered through the various interviews and will prepare a draft "straw man" strategy document which will be circulated in advance of the workshops to be held on 5th February 2010. David Aron will facilitate discussion at those workshops, the purpose of which is to challenge, validate or amend the strategy document.

3.5 In the past, IS and ICT strategies were reviewed by the then Heads of ISU forum and endorsed by the e-Government Board. The role of the former has changed, particularly with the establishment of the SSPOC which manages the relationships between Departments and ITAssist, and the latter has been disbanded. Heads of Technology will continue to play a pivotal role in exploiting ICT within Departments and there is also a need for a pan-NICS forum to provide the authority for the implementation of the resultant NICS IS Strategy. Appropriate governance arrangements for the implementation and future refresh of the IS Strategy will be a key topic in our discussions.

4.0 Project Organisation

4.1 The NICS IS Strategy will be owned by the Delivery and Innovation Division. Tom Kennedy (DID) will sponsor this work and it will be managed by Ray Wright, Robert Fee and Colin Cluney. Dave Aron (Gartner) will plan and facilitate workshops for business leaders and heads of Technology, and will quality assure the final strategy document.

R Wright
Delivery and Innovation Division
8 January 2010

Annex A

Key themes

Business Intelligence	Access to accurate, timely and relevant management information. Access to useful internal directory information
Provision of Shared Services	Availability and disaster recovery of services Quality of services The need for greater integration of services
Departmental Business Models and NIDirect	Plans to deliver multi-channel service and capability Plans for channel migration of services Plans for improved face to face contact Plans for joined up service delivery
Policy Making	Access to research tools Tools to enable sharing and collaboration with both internal and external stakeholders Tools for direct citizen engagement Access to legislation and policy documents Streamlining the policy making /briefing processes
Information Management	Security of Information systems Impact of security on business operations Information assurance arrangements in Departments The need for an NICS-wide approach to corporate information management
Cost Saving	Opportunities for flexible working practices Potential for reducing travel Potential for improving line of business processes Avoiding duplication of effort across the NICS
ICT Resourcing	The role of Departmental ICT functions Alternate models for managing NICS ICT resources Increasing professionalism in ICT
ICT Governance	Appropriate arrangements for directing the strategic deployment of ICT in the NICS Improving communications on ICT issues across the NICS

Appendix K - Sample Departmental Interview

(*sic* as received from NICS)

Department / Business Area:	DARD	
Date of Interview:	Friday 22nd January 2010	
Venue:	Dundonald House	
Departmental Participants:	Job Function/Responsibility & contact details:	DID Participants:
Gerry Lavery X 24638	Principal Establishment Officer	Ray Wright X 76004 John Hunter X 76018
Paul McGurnaghan X 89240	DARD ISB	
David Torrens X 24110	DVO – Aphis	

Main Points/Conclusions:
Technology needs to be more closely aligned with the business. DARD is very customer focused – and aware of the increasing technical demands being made. GIS very important. More development of Geo-hub desired. Move to SSC has reduced the size of the DARD IT dept and has also meant a reduction in manoeuvrability to re-deploy staff on IT projects. SSC not moving at the speed that DARD would like insofar as roll-out of technologies like SharePoint, IPT and encrypted laptops. SSC appears to move at the speed of the lowest common denominator. DARD would be nervous about a centralised approach to providing LoB applications. Lack of a personnel / Home working policy. Strategy needs to address the Governance issue that is lacking since the demise of the e-Government board. Issues with quality of data from the corporate systems. Difficult to retrieve / access to information. Technology not used in policymaking as much as it should be. Would advocate that standards need to be mandated i.e. use of Pointer. Department is working on a draft Channel Management Strategy. Increasing demand for on-line services – Customer preference is telephone – but costly for department. There is duplication of information being created for the centre. An Enterprise-wide search is desired. Data assurance is crucial to many processes and to the industry in general. Data should be assured at senior management level. IT needs to be understood better at Head of Branch level. Blackberry integration with TRIM needed. 24/7 support required for some areas of the business.
Information recorded by Theme:
Business Intelligence. There is an issue accessing timely information. The corporate systems are not good at providing good quality information. Business Intelligence is seen as being poor from a "joined-up" perspective. Development of a good quality KPI / Business Scorecard for DARD would be crucial.

There would be duplication of effort in the provision of information for the centre. Good quality PSA information needed to help with business management. A need for an Enterprise-wide search facility is seen – to include RecordsNI (TRIM). It is vital to the business that data is assured at a senior level – Mistakes can be costly to the business – for example when tracing the source of beef products etc.
Provision of Shared Services. Generally DARD are content with the SSC service but the move to the SSC has reduced the size of the DARD IT function and therefore the flexibility to re-deploy staff on to different IT projects. DARD is not happy at the perceived slow progress of common system deployments such as SharePoint, IPT and encrypted laptops. It is suggested that the SSC moves at the speed of the lowest common denominator and this does not necessarily suit DARD business. 27 x 7 Support is needed by some parts of DARD business - unsure that SSC is able to provide this. The department would be nervous if LoB services were centralised. The effort required to introduce the common systems has diverted effort from providing the front-line services.
Departmental Business Models & NIDirect. There is an increasing demand from the business for on-line services. The department is engaging in a Channel Management Strategy exercise in February 2010, which will look at how to move from paper to digital format. Focus groups would suggest that the telephone is the customer preference; however this would not be the department's preference due to costs.
Policy Making. Technology is not used in Policy making as much as it could be, mainly due to the quality of data available. It is recognised that much of the information available is cross-departmental.
Information Management. The SCC roll-out of encryption needs to be quicker. DARD has purchased and is deploying Ironkey encrypted data sticks in an effort to reduce the risk of data loss. The departmental Information committee is looking at information Governance and it is suggested that data should be assured at Senior management level. The email size rules are an issue – the 3 month retention/disposal rule is ok, however email box size is an issue – large email attachments need to be accommodated. Policies need to be put in place around removable media.
Cost Saving. To fully make the best use of IT will require a better understanding of ICT at Head of Branch level. Blackberry needs to become integrated with RecordsNI to allow TRIM links to be utilised. There needs to be more of a focus on facilitating paperless meetings and a move towards centralised scanning services. The Geo-hub should be developed further – a unique property address is needed.
ICT Resourcing. DARD has lost a large part of its IT function to the SSC. This makes it more difficult to re-deploy LoB staff to different projects as requirements change. There is a major requirement for LoB services and the department would not support a centralised approach. To fully exploit IT will require a better understanding of the issues by staff at Head of Branch level.
ICT Governance. Lack of proper governance is seen as an issue. There has been nothing put in place to replace the e-Government Board. The strategy needs to address this. A need is seen for a Strategic forum – the SSC board would not be sufficient.
Additional Information:

Appendix L - Themes from DFP interviews

(Themes identified from discussion with consultees in January 2010)

Key Business users (Grade 3/Deputy Secretary Level)

- Desktop (reliability, robustness, capability)
- Plans to restructure, resize due to budgetary constraints
- Where is business going
- What services is it proposed to put on-line
- Is there a possibility of sharing space to provide services such as one stop shops but with corresponding loss of identity
- What money can be realistically invested in ICT going forward
- Back office services – what is working, what needs to be improved

DHOTs (i.e. Departmental Heads of Technology (DHOT))

- What works – what does not
- Residual IT needs of departments
- If there is no pressing need to keep a ICU in an individual department what sort of replacement model is envisaged
    - If centralised (issue of charging)
    - If outsourced (will supplier adhere to NICS ICT standards)

Appendix M - Main Points of Consultant's Presentation

(Made on the morning of 5 February 2010 to key business leaders)

IT is often disjointed from rest from business
Very often "great landing, wrong airport"
It is often not clear about how IT adds value
What are our capabilities

The demand side of IT Strategy

The top priorities for CIOs in 2010:

Improving Business processes
Reducing Enterprise costs
Improving enterprise workforce effectiveness

Public sector has to balance multiple challenges

Increased interest in "light-weight" solutions
Virtualisation
Cloud Computing – buy as service – elastic
Web 2.0

Other items of previous high importance now lower on strategic agenda (Enterprise Applications, IT Management, Security etc.)

IT Strategy should be distinct from the IT Plan

Part of the IT strategy for NICS should be to use IT to make NICS better.

A strategy is not the same as a plan.

A strategy is a statement of direction while a plan how this will happen.

The strategy needs to be aligned with the plan.

"When oil prices moved from $140 to $40 we did not need to rethink strategy but we did need to about how it was executed" Tom Halbouty, Vice President and CIO of Pioneer Natural Resources.

There are a number of time periods that can be used
Very short term – one quarter
Short term – 12 months
Medium term – 3 years
Long term – 10 years

In between there will be a need to renew or refresh.

Parliamentary cycles are a maximum of five years.

IT refers to technology – business process plan – waxing as a term
IS is more about information – waning as a term

IT – accidental ownership

Run the business IT
Change the business IT

What is a true strategy? Should involve whole enterprise input

Demand
How will NICS win
Business Context
Business Success
Business Capabilities
IT Contribution
None of the above should be too long or boring

Control
IT principles (8-10 that drive behaviour of the IT Dept, drive trade-offs and decisions,
DFID (main role is to distribute monies to charities/NGOs "we will never do anything IT wise that we cannot do over low satellite)
IT Governance (how will we make decisions, how do we communicate, how do we enforce)
IT Financial Management (Fund capital projects, charge back (if so why?))
Metrics (3-4 big metrics that measure IT success)

Demand and Control equate to airport

Supply
IT Services
Architecture (hardware services, applications, networks)
People (IT skills)
Sourcing

Infrastructure
"everything below the level senior management actually cares about

Supply and Infrastructure equate to landing.

Strategy should ideally be 12 pages or 15 pages maximum.
NICS
IS Strategy
ICT Strategy
ICT/HR Strategy

All of the above in NICS are different and disjointed.

Organisations in general better at delivering projects but not necessarily the outcomes.

Benefits Realisation

Samsung – particularly good – benefits dependency network – enabling change – business change – each proposed benefit has an owner. Benefits from projects defined

What we all do better – managing expectations?

