An Exploration of How the Alignment of Business and Information Systems Strategies is Practiced by Information Systems Managers in Ireland's Institutes of Technology

Thesis submitted for the degree of Ph.D.

2018

James Holohan

Declaration

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Summary.

The strategic value of information systems (IS) to organisations is reflected in the stream of research consisting of three closely related sets of literature developed since the late 1970s within the IS domain (Chan and Huff 1992, Ward 2012). The sets comprise of IS for competitive advantage, strategic information systems planning (SISP), and alignment between IS strategy and business strategy (strategic alignment). Strategic alignment (SA) remains a focus of attention for both research and practice alike, primarily because of its potential to contribute towards enhanced organisation performance (Chan and Huff 1992, IBM 2009, Chen, Mocker et al. 2010, Computer Sciences Corporation 2011, Briggs and Shingles 2015). Today's challenge is not to achieve SA only when plans are devised, rather it is to continuously align IS and business goals by periodically addressing all major aspects of IS planning (Salmela and Spil 2002, Vessey and Ward 2013). This places the focus on the "how" rather than the "what" of SA, thereby stimulating new lenses by which we can research SA (Renaud and Walsh 2010, Pelletier and Raymond 2014). One such lens is the strategy-as-practice (SaP) lens which can elucidate practice (Chan and Reich 2007, Coltman, Tallon et al. 2015), thus bringing a practice dimension to researching SA (Nickels 2004, Karpovsky and Galliers 2015, Renaud, Walsh et al. 2016). With a paucity of research into SA within public service organisations (PSOs) and with the majority of studies concentrating on the role of senior executives, the focus of this thesis is on how SA is practiced by IS managers in Ireland's Institutes of Technology (IIT). In light of these considerations, I decided to undertake an exploratory study to help understand how the alignment of business and IS strategies is practiced by IS managers in IIT. Therefore my study addresses the following research question:

How is the alignment of business and IS strategies practiced by IS managers in IIT?

To help inform my research, I developed a rich perspective on three supporting literature sets comprising, strategic management literature, public service strategy literature and the literature on the role of the highest ranking IS executive. I undertook a systematic review of the SA literature. The review was carried out in a qualitative manner through the combination of a SaP lens and the constructivist grounded theory coding method, and identified 16 research avenues for further enquiry into SA.

Ensuring consistency between my review of the SA literature, my research question and my methodological choices, I chose a methodology that combines a SaP lens with the

constructivist grounded theory coding method. The SaP lens I chose is Whittington's (2006b) integrative framework for SaP and I chose the constructivist grounded theory coding method espoused by Charmaz (2014), as it complements the Whittington (2006b) integrative framework for SaP as a data analysis tool. My choice of research design is case study, a design that has made valuable contributions to the field of IS theory and practice (Dubé and Paré 2003, Holohan and McDonagh 2014a). Although case study is an appropriate research design, it lacks guidance for data analysis, giving rise to practical limitations in terms of rigor and effectiveness (Eisenhardt 1989, Yin 2014). However, when data analysis is guided by Whittington's (2006b) integrative framework for SaP and executed via the constructivist grounded theory coding method, the full benefits of applying case study as a research design can be realised. Together, these three pillars comprise my research methodology and design.

Based on certain criteria, I selected two IIT as the appropriate setting within which to execute my study. A detailed explanation as to how I collected primary and secondary data is presented, as is the organisation of data in a case study database. My method of data analysis was underpinned by writing memos on the data I gathered and coding the content of these memos and interview data, in accordance with the code syntax I developed from the theoretical constructs within Whittington's (2006b) integrative framework for SaP and the constructivist grounded theory coding method espoused by Charmaz (2014). The data contained in the full set of codes was availed of to write and structure analytical memos. Presentation of my case narratives comprises a single description of the national and sectoral context followed by a case narrative of each case at the macro, meso and micro levels. The intra-case and cross-case analysis are also presented in accordance with the macro, meso and micro level structure.

My taxonomy provides an understanding as to how the alignment of business and IS strategies is practiced by IS managers in IIT. The taxonomy depicts the IS manager within IIT as a functional manager in receipt of a sector wide IS strategy, whose main concern is to obtain optimum efficiencies from IS at lowest possible cost. By comparing my taxonomy with the extant literature, I reiterate what is already known and illustrate precisely how my work enlarges the current body of knowledge. My study makes four key contributions to the body of knowledge that should be of interest to both academia and practice. The four key contributions are theoretical, practical, methodological and

empirical. Finally, I conclude by summarising the findings from my study, its limitations and I propose avenues for further enquiry.

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Glossary of terms

AIS	-	Association for Information Systems
BCG	-	Boston Consultancy Group
BOD	-	Board of Directors
BP	-	Business Plan
BTF	-	Behavioural Theory of the Firm
C&AG	-	Comptroller and Auditor General
CAQDAS	-	Computer Assisted Qualitative Data Analysis Software
CAD	-	Computer Aided Design
CDO	-	Chief Digital Officer
CEO	-	Chief Executive Officer
CFO	-	Chief Financial Officer
CIO	-	Chief Information Officer
CRF	-	Case Research Framework
CSF	-	Critical Success Factor
CSO	-	Chief Strategy Officer
CTO	-	Chief Technology Officer
CTrO	-	Chief Transformation Officer
CSP	-	Case Study Protocol
DoF	-	Department of Finance
DoES	-	Department of Education and Skills
DPER	-	Department of Public Expenditure and Reform
DES	-	Department of Education and Science
DIT	-	Dublin Institute of Technology
EiSC	-	Executive in Strategic Change
EMT	-	Executive Management Team
EPOS	-	Electronic point of sales system
ERP II	-	Enterprise Resource Planning, Version 2
ETF	-	Evolutionary Theory of the Firm
ETO	-	Educational Training Officer
FETAC	-	Further Educational and Training Awards Council
GB	-	Governing Body

G2B	-	Government to Business
G2G	-	Government to Government
HEA	-	Higher Education Authority
HEI	-	Higher Education Institute
HETAC	-	Higher Educational and Training Awards Council
IO	-	Industrial Organisation
IIT	-	Ireland's Institutes of Technology
IoT	-	Institute of Technology
IoTI	-	Institute of Technology Ireland
IiBC	-	Innovation/Incubation Business Centre
IS	-	Information Systems
ISP	-	Information Systems Plan
IT	-	Information Technology
IIT	-	Ireland's Institutes of Technology
ISSG	-	Information Systems Strategy Group
KBV	-	Knowledge Based View
KPI	-	Key Performance Indicator
MIS	-	Management Information Systems
MOA	-	Memorandum of Agreement
MOU	-	Memorandum of Understanding
MPIHL	-	Malaysian Public Institutes of Higher Education
NAA	-	National Archives Association
NCEA	-	National Council for Educational Awards
NFQ	-	National Framework of Qualifications
NPM	-	New Public Management
NQAI	-	National Qualifications Authority of Ireland
OCA	-	Organisational Cultural Audit
OECD	-	Organisation for Economic Co-Operation and Development
PSO	-	Public Service Organisation
QQI	-	Quality and Qualifications Ireland
RBT	-	Resource Based Theory
RBV	-	Resource Based View
RTC	-	Regional Technical College
SA	-	Strategic Alignment

SAM	-	Strategic Alignment Model
SAMM	-	Strategic Alignment Maturity Assessment Model
SaP	-	Strategy as Practice
SBU	-	Strategic Business Unit
SEPA	-	Single European Payment Area
SIM	-	Society for Information Management
SISP	-	Strategic Information Systems Planning
SMI	-	Strategic Management Initiative
SMJ	-	Strategic Management Journal
SMS	-	Strategic Management Society
STROIS	-	Strategic Orientation of Information Systems
STROEPIS	-	Strategic Orientation of the Existing Portfolio of Information Systems Applications
SWOT	-	Strengths, Weaknesses, Opportunities and Threats
TCE	-	Transaction Cost Economics
TMT	-	Top Management Team
TSAM	-	Translated Strategic Alignment Model
TU	-	Technological University
VP	-	Vice President
VRIN	-	Valuable, Rare, Inimitable, non-substitutable

Chapter 1 - Introduction and overview of the research.

We shall not cease from exploration
And the end of all our exploring
Will be to arrive where we started
And know the place for the first time.
T.S. Eliot (Little Gidding – 1943)

1.1 Introduction.

This research is situated within the strategic alignment (SA) domain, which in turn is one of three central themes within the information systems (IS) strategy domain (Chen, Mocker et al. 2010, Merali, Papadopoulos et al. 2012). Today's challenge is not to achieve SA only when plans are devised, rather it is to continuously align IS and business goals by periodically addressing all major aspects of IS planning (Salmela and Spil 2002, Vessey and Ward 2013). This places the focus on the "how" rather than the "what" of SA, thereby stimulating new lenses by which we can research SA (Renaud and Walsh 2010, Pelletier and Raymond 2014). One such lens is the strategy-as-practice (SaP) lens which can elucidate practice (Chan and Reich 2007, Coltman, Tallon et al. 2015), thus bringing a practice dimension to researching SA (Nickels 2004, Karpovsky and Galliers 2015, Renaud, Walsh et al. 2016). SaP concentrates on studying three Ps i.e. the practitioners (people who do the work of strategy), the practices (interrelated routines) and the praxis (stream of activity undertaken by practitioners by which strategy is attained) (Whittington 2006b, Jarzabkowski, Balogun et al. 2007, Jarzabkowski and Spee 2009). With a paucity of research into SA within public service organisations (PSOs) and with the majority of studies concentrating on the role of senior executives, the focus of this thesis is on how SA is practiced by IS managers in Ireland's Institutes of Technology (IIT).

This chapter provides an overall introduction to the thesis. Section 1.2 advances the rationale for the study and introduces the research question. A synopsis of my personal motivation for undertaking the study is presented in section 1.3. In section 1.4 a high-level diagrammatic presentation portrays the structure of the thesis, followed by an overview of the central focus of each chapter while drawing attention to novel features where appropriate. The chapter is drawn to a conclusion in section 1.5.

1.2 Rationale for the study.

The strategic value of IS to organisations is reflected in the stream of research consisting of three closely related sets of literature developed since the late 1970s within the IS domain

(Chan and Huff 1992, Ward 2012). The sets comprise of IS for competitive advantage, strategic information systems planning (SISP), and alignment between IS strategy and business strategy (Chen, Mocker et al. 2010, Merali, Papadopoulos et al. 2012).

Being a central quest in IS strategy research, alignment between IS strategy and business strategy gave rise to the theme of SA (Jarvenpaa and Ives 1990, Henderson and Venkatraman 1993, Petter, DeLone et al. 2012). SA remains a focus of attention for both research and practice alike, primarily because of its potential to contribute towards enhanced organisation performance (Chan and Huff 1992, IBM 2009, Chen, Mocker et al. 2010, Computer Sciences Corporation 2011, Briggs and Shingles 2015).

The main focus of attention within the SA literature is on the intellectual dimension with a significant emphasis on models concerned with measuring SA (Venkatraman and Camillus 1984, Miller 1993, Basir, Anual et al. 2006, Marabelli and Galliers 2017), thus providing a largely mechanistic view of SA. These studies provide little value to help aid our understanding of issues that are social as distinct from intellectual, as they do not exhibit practical relevance to be of any worth to organisations operating in the dynamic world of IS and business strategies (Ciborra 1997, Smaczny 2001, Leonard 2008, Schlosser, Beimborn et al. 2015). This attention to the relationships between people points towards the need for practice-based studies at all organisational levels (Motjolopane and Brown 2004, Schlosser, Wagner et al. 2012), rooted in our everyday experiences so as to aid our understanding of what practitioners do to help and/or hinder the achievement of SA (Ciborra 1997, Gast and Zanini 2012, Karpovsky and Galliers 2015). These calls for practice-based studies mirror the practice turn in the social sciences that started back in the 1980s (Whittington 2006a, Wagner and Weitzel 2008). Therefore, it is hardly surprising that the SaP perspective which concentrates on day-to-day practices carried out by people within organisations, has entered the literature within the strategic management domain (Jarzabkowski 2004, Chia and MacKay 2007) and has also become part of the IS strategy research agenda, including SA (Hiekkanen, Helenius et al. 2013, Henfridsson and Lind 2014).

In taking a SaP approach, I decided to study the praxis undertaken by the IS manager for the following three reasons: First, SA has remained a top concern for IS executives over the last three decades (Niederman, Brancheau et al. 1991, Luftman, Kempaiah et al. 2006, Luftman and Derksen 2011, Kappelman, Nguyen et al. 2017). Second, a high level of

cognitive commonality of matters pertaining to SA between IS managers and other stakeholders (in particular senior executives), positively effects SA (Ciborra 1997, Hartung, Reich et al. 2000, Tan and Gallupe 2006, Wagner 2014). Third, the emphasis of SA research to date has been on the activities of aggregate actors (groups) as distinct from individual actors (Holohan and McDonagh 2014a, Karpovsky and Galliers 2015). Therefore, by concentrating on praxis undertaken by the IS manager, I begin to help ameliorate our current limited understanding as to what this central practitioner does to help achieve SA.

My filtering of the SA literature identified that there is a dearth of SA studies in the context of PSOs, hence I decided to undertake my study within IIT.

In light of the above considerations and my review of the literature detailed in chapters 2 and 4, I decided to undertake an exploratory study to help understand how the alignment of business and IS strategies is practiced by IS managers in IIT. Therefore my study addresses the following research question:

How is the alignment of business and IS strategies practiced by IS managers in IIT?

1.3 Personal motivation for the study.

My experience as both an IS manager and an academic has revealed to me that what takes place in practice within IIT regarding the alignment of business and IS strategies, does not always reflect what is written in IS and business strategic plans. My experience has also revealed that a primary reason for this disjoint, is because the IS manager's role does not include development and implementation of business strategy, and nor does it reflect an IS manager who plays a prominent role in the development of IS strategy. Therefore the IS manager's voice has difficulty being heard at a strategic level, as he/she is not involved as an equal with senior executives in the development and implementation of strategy. Indeed, my experience informs me that the IS manager's role is limited to reducing costs and gaining efficiencies, while seeking ways to help accomplish SA. I was therefore interested to find out if my perception was also reflected within SA research and if so, what could be done to obtain greater input from the IS manager in relation to SA, hence contribute to an increase in organisation performance. In pursuit of this aim, I decided to explore the praxis carried out by the IS manager as he/she goes about helping accomplish SA.

1.4 Organisation of the thesis.

The thesis is organised into a total of eight chapters. Each chapter commences by stating the chapter's objectives and concludes by reflecting on how these objectives were achieved. The manner in which all eight chapters are composed reflects the element(s) of the research question they address. Figure 1.1 depicts a high level view of the thesis, broken down by chapter and driven by the research question.

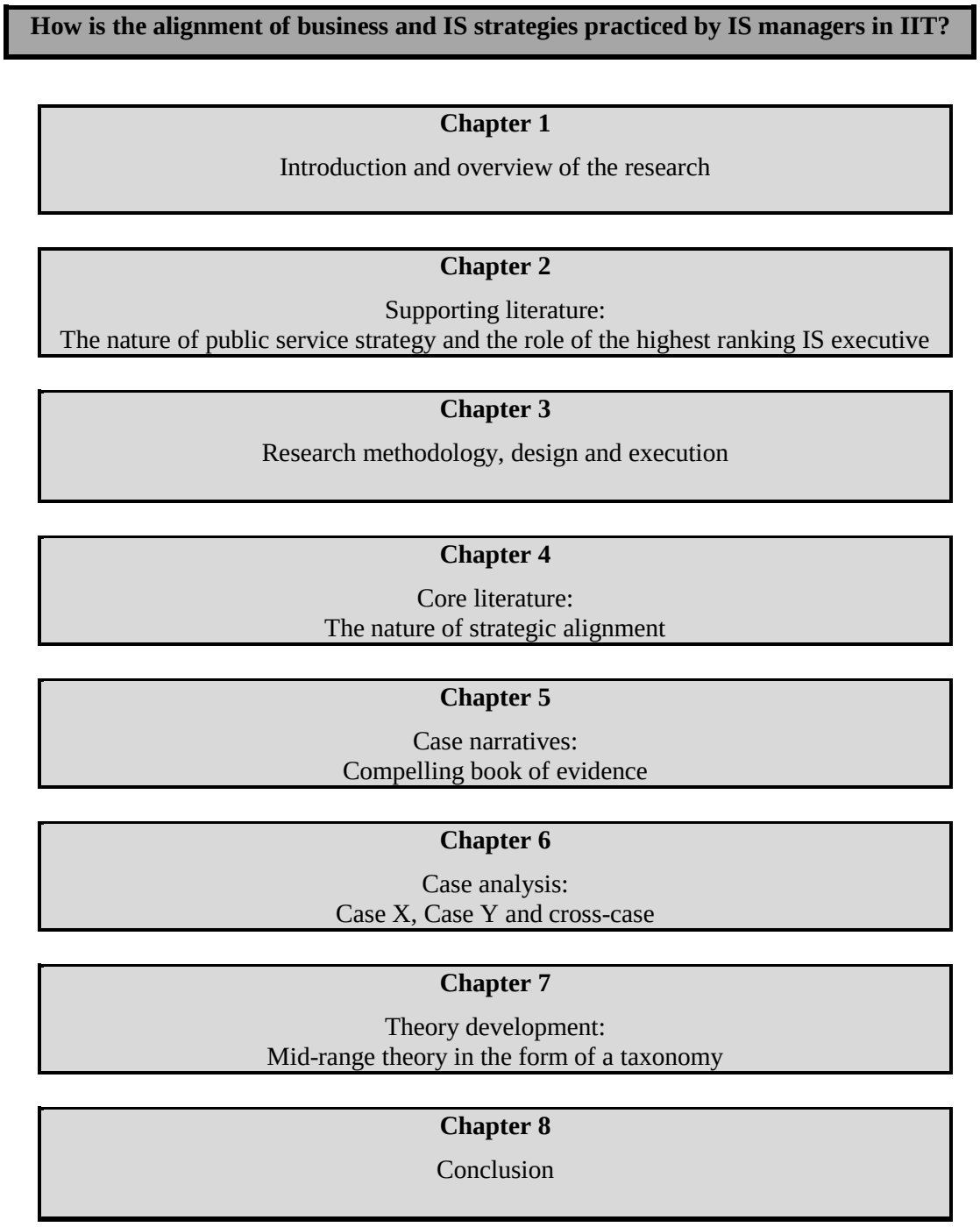


Figure 1.1 High level view of thesis.

Chapter 1: Introduction and overview of the research. This chapter forms the opening chapter to the thesis. I introduce the rationale for my study, my personal motivation for the study and provide a high level presentation of the central focus of each chapter drawing attention to novel features where appropriate.

Chapter 2: Supporting literature: The nature of public service strategy and the role of the highest ranking IS executive. The focus of this chapter is on the development of a rich perspective on the supporting literature sets I avail of to inform my research. These sets include the strategic management literature, the public service strategy literature and the literature on the role of the highest ranking IS executive. Accordingly, this chapter offers an account of the significant advances realised by strategy within the strategic management domain followed by an elucidation as to how strategy has evolved within the public service domain, and the reasons why strategy formulation and implementation differs between private sector organisations and PSOs. Lastly, I present an appraisal of the role undertaken by the highest ranking IS executive.

Chapter 3: Research methodology, design and execution. The objective of this chapter is to present and justify the most appropriate methodology and design to answer my research question, and present how they were effected in practice. In this chapter, I present my novel methodological approach as a means to answer my research question. As my research question is focused on how practices shape reality, I chose a SaP theory as the lens to help guide my data collection and analysis. More specifically, I chose Whittington's (2006b) integrative framework for SaP, as it is the only SaP theory I found that delineates between practitioners, practices and praxis at the micro, meso and macro levels of activity. Although SaP research lacks a formalised and codified set of research techniques, it can draw on procedures and rules from other interpretive research methodologies to overcome these shortcomings (Langley and Tsoukas 2010). I chose the constructivist grounded theory coding method, as it complements the Whittington (2006b) integrative framework for SaP as a data analysis tool, and is based on a qualitative approach to research within the interpretive paradigm. My choice of research design is case study, a design that has made valuable contributions to the field of IS theory and practice (Dubé and Paré 2003, Holohan and McDonagh 2014a). The case study design is very suitable when the research is focused on real-life phenomena where little, if any, theoretical knowledge exists and where the phenomena cannot be studied outside the context in which it occurs (Siggelkow 2007, Pan and Tan 2011). Although case study is an

appropriate research design, it lacks guidance for data analysis, giving rise to practical limitations in terms of rigor and effectiveness (Eisenhardt 1989, Yin 2014). However, I am satisfied that when data analysis is guided by Whittington's (2006b) integrative framework for SaP and executed via the constructivist grounded theory coding method, the full benefits of applying case study as a research design can be realised. Together, these three pillars comprise my research methodology and design, which aid the development of mid-range theory as to how IS managers practice the alignment of business and IS strategies in IIT. This research methodology contributes to answering the calls of Ciborra (1997), Renaud and Walsh (2010), and Hiekkanen et al. (2013) for practice-based studies, to ameliorate our understanding as to how practitioners practice SA.

I then present how my chosen research methodology and design were effected in practice. The selection of two cases as the appropriate setting within which to execute my study was directed by certain criteria. These criteria, which are highly influenced by the relevance of the cases to my research question (Pan and Tan 2011), are explained in detail. I then present how I engaged with both case sites by negotiating access to meetings, documentation and key people for the purpose of interviews. I describe how I structured my investigation through the utilisation of a case research framework (CRF) and case study protocol (CSP). A detailed explanation as to how I collected primary and secondary data is presented, as is the organisation of data in a case study database.

My method of data analysis was underpinned by writing memos on the data I gathered from documentation and from the notes I compiled as a passive observer at meetings. The content of these memos and the interview transcripts, were coded in accordance with the code syntax I developed from the theoretical constructs within Whittington's (2006b) integrative framework for SaP and the constructivist grounded theory coding method espoused by Charmaz (2014). The data contained in the full set of codes was availed of to write and structure analytical memos. It was this explicit act of writing that helped me to develop my conceptual ideas, explore and refine them (Klag and Langley 2013). The subset of analytical memos referring to the praxis of the IS manager brought about the development of my taxonomy in chapter 7. In carrying out my data analysis I utilised NVivo (a computer assisted qualitative data analysis software - CAQDAS) as it significantly reduces the amount of time required to code large amounts of qualitative data manually and creates an electronic audit trail. The electronic audit trail enables retracing of my analytical steps, making my research transparent and providing explanations to

conclusions reached (Glaser and Strauss 1967, Hutchison, Johnston et al. 2009, Charmaz 2014).

Chapter 4: Core literature: The nature of strategic alignment. Through the application of a SaP lens, this chapter develops a rich perspective on the SA literature, and in so doing, further defines the research gap identified in section 1.2. I undertook my review with three objectives in mind. First, my approach must facilitate a systematic review of the SA literature in a qualitative manner, second, it must provide the basis to review the SA literature through a SaP lens, and third, it must identify research gaps and opportunities for further enquiry (Okoli and Schabram 2010, Rowe 2012, Schryen 2013). By achieving these three objectives, both individually and collectively, I develop a distinctive approach to reviewing the SA literature in a qualitative manner.

The chapter opens by providing a high-level overview of the IS strategy literature. This overview locates SA as one of three central themes in this domain of enquiry and elucidates the critical nature of SA by summarising the voice of practice through the views of practitioners and consultants. This is followed by a detailed critique of my approach to reviewing and analysing the SA literature. The approach is guided by a six stage process that utilises my SaP lens constructed from;

(i) a SaP typology that delineates between the micro, meso and macro levels,
(ii) a classification scheme constructed from the constructivist grounded theory coding method, and
(iii) the identification of practices as bundles of interrelated routines.

I then avail of my SaP lens to present my review and analysis of the SA literature. My review and analysis identify gaps in current research that have not to date been clearly articulated within the literature, resulting in the identification of 16 research avenues for further enquiry into SA. Consequently, my research sets out on the first avenue identified, and pursues an answer to the following research question:

How is the alignment of business and IS strategies practiced by IS managers in IIT?

Chapter 5: Case narratives: Compelling book of evidence. The case narratives from my fieldwork are presented in this chapter. From the evidence gathered, the chapter provides a rich and holistic view of the practice of strategising within both cases. The sequencing of sections follows a theory building logic, with each section revealing a new part to the

theoretical argument I put forward (Walsham 1995b, Yin 2014). Such a structure aids in the production of a convincing and notable case narrative, as it strengthens the linkages between the various sections of the case report, resulting in a clear chain of logic (Orlikowski 1993, Pan and Tan 2011).

The national and sectoral context within which both cases reside is provided, followed by the two case narratives, each structured in accordance with each level investigated i.e. macro, meso and micro. The praxis carried out in aligning business and IS strategies for each case is explored and presented at the macro, meso and micro levels.

Chapter 6: Case analysis: Case X, Case Y and cross-case. This chapter presents the intra-case and cross-case analysis. I present the intra-case analysis in accordance with the macro, meso and micro structure. Likewise, I present the cross-case analysis in accordance with the macro, meso and micro structure This chapter provides an analysis that affords the basis for me to develop, in chapter 7, a mid-range theory in the form of a taxonomy and provide an answer to my research question.

Chapter 7: Theory development. This chapter focuses on the principal outcome from the research, which is the development of mid-range theory in the form of a taxonomy. My taxonomy provides an understanding as to how the alignment of business and IS strategies is practiced by IS managers in IIT. The subset of analytical memos referring to the praxis of the IS manager contained the data that enabled the effective development of nine conceptual SA practices, structured in accordance with the 3 theoretical codes (advocate, administer IS and innovate) at each of the three levels (macro, meso and micro). Therefore, a SaP focus is placed on issues associated with coordination and integration of the elements within my taxonomy.

I compare my emergent theory with the extant literature. This process helps in both confirming and contesting my emergent theory (Eisenhardt 1989, Orlikowski 1993, Dubé and Paré 2003). By comparing my taxonomy with four literature sets, I reiterate what is already known and illustrate precisely how my work enlarges the current body of knowledge. The four sets of literature, all of which were availed of to help answer the research question are; SA literature, strategic management literature, public service strategy literature and the literature on the role of the highest ranking IS executive. The comparison unambiguously confirms that the answer to my research question could not

have been obtained from the literature alone. My study and its findings make four key contributions to the body of knowledge that should be of interest to both academia and practice. The four key contributions are theoretical, practical, methodological and empirical.

Chapter 8: Conclusion. This chapter draws the thesis to a close by recapping on the core elements within the study. I therefore recap on my literature review, the positioning of my research question, my methodological choices and their application in practice, paying particular attention to novel dimensions. This is followed by a recap on my taxonomy and the significance of the new knowledge it unearths. My findings are then presented as major and minor, thus enabling the reader to recognise and fully appreciate their value. The chapter concludes by summarising the limitations of the study and proposing avenues for further enquiry.

1.5 Conclusion.

This chapter provided the rationale for the study and introduced its main focus by means of the research question. I explained my personal motivation for undertaking the study, which is based on my own professional experience to date. The chapter then proceeded to offer a high-level diagrammatic presentation of the thesis, followed by an overview of the central focus of each chapter while drawing attention to novel features where appropriate. The following chapter develops a rich perspective on the supporting literature sets I avail of, to inform my research.

Chapter 2 - Literature review: The nature of public service strategy and the role of the highest ranking IS executive.

2.1 Introduction.

The objective of this chapter is to develop a rich perspective on the supporting literature sets that inform my research, based on the following research question:

How is the alignment of business and IS strategies practiced by IS managers in IIT?

Consequently, the chapter is fashioned to provide the reader first with an understanding of strategy within the strategic management domain, second with an understanding of strategy within the public service domain and third with an understanding of the roles undertaken by the highest ranking IS executive. An account of the significant advances realised by strategy within the strategic management domain is offered in section 2.2. How strategy has evolved within the public service domain is elucidated in section 2.3 as are the reasons why strategy formulation and implementation differs between private sector organisations and PSOs. Section 2.4 provides a background to the roles undertaken by the highest ranking IS executive. Section 2.5 brings the chapter to a close with concluding comments and a lead into chapter 3 where I present my chosen methodology and an account of how I executed my study.