Appendix N - Issues Identified from Interviews Presented at Workshop

- Flexible working/home working
- Multi-channel communications
- Internet is central to work of Departments
- Collaboration tools
- Common platforms/applications/datasets – costs, replicating across departments, greater use of GIS
- Improvement in information retrieval – not just internet, out in field, TRIM (frustrations, not so simple to use)
- More on-line services via NI Direct – business case phase II, meeting needs of citizens, cutting costs
- More data sharing – joining up services within constraints of legislation (data commissioner)
- Thought leadership in exploiting technology –guidance, education, wider vision role for DID and DHOTs
- Social Networking
- Information assurance – trust
- Maximising Shared Services
- Business Intelligence
- Process Mapping Tools
- Comprehensive Directory Services – can deliver more in terms of information
- Communication about ICT services
- Definition of roles for line of business ICT
- Open source
- ICT architecture for Public Sector – RPA (services devolved beyond NICS)
- Contracts for Public Sector – E.g. Microsoft agreement
- Sustainability – reducing paper consumption, travel etc.

Appendix O - Draft Business Principles Outlined at Workshop

Principle 1 Existing investments in Shared Services will be maximised

- How do we add more quality
- Needs to be a lot easier to use

Principle 2 Internet is the critical technology for conducting NICS business

- Improves accessibility
- Cost factor

Principle 3 NI Direct will increasingly deliver citizen facing services on behalf to NICS via multiple channels

Principle 4 Strategic technology platforms will be deployed once only and shared by Departments

Principle 5 Information with NICS significance will be managed as a corporate asset

- Common platforms
- Improvement in information retrieval
- Greater use of GIS
- Move to online services NI Direct
- Very important datasets being replicated
- Try to maximise value

Principle 6 Flexible working arrangements

- Convenient for staff, departments
- Accommodation burgeoning at the seams
- Staff access to papers wherever they are
- Reduce real estate costs

Principle 7 ICT will underpin sustainability

- Reducing paper, travel, floor space etc.

Principle 8 DID will inform and drive the exploitation of ICT

Principle 9 NICS IS/IT Strategy will be aligned with UK Government Strategy

Appendix P - Business User Views at Workshop

- Ease of use of systems
    - Focus on users
    - Systems need to be logical/intuitive

- Principles 3 & 8
    - Should be business led not DID but use DID as an advisory source
    - Line of business CEO
    - Develop exploitation of ICT
    - Supply/information side

- Principle 6
    - Very much motherhood and apple pie
    - Flexible working_arrangement
    - Metrics are required to measure benefits
    - Providing a solution to a HR problem
    - Role of technology
    - ICT principle will support business need through mobile technologies

- Principle 5
    - Too narrow
    - Need to protect information
    - Retrieval and sustainability
    - IT Assist not secure enough
    - No tie up between Account NI and HR Connect
    - 2 different ways of entering separate systems
    - Lessons to be learnt
    - Assumptions made about users' abilities
    - Lack of training for HR Connect/Account NI – mostly online
    - Further user training required

- Important to realise "no project is an IT project"

- Contracts with suppliers become all consuming
    - User lost in process
    - Need to focus on end user

- Link to HR, Citizens
    - IT good at back office, call centres etc., not so good in middle, complex case management, fancy collaborations
    - Integrated planning required

- Data Protection/information assurance
    - Should be central to all ICT systems
    - Prerequisite to business
    - Record management and security
    - Projects should be proofed

Appendix Q - IS Issues to Be Addressed around Draft Strategy Principles

IS Demand

Existing investments in Shared Services will be maximised

- Business process development
- Greater alignment i.e. HR Connect and Account NI hierarchies
- Improved Business Intelligence
- Further consolidation
- Exploit what we own i.e. better utilisation of software and licences
- Reuse and not reinvent i.e. reuse and share applications

Comment from floor – not timely enough to make decisions

The internet is a critical technology for conducting NICS business

- Robust and reliable internet access
- Flexible to meet the needs of the business both in scale and capability
- Case studies on how to use the internet capabilities effectively to support the business i.e. use of social networking
- Need for clearer policies on use and associated implications of misuse – common policy
- Social/business networking (making the distinction)
- Internet usage – commodities inside out versus outside in (Dave Aron)

NI Direct will increasingly deliver citizen facing services on behalf of NICS via multiple channels

- Web consolidation
- Contact centre technologies (Kiosks)
- Unified communication tools such as presence and IM
- Numbering strategy (0845)
- Use of social networking tools and sites
- Ease of use
- NI Direct – one view of the citizen

Strategic technology platforms will be deployed once only and shared by departments

- NICS data centres
- Common systems, tools and applications
- Open source ethos
- Community based approach to development (centralise development communications, get people to share, speed up, also to support, question where does this lie in terms of line of business
- Process rationalisation
- SOA
- Exemplars – promotion across service
- Code management (re-use) – store codes centrally

Information with NICS wide significance will be managed as a corporate asset

- Enterprise Information Management
- Enterprise search
- Information assurance (consistency)
- Knowledge bases
- Knowledge management (insight)

Flexible working arrangements will deliver benefits to the NICS

- Unified communications technologies including telephony, video conferencing, IM, presence and online meeting services
- A range of broadband communications capabilities CESG
- Wireless support
- Smart devices – blackberry platform, IPAD (can they made secure?), access to TRIM via blackberry
- Bootable CD or Iron key
- Supporting policies – HR etc.

ICT will underpin sustainability across NICS

- Virtualisation of servers
- Multi-function printer devices
- Unified communications technologies
- Power management

- Green procurement

DID will inform and drive the exploitation of ICT in the NICS

- Partnership arrangements with Departments – DHOTs
- Development and promotion of an Enterprise Architecture (Gartner Building Bricks)
- Continual review of ICT architecture
- Shared ownership/responsibility
- Manage expectations and priorities

The NICS IS/IT Strategy will be aligned with UK Government Strategies (see below)

- Adopt and adapt approach
- Mirror and exploit organisation and structures
- Build relationships with colleagues across the water
- Everyone has a stake, everyone has a role

UK Government ICT Strategy Themes

Common infrastructure

- Public sector network
- G-Cloud
- Data Centre Rationalisation
- Government Applications Store
- Shared Services
- Desktop service

Common standards

- Architectures and standard
- Open source, open standards and reuse
- Greening Government
- Information Security and Assurance

Common capability

- Professionalising IT-enabled change
- Reliable Project Delivery
- Supply Management
- International alignment and co-ordination

Appendix R - DHOTs Views at Workshop January 2010

External Interfaces

- DWP (not everyone accessing IT)
- Social Security Agency
- Need to be considered

Risk Management

- SRO
- Information asset user

Role of ICT

- What services are ICT delivering
- ICT staff management
- Redeployment of ICT resources – biggest challenge
- Roles and responsibility i.e. security management
- Line of business perspective
- Promote collaboration

Security

- Done differently in different departments
- Need for rationalisation

Comment from Dave Aron – How to structure? Use of information risk officers who have straight line to CIO and to Enterprise Risk Committee

IT Assist Answer to Everything

Reform NICS budget system – constraints

- Business leaders see IT as a cost to cut
- Issues in terms of resources

Is there an appetite for change?

Appendix S - NICS IS Strategy – Consultation Responses

(*sic* as received from NICS)

1.0 - Executive Summary

1.2 Although it is mentioned in paras 1.2 and 1.7, would there be merit in emphasising that ICT can be an enabler for business change and improvement but it requires others in the NICS to act in partnership with ICT colleagues for these changes to happen.

1.2 This is a very generic statement and should be used with caution. One might argue that if NICS does not wish to up the ante in its use of technology, whether that be SOA or UC etc, then demand has already been sated and the next 5 years could be spend keeping the system oiled. As things stand, I don't see how NICS can pull out more efficiencies.

1.2 GIS can be exploited to help deliver cost savings as discussed in section 1.2 as well as being used to assist the NICS when interacting with its citizens and stakeholders as discussed in section 1.4

1.3 I'm not sure what this means. The components in the SSO, specifically HR Connect and Account NI will improve as they mature. The SSO will introduce more coherency and simplified accountability. However, it would be naïve for NICS to believe that more significantly cash is going to be saved.

1.4 The reference in 1.4 is particularly harsh when one considers the work done on the Shared Services and developments in the Line of Business areas where delivery of services are particularly focused and in many cases 'bleeding edge'. Suggest removing the first line.

1.4 I am not clear what is being said at Para 1.4 This does not recognise the significant strides made by some Departments. DSD has been very focussed and active in this area, for example with our Pensions Transformation Programme.

1.4 I disagree that departmental IT has lost focus regarding technology and LOB

1.4 GIS can be exploited to help deliver cost savings as discussed in section 1.2 as well as being used to assist the NICS when interacting with its citizens and stakeholders as discussed in section 1.4

1.5 Single Key NICS Delivery brand?

1.6 - discussed a new governance around Information Assurance, but does not say what or how this will be taken forward

1.7 Although it is mentioned in paras 1.2 and 1.7, would there be merit in emphasising that ICT can be an enabler for business change and improvement but it requires others in the NICS to act in partnership with ICT colleagues for these changes to happen.

1.8 Para 1.8 refers to the architectural alignment with the UK ICT Strategy. The ICT Strategy for Government applies to all of the UK public sector - including the devolved administrations - so the entire NICS IS strategy must be aligned. This alignment should be mentioned earlier in the Executive Summary. A reference is also made at 5.1.4 and this should be earlier in the document.

1.8 Worth acknowledging that NICS effectively has its own G Cloud. HR Connect/Account NI are available across the Net and use the IT Assist AD. Documents are stored on central servers in data centres (via TRIM) rather than on local servers which may or may not have been properly backed up. Etc. I will be most surprised of the Cabinet Office G Cloud represents a value proposition based on how far ahead NI is of GB. We should be mindful of and address the sort of misguided comments such as the one on the strategy review day.

2.0 - Business Context

This section makes no reference to the proposed, and indeed potential, structural changes in the NICS and wider public sector over the period of this strategy (April 2010 to March 2013). It would be useful if the IS strategy recognised that it will need to be flexible to deal with the changes already identified e.g. the reform of local government reform under RPA and the potential for further changes e.g. a new Department of Justice.

However, we consider that the "Business Context" should include reference to the need for the strategy to support and facilitate changes under RPA. It is also arguable that there needs to be a level of influence by central government on local government sector leading to the development of a complementary strategy (or strategies) that sector.