2.2 Evolution of strategy within the strategic management domain.

A background to strategy within the strategic management domain is put forward in section 2.2.1. In section 2.2.2, an examination of the relationships and archetypes within the corporate parenting literature in relation to the three levels of strategy, is put forward. The principal theories pertaining to strategy within the strategic management domain are elucidated in section 2.2.3. In section 2.2.4., the principal frameworks and typologies pertaining to strategy within the strategic management domain are discussed. The applied area referred to as business policy which provides a deep understanding of the differences in performance of competing firms through field based methods rather than through any form of detailed theory building, is discussed in section 2.2.5. In section 2.2.6 the meaning of strategic leadership is examined, while in section 2.2.7 an inter-institutional collaborative approach to formulating and implementing strategic plans is concisely explained. The meaning of strategy within the strategic management domain is presented in section 2.2.8 and a summary on the evolution of strategy within the strategic management domain is afforded in section 2.2.9.

2.2.1 Background to strategy within the strategic management domain.

It was during the 1950s that the term "strategy" became a focus of attention for study within the management domain (Ronda-Pupo and Guerras-Martin 2012). The impressive development of the strategic management field has its roots firmly grounded in the applied area of business policy and has now arrived at a point where the field comprises a wide array of perspectives including economics, marketing, finance and psychology, underpinned by a strong theoretical base and supported by extensive empirical evidence, all with the aim of helping to determine how organisations can achieve and sustain a competitive advantage (Hoskisson, Hitt et al. 1999, Hambrick 2004, Herrmann 2005). This variation in topics has driven Seidl (2007:199) to describe the field as *"fragmented into a multitude of incommensurable discourses"* and has led Hambrick (2004) to regard the field as devoid of a central core, fixated on theory development (without testing their strength) which in turn risks eradicating the field from the academic landscape. Such a doomsday scenario can be avoided if the field refocuses on strategic processes and strategy implementation with a view to supporting an integrated empirically validated knowledge base (Durand, Grant et al. 2017), while at the same time concentrates on the human aspects of strategic management (Hoskisson, Hitt et al. 1999, Hambrick 2004).

2.2.2 Levels of strategy and corporate parenting.

Chandler (1962) established that organisation structure has important consequences for business performance (Williamson 1985). Indeed, Chandler (1977:49) makes it very clear when he states "*any theory of the firm that defined the enterprise merely as a factory or even a number of factories, and therefore fails to take into account the role of administrative coordination, is far removed from reality*". Consequently, it is important to understand the levels at which strategy exists within an organisation, which are corporate, business and functional. Corporate level strategy is concerned with the overall scope of the organisation, it defines the portfolio of industries and countries the firm intends to compete in and how value can be added to the different parts of the organisation, namely strategic business units (SBUs) and their support functions. At this level, establishing the range of business to include is the basis for other strategic decisions. Business level strategy is concerned with how the various SBUs included in the corporate strategy should compete in a given industry or country, hence it is often referred to as competitive strategy. Functional level strategy is concerned with how the component parts, such as marketing,

human resource management and IS management, deliver for the corporate and business level strategies (Bowman and Helfat 2001, Grant 2005, Johnson, Scholes et al. 2008).

While SBUs are firmly concentrated on the production of goods and services, the corporate parent typically is not (Bowman and Ambrosini 2007). The concept of corporate parenting became a focused academic line of enquiry some two decades ago, when it was first proposed by Campbell, Goold et al. (1995) in the context of conglomerates in developed economies (Gurkov and Morley 2017). The parent's focus should remain on only those synergies that require parent intervention and not on those that SBUs can themselves execute better (Goold, Campbell et al. 1998, van Oijen and Douma 2000, Collis, Young et al. 2007). Such intervention is particularly welcome when the corporate parent provides capital investment that is availed of by a number of SBUs, if for no other reason than to influence product strategy decisions and conflicts between SBUs (Poppo 2003, Nippa, Pidun et al. 2011). In organisations with interdependent corporate structures it is not so easy to have clear independent roles. Hence sharing of responsibilities between the corporate parent and the SBUs tends to take place. As a consequence, the distinction between the parent and the SBUs becomes unclear, with the focus on the added value provided by the parent being less obviously relevant (Goold and Campbell 2002, Furrer, Thomas et al. 2008). In larger organisations the parenting role is often shared between two (or more) levels of management. In such a scenario, the SBUs report to an intermediate parent such as a group or a division, with the intermediate parent reporting to the corporate parent. Unfortunately, this additional level of parent brings with it danger of duplication, extra overheads and in some cases contradictory parenting influences. It is therefore essential to have clearly defined parenting roles, if value destruction is to be avoided. In general, the intermediate parent is required when the corporate parent has insufficient knowledge to fulfil all the parenting needs of the SBUs (Goold and Campbell 2002, Kruehler, Pidun et al. 2012).

Campbell, Goold et al. (1995) and (Goold, Campbell et al. 1998) contend that four areas should be considered in order to determine the fit between the corporate parent and it businesses. First, are the *critical success factors* (CSFs) of each SBU which can act as a base to assess fit between the parent and the SBU, and can help determine if friction is likely to develop between the two. CSFs can also help determine the similarity between the parenting needs of the different SBUs. A parent who does not understand the CSFs of one or more of its SBUs, is likely to destroy value. Second, are the *parenting*

opportunities which offer potential for improvements within the business. Many such opportunities can present themselves, including the opportunity to reduce overhead in SBUs, the opportunity to obtain economies of scale by sharing certain resources across SBUs and the opportunity to provide expertise in areas such as IS development. Third, are the *characteristics of the parent* which is concerned with how closely the parent organisation fits with the SBUs in the overall portfolio. This requires documenting the characteristics of the parent and comparing them with the CSFs and parenting opportunities in each of the SBUs. Having done so, the parent can then establish the upside of the relationship (value creating opportunities) and where there are misfits (value destroying potential). Fourth, is the *impact on results,* which involves identifying influences of the parent and searching for patterns of success or failure. Carrying out these activities can help identify situations where the parent's influence can create value and where it can destroy value.

Not all organisations are alike and hence the role of the corporate parent differs. At one end of the spectrum is the minimum/obligatory tasks required to maintain the existence of the corporate entity, such as fulfilling legal and regulatory requirements. At the other end of the spectrum is the concentration on adding value to the SBUs (Goold and Campbell 2002). Suffice to note that different organisations concentrate on different corporate parenting roles (Gurkov and Morley 2017). The corporate parenting role tends to fall into three distinct types. Johnson, Scholes et al. (2008), supported by (Goold, Campbell et al. 1994, Collis, Young et al. 2007), identify these as *portfolio manager, synergy manager and parental developer*. The *portfolio manager* acts as an agent on behalf of financial markets and shareholders, with the objective of attaining more value from the various businesses than the businesses could attain themselves. The *portfolio manager* concentrates on identifying and acquiring undervalued businesses and improving them, while striving to keep the cost of the centre low, by having a small corporate staff with few central services. The *synergy manager* seeks to enhance value across SBUs by managing the synergies across them, availing of three methods; build a common purpose, facilitate cooperation across SBUs and provide central services and resources. The *parental developer* concentrates on transferring down to the SBU, its own resources and/or capabilities so as to add value to the SBU, and build parenting skills that will benefit its portfolio of SBUs. Key value creating activities offered by the *parental developer* is the provision of central services and resources. However, if the *parental developer* has insufficient skills, it can destroy rather than add value. Whatever role the corporate parent undertakes, the role

needs to be constantly monitored and fine-tuned to ensure it achieves the purposes for which it was established (Goold and Campbell 2002, Moore and Birtwistle 2005). The final result should always be a parent that adds value to the organisation (Collis, Young et al. 2007, Gurkov 2014).

While the corporate parent is focused on overseeing and supporting the primary activities of the SBU, with a view to facilitating value creation throughout the corporation (Bowman and Helfat 2001, Poppo 2003, Moore and Birtwistle 2005, Gurkov and Morley 2017), the corporate parent can also destroy value, with the most obvious being corporate overheads and the less obvious being related to ill-judged interventions from the parent to the SBU (van Oijen and Douma 2000, Goold and Campbell 2002, Mishra and Akbar 2007, Gurkov and Morley 2017). For instance, parents that lack information about and understanding of their SBUs, can misjudge the capabilities of the same SBUs. Therefore, good corporate parenting is about avoiding value destruction just as it is about maximising value creation (Nell and Ambos 2013). This places an onus on the corporate parent to acquire a knowledge and understanding of their SBUs, so as to ensure a fit between its characteristics and the needs of its SBUs (Kruehler, Pidun et al. 2012, Gurkov 2014). The corporate parent must be able to demonstrate that it can provide a parenting advantage by providing more value than cost to the SBUs in its portfolio, just as each SBU must demonstrate it can provide a competitive advantage (Goold, Campbell et al. 1998, van Oijen and Douma 2000, Moore and Birtwistle 2005). Consequently, parenting advantage is the guiding criterion for corporate level strategy, whereas competitive advantage is for business level strategy (Bowman and Ambrosini 2007). In addition, the corporate parent must be able to demonstrate that it can create more value than a rival corporate parent. Otherwise, stakeholders could become better off by a change in ownership of the business.

The parent must appraise how well its skillset supports its businesses and establish which ones contribute to creating value and which ones contribute to destroying value (Campbell, Goold et al. 1995, Poppo 2003). By doing so, the parent can justify its involvement in business activities if its influence results in better performance by the SBUs than they would otherwise achieve as stand-alone businesses (Goold and Campbell 2002, Moore and Birtwistle 2005). By not trying to do everything and by placing a focus on the major opportunities, corporate priorities can be established and value destroying activities can be minimised. One way to help achieve this is for the parent to concentrate on SBU evaluation and resource allocation decisions (Poppo 2003, Bowman and Ambrosini 2007).

At the same time attention can be placed on building competences the parent needs most to support the SBUs (Goold, Campbell et al. 1998, Moore and Birtwistle 2005). These competences include the ability to select senior and functional managers for the SBUs and by doing so, the parent ensures key positions are held by personnel who have an affinity with the firm's overall goals and are likely to cooperate with other SBUs. Other competences include performing services such as legal, quality management, operating IS for the SBUs and provision of specific skills (Mishra and Akbar 2007, Kruehler, Pidun et al. 2012). This can lower total costs due to economies of scale (Bowman and Ambrosini 2007). Such practices are primarily suitable for firms with limited diversification, whereas in firms with diverse activities the parent may lack the knowledge required to carry out such a range of support activities, thus making it extremely difficult and costly to create support functions relevant for all SBUs (van Oijen and Douma 2000, Goold and Campbell 2002, Collis, Young et al. 2007). However, the important point is that it is not so much the level of diversity that determines the value of an organisation, rather it is the way the diversity is managed by the corporate parent, which in turn is contingent on the parent possessing a sufficient knowledge and understanding of the SBUs' needs (Kruehler, Pidun et al. 2012, Nell and Ambos 2013). Some of this knowledge and understanding can be obtained by the parent from the SBUs within the organisation (Tippmann, Sharkey Scott et al. 2014, Gurkov and Morley 2017). Apart from the relationship between the parent and each SBU, value can also stem from synergies between SBUs that are encouraged and supported by the parent, with profitable cooperation between SBUs more likely in firms with similar activities (Mishra and Akbar 2007, Kruehler, Pidun et al. 2012, Tippmann, Sharkey Scott et al. 2014). Similar to corporate parenting, synergies between SBUs can also cause value destruction, through an increase in complexity. This complexity is particularly relevant to coordination processes and the resultant administrative costs (Collis, Young et al. 2007, Kruehler, Pidun et al. 2012).

Johnson, Scholes et al. (2008), supported by (Goold, Campbell et al. 1994), succinctly summarise corporate parenting activities that can add value and corporate parenting activities that can destroy value. They identify four principle types of activity by which a corporate parent can add value. First is *envisioning*, whereby the corporate parent provides a vison to guide and motivate the managers of the SBUs so as to maximise corporate wide performance. Second is *coaching and facilitating*, whereby the corporate parent can help SBU managers improve their skills hence develop strategic capabilities, and facilitate cooperation between SBUs thus improving synergies from being part of the same corporate

organisation. Third is *providing central services and resources*, whereby the greater leverage of the corporate can help negotiate better deals and the corporate can manage expertise by transferring managers across SBUs and/or by creating shared knowledge management systems. Fourth is *intervening*, whereby the corporate intervenes within its SBUs to help ensure appropriate performance. While these four value creating activities are to be welcomed, Johnson, Scholes et al. (2008) also identify three broad ways the corporate parent can inadvertently engage in value destroying activities. First is *adding management cost*, whereby staff and facilities at the corporate can be expensive, an expense that can only be paid for by income generated by income generating units, mainly SBUs. If this expense exceeds the value created by the corporate, then the corporate is engaged in value destroying. Second is *adding bureaucratic complexity*, whereby the additional layer of management created by the corporate contributes to the coordination overhead, which can slow down managers' responses and can lead to compromises between SBUs. Third is *obscuring financial performance*, whereby underperformance of an SBU can be obscured, because it might be cross-subsidised by a stronger SBU.

2.2.3 Principal theories within the strategic management domain.

Brown (2010) proffers the view that the majority of theories relating to strategy are based on competition for scarce resources between the actors involved and that the strategic management domain would benefit greatly by utilising theories from other disciplines so as to help guide managers in decision making and planning. He claims the development and implementation of theory lies at the heart of strategy and whether managers realise it or not, the foundation on which strategy stands is theory, thus lending support to the findings of Furrer, Thomas et al. (2008) as outlined above in section 2.2.1. However, rather than developing a handful of competing theories and then testing them, scholars within the field of strategic management embarked in the development of numerous theories that are still with us today (Whittington 2001, Hambrick 2004, Hassard, Wolfram Cox et al. 2013). Hence this section is focused on reviewing the most widely applied theories within the strategic management literature.

Resources and competences.