2.2 From 12th April there will be 12 departments

2.3 The Shared Services Organisation does not deliver back off services to all the departments, though the DOJ will move in that direction. We currently take HRConnect for about 800 employees out of approximately 6000 (excl PSNI), we haven't signed up to AccountNI, we will soon use NetworkNI for our core network, but again this will not cover a significant part of the dept, we have our own EDRMS data sets locally managed and we don't use ITAssist for desktop support. I would therefore suggest that you might want to qualify this Para.

2.3 NICS Enterprise Shared Services
HR Management "training"

2.6 I note that you have inserted a number of references to Information Assurance (2.6, 4.5.1, 5.6.1, 7.1) and I welcome this. However, I would have liked to see some of these make specific reference to the need to ensure Long Term Access to / Digital Preservation of this information.

3.0 - Business Success

The section on Business Success (3.0) is fine as far setting the strategic direction is concern. I would, however, like to see a bit more flesh on the bones in relation to how this is going to achieved. For example, how will the Departments work together to deliver better experiences and outcomes to citizens, and how is the NICS going to adopt a corporate approach to managing information as an important collective asset. I would like to see specific actions detailed in the report as to how these strategic aims are to be achieved and owners identified for those actions.

This section should also make reference to the delivery of services in co-operation with other public sector bodies. In the case of DRD this will involve closer working relationships and co-operation with local government, the PSNI and potentially others.

3.2 Having been outside the NICS, we will not be covered by the PSA targets - I would suspect this will be worked up after devolution.

3.3 We also need to establish agreed criteria for what constitutes a shared service and this should be used to decide what business functions should transfer and those that should not. Otherwise, ESS could lack the required synergy to meet future business needs

4.0 - ICT Contribution to Business Success

** In relation to the first point, i.e., the need to consider how resources might be flexibly deployed to meet changing needs, I think the bull needs to be taken by the horns and a serious look should be taken at establishing a Central Shared Service Development Team for the whole of the NICS. This approach would address many of the issues raised in the Strategy, e.g., deployment of scarce ICT resources and skills, the sharing and development of common systems, use of common tools, etc, etc. The main driver for this would be the efficient and effective use of scarce resources and skills.

4.1 Costs. See my first comment. You might struggle if asked to give a couple of examples.

4.1.1 Are you sure that by signing up to this, the business (PSG?) will initiate the policies/rules to make it happen? Otherwise, you may be in diffs doing benefits realisation on the strategy.

4.1.1 Could this be expanded to include something about facilitating 'mobile working' for staff who spend much of their working time on-site? Eg inspectors could send inspections straight into the back office system from the street either via wireless or 3g connections. This could bring about significant savings both in time spent travelling to /from the office and the associated mileage costs.

4.1.1 Section 4.1.1 states, among other things, that cost savings will be found through reduced consumption of paper and print consumables. It think it would be worth mentioning in this section that the NICS has developed and is implementing an NICS Print Strategy with the specific aim of achieving this goal.

4.1.2 When? As discussed, I would like to see something more ambitious. Even "we will review and reorganise our ICT resources to ensure maximised effectiveness for the NICS"

4.1.2 There should be a more consistent approach across the NICS, with all Departments using the same approach (i.e. design/development methodologies, tools, standards etc). This will facilitate and provide the framework for the sharing of knowledge and skills between the Departments.

4.1.2 I am very pleased to see a commitment to looking at how in-house solutions might be shared across Departmental boundaries to the mutual benefit of all (section 4.1.2). This has been tried in the past, with little success. Once again I think there needs to be specific actions with a named owner identified for taking this forward.

4.2.1 The cliché of streamlining business processes has appeared over and over again in many contexts but there is not a lot of evidence that this has been truly effective. Some detail as to how this will be addressed would help. A bit more detail on what is meant by increasing ease of use of back office processes.

4.2.1 Examples?

4.2.3 As the DOJ will not initially be part of the 'common ICT infrastructure' I think this Para will need re-worded.

4.3.1 The section (4.3.1) could be more explicit in explaining that the existing technology in Depts will be supported and will be revised and updated in line with ICT developments.

4.3.1 Should "Departmental Information Systems Unit" in the first sentence of section 4.3.1, not read "Departmental Information Systems Units". I presume the review mentioned in this section will include all existing ISUs.

4.4.1 The section (4.4.1) could be more explicit that GIS will be one of the corner-stones of delivering services to customers.

4.5.1 I note that you have inserted a number of references to Information Assurance (2.6, 4.5.1, 5.6.1, 7.1) and I welcome this. However, I would have liked to see some of these make specific reference to the need to ensure Long Term Access to / Digital Preservation of this information.

4.5.1 Again, mention of providing tools to build IA awareness ... what exactly?

4.5.1 - discussed a new governance around Information Assurance, but does not say what or how this will be taken forward

4.5.1 Could I suggest that paras 4.5.1 and 7.1 are reworded to clarify that overall responsibility/direction for Information Assurance is that of our Information Management colleagues and that ICT will be used to support compliance.

4.5.1 The draft alludes to compliance with Information Assurance policies and regulations and government best practice. While there might be an obvious focus on data protection, the Strategy must refer to enabling compliance with <u>all</u> statutory obligations under the record management legislation such as the Public Records Act 1923, Disposal of Documents Order 1925, and section 46 of the Freedom of Information Act 2000 (Lord Chancellor's Code of Practice). Moreover, it should also

facilitate compliance with Regulation 4 of the Environmental Information Regulations 2004 which requires the proactive publication of environmental information. In this context, it is suggested that paras 4.5.1 and 7.1 are reworded to clarify that overall responsibility/direction for Information Assurance lies with Information Management teams and that ICT will be used to support compliance.

4.6.2 Paragraph 4.6.2 states "We will reduce the environmental impact of ICT at every stage in the technology lifecycle, from procurement through to *disposal.*" It is suggested that 'end of business use' may be a more appropriate phrase as 'disposal' brings connotations to 'landfill'; to ensure focus is not blinkered and other waste hierarchy outcomes are considered.

4.7 The document refers to the recently published HM Government ICT Strategy and how the NICS ICT Strategy will 'align' with it. We wonder to what extent it may be possible to 'adopt' the HM strategy unless there are such fundamental differences in NI which make adoption difficult or unreasonable. (paras 4.7 and 5.1.4 refer). Such an approach might avoid duplication of effort.

4.7 However, we will reserve the right to maintain our own approaches where these clearly demonstrate better value for money

4.7. - the strategy could draw upon DSD's SSA/CMED as examples of linking to GB departments

4.7.2 Open Source software - a bit more detail would be useful.

4.7.2 Caution must be applied when moving to Open Source, as there are associate issues and problems

5.0 - ICT Principles

5.1 Section 5.1 states that there will be a single ICT Architecture for the NICS. Will this include a development architecture with common standards, products, etc? My suggestion at 4.0 above would help bring this about and enforce this. (Marked **)

5.1 You need to factor in the fact that IT Assist has sole ownership of its technical architecture and, while it is obliged to keep it secure, compliant and current, product choice, deployment etc is the sole responsibility of IT Assist

5.1 there is negligible reference (see paras 5.1, 6.5, 6.6, 6.9 and 12) to the fact that 1/4 of the NICS is sitting on the DOI network and a percentage of them are using IPT/IPCC. This is a major factor which this IS Strategy needs to recognise in an overt manner. In addition, it is not an obstacle to the NICS IS Strategy but an opportunity as the Department of Work and Pensions (DWP) are on a very innovative track and there is significant opportunity for the NICS to learn from, share and where appropriate apply what DWP has done/are doing. For example, in relation to IPT/IPCC, on-line service provision etc.

5.1.1 With the inclusion of the DOJ there isn't a 'single NICS network' or 'mail environment', 'standardised desktop' and IT Assist cannot claim to be the 'single provider of IT services'

5.1.4 Is this an opt out clause?

5.1.4 Para 1.8 refers to the architectural alignment with the UK ICT Strategy. The ICT Strategy for Government applies to all of the UK public sector - including the devolved administrations - so the entire NICS IS strategy must be aligned. This alignment should be mentioned earlier in the Executive Summary. A reference is also made at 5.1.4 and this should be earlier in the document.

5.1.4 The document refers to the recently published HM Government ICT Strategy and how the NICS ICT Strategy will 'align' with it. We wonder to what extent it may be possible to 'adopt' the HM strategy unless there are such fundamental differences in NI which make adoption difficult or unreasonable. (paras 4.7 and 5.1.4 refer). Such an approach might avoid duplication of effort.

5.3.1 Under the theme of 'reuse and share systems and solutions' should there be reference to potentially creating an NICS central application directory - this could feed the concept of a GOVT App Store locally. (In addition to that mentioned in 5.5.1)

5.3.1 Again, I think the establishment of a Central Shared Service Development Team for the whole of the NICS would address the objectives identified in Section 5.3.1.

5.4.1 Caution must be applied when moving to Open Source, as there are associate issues and problems

5.4.1 Testing will not identify if a system is flexible enough to support business change. This would be achieved through good design.

5.4.1 How will systems and solutions be "rigorously tested" - 5.4.1? Will there be standard testing processes and standards? I think the report should define what needs to be done and actions/owner identified.

5.5.1 The DOJ has its own MS Enterprise Agreement - so you have at least 2

5.6.1 I note that you have inserted a number of references to Information Assurance (2.6, 4.5.1, 5.6.1, 7.1) and I welcome this. However, I would have liked to see some of these make specific reference to the need to ensure Long Term Access to / Digital Preservation of this information.

5.7 I welcome the reference to Nidirect in the Executive Summary near the beginning and there is a broad reference to improving citizen accessibility (5.7), is it possible to have a more explicit reference to developing Nidirect as a means of carrying it out.

5.7.1 "we will provide systems that are.....easy to use for both staff and citizens" - will there be lessons learned from HRConnect, TRIM and A/cNI?

5.8.1 In respect of ERM systems, might cost a bit in change control

5.8.1 Again the establishment of a Central Shared Service Development Team for the whole of the NICS would address the objectives identified in Section 5.8.1.

5.9 I agree with Dave Arron. This is all a bit "motherhood and apple pie". How can internal IT really make a difference or the NICS move up a gear. What about things like "Tell us once", "single Payment Engine", reduction of web-sites, NI Direct to be the portal through which all NICS information will be provided, an NI apps store where modules will be re-used across departments. I would workshop this with DHOT next week. Get them to come up with 6-8 things they will do collectively to improve how NICS uses ICT.