RBT which includes the RBV of the firm, KBV of the firm and dynamic capabilities, places an emphasis on an organisation's internal strengths and weaknesses relative to its external opportunities and threats, and how this relationship impacts on the organisation's performance. RBT started to emerge within the strategic management domain in the 1980s

and by the 1990s had established itself as the dominant framework within the field (Ramos-Rodríguez and Ruíz-Navarro 2004, Furrer, Thomas et al. 2008). Over the past twenty years, RBT has played the key role in helping to explain competitive advantage by influencing thinking about strategy from the industry level to the firm level. In doing so, it has distinguished itself from other theories by placing the focus of enquiry directly on the capabilities within the firm rather than on industry structure and competitive forces (Whittington 2001), thus contributing towards a better understanding of a key strategic issue, namely appropriation (Foss 2011). With various terms being availed of within the literature to help explain the importance of an organisation's capabilities, we can consider an organisation's capabilities to mean the resources and competences an organisation requires for it to survive and prosper (Helfat and Peteraf 2003, Johnson, Scholes et al. 2008). Resources fall into two main categories i.e. tangible which are physical assets such as machinery and finance, and intangible which are non-physical assets such as information and knowledge. Competences refer to the skills and abilities by which resources are utilised to carry out an organisation's activities and processes (Hoskisson, Hitt et al. 1999, Herrmann 2005). There is however a clear distinction between capabilities that an organisation requires to meet the basic requirements to compete and survive in a given market (i.e. threshold capabilities) such as electronic point of sales system (EPOS) for supermarkets, and unique capabilities that competitors find difficult to imitate such as how skillsets are integrated to provide the organisation with a unique capability and hence provide the organisation with the basis for gaining a competitive advantage (Prahalad and Hamel 1990). Therefore, managers need to assess if their organisation has the capabilities to achieve and sustain a competitive advantage. To carry out such an assessment they need to consider to what extent the organisation has capabilities that are VRIN i.e. (i) valuable to buyers, (ii) rare, (iii) inimitable and (iv) non-substitutable, and if the organisation is short of such capabilities, then how can they be developed (Barney 1991, Wang and Ahmed 2007).

Researchers within the RBV stream of research are of the opinion that an organisation's competitive advantage is directly proportional to its distinguishable unique and valuable bundle of resources relative to its competitors i.e. how the differences in resources aid the sustainment of competitive advantage over time (Teece, Pisano et al. 1997, Hoopes, Madsen et al. 2003, Herrmann 2005). This provides credence to the view that when organisations have resources that are VRIN, sustainable competitive advantage can be achieved (Eisenhardt and Martin 2000, Hoopes, Madsen et al. 2003). Despite its

popularity within the strategic management domain, RBV has its critics. Among them are researchers who point to its lack of empirical grounding and theoretical foundations calling for a wider theoretical perspective (Hoopes, Madsen et al. 2003) and the premise that resource advantage alone may not be enough to create a sustainable competitive advantage, as the firm also requires competences to make optimal use of its resources (Wang and Ahmed 2007).

The KBV of the firm extends further the RBV of the firm by viewing firms as objects consisting of knowledge, be it acquired or developed internally. The environment in which firms compete is uncertain and to help deal with this uncertainty firms need to take cognisance of the most important issue for the KBV of the firm, which is the ability to manage their knowledge inventories (Hoskisson, Hitt et al. 1999, Herrmann 2005). To help manage these inventories, researchers are progressively concentrating on bundles of knowledge-based resources within the firm and their integration with other firm resources, to attain and maintain this competitive advantage (Eisenhardt and Martin 2000). This places great importance on the management of knowledge inventories as an essential element of the learning process, because under conditions of uncertainty, organisations require flexibility as well as knowledge to react quickly to unforeseen circumstances (Herrmann 2005).

A further emphasis on the level of the firm within strategic management research came from the research stream of dynamic capabilities (sometimes referred to as competitive dynamics). In fact, Dosi, Nelson et al (2000:3) are of the view that *"Terminological anarchy"* envelops the term capabilities. This stream of research complements the principle of the RBV of the firm and is underpinned by the belief that a firm's capabilities need to constantly evolve to meet the needs of a changing environment and are therefore dynamic in nature (Teece, Pisano et al. 1997, Eisenhardt and Martin 2000, Wang and Ahmed 2007). This dynamism is driven by rivalry among firms based on a series of competitive actions and reactions (Hoskisson, Hitt et al. 1999, Ketchen, Snow et al. 2004, Chen and Miller 2012). Each action undertaken by the organisation must be coordinated with other actions it undertakes so that the organisation's strategies are strengthened, while at the same time each particular action must be evaluated in terms of the response it might provoke from rivals. Taken together, a series of actions and counteractions among competitors can destroy a rival's profits and can even threaten the survival of some organisations. Therefore, when choosing what to do, managers must not only consider the

consequences for customers, but also how rivals might react (Ketchen, Snow et al. 2004). In the public sector many actions are the result of government initiatives. Such actions include the formation of clusters (alliances), whereby the purpose might be to share valuable medical staff and equipment, thereby offering one expert set of medical services instead of competing sets (Ketchen, Snow et al. 2004, Herrmann 2005). Knowing how to manage such clusters requires specific relational capabilities including the ability to choose the right partner(s), to develop the correct governance structure and to develop standards common to all partners (Donada, Nogatchewsky et al. 2016).

This ever changing and highly competitive business environment called into question the cornerstone of RBV i.e. that the firm obtains its competitive uniqueness by virtue of their diverse resources alone (Helfat and Peteraf 2003, Donada, Nogatchewsky et al. 2016). The emergence of dynamic capabilities has enhanced RBV by addressing the evolutionary nature of the firm's resources and in particular the evolutionary and heterogeneous nature of the firm's competences (Wang and Ahmed 2007, Chen and Miller 2012, Girod and Whittington 2017), with the dynamic qualities of competences being developed through continuous learning (Hoskisson, Hitt et al. 1999, Herrmann 2005). The evolution of dynamic capabilities is also influenced by mistakes, as mistakes can raise peoples' defences that inhibit learning (Hargadon and Sutton 1997).

From their review of the literature, Donada, Nogatchewsky et al. (2016) found the most common categorisation of dynamic capabilities is that offered by Teece (2007). First, are *sensing* capabilities that make it possible to scan and monitor changes in the environment. Second, are *seizing* capabilities that enable the construction of decision making protocols and assimilation of knowledge. Third, are *reconfiguring* capabilities that enable organisations to re-configure their resources and knowledge. Eisenhardt and Martin (2000) argue dynamic capabilities have commonalities across organisations, which is often referred to as "best practice". They further argue that dynamic capabilities take the form of routines in moderately dynamic markets, whereas in highly dynamic markets they are more akin to fragile processes with unpredictable outcomes. They hold the view, a view shared by Teece (2007), that because dynamic capabilities can be common across organisations, the value for competitive advantage is not inherent in the capabilities themselves, but rather in the resource configurations they help create, resulting in new products and services that can be difficult for others to replicate, which in many instances involves the participation of cross-functional teams. That is why it is not uncommon to find a number

of organisations in the same industry, with the same suite of IS, but configured and integrated in different ways, obtain differing levels of competitive advantage from their IS. How competitive forces play out is also contingent on constraints enforced by regulators, hence how the marketplace functions is the result of co-evolution and interaction between all stakeholders in the marketplace (Teece 2007).

Managers need to ensure their organisation has the capabilities to achieve and sustain a competitive advantage. To help do so, there are a number of actions that can be undertaken within organisations aimed at developing and nurturing capabilities that can contribute to competitive advantage. Capabilities can be added and altered with a view to achieving improved outcomes (Bowman and Collier 2006). Capabilities can be extended from one area of an SBU to another area of the same SBU, or from one SBU to another SBU. The success of such extension is reliant on the ability of managers to manage the change inherent in the extension (Maritan and Brush 2003). Current capabilities that may have been underutilised to date can be leveraged, with a view to building new products and/or services from these capabilities (Prahalad and Hamel 1990). Cease carrying out and/or outsource activities that are not core to the delivery of value to the customer (Ghosh and Scott 2009). Develop capabilities that currently reside outside the organisation by acquiring businesses that possess such capabilities or by entering into alliances with organisations that possess such capabilities (Johnson, Scholes et al. 2008). Of course, capabilities are often embedded in the activities undertaken by employees, so helping to develop the knowledge, skills and expertise of the workforce can contribute greatly to the capabilities of the organisation. Create staffing policies that encourage the development of particular competences, such as training and development targeted specifically at competences required to help gain competitive advantage (Government of Ireland 2008). Develop a learning organisation, particularly when the organisation operates in markets of a dynamic nature and requires an unceasing development of competences in order to maintain and/or improve on, its competitive position (Spender and Grant 1996). Help employees see the value in their work and how it contributes to the competitiveness of the organisation. By doing so, employees will be more inclined to positively contribute to the organisation's competitive success (Crossan, Lane et al. 1999).

Transaction cost economics and agency theory.

From the 1980s onwards when the focus of research switched from industry structure as the unit of analysis to the firm's resources and capabilities, two branches of organisational

economics, namely TCE and agency theory which are firmly fixated on the firm, generated significant interest among researchers (Hoskisson, Hitt et al. 1999, Furrer, Thomas et al. 2008, Weber and Mayer 2014).

By focusing on the boundaries between the firm and its external environment, and by seeking to explain why firms exists in the first place, research into TCE is based on human behaviour and on minimising total transaction and production costs (Hoskisson, Hitt et al. 1999). The contribution made by TCE has in the main been threefold; first, it provides a theoretical rationale that helps identify the relationship between a firm's performance and its multidivisional structure, second, it helps explain how hybrid forms of organisations function (e.g. strategic alliances and partnerships) including the assumption that some partners will pursue their own self-interest at the expense of their partner(s) and third, it has been more recently applied to help explain choices concerned with entry into international markets (Furrer, Thomas et al. 2008, Brown 2010).

Agency theory assumes human beings are self-interested and opportunistic, which can result in managers of the firm putting their own interests before those of the shareholders (Eisenhardt 1989). Agency theory seeks to explain the causes and consequences of conflict between managers and shareholders, and the relative effectiveness of various governance mechanisms built to assuage this conflict (Hoskisson, Hitt et al. 1999, Herrmann 2005).

Behavioural theory of the firm.

The behaviouralist tradition is rooted as far back in Simon's (1955) observations on the capacity of the human mind to engage with the problems encountered by decision makers (Levinthal 2011). The behavioural theory of the firm (BTF) can be thought of as a nexus of coalitions and stakeholders, all of whom have their own objectives and hence the possibility of conflict of interest (Cyert and March 1963, van Ees, Gabrielsson et al. 2009). Since publication of *The Behavioural Theory of the Firm* by Cyert and March (1963), BTF has been acknowledged as a principal perspective for understanding organisational behaviour and decision making, and has influenced organisational theory, strategic management, SaP and other fields within socio-scientific enquiry (Augier 2004, Shimizu 2007). Indeed, modern qualitative research owes some of its legitimacy to the book (Argote and Greve 2007). While BTF focuses on what happens inside the organisation, helping to explain decision making and the outcomes that contribute to value (Todeva

2007), it also examines the articulation between the organisation and its external environment (Argote and Greve 2007). With this, BTF emphasises the view of an organisation as an adaptive system which modifies its operating procedures, over time, through adaptive learning (Dosi and Marengo 2007, O'Brien and David 2014).

BTF is built around the five key concepts of bounded rationality, satisficing (slack search), problemistic search, routine decision making and the dominant coalition (Argote and Greve 2007, van Ees, Gabrielsson et al. 2009, Gavetti, Greve et al. 2012). Bounded rationality provides decision makers with choice that is informed by the past but functions in the present (Shimizu 2007, Gavetti, Greve et al. 2012). Decision makers are aware of only a fraction of choices available to them and to understand the alternatives, they need to search for them if they are to learn and go beyond the limits in their current ability to process information and solve problems (Carter 1971, Todeva 2007). Satisficing is when decision makers choose the first alternative available that they expect to turn out satisfactory, rather than search for optimal solutions. Satisfactory depends on the aspiration level, which in turn depends on the goal(s) set, history of prior performance, observation of other organisations and what is acceptable to the decision maker (Greve 2008, Fang, Kim et al. 2014). When decision makers fail to achieve a satisfactory outcome a wider search process known as problemisitc search is activated (Greve 2003, Greve 2008). This problemistic search seeks out solutions that are close to the symptom and the current organisational strategy, with the search ceasing when an alternative is found that the decision maker deems satisfactory (Cyert and March 1963, Shimizu 2007). This in itself places a spotlight on the concept of satisficing in that decision makers are primarily concerned with immediate problems and short-term solutions (Shimizu 2007, O'Brien and David 2014). However, this decision making method is perceived as an experiential learning process, whereby an organisation adapts in an incremental fashion to its ever changing environment, such as the introduction of new technologies or new team members (Augier 2004, Argote and Greve 2007). This is often referred to as “organisational learning” where learning is a ubiquitous feature of both individual and organisational behaviour (Dosi and Marengo 2007, Fang, Kim et al. 2014). In addition, the failure to meet an aspirational level can motivate decision makers to accept the risks inherent in bringing about change to their organisation. Therefore, aspiration levels can impact organisational change through adjustment of problemistic search and acceptance of risk (Greve 2008, O'Brien and David 2014). Routine decision making guides behaviour and occurs when decision makers do not have available to them, all the information required to

make decisions. In such cases the decision makers fall back on coping mechanisms that normally take the form of tacit knowledge coupled with rules and standard operating procedures within the organisation. Such routine behaviour exploits the wisdom of past experience and enables the decision makers to solve pressing problems by adopting solutions that do not violate current organisation procedures (Dosi and Marengo 2007, van Ees, Gabrielsson et al. 2009). Elements of this view are to be found in modern developments, such as transaction cost economics, evolutionary theory and SaP (Whittington 1996, Augier 2004, Jarzabkowski and Spee 2009). The term dominant coalition refers to organisations as complex political systems with people organised into coalitions and some of them further organised into sub-coalitions (Augier 2004, Todeva 2007). The members of such coalitions have closely aligned, if not the same, preferences and objectives. This in turn makes negotiation among coalition members to be an accepted common practice. Likewise, when members leave one coalition for another, organisational decisions, goals and solving problems also go through change. Therefore conflict resolution and goal formation are part of an on-going process of negotiation among coalition members (Shimizu 2007, Fang, Kim et al. 2014).

Evolutionary theory of the firm.

Much empirical work within strategy research concentrates on data that is cross-sectional, relating to a single point of time. Such research is non-evolutionary in that it is outcome driven, with the outcomes followed backwards to their preceding events. This type of research restricts our ability to construct evolutionary explanations (Dooley and Van de Ven 1999, Townsend, Yeniyurt et al. 2009). A major difference with the evolutionary perspective is that it explicitly questions how strategic outcomes develop, by availing of longitudinal data and considering a wider population of organisations in that it reflects on failures as well as successes, thus helping to avoid the danger of tautology. Therefore, the nature of evolutionary work is its dynamic, longitudinal nature, that attends to the pace and path of strategic change, with a focus on sustained competitive advantage (Barnett and Burgelman 1996, Schendel 1996, Aldrich 2001, Dosi and Marengo 2007).

Evolutionary theory of the firm (ETF) can help explain the sources and conditions that contribute to innovation (Eisenhardt and Brown 1998, Vergne and Durand 2011). The theory places an emphasis on the dynamic aspects of organisational behaviour through change, adaption, development and growth over time. It validates the argument for heterogeneity in actor's practices and attributes, and offers a theoretical explanation for

behavioural choices that lead to an organisation's mimicry, lethargy and survival (Dosi and Marengo 2007, Todeva 2007). The theory has three basic tenets i.e. variation, selection and retention, when taken together (they occur simultaneously rather than sequentially) provide an understanding of how organisational context is important in relation to generating new ideas and how managers help shape that context (Johnson, Scholes et al. 2008). Variation suggests that organisations allow for alternatives in the strategies they pursue, thereby developing new ideas and varying routines with which to carry out their business. Because these routines comprise tacit knowledge and endogenous learning, they capture distinctive bundles of an organisations resources and capabilities (Aldrich 2001, Volberda and Lewin 2003). Selection refers to choices and routines that have shown to be more effective than others, and therefore become dominant over time, but selection is blind insofar that outcomes are not known (Dosi and Marengo 2007, Vergne and Durand 2011). Criteria for selection are set by factors such as market forces, competitive pressures and conformity with norms (Aldrich 1999). In addition, within the multiunit organisation, those SBUs that can match their capabilities with their internal selection environment (micro evolution) and their external selection environment (macro evolution), have a far better chance of survival (Volberda and Lewin 2003, Dosi and Marengo 2007). Retention is concerned with the organisation's capabilities to manage their bundles of resources and capabilities while competing, and in so doing includes historical efficiency (Barnett and Burgelman 1996, Murmann, Aldrich et al. 2003, Todeva 2007). Retention takes place when the chosen variations are preserved, duplicated or indeed reproduced, and in many cases take the form of routines, structures and behaviours (Nelson and Winter 1982). By acquiring and developing their capabilities over a period of time, organisations carry out what we refer to as organisational learning, which is a fundamental process through which routines are established and amended, while knowledge is created and stored (Dosi and Marengo 2007, Vaara and Whittington 2012).

When considering the ETF, it is important to understand the nature of path dependence. Path dependence can inhibit attempts to create and develop new capabilities, as organisations can become wedded to particular evolutionary trajectories. The result is that future outcomes can become closely linked to history, but this may in itself not give rise to problems, as long as history contributes to acceptable outcomes (Barnett and Burgelman 1996, Todeva 2007).

Henry Mintzberg's thoughts on deliberate and emergent forms of strategy.

The strategies organisations pursue are typically a mixture between the deliberate and the emergent, rather than perfect forms of either (Mintzberg 1977, Mintzberg 1979b, Mintzberg and Waters 1985, Mintzberg 1987). A realised strategy can be achieved by formulating a plan followed by implementation (i.e. deliberate). A realised strategy can also emerge in response to an evolving situation (i.e. emergent). Over time an organisation's emphasis will probably shift between deliberate and emergent, but the requirement to attend to both should not. These two broad explanations (i.e. deliberate and emergent) as to how strategy takes shape are not mutually exclusive and form what Mintzberg (1977), Mintzberg and Waters (1985) refer to as *a pattern in a stream of actions*. By operationalising strategy in this manner, streams of actions can be isolated and strategies can be identified as patterns in the streams, thus helping us to understand how a strategy actually comes about (Sminia 2009).

Deliberate strategies result from formal strategic planning and decision making typically associated with top management, hence patterns are formed before the strategy is realised (Mintzberg 1977, Mintzberg 1979b). For the strategy to be perfectly deliberate i.e. the realised strategy turns out exactly as intended, three conditions should be met (Mintzberg and Waters 1985). First, clear and precise intentions must be articulated in a specific level of detail, so that there can be no ambiguity as to what is required before any action is taken. Second, the intentions must be common to almost all actors in the organisation and accepted by the leaders. Third, the intentions must be realised exactly as intended. This implies that the external environment must be predictable, benign, or under the control of the organisation. As this is highly unlikely, it is therefore also highly unlikely that any organisation will possess a perfectly deliberate strategy.

Mintzberg (1987), Mintzberg (2000) highlights four main areas of danger when deliberate strategy is employed. First, is the danger of confusing strategy which is the long-term direction that the organisation is pursuing, with the plan which is a written document. Second, is the danger of being detached from reality and immersed in analysis, whereby strategic planning bears no semblance to the organisation's operations. Third, is the danger of elite ownership, whereby those who developed the plan such as a senior management team or a corporate planning department, are perceived as the sole owners thus excluding ownership by members of the wider organisation. Fourth is the danger of

stifling innovation due to the formalised and rigid systems of planning that can result in an inflexible organisation that inhibits creativity.

The strategy that is actually pursued by an organisation always contains an element of emergence (some more than others) in that it comprises elements of bottom-up initiatives, responses to unanticipated events, and chance. Therefore, the emergent form is not a distinct and separate organisational activity, rather it develops from everyday routines, activities and processes carried out in an organisation, leading to decisions that form part of the long term direction of the organisation whether they were originally the intention of senior management or not (Mintzberg 1979b, Mintzberg and Waters 1985). Inherent in the emergent form of strategy is the need for improvisation and adjustment to implement what is intended, and the need to refine the strategy in response to contingencies (Iszatt-White 2010). For a strategy to be fully emergent there must be consistency in action over time and at the same time an absence of intention (Mintzberg and Waters 1985). However, it is highly unlikely that action will take place in the absence of intention, therefore it is reasonable to assume that a perfectly emergent strategy is as rare as a perfectly deliberate strategy.

Emergent strategy can come about in a number of ways, four of which are; *Logical incrementalisation*, which is the development of strategy in an experimental and learning manner, rather than formulation of a total strategy (Quinn 1989, Mintzberg and Westley 1992), *Resource allocation process*, which helps to explain how realised strategies emerge as a result of the way resources are allocated within an organisation (Mintzberg 1977, Noda and Bower 1996), *Political view*, where strategy develops based on the outcome of bargaining and negotiation among powerful stakeholders (Maitlis and Lawrence 2003), and *Cultural processes*, which are the taken-for-granted assumptions, beliefs and behaviours in organisations (Johnson 1988).

While perfectly deliberate strategy precludes learning, perfectly emergent strategy is devoid of control. Therefore, it is hardly surprising that each strategy occupies opposite end points of a continuum along which organisational strategies can be found (Mintzberg 1977, Mintzberg and Waters 1985).

Whittington (2002) and Reckwitz (2002) draw a clear distinction between the “done thing” i.e. routine legitimate practice, and “strategising” i.e. what is actually done by practitioners,

"conscious or not" Vaara and Whittington (2012:287). Although a unified and agreed definition of strategising does not exist within the literature, the literature does inform us that strategising focuses on the *"what, when, how and why of making and executing strategy"* Paroutis and Heracleous (2013:937). By emphasising the doing of strategy, the verb "strategising" is focused on what people actually do within the context of strategy work (Balogun, Huff et al. 2003, Jarzabkowski, Balogun et al. 2007) and acknowledges that aspects of such work are not only deliberate, but also emergent (Mintzberg 1979b). This moves the work of strategy beyond the formal meso level processes, down to the micro level and up to the macro level, thus engaging those at lower levels within the organisation as well as those outside the organisation (van Wessel, van Buuren et al. 2011). By studying such work, we gain a better understanding of the daily practices carried out by groups and individuals that help shape strategy (Balogun, Huff et al. 2003, Seidl and Whittington 2014). Strategising invites the researcher to inspect more closely, the activities of individuals and groups in relation to their strategy work and in so doing, positions practice-based studies as a lens through which to research strategising in organisations (Wilson, Baptista et al. 2013).

Andrew Pettigrew's contextualist approach.

Andrew Pettigrew's contextualist approach, developed at the University of Warwick's Centre for Corporate Strategy and Change, has helped increase the legitimacy of qualitative research, through its unique style in executing multi-level, longitudinal case-study research. His work has contributed to the foundations of qualitatively oriented management and organisation research, including the current SaP movement (Sminia 2009, Sminia 2016). The contextualist approach is closely related to the "ensemble des jeux" perspective of Crozier and Friedberg (1980) on actors and systems, Giddens (1984) structuration theory and Sztompka (1991) theory of social becoming, due to its focus on the recursive and reflexive nature of the relationship between context and action. Pettigrew's overriding concern in carrying out his studies that explore the dynamic qualities of human agency and conduct, in the context of organisational settings, has been to capture *reality in flight* (Pettigrew 1987, Pettigrew 1990, Pettigrew 1992, Pettigrew 1997, Pettigrew, Woodman et al. 2001). Within this dynamic perspective, the relationship between agency and context is recognised (Pettigrew 1997).

Pettigrew (1985:15) is of the view that most research on strategy and change has been "*ahistorical, acontextual, and aprocessual*", because it utilises a variance approach and

therefore reflects biases within the study of organisations (Sminia 2016). To help overcome this limitation, Pettigrew (1985) advocates undertaking research that tracks the variability of the context, the process and the content of strategic change, over time. Pettigrew has long argued that change is a multi-level process that can be best understood in its wider context, over time (Pettigrew 1985, Pettigrew 1987, Pettigrew 1990, Pettigrew 1997). Therefore, the essence of Pettigrew's contextualist approach is to seriously consider the multi-causal nature of process evolution over time (Sminia 2016).

Context both enables and constrains social action, while social action shapes and is shaped by context, thus rendering social reality as a dynamic process (Pettigrew 1997). Context is maintained and altered as a consequence of what actors do, with the inner context comprising the organisation under study (including its structural, cultural and political environment) and the outer context composed of the organisations' competitive environment, and the wider economical and societal developments within which the organisation is located (Pettigrew 1990, Pettigrew, Woodman et al. 2001).

As with the majority of qualitative methodologies, a contextualist research strategy does not adhere to specified techniques. There are a number of broad principles availed of when undertaking a contextualist analysis of process including, multiple levels of analysis, an underlying theory of social action, and longitudinal case-based research designs to enable patterns of continuity and change to be observed over time (Pettigrew 1985). The overall approach is that of a historian whose objective is to understand an outcome, based on what has led up to it (Sminia 2016). In taking a historical perspective, the contextualist goes beyond chronology to facilitate data collection at different levels of analysis. The approach is comprised of three analytical categories which are; the *what* of change which is captured by content, the *why* which is derived from context, and the how which is understood from an analysis of process (Pettigrew 1987). A contextual analysis of a process such as change, draws on phenomena at the vertical and horizontal levels of analysis and the interdependencies between those levels over time. The vertical level refers to the interconnections between higher and lower levels of analysis, whereas the horizontal level refers to the sequential interconnectedness between phenomena in historical, present and future time (Pettigrew 1990).

Pettigrew (1990, 1992, 1997) advocates five key assumptions to help guide the contextualist approach to the study of change process. To carry out this form of research,

it is necessary to include multiple levels and dimensions of context simultaneously (Pettigrew, Woodman et al. 2001). In summary, the five key assumptions are:

1. Because processes are embedded in context, embed the study in multiple levels so as to support multiple level analysis.
2. The need to reveal temporal interconnectedness. History is important in shaping the present and the future.
3. Include context and action, as both are intertwined.
4. Search for holistic rather than linear explanations.
5. Link process analysis to the location and explanation of outcomes.

By combining the topics of strategy, organisation and change into one approach, Pettigrew's work has been significant in helping to pave the way for the rise in the SaP movement (Sminia 2016).

Practice theory

A practice perspective on strategy builds on the work of seminal scholars in social theory (Jarzabkowski, Spee et al. 2013). Philosophers such as Wittgenstein (1998) are of the view that practice draws attention to tacit knowledge and illustrates intelligence. Social and organisational theorists such as Giddens (2013) and Bourdieu (1990) see practice as a means of liberation from social structures and systems, to question activities and their influence in shaping social phenomena. Cultural theorists such as Foucault (1980) see practice as routinised interpretations as a means to oppose structures and systems (Schatzki 2005, Rasche and Chia 2009). The various theorists, particularly those in philosophy and social sciences, see human activity at the core of practice, and acknowledge the social, historical and structural contexts in which knowledge and meaning are generated (Schatzki 2005, Corradi, Gherardi et al. 2010, Nicolini 2012). Given these different perspectives, it is evident that a unified theory of practice does not exist, however, it does indicate that practice theory is an assembly of approaches aimed at studying and theorising practice (Miettinen, Samra-Fredericks et al. 2009, Corradi, Gherardi et al. 2010).

As my research question is within the realm of the social and organisational, it is worth exploring further the views of Giddens and Bourdieu. Giddens sees practices as having three main characteristics. First, they are developed by knowledgeable people who draw on rules and resources. Second, they are temporally, spatially and pragmatically situated, meaning the researcher attends to results of practices at a given time. Third, all practices

are interdependent and connected to social life at a local level and potentially beyond (Nicolini 2012). For Giddens, practices comprise the primary interest of social theory (Miettinen, Samra-Fredericks et al. 2009, Nicolini 2012). For Bourdieu, practices are what people do in their everyday life, without reference to formal plans and intentional action (Chia 2004). He developed the concept of "habitus" which brings together the idea that experience determines the behaviour of individuals and groups, explains that knowledge is socially constructed, and explains how the setting preserves and extends itself through the enactment of practices (Chia 2004, Nicolini 2012). It is tacit and unspoken, but yet, it is well understood and charted (Rasche and Chia 2009). For Bourdieu, practice is not about adhering to rules, but rather it is acquired as a by-product of experience in everyday life (Corradi, Gherardi et al. 2010, Nicolini 2012). What is clear from the views of Giddens and Bourdieu is that practice is a social activity by which structures are both reproduced and transformed (Miettinen, Samra-Fredericks et al. 2009).