5.9 Can we refer to our involvement with Greening Government ICT?

6.0 -ICT Governance

6.1 – Assurance. And the governance structures for IT Assist, which have already been signed off by PSG

6.4 This is no longer the case. New structures, TOR etc have been agreed between Paul W and PSG. Best to say "will be addressed through the ESS Governance model"

6.5 there is negligible reference (see paras 5.1, 6.5, 6.6, 6.9 and 12) to the fact that 1/4 of the NICS is sitting on the DOI network and a percentage of them are using IPT/IPCC. This is a major factor which this IS Strategy needs to recognise in an overt manner. In addition, it is not an obstacle to the NICS IS Strategy but an opportunity as the Department of Work and Pensions (DWP) are on a very innovative track and there is significant opportunity for the NICS to learn from, share and where appropriate apply what DWP has done/are doing. For example, in relation to IPT/IPCC, on-line service provision etc.

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very innovative track and there is significant opportunity for the NICS to learn from, share and where appropriate apply what DWP has done/are doing. For example, in relation to IPT/IPCC, on-line service provision etc.

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7.0 -Information Assurance

7.1 In deference to the rules on external consultancy, NICS must be more self sufficient in the accreditation process, including peer review from in-house CLAS consultants etc.

7.1 I note that you have inserted a number of references to Information Assurance (2.6, 4.5.1, 5.6.1, 7.1) and I welcome this. However, I would have liked to see some of these make specific reference to the need to ensure Long Term Access to / Digital Preservation of this information.

7.1 Could I suggest that paras 4.5.1 and 7.1 are reworded to clarify that overall responsibility/direction for Information Assurance is that of our Information Management colleagues and that ICT will be used to support compliance.

7.1 The draft alludes to compliance with Information Assurance policies and regulations and government best practice. While there might be an obvious focus on data protection, the Strategy must refer to enabling compliance with all statutory obligations under the record management legislation such as the Public Records Act 1923, Disposal of Documents Order 1925, and section 46 of the Freedom of Information Act 2000 (Lord Chancellor's Code of Practice). Moreover, it should also facilitate compliance with Regulation 4 of the Environmental Information Regulations 2004 which requires the proactive publication of environmental information. In this context, it is suggested that paras 4.5.1 and 7.1 are reworded to clarify that overall responsibility/direction for Information Assurance lies with Information Management teams and that ICT will be used to support compliance.

8.0 - ICT Metrics

ICT metrics sounds wonderful in theory but can not be achieved in reality
Also in section on developing metrics (8.0) it would be useful to include a line to say that these should follow government guidelines.

8.1 In para 8.1, could you clarify who is included in "all discrete ICT service providers"?

8.1 Or the wider NICS in the case of IT Assist & DID

9.0 -ICT Services

9. Para 9.5 is incomplete

9.5 There is text missing at section 9.5. I presume this word should be development. There may be other bits missing.

9.5 I agree with Dave (Aron). You should be stating the services that should ultimately become shared and how these will be delivered – IT Assist, another shared approach, outsourcing?

10.0- Enterprise Architecture

11.0- People

Section 11 clearly points to the establishment of a Central Shared Service Development Team.
With regard to section 11 - People, can you clarify if there is an intention to move to a central NICS pool of ICT staff or will the existing Departmental staff management processes remain.

With regard to section 11 - People, can you clarify if there is an intention to move to a central NICS pool of ICT staff or will the existing Departmental staff management processes remain? There was some consideration during the work undertaken in the lead in to the decision to establish the SSC/IT Assist that a further stage of development envisaged the pooling of ICT staff/resources remaining in local ISUs.

12.0- Sourcing

12.0 there is negligible reference (see paras 5.1, 6.5, 6.6, 6.9 and 12) to the fact that 1/4 of the NICS is sitting on the DOI network and a percentage of them are using IPT/IPCC. This is a major factor which this IS Strategy needs to recognise in an overt manner. In addition, it is not an obstacle to the NICS IS Strategy but an opportunity as the Department of Work and Pensions (DWP) are on a very innovative track and there is significant opportunity for the NICS to learn from, share and where appropriate apply what DWP has done/are doing. For example, in relation to IPT/IPCC, on-line service provision etc.

12.1 - not sure if this is the right place, but the paper needs to reflect that IT-Assist must work with the DWP and their suppliers to implement solutions/fix incidents/cognisance of the impact of change.

12.1 - In light of the situation in the DOJ, I think this statement should say 'IT Assist provides common services to most NICS staff'

12.2 I agree with Dave. This needs to show it has been thought through. You can write that, as stated in the OBC, the status of IT Assist has been considered and the decision taken that it will remain an in-house operation for the foreseeable future and it has been transferred to ESS on that basis.

I'm sure DHOT could help you with criteria for when things should be done in-house or out-sourced. A table such as the one we did in the first ICT HR Strategy would add value here.

13.0- Risks & Issues

This is a critical document to the future of NICS ICT. The internal community must use it to re-establish its position with NICS senior management. The retirement of PSG E and E-Government Board has done almost irreparable damage. It is therefore critical that a delivery plan accompanies this strategy. This should take every recommendation, assign it to an owner, state what is to be done to implement the recommendation and by when, and also state the constraints/risks and how these will be managed. This will form the basis then for the new governance structure to begin work, i.e. by overseeing the delivery of the plan. Without the plan, this is a bit "motherhood and apple pie" (as I said above) and is in danger of becoming a shelf filler only.

You need to think of benefits realisation from this strategy. I think if you were to do that piece with Owen, you might drop some of the recommendations because there is no logical way to establish baselines, KPIs/objectives etc.

Additional risks should include

- Loss of skills following on from the reduction of staff numbers
- Loss of Knowledge of Legacy system/existing systems following on from the reduction of staff numbers

ANNEX A

We also suggest that the Key Themes in Annex A should refer to sustainable procurement/use/extension of IT life.

General Comments:

(G Herron – DoJ) - In summary as this strategy covers 3 years, we think it important that the DOJ is factored in. Perhaps a new strategic objective is required, which states that the DOJ will align and integrate its ICT services (where possible) with the ICT services provided by the Shared Services Organisation and departmental ISUs.

(L Connolly – DFP) - I realise that this is work in progress and that some of the issues above will be addressed in the implementation plan but I do think a bit more detail is required at this point.

(P Cunningham – DETI) - The whole document reads like 'here are good ideas that we should try'. I contend we are in large moving down all these paths to a greater or less degree. Wording could be around 'continue to exploit' or 'further develop' or something that acknowledges work already being done in these areas.
Is this just an IS Strategy? I think it impinges on IS, ICT and other strategies like sustainability. Is there a single title that encompasses all these?

(C Boyle – DSD) - Overall our view is that the IS Strategy covers what would be expected and there is no conflict between it and the Government's ICT strategy. Quite rightly a very prominent theme running through the document is the drive to engage differently with the citizen and to serve the citizen on-line as a preferred approach. Also appropriate is the need to maximise the contribution from the shared services organisation as well as the themes of security of personal information and sustainability

- The IS strategy should allow - via suitable governance structures - the provisioning of ICT through other sources other than NICS.
- The term "we" is used freely in the document. Who is the 'we' being referred to - DID or NICS as a whole or individual Departments/Agencies?

(E Jardine – DCAL) – This draft defines the IS principles and governance approach for the next three years very succinctly. However, I think this strategy document needs to be much clearer on the business challenges which the NICS will face over the next three years; how the new Criminal Justice and Policing Department is integrated into the NICS technical environment, how the NICS addresses the likely outcome of the next CSR as well as those issues already referenced such as sustainability etc.
I would also like to see specific measurable goals which the strategy hopes to achieve covering how existing services can be improved, how new services such as home-working and tele-working will be exploited and how our IS Services will provide better services to our customers. An outline delivery plan should also be included.

(Gina McConville - DEL) - I am content that the main business themes identified in the draft paper reflect the areas where ICT can make a useful contribution to business across the NICS over the next 3 years.

(D Brittain – DOE) - As a high level document, which will in due course be supported with a number of strategic operational layers, we support the general principles set out in the draft Strategy.

(D Brittain – DOE) - Whereas the needs of the citizen are understandably high on the agenda, the needs of the internal NICS user must also be a key area of focus.

(C Shannon – EIS) - There are references to using technology to improve communication with the citizen. I think it would be useful to have a stronger reference to the opportunities presented by social media to improve both internal and external communications and to ensure that the technology is in place to support this.

(L McColgan – DOE/DRD/DCAL) - Departmental ICT provision employs almost as many staff as IT Assist, yet from the strategy document it appears that they do very little in comparison to IT Assist. For example, section 8 says that departmental ICT will need to justify their existence, while section 9 tells us how wonderful IT Assist is. Some balance is required.

(unknown – via L McColgan) - Following on from our talk it would be advantageous if the IS Strategy referred to the importance GIS and how the 2 strategies should be linked, NIGIS 2009 / 2019.

(unknown – via L McColgan) - Overall the document has improved since its first draft last year, however, I'm not sure Line of Business gets the credence that it needs.

(unknown – via L McColgan) - I mentioned before about a NICS wide CRM system. Savings here could be huge, with much duplication across departments. By outsourcing call logging and handling staff can be freed up to perform more tasks within their specialty.

(unknown – via L McColgan) - Overall, I think the document sets the right strategic direction for the development and use of ICT within the NICS. It's good to see the commitment to ensuring that the NICS ICT architecture is aligned the UK ICT Strategy. This would facilitate greater movement towards full joined up government across the UK, thereby improving greatly the quality of services being provided to the citizen.

(unknown – via L McColgan) -The draft report makes no mention of the key central services such as HR Connect and Account NI. These are key systems for the NICS and there should be a section in the report dealing with their use and future development.

(unknown – via L McColgan) -I think a lot more work needs to be done to identify the actions that are needed to bring about the Strategy and owners identified for each action. These should then be developed into an Implementation Plan.

(unknown – via L McColgan) -Thought should be given to producing a high level business plan for the Strategy.

Appendix T - Synopsis of Key Issues Raised at Workshop by Key Business Users and Technologists at Workshop in January 2010

Ease of Use

- TRIM – need to file and find things quickly, it might currently take five minutes to find a document
- HR Connect – navigation cost some senior managers could spend one to two days a month, depending on the number of staff reporting to them – causes even greater difficulties in functional areas

Governance

- No committee currently with authority to sign off on IT strategy
- Need for an interim solution – some approval process required
- Three different complementary governance type boards needed
  - Information systems
  - Information Management Working Group – made up off Grade VIIs who in essence have no authority to make decisions – objective to protect department's information and individual rights – duty of care to taxpayer.
  - Information Assurance – made up of Strategic Risk Information Owners (SRIOs) – one from each department at varying levels
- The recommended level for Information Assurance governance boards is Grade III

Available Resources

- Allocation of work
- Centralisation of ICT
- Six ISUs serving eleven departments
- Currently some IT departments in Policy Departments have little to do in comparison to other departments such as the Department of Agriculture
- Resources ill distributed – not meeting combined needs
- Little evidence of departments thinking strategically as to how ICT can enable them in achieving objectives, such as engaging with

stakeholders, improving communication and collaboration within and between departments, Whitehall, EU etc

- Need to re-energise ICT departments about exploiting technology in the business
- Certain departments like DRD/DOE have 'Next Steps' agencies involved in service delivery on behalf of Department but have certain financial autonomy and certain flexibility in setting their own terms and conditions – such agencies use specialist technologies and therefore have IT personnel that report directly to the CEO of those agencies. Examples of such agencies include the DVA, Environmental Agency, Planning Service etc. Ian Maye, PFO, DOE. Possibility of centralising IT people who currently work within DOE agencies.

Appendix U - Draft NICS IS Strategy March 2010

(*sic* as received from NICS)

i. Executive Summary

DEMAND

2. Business Context

The Northern Ireland Civil Service supports the Government of the day and delivers its policies and services as efficiently and effectively as possible, whilst remaining politically neutral. In so doing it provides Ministers with evidence based policies, and citizens and businesses with information and services, either directly or indirectly via non-departmental public bodies.

The NICS comprises eleven separate Departments and operates a federal system of control, with overall political direction being set by OFMDFM and finance and human resources being managed centrally by DFP. Departments have autonomy in delivering their respective line of business policies and services. Various pan NICS governance arrangements exist to ensure cross departmental engagement on specific issues. A new Shared Service Organisation has been established to deliver common back office services to all Departments. Those services include financial management, HR management, desktop technology and electronic records management.

The UK economic situation will lead to significant reductions in public expenditure in the next three years and possibly beyond and Departments will come under considerable pressure to reduce their costs and curtail some programmes.

Public expectations of government services have risen in recent years, shaped by citizens' experiences of buying goods and services from the private sector, particularly online. NIDirect, launched in 2009, is the flagship programme for addressing those increased expectations and given the overall economic pressures ahead, a move to online self service could serve both to improve the quality of service and reduce administrative costs. The approach to multi-channel service delivery is set out in the NICS channel Strategy

High profile losses of personal information in the public sector in GB in 2008 and other losses closer to home since then have highlighted the need to strengthen the NICS's Information Assurance capability. In essence the challenge is one of culture change and that can only be delivered over a number of years. The Freedom of Information Act continues to give rise to a large number of queries about public services.

3. Business Success

Northern Ireland Departments will work together to deliver better experiences and outcomes to citizens. They will engage with citizens, businesses and other stakeholders in the development of policy and the design of public services. The delivery of those services will be underpinned by equality of treatment for all sections of Northern Ireland society.

Northern Ireland Departments are committed to delivering Public Service Agreement targets and outcomes that were agreed by the Northern Ireland Executive for the period 2008-2011. In so doing they will contain expenditure within allocated budgets and reduce costs wherever possible. In the PFG the Executive has noted sustainability as one of the important cross-cutting themes for all aspects of public service.

The NICS will find added value from its investment in shared services by ensuring that they increasingly meet the needs of the organization and are used to the maximum effect by staff. We will look for innovative ways to address business effectiveness, cost reduction and sustainability through optimizing the opportunities inherent in shared technologies.

Managing information effectively, efficiently and securely will be critical to the success of many programmes across Departments and will be particularly important to the success of NIDirect. We will improve our corporate management of information as an important asset.

Business Capabilities NOT SURE THIS IS NEEDED

The NICS must engage with stakeholders, particularly citizens as part of its policy development process and in delivering public services. Such engagements in the past have been conducted through the issue of draft policy documents to a range of organisations who acted as proxies for citizens, although each with its own area of specialist interest.

4. IT Contribution to Business Success

At this time of reducing budgets IT will be used to drive down business costs and IT expenditure itself will be optimised to provide best value for the NICS.

The need for travel can be reduced through provision of improved audio and visual communications and also through secure remote access to office systems. Flexible working arrangements thus supported provide opportunities to reduce the real estate of the NICS resulting in significant cost savings.
Significant cost savings can also be found through reduced consumption of paper and print consumables.

Use of the in house ICT staff must be optimised to meet the business needs of the NICS. Their professionalism will be developed through targeted training.

In deploying further IT based business solutions the NICS will build on its recent investments in shared services.

We will streamline and transform back office processes. Their efficiency and effectiveness will be increased by improving usability for staff. We will ensure that useful and timely management information will be available to inform strategic decision making in Departments. We will provide additional services across the common IT infrastructure that will improve communications and we will provide common toolsets and solutions for use by all Departments.

We will reinvigorate thought leadership about how IT will be used to improve operational effectiveness across the NICS.

Defined roles will be developed for everyone involved in IT enabled business change. We will provide tools, expertise and guidance to assist business areas to transform their processes. These will include tools for secure and efficient collaboration with stakeholders both external and internal, and for efficient access and retrieval of information.

The NICS will use IT to deliver high quality, accessible public services.
We will use technology to engage and interact with citizens in order to better understand their needs. The NICS will deliver services through an accessible and easy to use multi-channel capability and we will encourage citizens and businesses to use the most cost effective channels.

We will provide common toolsets and systems to support the proper governance and management of Information Assurance across all Departments.

The major challenge in Information Assurance is in culture change, aimed at building a consistent awareness of the need for care in handling information, particularly personal information. We will deploy tools that will reinforce staff awareness and that will help us to monitor our information assurance maturity level.

Sustainability will be a key consideration in the development of all IT business solutions.

We will seek to reduce the environmental impact of IT at every stage in the technology lifecycle, from procurement through to disposal. That will include implementing a sustainable print strategy through which we reduce the consumption of paper and other print consumables.

We will deploy new communication solutions that will reduce the need for travel and that will facilitate flexible working patterns where deemed suitable.

Our technical strategies will be aligned with the UK ICT related strategies in order to ensure that we can avail of useful solutions implemented on a UK wide basis.

That will ensure that we can sustain our connectivity with GB Departments and can build joined up citizen solutions that encompass both local and UK services.

It also commits the NICS to a more vigorous exploration of Open Source software as part of enterprise wide solutions.

CONTROL

5 IT Principles
6 IT Governance
7 Information Assurance

INFORMATION ASSURANCE

There is a strong desire across all NI Departments, Agencies and NDPBs to further develop and appropriately embed robust processes in order to improve levels of Information Assurance maturity.

To meet NICS organisational need, and based upon current legislative requirement and good practice examples, we will:

- establish a formal SIRO Council to govern and guide future NI Departmental information assurance work and provide a suitable online forum for all Departmental SIRO post-holders;
- continue to meet the requirements for accreditation whereby all central government information systems, regardless of impact level, must be accredited. To this end, an NICS Accreditation Panel meets on a regular basis to ensure those systems which deliver common services to Departments meet their IA obligations and that residual risks are acceptable to the business.
- undertake a third e-enabled data handling assessment exercise base-lined against the previous assessments carried out in 2007 & 2008 and publish the report on its findings by 30 November 2010;
- encourage continuous Departmental self-assessment of technical, operational and cultural aspects of IA through the provision of online Information Assurance Maturity Model (IAMM) guidance and relevant policy advice;
- outline appropriate and relevant baseline training to staff (both role-related and generic); and
- ensure all staff in participating organisations** will have received a personal invitation to complete the online data awareness training package by 30 September 2010.
  ** NICS Departments only with the exception of DOE

8 IT Financial Management
9 IT Metrics

SUPPLY
10 IT Services & Processes
11 Enterprise Architecture
12 People
13 Sourcing

15 Risks & Issues

ISSUE: IA Governance – the SIRO Council (see 8 above) needs to be set at an appropriately high level within NICS to provide the necessary authority to agree and implement standards and provide relevant IA guidance across all NICS-related organisations.
RISK: Failure to do so could risk the provision of fragmented and/or inappropriate information to users.
ACTION: HMG guidance stipulates that the SIRO post-holder should be at Departmental Board level (normally Grade 3). Absolute minimum grade for any SIRO post-holder should be Grade 5.

ISSUE: NICS SIRO position – each Department has now appointed a SIRO post holder supported by business area Information Asset Owners (IAOs). In addition, the DID Director currently occupies the NICS SIRO role and represents NI interests at Whitehall.
RISK: Seniority of roles could be diluted. Chair of SIRO Council and NICS SIRO should be same person – ideally at G3 level – to ensure authority and continuity of role as well as meeting HMG requirements for GB Departments.
ACTION: Ensure NICS SIRO and SIRO Council Chair are same person/grade.

Appendix V - IS Strategy Drivers and Success Factors

(*sic* as received from NICS)

NICS Objectives and Goals

Budget Review 2010-11

Pressures of approximately 2.4% of the existing current expenditure budget allocations for 2010-11 and 10.2% in respect of capital investment are to be found. This combined with an expected shortfall in Capital receipts results in an overall pressure of £376m in 2010-11.

Programme for Government 2008 - 2011

Delivering 5% efficiency savings on administration costs each year for the next 3 years for all Government departments
Reducing greenhouse gas emissions by 25%, below 1990 levels by 2025

Public Service Agreement 2008 - 2011

PSA 20 IMPROVING PUBLIC SERVICES
Aim: Improve the quality and the cost-effectiveness of public services to include delivery of the wider public sector reform programme and efficiency savings and outworking of decisions on the RPA

PSA 21 ENABLING EFFICIENT GOVERNMENT
Aim: To provide for the effective operation of the institutions of government by supporting Ministers and facilitating effective interdepartmental working in the delivery of an agreed Programme for Government, Budget, Investment Strategy and legislative programme

PSA 22 PROTECTING OUR ENVIRONMENT AND REDUCING OUR CARBON FOOTPRINT
Aim: Improve the quality of our natural and built environment and heritage and reduce our carbon footprint

Public Service Agreement Objectives

Promote digital access to National Museums NI, Public Libraries and Public Record Office NI

Delivery of the Sustainable Development Strategy across Government
Support the wider Public Sector in taking account of sustainable development principles when procuring works, supplies and services.