At the forefront of all practice theories is an emphasis on activity and the requirement to uncover work that makes up this activity, therefore placing the focus on practices carried out by practitioner(s) that make strategy happen (Whittington 2003, Jarzabkowski and Seidl 2008, Nicolini 2012, Ericson 2014), leading to the fundamental assumption that ordinary activity carried out by practitioners can make a difference (Reckwitz 2002, Whittington 2014, Demir 2015). By carrying out in-depth analysis of strategic activities, a fundamental change from the traditional methods we apply to understand social and organisational issues is undertaken, as the approach guides strategy research away from exclusively focusing on organisation performance and directs it towards the performance of practitioners themselves (Whittington 1996, Jarzabkowski, Kaplan et al. 2016). Reality is shaped by practices and therefore our understanding of organisational phenomena is enhanced by treating practices as the focal lens through which to study such phenomena (Schatzki 2005, Orlikowski 2010, Feldman and Orlikowski 2011). This enables researchers develop accounts of the practices that take place (Kaplan 2007) and holds out the promise that a practice lens can explain social and organisational phenomena without overlooking the routine of daily life (Hendry and Seidl 2003, Jarzabkowski, Balogun et al. 2007, Johnson, Langley et al. 2007, Nicolini 2012).

Practice researchers study how practitioners interact with the social and physical features within which they find themselves, in their everyday activities that constitute practice (Jarzabkowski 2003, Demir 2015). To undertake practice research, the researcher needs to

be close to the practice (not necessarily in real-time) in order to understand and reveal the logic behind the practice (Johnson, Langley et al. 2007, Goldkuhl 2012). The practitioner is never an individual detached from context, but is defined by the practices in which he/she partakes (Vaara and Whittington 2012). By researching human activity we can uncover the links between what people do and how they are influenced, by activities that take place both inside and outside the organisations to which they belong (Whittington 2006b, Kaplan 2007, Golsorkhi, Rouleau et al. 2015). An understanding of these links can help provide insight to the problems associated with the separation of strategy formulation and strategy execution (Paroutis and Heracleous 2013, Jarzabkowski, Kaplan et al. 2016). This re-orientation has been characterised as the "practice turn" (Jarzabkowski 2003, Whittington 2003, Feldman and Orlikowski 2011).

Other widely applied theories within the field of strategic management.

Other widely applied theories within the strategic management domain include industrial organisation (IO) economics, organisational theory, institutional theory and contingency theory.

A stream of research known as IO economics emerged during the late 1970s to the mid-1980s, which sought to understand the links between a firm's strategy and performance (Furrer, Thomas et al. 2008). The central doctrine of IO economics is that a firm's performance is a function of the environment in which it operates, and because structure determines how a firm behaves, which in turn determines a firm's performance, performance can be explained by structure (Hoskisson, Hitt et al. 1999). Principal among these is the five force framework developed by Porter (1980). This and other frameworks are discussed in section 2.2.3.

Researchers of organisational theory (which started to emerge in the late 1960s) are critical of the literature that has emerged from RBT and the field of economics. The emphasis within organisational theory is on action of a deliberate rather than a spontaneous nature, hence the focus is set firmly on process rather than content (Ramos-Rodríguez and Ruíz-Navarro 2004). Institutional theory which came to the fore in the mid-1970s opposes the principle that rationality underpins strategic management. Institutional theory puts forward the view that some firms survive as a consequence of their technical ability while others survive by behaving in a socially accepted manner, both of which help to explain organisational components, one being strategic planning (Herrmann 2005). Other

researchers put forward the view that organisations which seek to match their structures with that of the environment in which they operate perform better than their counterparts who have lesser fit with their environment (Priem, Butler et al. 2013) and it was this thinking that led to the genesis of contingency theory in the mid-1960s. Contingency theory purports that organisations can thrive in uncertain environments when they manage to "align" or "fit" their resources with the opportunities and threats emanating from those environments, thus contending that a "fit" with the environment has a direct correlation with the firm's performance (Herrmann 2005).

2.2.4 Frameworks and typologies.

When considering the various frameworks and typologies available to managers, it is important to note that such management concepts are not recipes that can be applied to every situation, rather it is the concepts that are adjusted to suit a given situation (Seidl 2007). Otherwise, the frameworks and typologies can become so generic that at best they do not reflect the true experience of carrying out development and implementation of strategy (Iszatt-White 2010) and at worst can lead to a false sense of security among managers tasked with taking decisions in relation to strategy development and implementation (Levinthal 2011).

Using a structural analysis approach and employing the logic of IO economics, Porter (1980) made a significant contribution to the field of strategic management when he developed his five force framework. The framework helps in understanding the structure of an industry by aiding in the assessment of an industry's attractiveness and by helping to facilitate competitor analysis (Furrer, Thomas et al. 2008). It is the combined effects of the five forces (threat of entry, rivalry among existing competitors, pressure from substitutes, bargaining power of buyers and bargaining power of suppliers) that establishes how well firms in an industry compete and helps determine the profit potential of firms (Hoskisson, Hitt et al. 1999, Herrmann 2005).

Both the value chain and value network can help managers understand which activities undertaken in their organisations are important in creating value and which are not, therefore helping the organisation achieve competitive advantage through delivering value to its customers (Porter 1985, Madhavan, Koka et al. 1998, Johnson, Scholes et al. 2008, Daaboul, Castagna et al. 2014). The concept of the value chain was developed by Porter (1985) and describes the full range of activities within an organisation which are required

to bring a product or service from conception through to delivery to the customer, culminating in an overall margin (Kaplinsky and Morris 2001, Johnson, Scholes et al. 2008). The value chain consists of nine generic categories made up of five primary and four secondary (support) activities, with the primary activities directly concerned with creation or delivery of a product or service, and the secondary activities concerned with helping to improve the effectiveness and/or efficiency of the primary activities (Porter and Millar 1985). To obtain a competitive advantage over its rivals, an organisation must perform all its activities at a lower cost, or perform them in a way that results in differentiation and a premium price (Porter 1980). Primary activities consist of inbound logistics, operations, outbound logistics, marketing and sales, and service. Inbound logistics are activities concerned with the receipt, storage and distribution of inputs, to the product or service being developed. Operations transform the inputs into the final product or service. Outbound logistics are concerned with the storage and distribution of the product or service to the customer. Marketing and sales provide the way by which consumers are made aware of the product or service and are able to purchase it. Service includes those activities that enhance or maintain the value of a product or service, after the customer has made a purchase. Secondary activities consist of procurement, technology development, human resource management and infrastructure. Procurement involves the activities that take place in many parts of the organisation so as to acquire the various inputs to the primary activities. Technology development includes peoples' knowledge and is concerned with a product, a process or a resource. Human resource management transcends all primary activities and is concerned with the activities involved in the recruitment, management, training, development, and rewarding of people in the organisation. Infrastructure consists of the formal systems of planning, finance, quality control, management of information, and the routines that form part of an organisation's culture (Porter 1985).

No organisation is an island in that it and it alone, undertakes all of the value activities from design through to delivery to the customer. Organisations are part of a wider value network in which partners collaborate and each responsible for a set of activities that create value (Porter and Millar 1985, Daaboul, Castagna et al. 2014). The value network is the set of inter-organisational links and relationships that are required to create a product or service, in response to customer needs (Madhavan, Koka et al. 1998, Daaboul, Castagna et al. 2014). Therefore, the behaviour of all organisations in the value network influences the performance of each organisation in the value network (Peppard and Rylander 2006). This

necessitates an organisation to understand what activities it should undertake itself and what activities it should engage with a third party to carry out on its behalf (e.g. outsource) (Christensen and Rosenbloom 1995, Tallon, Kraemer et al. 2000). Therefore, since part of the cost and value creation will occur outside the organisation itself and will be embedded in the supply and distribution chains, managers need to be cognisant of the full process and how they can best manage the linkages and relationships outside their own organisation as well as within, so as to improve customer value (Kaplinsky and Morris 2001). To do so, managers need to understand their own organisation's strategic capabilities in relation to the full value network (Jaehne, Li et al. 2009, Mizgier, Jüttner et al. 2013). Johnson, Scholes et al. (2008) encapsulate such an understanding in four key respects. First, managers need to be very clear as to which activities are core to their organisation's strategic capability and which are not. Having done so, they then need to decide which activities will be carried out within their own organisation and which ones will be carried out elsewhere. In helping to decide, managers need to consider if they need to retain direct control over some or all of the activities, or if they can have some or all undertaken by a third party at a lower cost. Second, managers need to be aware of profit pools. Profit pools refer to the different levels of profit available at different parts of the value network (Gadiesh and Gilbert 1998). Having identified the profit pools, managers then need to assess if their organisation has the capabilities to extract the profit. If such capabilities do not exist within the organisation, then profit should be sought from elsewhere. Third, it follows that managers have to decide whether to make or buy for a particular activity or component. Again, if the organisation lacks the capabilities to carry out an activity that a third party can do at lower cost and better quality, then it makes sense to outsource, but only if the organisation has the capability to manage the third party. Such management can become a source of competitive advantage. (Kaplinsky and Morris 2001). Fourth, managers have to decide on the most appropriate partners for the various parts in the value network and they also have to decide on the type of relationship (e.g. collaborate in activities such as research and development, or settle for a buy/sell relationship). In summary, it is clear that managers can obtain considerable benefit for their organisation by possessing a detailed understanding of the value creation processes both within their own organisation and within the wider value network to which their organisation belongs (Johnson, Scholes et al. 2008).

Miles, Snow et al. (1978) developed a framework that helps organisations define their strategy (product and market domains) and the mechanisms (structures and processes) by

which they can pursue their chosen strategy. They found there are four strategic types of organisations, namely; *defenders, prospectors, analysers and reactors*. In summary, *defenders* are aggressive in that they go all out to block competitors from entering their "patch" and seek improved performance of their existing operations. *Prospectors* seek to exploit new product and market opportunities by pioneering the development of new products or services. The *analyser* can be viewed as sitting between the *defender* and the *prospector* as it seeks to minimise risk while at the same time maximise opportunities by rapidly adopting new ideas originating from competitors that it sees as promising. *Reactors* are organisations that may well have a developed strategy but take their lead from external environmental pressure when forced to do so (Meier, O'Toole et al. 2007). Miles, Snow et al. (1978) deemed *reactors* to be failures insofar that conflicts abound among its strategy and mechanisms, hence their central assertion is that *defenders, prospectors* and *analysers* perform better than *reactors*.

In an attempt to help measure strategy, Ginsberg (1984) developed a framework which he claims facilitates a unified basis for comparing and integrating assorted approaches to the measurement of strategy. Building on these themes of unity and integration, Hart (1992) developed a framework that aims to bring together the multitude of typologies that are limited in their focus (e.g. top managers only), hence his framework is centred on the roles the top management team (TMT) and other organisational members perform in the strategy making process, including how they interact together. In developing his framework, Hart (1992) endeavours to integrate the fragmented literature on strategy and concludes from his work that strategy making should no longer be considered as belonging exclusively to the TMT, and must be considered on an organisation wide basis so that we can better understand how strategy is really constructed in organisations.

Frameworks developed for the field of practice, with the exception of Andrew's SWOT analysis first published in the Harvard textbook, *Business Policy: Text and Cases* (Learned, Christensen et al. 1965) were in the main developed by consulting firms. The SWOT analysis developed by Andrews concentrates on how the firm needs to adapt its strengths and weaknesses (internal focus) in response to threats and opportunities (the external environment) posed. Most notable among the frameworks developed by consulting firms is the Growth/Share Matrix developed by the Boston Consultancy Group (BCG), which acts as a portfolio planning tool to assist managers with the task of allocating resources among several business units (Herrmann 2005). Another prominent framework,

introduced as a competitor to the BCG framework, is the GE/McKinsey Business screening which reinforced the impression that strategy could be formulated and implemented through rigorous analytical examination and decomposition (Hambrick and Chen 2008). Suffice to note that these practice-based frameworks had their foundations firmly set in RBT.

2.2.5 Business policy.

The origins of the field of strategic management and today's courses in strategy can be traced back to the business policy course taught in Harvard Business School during the period 1912 to 1925 (Bower 2008, Hambrick and Chen 2008). While the course placed its main emphasis on general management, this placed it at the intersection of many other business subjects such as marketing, finance and economics, hence strategic management as an academic discipline found a niche as the "*queen of the management sciences*" Carter, Clegg et al. (2010:575) . Up until the late 1970s, within academia, business policy was considered more a capstone course than a field in its own right (Hambrick 2004, Herrmann 2005) and during this time the work carried out in business policy was concerned with the practices of the TMT (as distinct from managers at a lower hierarchical level) with an emphasis on case study design and little focus on theory or generalisability (Herrmann 2005).

Following a conference attended by ninety three academics in 1977 at the University of Pittsburgh, USA, an emphasis was placed on a requirement for analytical rigour in business policy research and in 1979 the name of the field was changed to strategic management signifying a movement towards an empirically positioned field and the concept of strategy had become an axis by which to study issues pertaining to general management (Mahoney and McGahan 2007). In support of this movement the SMS (Strategic Management Society) was formed in 1980 and in the same year the SMS launched SMJ (Strategic Management Journal) with approximately one third of its academic editorial board members coming from the attendees at the Pittsburgh conference (Hambrick 2004). As we now know, firm performance cannot be explicated independently of the environment in which the firm operates, hence strategic management helps provide a deep understanding of the differences in performance of competing firms (Hoskisson, Hitt et al. 1999).

2.2.6 Strategic leadership.

A critical resource for any firm involved in the development and implementation of strategy is its strategic leadership (Ugboro, Obeng et al. 2011, Smith, Lewis et al. 2016). Strategic leadership can include several individuals (e.g. Chief Executive Officer (CEO), Chief Information Officer (CIO), Director of Strategy) and/or groups (e.g. TMT and governing bodies (GBs)) and is a crucial competence that differentiates one firm from another (Mahoney and McGahan 2007, Ou, Tsui et al. 2014).

Nutt and Backoff (1993a) are of the view that strategic management and strategic leadership work in concert to formulate and implement strategy. While strategic management is concerned with generating ideas leading to a new strategic initiative and then finding ways to implement this initiative, Nutt and Backoff (1993a:324) define strategic leadership as "*a process of guidance carried out to make something happen*". This implies a leader must enthuse others in such a way that they commit to implementing what the leader wants done (Gutermann, Lehmann-Willenbrock et al. 2017), and in terms of strategic leadership, the leader wants to transform the firm by implementing a new strategic initiative.