Take forward NICS reform programme to deliver a modern, high quality and efficient public services by improving NICS capacity and providing NICS staff with the necessary tools and technology.

Improve access for the people of Northern Ireland to public services and information including the delivery of an improved range of contact channels for citizen access to public services

Challenge departments on their plans and on the delivery of high quality public services and efficiency savings and identify scope for departments to deliver further improvements in both areas.

Legislative and Regulatory

DPA and FOI
Equality legislation
Financial compliance
Public procurement rules
Health and safety
Fair employment

Success Factors

Making substantial cost reductions/ cost avoidance

Improving efficiency in delivering Government services.

Being citizen focussed in policy making and service delivery

Ensuring digital access and inclusion

Embedding sustainability in all aspects of NICS business

Legislative compliance

- Online self service will be the preferred channel for service delivery
- ICT will inform and drive sustainability
- ICT will inform and drive cost reduction
- Information will be proactively managed and secured
- Timely access to information is essential to all parts of the NICS business...
- ICT decisions will be driven by cost saving and cost avoidance
- The NICS will harness the power of the Internet
- Thought Leadership in the exploitation of technology ...
- All NICS systems should be easy for end users
- The Internet is a critical technology for conducting NICS business.
- NIDirect will increasingly deliver citizen facing services on behalf of the NICS via multiple channels
- Strategic technology platforms will be deployed once only and shared by Departments
- Information with an NICS-wide significance will be managed as a corporate asset.
- Flexible working arrangements will deliver benefits to the NICS
- ICT will underpin sustainability across the NICS
- DID will inform and drive the exploitation of ICT in the NICS
- The NICS IS/IT strategy will be aligned with the UK government strategies INTRODUCTORY PARAMETER
- Information Assurance
- Make it Easy

Appendix W - Terms of Reference NICS Information Governance Board

NICS INFORMATION GOVERNANCE BOARD

Introduction
It is essential for the NICS to take a strategic approach to the management, use and security of information. This requires a sound governance regime supported by appropriate strategies, guiding principles, common frameworks, suitable structures, agreed processes and good practice.

Purpose
The Information Governance Board (IGB) will strengthen the NICS-wide approach to the management and security of information and supporting technology. The Board will act as a catalyst for change in assisting the NICS Chief Information Officer (CIO) to form and apply information related policies and strategies.
At this level, the focus will be more on leadership than oversight, with strong input from senior departmental stakeholders. The IGB will be the parent body for some established NICS-wide groups, which will ensure business and wider stakeholder involvement. Strategic decisions and behaviours will be encouraged and results will be achieved through the development of appropriate strategies and direct influence.
The IGB will help the NICS to reach an appreciation of the opportunities available through information-led innovation and use of information and communications technology applied on an NICS-wide basis.
The scope of the IGB will encompass NICS departments and agencies, and in conjunction with the CIO will keep a watching brief on developments in the wider UK public sector in relation to IS Strategy, Information Assurance and good practice.

Membership
Members will represent NICS corporate not their own department. For this reason substitutes should attend only by exception.
The Board will be chaired by Permanent Secretary of the Department of Finance and Personnel.
Members:

Stephen Peover	Chair
Anthony Harbinson	DoJ
Edgar Jardine	DCAL
Wendy Johnston	DARD
Tom Kennedy	Chief Information Officer
Noel Lavery	OFMDFM
Colin Lewis	DETI
David Orr	DFP
Cynthia Smith	DoE

Reporting
A record of the IGB business will be maintained.
Before each meeting the CIO will provide a written report on progress with information governance.
At appropriate intervals the Chair of the Board will report to PSG.

Responsibilities
DN. IGB are asked to consider whether it is appropriate for the TOR to contain the high-level statement at 5.1, or the more detailed list of responsibilities at 5.2:
The IGB will give strategic direction on the development and outworking of policies and strategies in relation to Information Assurance, Information Management and the Information Systems.
or:
The IGB will provide advice and guidance on the strategic direction and implementation of the IS Strategy on behalf of the NICS by:
Guiding and reshaping the agenda for information and communications technology by ensuring that the NICS develops and maintains an NICS-wide Information Systems (IS) and an Information Management (IM) strategy;
Provides executive sponsorship and strategic direction for the NICS IS and IM strategies;
Seek to ensure that information-led opportunities are fully realised and avoid uncoordinated or competing initiatives
Provide strategic direction and advice to the NICS CIO that guides the long term success of his work;

Addressing potentially conflicting requirements from departments;
Monitor and reviewing the implementation of the IS and IM strategies;
Help the CIO communicate the IS and IM strategies to the NICS;
Receive and consider reports from the CIO and the Senior Information Risk Owners forum, the information management forum (RIMG) and Heads of Technology Forum.
Working with the CIO make recommendations to PSG on actions to enable the NICS to take advantage of emerging IS opportunities
Ensure that NICS-wide decisions, policies and good practice are communicated to the wider NICS;
Regularly review the list of candidate projects required to implement the IS and IM strategies;
Take a forward view of business needs and identify areas for innovation or research;
Consider the need for new or revised information, security or technology policies and standards;

Other Organisational Structures
The Board will be supported by existing NICS committees :
Senior Information Risk Owners who are addressing information assurance issues;
Heads of Technology who support departments in their use of ICT;
Information Managers Group (RIMG) who consider good practice in records managements.

Escalation
When necessary and appropriate the Chair of the IGB will escalate issues to PSG.

Meetings
The Board will meet at least three times each year.

Review of Terms of Reference

These terms of reference will be reviewed by the IGB at its first meeting, and when formally adopted, will be reviewed every two years.

Appendix X - Definitions for Phases and Events

Phase	Events	Description
Establishing		Defining a business strategy and its underpinning business principles
	Developing corporate strategy in partnership with IS	Exploring (ideally, in partnership with IS) fundamental beliefs and assumptions to create a strategic vision for both the overall organisation and individual departments; continuing dialogue until all parties agree on key issues and organisational requirements; designing and choosing appropriate organisational strategies
	Establishing governance structure	Assigning clear roles and responsibilities to insure unambiguous and fast IS decision-making
	Gathering information and engaging in appropriate consultation	Facilitating ongoing dialogue to clarify business needs in business terms at a collective level
	Developing business principles	Framing the external and internal major business drivers that influence the goals and direction of the organisation over the next two to five years.
	Information gathering and consultation at IS strategy workshops	Forming IS strategy workshops to facilitate cross-domain knowledge and build partnerships between IS and business executives; giving IS executives a better understanding of the organization and its business; familiarising executives with existing and potential uses of IS at a collective level
	Analysing core competences and capabilities	Determining IS competences and capabilities that support business principles
	Evaluating IS opportunities	Discovering, assessing and exploiting potentially-enabling technologies; understanding the potential impacts of emerging technologies, applications and trends at a collective level
	Analysing stakeholder expectations	Articulating stakeholder expectations of how IS will underpin business principles
	Defining IS principles	Documenting the IS principles that emerge from the earlier events

Phase	Events	Description
Endorsing		Developing of and gaining endorsement for an IS strategy and draft ISRA
	Consolidating information from previous phases	Summarising information from previous phases; developing a draft IS strategy; communicating this strategy to IS and key business executives
	Further feedback and consultation	Facilitating discussion between IS and key business executives (from individual departments) about business principles, IS principles and draft IS strategy
	Finalising IS strategy	Finalising IS strategy after taking into account key stakeholder feedback
	Designing a draft ISRA	Mapping IS assets, processes, and resources back to IS principles; prioritising and planning resources that support business principles
	Getting senior executive approval	Presenting IS strategy to senior management; gaining their approval; ensuring that senior management stand behind IS strategy; gaining support from other key stakeholders
Embedding		Embedding the strategy at a departmental level
	Fusing strategy regarding communicating and embedding strategy	Identifying communication methods, channels, and frequency for communication of IS strategy at all management levels and across all departments; aligning operational plans and departmental IS strategies with overall IS strategy
	Resource allocation through planning, budgeting, and workforce alignment	Aligning financial resources and people at department levels with IS strategy
	Executing strategy	Taking planned actions; monitoring implementation
Evaluating		'Evaluating' the strategy at a departmental level
	Gathering feedback and ongoing communication	Identifying what is working well and what needs to be adjusted in relation to the ongoing implementation; examining the validity of underlying business and IS principles; nurturing open human communication; familiarising people with IS strategy.
	Modifying IS strategy if required	

Appendix Y.1 - Codebook – Phase 1 – Start List

Phase 1 - Start List	Code Definition (rules for inclusion)	Sources Coded	Units of Meaning Coded
Value from IS - process	Reference to IS showing demonstrable value	11	25
Understanding of IS by business - process	Amalgamate with understanding of business by IS	1	1
Trust - process	Reference to trust (possibly amalgamate with sharing information) and confidence in IS systems	4	5
Training - process	Reference to training in connection with business users	7	9
Time Period - process	Reference to the time period for the strategy	6	8
Technical skills - delete	Delete node	0	0
Sustainability - inner and external context	Reference to Environmental, Green etc	8	14
Suitability of strategy - content	Views on strategy document - content	3	14
Status of IT Management - delete	Delete (relate with IT reporting structure)	0	0
Standalone Event - process	Reference to strategy being an iterative process (amalgamate with continuous process)	3	3
Soft skills - inner context	Refers to soft skills (amalgamate with HR skills)	1	1
Silo - process	Reference to silos (amalgamate with sharing of information and collaboration)	9	10
Sharing of Information - process	Reference to sharing information and applications, cultural issues with sharing information and work etc.	10	17
Shared Domain Knowledge - Process	Refers to shared knowledge - amalgamate with sharing of information	3	3
Senior executive support for IS - process	Support for IT from Permanent Secretaries and Senior Management	20	51
Satisfaction - process	Reference to interviewee satisfaction with the IS strategy making - process	8	19
RPA - external context	Reference to RPA and Local Government	9	14
Risk Management - process	Reference to the management of risk	5	5
Recentralisation - Shared Service Integration (IT Assist) - inner context	Reference to Recentralisation SSC, IT Assist and ESS	28	95
Public Sector versus Private Sector - external context	Specific reference to public sector and comparisons with private sector	3	5
PSG remoteness - amalgamate	Amalgamate with senior executive support for IS	2	2
Prioritization of IS projects - process	Reference to the prioritisation of IS projects	9	22
Previous Strategies - content	Reference to previous IS strategy making processes	5	11
Pre Devolution NICS structure - inner and external context	Amalgamate with NICS structure and History	1	1
Politicians - Inner Context	Reference to politicians, Ministers, political parties, engaging politicians	14	39
PFG - Content	References to the Programme for Government	6	7
Outsourcing - Process	References to outsourcing of IS work	15	25
Other strategies - Inner Context	Examples HR/Channel/NI Direct	7	11