While the literature reveals the TMT as the central actor in strategy formulation, the role of lower level management in strategy execution is also well recognised (Storey 2005, Narayanan, Zane et al. 2011). Fredrickson (1986) and Ugboro, Obeng et al. (2011) add support to this view by maintaining the CEO and/or TMT in large organisations operating in complex environments share the responsibility of strategy development with lower level management, particularly with those who are tasked with implementing the strategic plans. However, formulating strategic plans does not guarantee their subsequent implementation and this view led Mintzberg, Raisinghani et al. (1976) to regard the formulation of strategy as a separate topic to be investigated under the heading of "tracking strategy". Of course, this does not signify that strategic leaders can abdicate their primary role of strategic planning (as distinct from implementation) to lower level managers, but should instead collaborate with lower level managers in the planning process. Such collaboration often results in an increased commitment from lower level managers and facilitates an organisation-wide understanding of the strategic planning process, including an appreciation of the difficulties associated with allocation of resources required to implement and achieve the objectives of the strategic plan (Kim 2002, Ugboro, Obeng et al. 2011). Collaboration can be facilitated through two way communication between top

and lower levels of management or as Tourish (2005:501) puts it, "*the communication lift must serve all floors*". Without this two way communication, the thoughts, ideas and actions of top and lower level management can become misaligned thus heightening the risk of failing to achieve strategic implementation (Tourish 2005).

Traditionally, strategy formulation is associated with CEOs and their TMT (Shamir 2011, von den Driesch, Eva Susanne da Costa et al. 2015). However a new role, at TMT level, sometimes referred to as the Chief Strategy Officer (CSO) or Senior Strategy Director, has begun to emerge over the past decade with their focus solely on matters pertaining to strategy including strategy formulation, implementation and on-going refinement (Whittington, Cailluet et al. 2011). Ultimately, the role of the CSO is to achieve alignment between all strategic activities in which the firm is engaged (Angwin, Paroutis et al. 2009). However, regardless of how brilliant a firm's strategy is, it can only be implemented through successful execution. According to Neilson, Martin et al. (2008) this capability is lacking among the majority of firms and the problem can be addressed by ensuring everyone within the firm knows what they are responsible for and who makes the decisions. With his/her sole emphasis on strategy, the CSO can help ensure this takes place.

Formulating strategy and reviewing its impact is not best done amidst other activities that require the attention of those involved. Strategy workshops, which involve taking time away from day-to-day activities to reflect on the long term strategic direction of the firm are now a common practice, but as of yet little is known about them (Hodgkinson, Whittington et al. 2006). Strategy workshops offer the prospect to include a broad community in the development of strategy, including top and middle managers, as well as other stakeholders with a vested interest in what takes place. Surprisingly Hodgkinson, Whittington et al. (2006) found from their UK survey based on 1,337 returns, that workshops where the focus was on strategy formulation turned out to be elitist events with the majority of attendees coming from the TMT, whereas workshops focused on strategy implementation did include lower level managers but with an emphasis on the TMT seeking buy-in to a strategy already well developed. With regard to other stakeholders Hodgkinson, Whittington et al. (2006) found that consultants have a low attendance rate at 18%, while customers had a lower attendance rate at 5.5% and suppliers had a lower level still at 2.4%. Unfortunately, this general lack of involvement by the wider stakeholder group could be perceived as a "my way or the highway" approach by the TMT, or as

Mintzberg (1979a) has argued, it could be as a result of the firm's dominant structure particularly if it is highly centralised and not amenable to organising strategy formulation workshops involving those outside the TMT. Unfortunately, such thinking can result in lower level management lacking not only in ownership of the firm's strategy, but also lacking the necessary information to help them align their actions with it, thus contributing towards a failure to deliver benefits to the firm (Tourish 2005).

2.2.7 Inter-institutional collaborative approach to strategy.

An inter-institutional collaborative approach to formulating and implementing strategic plans is becoming increasingly common among organisations (Bragge, Merisalo-Rantanen et al. 2007, Clarke and Fuller 2010). This collaborative approach is aimed at achieving outcomes that would be extremely difficult for each individual organisation taking part to achieve, if they were to act independently. Therefore, by collaborating together, all organisations in the group primarily work to strategically manage the parts of their organisational environment that is influenced by the collaborative effort, as well as to manage (as a secondary consideration) the collective goals of the group (Provan and Kenis 2008, Clarke and Fuller 2010, Saz-Carranza and Ospina 2011). When organisations take an inter-institutional collaborative approach to strategy, strategy formulation and implementation become more complicated than in single organisational cases. This is because the individual strategies of each organisation taking part need to be aligned and because managers of the partaking organisations perform collaborative related tasks in addition to the normal work they do in their own organisations (Bragge, Merisalo-Rantanen et al. 2007, Saz-Carranza and Ospina 2011). The inter-institutional collaborative approach requires a different type of leadership than that found in individual organisations, in that no one member of the collaborative effort can be told what to do by any other member(s). This requires leadership by an overseeing organisation that has the power to influence the rules and relationships for all members within the collaborative group, so that leadership is distributed among members rather than concentrated in a select few (Currie, Grubnic et al. 2011, Müller-Seitz 2012).

2.2.8 Meaning of strategy within the strategic management domain.

The early definitions of strategy which drew on numerous works carried out during the 1960s were focused on deciding the long term objectives of the firm and adoption of the most appropriate course of action to achieve those objectives, drawing on the firm's distinct set of competencies to do so, resulting in the assortment of definitions we have

today (Herrmann 2005, Ronda-Pupo and Guerras-Martin 2012). Since then many definitions have been put forward, with some concentrating on the corporate level of the firm, others concentrating on the business unit level of the firm and even others concentrating on the functional level of the firm with each function having its own strategy arm such as IS strategy, finance strategy, human resource strategy, production strategy and others (Hafsi and Thomas 2005, Weber and Tarba 2014). Indeed, in their efforts to analyse the evolution of the definition of the strategy concept, Ronda-Pupo and Guerras-Martin (2012) selected a set of 91 definitions that were put forward by various authors from 1962 and 2008, thus pointing towards the fragmentation within the field and a lack of consensus within the field's research community as to what constitutes the strategy concept. So, what is the meaning of strategy within the strategic management domain?

As discussed in section 2.2.5., the field of strategic management is relatively young having had its name changed in 1979 from business policy. It is also a field that overlaps with several other fields including economics, marketing and finance, so it is hardly surprising that numerous definitions of strategy exist within the strategic management domain (Nag, Hambrick et al. 2007). In an effort to identify the meaning of strategy within the strategic management domain, Nag, Hambrick et al. (2007) utilised a twenty year timespan (1980 - 2000) to discover a fundamental definition bereft of any particular fashions or cycles that have punctuated the field since its inception. Through their study Nag, Hambrick et al. (2007:944), concentrated on 447 abstracts of leading USA based journals and arrived at a definition that represents how scholars within the strategic management field think about the field - "*the field of strategic management deals with the major intended and major initiatives taken by general managers on behalf of owners, involving utilisation of resources, to enhance performance of firms in their external environments*". The study undertaken by Ronda-Pupo and Guerras-Martin (2012) found that while terms such as 'firm,' 'environment,' 'actions,' and 'resources' made up the bulk of terms used by authors within the field of strategic management, over time, the emphasis has clearly switched to concentrating on improving the performance of the firm. Therefore, whatever aspect of strategy is researched, it is clear that explaining and in some cases predicting firm performance, is a principal research goal for research carried out within the strategic management domain (Ketchen Jr, Thomas et al. 1996, Furrer, Thomas et al. 2008, Andrews, Boyne et al. 2011, Wowak, Mannor et al. 2016).

Based on their analysis of the principal terms used by authors within the strategic management domain for the period 1962 to 2008, Ronda-Pupo and Guerras-Martin (2012:182) propose a definition of the strategy concept as *"the dynamics of the firm's relation with its environment for which the necessary actions are taken to achieve its goals and/or to increase performance by means of the rational use of resources"*. This definition, while similar to the one put forward by Nag, Hambrick et al. (2007), differs insofar that it does not concentrate on the actions of the TMT alone and for this reason it is a more wholesome and applicable definition.

2.2.9 Summary of the evolution of strategy within the strategic management domain.

The strategic management domain, which is practical in nature, has advanced significantly since the 1960s and by continuing to use a wide variety of methodologies and theoretical perspectives from a vast array of disciplines (including strategic management) to help explain firm performance, the domain can look forward to a bright and vibrant future that mirrors reality (Hoskisson, Hitt et al. 1999, Hafsi and Thomas 2005). The evolution of strategy within the strategic management domain has shown the field does not rely solely on theories and methods from other academic disciplines, and is now an established sub-discipline within the social sciences (Martinsons, Everett et al. 2001, Durand, Grant et al. 2017).

Hoskisson, Hit et al., (1999:447) describe the evolution of strategic management as the *"swings of a pendulum"*. Having focused on the internal characteristics of the firm in the 1960s, to the industry structure in the 1970s and early 1980s, and back to the internal resources in the 1990s, researchers are now looking at the role and practices of individuals such as IS managers, because only through successful management of human resources will firms be able to develop unique competencies that are underpinned by information, knowledge and expertise (Herrmann 2005, Furrer, Thomas et al. 2008).

During these pendulum swings, scholars within the strategic management field developed a plethora of theories. The origins of some of these theories belong to the business policy era, resulting in insights of a narrow focus because the environment in which the firm operated was ignored (Hambrick 2004, Mahoney and McGahan 2007, Díaz-Fernández, González-Rodríguez et al. 2015). Alongside theory development, various frameworks and typologies were developed within the strategic management domain. While they offer

guidance with the development and implementation of strategy, they do not provide a cookbook/recipe approach. The danger is that when such frameworks are utilised by practitioners within the strategic management domain, they can create a world moulded in the image of the framework which may or may not be the most appropriate mechanism for seeking to attain the objective sought by the firm (Carter, Clegg et al. 2010, Stewart and Chakraborty 2011). What they do offer is guidance through their concepts, as every organisation faces a unique set of circumstances when embarking on the formulation and implementation of strategy (Iszatt-White 2010, Levinthal 2011).

While the TMT is the central actor in strategy formulation, the involvement of lower level management in strategy formulation can result in an increased commitment and alignment of their actions when it comes to strategy execution (Kim 2002, Ugboro, Obeng et al. 2011). Unfortunately, not all organisations welcome the involvement of lower level management and prefer to keep strategy formulation within the exclusive domain of the TMT (Hodgkinson, Whittington et al. 2006, Whittington, Cailluet et al. 2011). However, strong leadership by the TMT has a significant role to play in alleviating fears associated with the involvement of lower level management, as it can result in lower level management committing to what the TMT wants implemented (Nutt and Backoff 1993a, Mahoney and McGahan 2007, Gutermann, Lehmann-Willenbrock et al. 2017).

Progress within the field should not be limited to theoretical and empirical contributions. It should also include the construction of models that can help reveal the influence an inter-institutional collaborative approach to formulating and implementing strategic plans can have on organisations (Bragge, Merisalo-Rantanen et al. 2007) and the influence various practitioners can have on strategy including the efficient integration of IS with other activities of the firm (Herrmann 2005, Weber and Tarba 2014). Therefore an understanding of the performance of practices rather than the performance of the organisation, is required to understand how strategic activity is constructed (Whittington 2006b, Jarzabkowski, Balogun et al. 2007), with the practice perspective demanding practices be studied from within (Whittington 2014). This implies that practices shape reality, thus supporting the claim that practices be treated as the *"focal lens through which to inquire into social reality"* Orlikowski (2010:26). This denotes that practices and not practitioners, are the basic unit of analysis for understanding organisational phenomena (Reckwitz 2002, Goldkuhl 2011, Nicolini 2012). With its focus on the actions of individual(s), the "practice turn" is indeed a timely development to help us understand how

people such as IS managers engage in strategising (Vaara and Whittington 2012, Peppard, Galliers et al. 2014).

While the "practice turn" focuses on the practices of the practitioner(s), it also focuses on how such practices "*are embedded in and driven by more widely"* organisational and institutional accepted practices (Bartunek, Balogun et al. 2011:37), such as how the practices of IS managers in IIT are driven by the accepted practices within the public service (Bartunek, Balogun et al. 2011, Tello-Rozas, Pozzebon et al. 2015). The linkage between the practices carried out by practitioners and the various organisational levels has been researched by social scientists for well over a century (Kozlowski, Chao et al. 2013) and is capable of uncovering the links between lower level entities such as the practices carried out by IS managers and higher level organisational practices in IIT (Goldkuhl 2011, Vaara and Whittington 2012, Tello-Rozas, Pozzebon et al. 2015).

Practice theory, with its focus on dynamics, human relations and enactment, is therefore particularly suited to help answer my research question. The question aims to provide an understanding as to how the alignment of business and IS strategies is practiced by IS managers in IIT, whether or not the IS manager is tasked with a formal strategy role (Hendry and Seidl 2003, Jarzabkowski 2004, Feldman and Orlikowski 2011, Whittington 2014). Therefore, the focus of attention is on the practices themselves (e.g. the doing of strategy) rather than on the IS managers who execute them (Reckwitz 2002, Chia and MacKay 2007, Nicolini 2012). From an ontological perspective, this firmly places IS managers and processes subordinate to practices, thus instilling practices as the primary unit of analysis (Chia and MacKay 2007, Jarzabkowski, Balogun et al. 2007, Jarzabkowski and Seidl 2008).

As my research question is concentrated within a PSO context, I now consider how strategy has evolved within the public service domain.

2.3 Evolution of strategy within the public service domain.

A background to strategy within the public service domain is put forward in section 2.3.1. In section 2.3.2., differences between the private and public sector domains are presented as are the reasons why different approaches to strategic management are required in each domain. In section 2.3.3., the principal frameworks and typologies pertaining to strategy within the public service domain are discussed. Section 2.3.4 provides a synopsis of the

various factors that impact a PSO's performance, while section 2.3.5 synopsises inter-institutional collaboration pertaining to PSOs. In section 2.3.6., a summary by way of identifying the meaning of strategy within the public service domain is put forward. Finally, section 2.3.7 provides a summary on the evolution of strategy within the public service domain.