Phase 1 - Start List	Code Definition (rules for inclusion)	Sources Coded	Units of Meaning Coded
NICS Organisational structure and history - Inner and External Context	Reference to NICS structure and history from Direct Rule to Devolution, and in respect of IS centralisation to decentralisation back to centralisation, integration of DOJ into NICS	12	63
Locus of Power - Inner Context	Reference to issues of power at department and political level	3	4
Key Business Drivers - Inner and External Context	Reference to key business issues identified	10	14
IT Architecture - Content	Reference to IT architecture underpinning IS strategy	15	27
IS understanding of the Business - Process	Reference to IS understanding business needs/requirements, to fully exploit IS will require a better understanding of the issues by staff at Head of Branch level, HOTs should be constantly asking their senior business managers - have your needs been met, do you have any fresh needs	8	10
IS Structure - Inner Content	Reference to the organisation of IS in the NICS including ISUs, HOTs, SSC (IT Assist), role of DID, LOB in Departments and retained IS services in Department, Corporate IS systems, central software development services and mainframe bureau, Mumby Review, CSD, BDS, EDA, ESS, ISID, CITUNI, history of evolution of IS organisation from centralisation to decentralisation back to centralisation	32	100
IS responsibility - Inner Context	Reference to responsibility for IS - role of the in-house IS staff but centre should drive the educational aspect, NICS need to develop own expertise to manage systems – lessen reliance on suppliers, need for various departments to take ownership of the various projects, call for NICS level glossary – explaining IS functions and responsibilities, certain projects need to lead by the business, individual roles of ISUs within Departments and how they relate back to the centre	16	27
IS reporting structure - Inner Context	Reference to IS reporting structure, role of DFP, role of HOTs, need for IS Governance Board, HOTs (Grade 7) reporting to Grade 5 and IS committee in departments, none on PSG or Departmental boards.	6	10
IS networks other than NICS - External Context	References to other IS Networks DOI, DSW, Dept Works and Pensions, Social Security Agency, DOJ	9	17
IS leadership - Process	Reference to IS leaders such as Des Vincent, Bill McCluggage, Chris Thompson, Barry Lowry, Tom Kennedy, David Orr and Stephen Peover also HOT leadership and role of CIO.	14	47
IS involvement in business strategy development - Process	Reference to IS being an integrated part of business change team, IS function needs to be part of the wider business process change team, and not a stand-alone group,	2	5
Innovation - Inner Context	Reference to innovation, stifling of innovation, need for experience and proven record of accomplishment, need for people to entrepreneurial, IS there to support business or innovate	6	7
Information quality - Inner Context	Reference to information quality, access to timely information, corporate systems not providing good quality information, issues re retrieval of information from TRIM, MIS not good, clarity around the sharing of data, reducing error and duplication, issue with the quality of Management Information - "many versions of the truth", need for joined up systems (some systems not linked e.g. financial and HR), issues as to whether the right information is	7	11

Phase 1 - Start List	Code Definition (rules for inclusion)	Sources Coded	Units of Meaning Coded
	being made available, document naming conventions in TRIM,		
Information Assurance (Security) - Process	References to breaches of information security (email/internet and junior staff), criticality of information assurance to NICS (business continuity), costliness of mistakes, website security, data standards, security of personal information, digital signatures, storage of data, certain information assurance policies impinging on business (esp communications), issues re social networking, need for flexibility, contingency arrangements, centralised contingency site, departments unsure where information held	27	67
Implementation Issues - Process	Reference to delays in getting strategy agreed and implemented, actions to implement strategy and owners of actions, issue of resourcing re implementation of strategy	3	4
Human Resource Skills - Inner Context	Refers to human resource skills, people issues, SFIA framework, home working, flexible working (need for HR policy, WIFI and building access re same), redeployment of staff, support for LOB systems, HR resourcing issues, professionalising of IS, Head of Profession, skill set of resources, centralising/outsourcing of development work, need for more people in terms of business analysis, need for soft skills (communication and business skills), sharing of resources, cultural change from presence to output	33	80
Governance - Process	Reference to Governance of IS at pan NICS level (cross departmental level) and who makes decisions and demise of previous eGovernment Board	34	68
Ease of Use - Process	Reference to ease of use in connection to systems particularly TRIM and HR connect and need to simply systems	10	20
Departmental Plans - Content	Reference to departmental business plans, IS strategies and e-strategies	14	23
Decentralisation - Inner Context	Delete node	2	4
Current Strategy-Making Process	Reference to current strategy development process	1	1
Cultural disconnects - Inner Context	Reference to cultural issues such as joined up working, sharing of information, information assurance and use of TRIM	10	16
Cross Departmental Integration - Inner Context	Reference to joined up government, collaboration between departments, sharing of information, silos (possible amalgamate collaboration, sharing of information and silo)	29	61
Cost Savings - Process	References to cutting costs, reducing costs (possible amalgamate with budgetary control)	7	7
Continuous Process	References to strategy as a continuous process	1	1
Consultation - Process	References to consultation around the strategy between business users and technologists.	12	18
Communication - Process	References to communication around the strategy, communication between the centre and departments	14	29
Collaboration - Process	Refers to collaboration between departments, between departments and centre, sharing of information (May need to amalgamate sharing of information)	18	39
Change readiness - Inner Context	References to change	8	8
Centralisation - Inner Context	Reference to centralising IT services	16	31

Phase 1 - Start List	Code Definition (rules for inclusion)	Sources Coded	Units of Meaning Coded
Business - IS partnership - Process	Reference to business users and IS people working together	6	6
Budgetary control - Process	possibly subsume under cost savings	28	55
British Government Influence and IS Strategy - External Context	reference to British IS strategy	18	30
Benefits Realisation - Process	References to benefits realisation in respect of IS projects, strategy	12	24
Background of Participants - Context	Description of participants' backgrounds	12	15
Alignment	References to alignment to PFG, Departmental Strategies, Departmental IS Strategies, British Government IS Strategy	17	35

Appendix Y.2 - Codebook – Phase 2 – Data display

Phase 2 - Data Display	Code Definition (rules for inclusion)	Sources Coded	Units of Meaning Coded
Strategy Work Process (Technical)	Describes strategy work processes of a technical nature	63	733
Review contracts with suppliers (outsourcing)	References to outsourcing of IS work	17	34
For Outsourcing	References in favour of outsourcing	2	2
Against Outsourcing	References against outsourcing	5	7
Previous Strategy Approach	References to previous strategic approach	1	1
Previous Strategies - content REHOME	Reference to previous IS strategy making processes	5	11
IS fails to meet commitments	References to IS not fulfilling commitments	17	29
Implement Projects	Reference to delays in getting strategy agreed and implemented, actions to implement strategy and owners of actions, issue of resourcing re implementation of strategy	11	27
Evaluate IS Strategy	References to benefits realisation in respect of IS projects, strategy, merged with value from IS	15	28
Benefits realisation does not happen	References to lack of benefits realisation	11	91
Benefits realisation does happen	References to where benefits realised	8	45
Establish a Governance Structure	Reference to establishment Governance of IS at pan NICS level (cross departmental level) and who makes decisions and demise of previous eGovernment Board	60	395
Perception of IS as enabler	Reference to where IS viewed as an enabler	21	35
Perception of IS as a cost	Reference to where IS viewed as a cost	10	16
Governance - Risk Management	Reference to Risk management	12	23
Governance - prioritisation of IS projects	Reference to prioritisation of IS projects	9	22
IS does prioritise well	Reference to where IS prioritised well	1	1
IS does not prioritise well	Reference to where IS did not prioritise well	4	9
Governance - IS involvement in business strategy development	Reference to IS involvement in business strategy-making	6	10
IS not involved in business strategy development	Reference to lack of IS involvement in business strategy making	5	13
IS involved in business strategy development	Reference to IS involvement in business strategy making	0	0
Governance - Information Assurance	Reference to Governance and IA	27	66
Information Assurances Issues	Reference to IA issues	27	79
Information Assurance Policies	Reference to IA policies	17	35
Governance - Frequency and Effectiveness of Meetings	Reference to frequency members attended Governance meetings and effectiveness of those meetings	1	2
Governance - cost savings	Reference to governance and cost savings	9	13
Governance - Consultation	Reference to governance and level of consultation	18	26
Governance - Budgetary Control	Reference to governance and budgetary control	28	55

Phase 2 - Data Display	Code Definition (rules for inclusion)	Sources Coded	Units of Meaning Coded
Develop Project Portfolio	Reference to development of the project portfolio	5	8
Project prioritisation	References to project prioritisation	6	6
Develop Corporate Strategy	References to the technical work process of developing corporate strategy i.e. Programme for Government	8	18
Develop Communication Plan	Reference to development of communication plan	1	1
Develop Business Principles	Reference to key business principles identified	14	20
Key Business Drivers - Inner and External Context	Reference to key business issues identified	14	24
Design IS Reference Architecture	Reference to technical work process of designing IS architecture underpinning IS strategy	24	68
Previous IT Architecture	Reference to Previous IT architecture, brick etc	2	12
Current IT Architecture	Reference to Current IT architecture and TOGAF	21	53
Assess Technology Opportunities	Reference to assessment of technology opportunities	10	26
Innovation - Inner Context	Reference to innovation, stifling of innovation, need for experience and proven record of accomplishment, need for people to entrepreneurial, IS there to support business or innovate	6	7
Appoint Project Sponsor (SRO)	Reference to responsibility for IS - role of the in-house IS staff but centre should drive the educational aspect, NICS need to develop own expertise to manage systems – lessen reliance on suppliers, need for various departments to take ownership of the various projects, call for NICS level glossary – explaining IS functions and responsibilities, certain projects need to lead by the business, individual roles of ISUs within Departments and how they relate back to the centre	16	28
Business-IS partnership responsibility for IS	Reference to Business-IS partnership and responsibility for IS	16	27
Analyse current IS	Reference to analysis of existing IS	5	11
Amend Business Polices and Processes	Reference to need to amend business policies and processes	3	5
Align Departmental IS Strategies	Reference to the technical work process of aligning Departmental IS strategies with NICS IS strategy	14	23
Departmental Plans - non IS	Reference to non IS Departmental Plans	8	15
Departmental Plans - IS	Reference to Departmental Plans IS	11	16
Strategy Work Process (Social)	Reference to Social Strategy Work Processes	59	617
Workshop	Reference to workshops	6	6
Time Period - process	Reference to the time period for the strategy	12	32
Senior executive support for IS – process	Support for IT from Permanent Secretaries and Senior Management. Merged with PSG remoteness	22	53
Senior Executives do not support IS	Evidence that senior executives do not support IS	17	45
Senior Executive Support for IS	Evidence of senior executive support for IS	12	13
Senior Executive Support for IS - PSG remoteness	Reference to remoteness of PSG in relation to IS	2	2

Phase 2 - Data Display	Code Definition (rules for inclusion)	Sources Coded	Units of Meaning Coded
Satisfaction - process	Reference to interviewee satisfaction with the IS strategy making - process	11	33
Unhappy	Reference to satisfaction with strategy making process	9	28
Happy	Reference to dissatisfaction with strategy making process	10	24
Presentation to IS Leadership	Reference to presentation to IS Leadership in respect of IS strategy	1	2
One to One Interviews	Reference to one to one interviews with key stakeholders	2	3
Meetings with DHOTs	Reference to Meetings with DHOTs	3	3
Meetings with Departments	Reference to meetings with individual departments	2	2
Meeting with Politicians	Reference to meeting with Politician in relation to IS	1	1
Meeting with Consultants	Reference to meeting with IS consultants	2	2
IS leadership - Process	Reference to IS leaders such as Des Vincent, Bill McCluggage, Chris Thompson, Barry Lowry, Tom Kennedy, David Orr and Stephen Peover also HOT leadership and role of CIO.	15	48
Weak IS leadership	Reference to weak IS leadership	8	21
Strong IS Leadership	Reference to strong IS leadership	5	10
IS Human Resources – Impediment	Refers to human resource skills, people issues, SFIA framework, home working, flexible working (need for HR policy, WIFI and building access re same), redeployment of staff, support for LOB systems, HR resourcing issues, professionalising of IS, Head of Profession, skill set of resources, centralising/outsourcing of development work, need for more people in terms of business analysis, need for soft skills (communication and business skills), sharing of resources, cultural change from presence to output	33	80
Training - inner context	Reference to training in connection with business users, merged with human resource skills	11	16
Lack of Human Resources	Reference to shortage of IS human resources	9	14
Human Resources - Change Readiness	Reference to change readiness of IS human resources	10	10
Human Resource Skills - soft skills	Reference to soft skills of IS human resources	2	2
Human Resource Skills - locus of power	Reference to locus of power from perspective of IS human resources	3	4
Current Strategy-Making Process	Reference to current strategy development process	1	1
Continuous Process	References to strategy as a continuous process	1	1
Consultation	References to level of consultation in relation to strategy-making	3	3
Communication - Process	References to communication around the strategy, communication between the centre and departments. IS understanding of business, collaboration, sharing of information, shared domain knowledge, business understands IS merged with communication	47	278
Cultural issues sharing of information	Reference to cultural issues around sharing information	12	13

Phase 2 - Data Display	Code Definition (rules for inclusion)	Sources Coded	Units of Meaning Coded
Cross Departmental Integration Positives	References to positive cross departmental integration	11	19
Cross Departmental Integration Negatives	Reference to negative cross departmental integration	19	30
Communication style or method	Reference to style or method of communication	12	20
Communication IS Understanding of the Business	Reference to IS understanding of business and communication	9	11
IS understands the business	Reference to where IS understands business	0	0
IS does not understand business	Reference to where IS does not understand business	4	5
Communication - silo	Reference to Silos and impact on communication	10	11
Communication - Sharing of Information	Reference to communication and sharing of information	16	26
Communication - Shared Domain Knowledge	Reference to communication and knowledge sharing	5	6
Shared Domain Knowledge - cross departmental	Reference to knowledge sharing across departments	7	17
Shared Domain Knowledge - between DFP and departments	Reference to knowledge sharing between DFP and individual departments	6	6
Communication – Collaboration	Reference to communication and collaboration	19	41
Weak Collaboration	Reference to weak collaboration	16	18
Strong Collaboration	Reference to strong collaboration	7	11
Communication - business understands IS	Reference to business understanding IS and communication	1	1
Business - IS partnership – Process	Reference to business users and IS people working together, merged with trust	28	48
Strong IS-Business relationship	Reference to IS-business relationship is strong	0	0
Partnership - value of IS	Reference to perceived value of IS	16	36
IS is an enabler	Reference to where IS viewed as an enabler	8	14
IS is a cost	Reference to where IS viewed as a cost	9	14
Partnership – Trust	Reference to trust between IS and business	6	7
IS-business lack close relationship	Reference to where there is a lack of a close relationship between IS and business	2	2
IS fails to meet commitments	Reference to where IS fails to meet commitments	16	28
Business-IS partnership responsibility for IS	Reference to business-IS partnership and responsibility for IS	18	29
Business-IS partnership - Ease of Use	Reference to where systems are easy to use and impact on business-IS partnership	19	38
Building IS Capability	Reference to enhancing IS Capability	2	9
Approval from senior management	Reference to approval from senior management for IS	8	12
Recentralisation	Reference to recentralising IS	34	112
Shared Services - Positives	References to positives of Shared Services	8	11
Shared Services – Negatives	References to negatives of Shared Services	20	29
Shared Services – Background	Reference to background of Shared Services	14	25
Outer Context	Reference to Outer Context and impact on strategic alignment	38	238
Sustainability - inner and external context	Reference to Environmental, Green etc	14	32
RPA - external context	Reference to RPA and Local Government	14	25

Phase 2 - Data Display	Code Definition (rules for inclusion)	Sources Coded	Units of Meaning Coded
Public Sector versus Private Sector - external context	Specific reference to public sector and comparisons with private sector	7	19
NICS structure and history - Inner and External Context	Reference to NICS structure and history from Direct Rule to Devolution, and in respect of IS centralisation to decentralisation back to centralisation, integration of DOJ into NICS	12	63
Past Structure Decentralisation	Reference to past decentralised structure	5	24
Past Structure Centralisation	Reference to past centralised structure	4	5
Current Structure	Reference to current structure	10	40
IS networks other than NICS - External Context	References to other IS Networks DOI, DSW, Dept Works and Pensions, Social Security Agency, DOJ	11	38
British Government Influence and IS Strategy - External Context	Reference to British IS strategy	28	61
British Government Past Influence	Reference to influence of British Government in the past	2	3
British Government - Current influence	Reference to influence of British Government Current	20	50
Inner Context	Reference to influence of inner context on strategic alignment	41	263
Sustainability - inner and external context	Reference to Environmental, Green etc	13	31
Shared Service Integration (IT Assist) - inner context	Reference to SSC, IT Assist and ESS	27	80
Shared Services - Positives	Reference to positives of shared services	8	11
Shared Services – Negatives	Reference to negatives of shared services	20	29
Shared Services – Background	Reference to background of shared services	14	25
Politicians - Inner Context	Reference to politicians, Ministers, political parties, engaging politicians	14	40
Politicians Difficulties	Reference to difficulties with politicians in relation to IS	11	18
Politicians - positive relationships	References to positive relationships with politicians in relation to IS	3	7
Engaging politicians	Reference to engagement with politicians in relation to IS	6	10
Other strategies - Inner Context	Examples HR/Channel/NI Direct	11	23
NICS structure and history - Inner and External Context	Reference to NICS structure and history from Direct Rule to Devolution, and in respect of IS centralisation to decentralisation back to centralisation, integration of DOJ into NICS	12	63
Recentralisation	Reference to recentralisation of IS	11	36
Decentralisation	Reference to decentralisation of IS	4	24
Centralisation	Reference to centralisation of IS	5	6
Decentralisation - Inner Context	Delete node	2	2
Background of Participants – Context	Description of participants backgrounds	16	24
Decentralisation	Reference to decentralisation of IS	5	25
Centralisation	Reference to centralisation of IS	5	8

Appendix Y.3 - Codebook - Phase 3 – Data Reduction

Thematic Framework	Phase	Primary Data Coded	Units of Meaning Coded
Establishing	Establishing	**39**	**190**
Core Social Work - Collaborating		6	8
Core Technical Deliverable - Develop Business Principles		21	38
Degree of Alignment - High		17	35
Focus – Principles		19	27
Level of Engagement - Collective		1	1
Social Impediment - Lack of IS Leadership		15	48
Technical Impediment - Lack of Planning Sophistication		13	33
Endorsing	Endorsing	**62**	**642**
Core Technical Deliverable – defining an enterprise architecture		12	37
Degree of Alignment - High		17	35
Focus – Strategy		8	12
Level of Engagement - Collective		1	1
Social Impediment - Lack of Close Business - IS Partnership		44	156
Core Social Work – IS Strategy Workshops		6	6
Technical Impediment - Unclear Governance		60	395
Embedding	Embedding	**57**	**446**
Core Technical Deliverable – Delivery of Projects		42	192
Degree of Alignment - High to Medium		23	51
Focus – Projects		11	26
Level of Engagement - Departmental		1	1
Social Impediment - Lack of Executive Commitment		33	82
Core Social Work – Co-ordinating		9	14
Technical Impediment - Ineffective IS Infrastructure		33	80
Evaluating	Evaluating	**51**	**514**
Core Social Work - Reflection and feedback assessment		14	36
Degree of Alignment - Medium		17	35
Focus – Value		15	28
Level of Engagement - Departmental		1	1
Social Impediment - Culture		47	278
Technical Impediment - Lack of Values Realisation		15	136