2.3.1 Background to strategy within the public service domain.

Strategic management is a word that has only recently entered the discourse pertaining to the public sector, with a limited literature set evolving since the 1980s (Boyne and Walker 2004, Stewart 2004, Greckhamer 2010), and the emphasis being placed on differences between private and public service strategies (Boyne and Walker 2004, Stewart and Chakraborty 2011). Since the 1980s strategic management within the public sector has started to move from a central focus on strategic planning to a comprehensive set of strategic management activities that includes budgeting, performance and initiatives aimed at performance improvement, therefore placing an emphasis on an organisation's missions, strategies and operations (Bryson, Berry et al. 2010). This is not to suggest that strategic management does not matter within the public service domain, as there is ample evidence to support the view that it does (Meier, O'Toole et al. 2007). Indeed, strategic management can be very effective in helping to match a public service's strategy with its ever changing environmental needs (Nutt and Backoff 1995).

Strategic management requires that strategic plans reflect the overall strategic agenda of the organisation and that the plans are managed on an on-going basis in an effective rather than intermittent manner (Poister 2010). Development of these plans varies within the public sector, with GBs taking the central role in some cases, the executive management team (EMT) taking the central role in others and in other cases the central role can extend to include other managerial levels as well as external stakeholders. In addition to the variations as to who takes the central role, strategic planning efforts within the public service sector can differ in scope, with some efforts concentrating on individual divisions and other efforts concentrating on entire government departments (Poister, Pitts et al. 2010).

Governments such as the federal government in the USA that passed the Government Performance and Results Act in 1993 and the UK government that is driving through the New Public Management (NPM) reforms, require PSOs to implement strategic plans

linked to budgets and other performance measurements (Stewart 2004, Nieto Morales, Wittek et al. 2013). This development downplays the importance of the political dimension and has been strongly influenced by external funding bodies who see the need for every organisation to have a strategy, bringing us to the point where the production of a strategic plan mirrors that of a corporate planning process (Llewellyn and Tappin 2003, Ugboro, Obeng et al. 2011). As a result, the control of resources within the public sector by professionals has been overtaken by managers and has forced PSOs to develop, implement and measure strategies, so as to secure on-going funding from government and external funding bodies. This change in control is a serious attempt by political masters to ensure the role carried out by professionals remains at an operational and advisory level, while managers concentrate on the task of formulating and implementing the organisation's strategy, and the politicians who are at the apex of the authority network retain control over policy, including definition of the PSO's target market (Nutt and Backoff 1995, Llewellyn and Tappin 2003, Talbot 2009). Another way of looking at this is put forward by Furrer, Thomas et al. (2008:11) in that *"corporate strategy is concerned with domain selection: what portfolio of businesses should we be in? Business strategy is concerned with domain navigation: how should we compete in each business?"* If we apply this view to third level education within the public service for example, we can see that national strategy is determined by government, whereas each third level institution determines how to compete within the parameters set by government.

A major consequence of this approach is that rather than report on progress against key political objectives, PSOs now report on progress against objectives set out in their strategic plans (Nielsen and Moynihan 2017). This provides a clear distinction between policy which is government's agenda and managerial activities carried out to ensure strategy is formulated and implemented (Stewart 2004, Emmert 2016). In order to effectively report on progress against objectives set out in their strategic plans, the recent reforms within the public service encourage line managers as well as top executives, to participate in strategy formulation and implementation, using information as a core resource to do so (Brown 2010, Poister 2010). Re-enforcing the views of authors contained in section 2.2.5, Brown (2010) maintains the content of strategic plans should be the result of genuine collaboration between participants from multiple levels of the organisation and not just limited to the views of those at the top, and this should be coupled with increased autonomy for decision makers so they can take corrective action when conditions dictate.

While corporate and competitive strategies may offer some value to PSOs, the resource based strategies discussed in section 2.2.2 offer a great deal more, if for no other reason than because each PSO vies for resources from the same resource pool for the purpose of providing public services (Llewellyn and Tappin 2003, Boyne and Walker 2004). Unlike the environment within the private sector, the environment within the public sector is beset with political considerations which can sometimes lead to political masters and powerful interest groups manoeuvring in ways that oppose the PSO's right to act (Rabovsky 2012). Therefore, implementation of strategy tends to be more successful when public sector managers take cognisance of the beliefs and demands held by political interest groups and influential lobbyists, particularly as these people have a major bearing on the allocation of limited resources that are also sought after by competing agencies within the public sector (Nutt and Backoff 1993a). However, with so many interest groups exerting pressure on PSOs, the challenge faced by public sector managers is to manage the conflicts and demands, rather than strive to solve them (Christensen, Laegreid et al. 2007, Poister, Pitts et al. 2010). Such management can be aided through the provision of more relevant, high quality and timely information, underpinned by IS that facilitate communication, stakeholder engagement and performance management (Brown 2010, Bryson, Berry et al. 2010).

Strategy within the public service domain is of the upmost importance because it plays a pivotal role in influencing which internal and external constraints impact on the organisation (Boyne and Walker 2010). Managing these constraints can be well served via three fundamental changes:

(i) linking strategic planning more closely with performance management, thus responding in a positive manner to the pressures exerted for accountability;

(ii) shifting from strategic planning to strategic management so that strategic plans are managed on an on-going basis and reflect the overall organisation's strategic agenda; and,

(iii) moving from performance measurement to performance management.

(Poister 2010)

2.3.2 Differences between private and public sector domains.

Whereas private sector organisations are privately owned and engage in trading for the purposes of making profits, PSOs are owned by members of political communities whose

leaders are elected, and provide/contract services to meet the needs of the public (Boyne 2002, Malatesta and Carboni 2015). A common feature of all PSOs that operate in representative democracies is that their work is carried out on behalf of politically elected authorities (Nutt 1999, Boyne 2002, Christensen, Laegreid et al. 2007). Therefore the discretion managers in PSOs have over strategy is clearly reliant on, and influenced by, the traits of their regulatory regimes (Nutt and Backoff 1993a, Andrews, Boyne et al. 2008).

Within the literature, the main focus on strategic management is on private sector organisations and where there is a focus on PSOs, attention is on the differences between private and public sector strategies (Stewart and Chakraborty 2011). Such differences emanate from the constraints imposed by government, resulting in rule making bodies limiting the flexibility, autonomy and authority afforded to the organisations' leaders, and a continuous shift in performance expectations due to the broad accountability required (Boyne and Walker 2004, Johansen and Zhu 2014). This suggests that approaches to strategic management within the private sector may not be the most appropriate for PSOs, as strategic emphasis within PSOs is based on a mixture of political and legal considerations as well as economic, unlike the private sector where the emphasis is on marketplace dependence alone (Nutt and Backoff 1993a, Boyne 2002). Due to these differences, approaches to strategic management for organisations in the private sector which view strategy as a means to help achieve superior performance and defeat rivals in competitive markets, can be downright deceptive if applied to PSOs which view strategy as a means to improve performance and provide better public services (Nutt and Backoff 1993b, Boyne and Walker 2010).

Unlike organisations in the private sector, PSOs are highly dependent on overseeing organisations for their resources based on some predetermined criteria including performance indicators, inspections, audits and annual reports (Nutt and Backoff 1993b). PSOs also depend on co-operating rather than competing with other PSOs offering similar services, otherwise the result could be a duplication in service offerings which is generally regarded as detrimental and wasteful of taxpayers' money (Boyne and Walker 2004). For these reasons, strategy within PSOs is both a political and developmental process necessitating astute management of the desires and expectations of many stakeholders, all of whom have influence over the appropriation of resources (Nutt and Backoff 1993b, Boyne and Walker 2004, Rocheleau 2006). Unlike management in the private sector, management in PSOs are incentivised to concentrate on low risk goals and practices in

steering their organisations, due to the constraints placed on them by the policy/managerial divide (Stewart 2004).

In summing up the differences between private sector organisations and PSOs, a stakeholder perspective is appropriate for PSOs whereas a shareholder perspective (economic interest only) is appropriate for private sector organisations (Christensen, Laegreid et al. 2007).

2.3.3 Frameworks and typologies pertaining to strategy within the public service domain.

Existing classification schemes designed for strategy have little relevance for PSOs, as they largely overlook the constraints faced by such organisations (Boyne and Walker 2004, Stewart and Chakraborty 2011). The two foremost models developed are the five force model developed by Porter (1980) and the framework developed by Miles, Snow et al. (1978), both discussed in section 2.2.3. While the five force model was developed with the private sector in mind, the framework developed by Miles, Snow et al. (1978) was derived inductively from an array of organisations and is designed not only for organisations in the private sector but also for PSOs (Boyne and Walker 2010, Stewart and Chakraborty 2011). Within PSOs *prospectors* seek to expand their budgets and lead the development of new products and services, *defenders* focus on low risk strategies by attempting to enhance the efficiency of their existing services, *analysers* share elements of both *prospectors* and *defenders*, while *reactors* lack a clearly defined strategy of their own and await instructions from overseeing bodies (Andrews, Boyne et al. 2011).

Boyne and Walker (2004) developed a strategy content framework to classify strategies pursued by PSOs, with a clear emphasis on making it possible to identify and measure the strategy content. Their framework consists of two dimensions; strategic stance (based on the framework developed by Miles, Snow et al. (1978)) and strategic actions (based on the five force model developed by Porter (1980)). They see strategy content as an output from strategy formulation, comprising the actions (strategic actions) required to achieve the organisation's stated objectives and the approach (stance) the organisation takes to carry out these actions. They developed their framework in the belief that existing frameworks for PSOs focused on strategy process (*the how*) and to a great extent ignored strategy content (*the what*), thus neglecting many of the specific features pertaining to PSOs, in particular the imposition and regulation of strategy (Poister, Pitts et al. 2010). In addition,

Boyne and Walker (2004) and Andrews, Boyne et al. (2009b) criticise previous research that assumes PSOs take a single strategic stance to the exclusion of the other three (e.g. *prospector* over *defender*, *analyser* and *reactor*), as a mix of stances is probably more appropriate given that PSOs have to deal with any number of factors at any given time.

The Boyne and Walker (2004) framework was tested on a sample of 120 organisations in English local authorities by Andrews, Boyne et al. (2006) during a period when UK central government was encouraging local authorities to engage in innovative ideas. They found *prospector* to be the best option and *reactor* to be the worst, confirming a widely held view that strategy does indeed influence the performance of PSOs (Meier, O'Toole et al. 2007, Boyne and Walker 2010). This is a finding supported by a study undertaken of 135 English local authorities by Walker and Brewer (2009), who found PSOs should move towards more proactive strategies such as the *prospector* stance as defined by Miles, Snow et al. (1978).

Bryson, Berry et al. (2010) point to several strategy frameworks that were developed since 1986 for PSOs including Wechsler and Backoff (1987), Osborne and Plastrik (1997), the balanced scorecard by Niven (2008) and of course many adaptations of the framework developed by Miles, Snow et al. (1978). While my review of the literature has uncovered a number of frameworks and typologies pertaining to strategy within the public service domain, tests using these are limited mainly due to the prominence of the framework developed by Boyne and Walker (2004).

2.3.4 Organisation performance.

PSOs are expected to achieve high performance on a number of dimensions including the provision of services that are efficient, effective and equitable, while at the same time meeting the expectations of all stakeholders (Hvidman and Andersen 2014). These expectations are likely to persist while PSOs continue to operate with an emphasis on performance indicators, performance management and the need to respond speedily to consumer needs (Boyne and Walker 2010, Neshkova and Guo 2012). A key determinant of organisational performance is strategy content and implementation, particularly when the style of implementation applied complements the organisation's strategic stance as defined by Miles and Snow (1978) in section 2.2.3 (Poister, Pitts et al. 2010, Andrews, Boyne et al. 2011).

While some governments have legislated to help ensure PSOs reflect the diversity of the populations they serve (Gerrish 2016), a study undertaken by Andrews, Boyne et al. (2005) found English local government to be inconsistent with the theory of representative bureaucracy, which advocates that organisations perform better when their workforces exhibit the demographic characteristics of the people they serve. They argue, for the relationship between representative bureaucracy and performance to be explained, it is necessary to consider the role of management in managing workforce diversity, as a PSO that merely reflects their constituents is not guaranteed success. This argument is also supported by the findings from a study undertaken by Andrews and Ashworth (2015) into UK civil service organisations.

Meier, O'Toole et al. (2007) found that strategy can be detached from all other components of management in order to assess its impact on organisational performance. Using the Miles and Snow's (1978) typology, they carried out a study on data obtained from Texas school districts over a six year period between 2000 and 2005. The results show that managerial strategies have an impact on the performance of PSOs. Overall, they found the *defender* strategy to be the most effective in seeking to achieve the primary goal of the organisation, whereas the *prospector* and *reactor* strategies worked best for the goals associated with the politically powerful elements of the organisation's environment. These findings are in contrast to the empirical findings of Andrews and Boyne (2006) and Walker and Brewer (2009) presented in section 2.3.3. However, Meier, O'Toole et al. (2007) do suggest that while the *defender* may surpass the *prospector* it only does so in some respects and a complete picture can only be obtained by studying different types of PSOs in different situations and environments. One such study was that carried out by Andrews, Boyne et al. (2009b) who applied the Miles and Snow (1978) typology as a lens to study Welsh local governments and they found support for Miles and Snow's contention that both the approaches of *prospectors* and *defenders* are associated with superior results.

To what extent performance is affected by regulation and particularly inspection is the focus of a study carried out by Andrews, Boyne et al. (2008) on 51 Welsh local authority departments. Again using Miles and Snow's (1978) typology, they found the strategy to be most related with success is that of *prospector*. They also found that inspection carried out in PSOs has a tendency to weaken the relationship between strategy and performance thus lessening the positive effect of *prospector*. However, they found that if managers within departments viewed regulation as supportive of their endeavours, then such regulation is

likely to enhance the impact of local strategies in a positive manner. Overall, the results confirm that both internal and external factors have a significant effect on performance of PSOs.

Two important determinants of performance within PSOs that are vulnerable to politician and managerial control are, the quality of strategic management and the extent to which decisions are centralised (Andrews, Boyne et al. 2009a). Reform agendas resulting from legislative acts such as the Government Performance and Results Act 1993, tend to favour decentralisation as a way to help overcome this control. A study undertaken on 53 UK PSOs by Andrews, Boyne et al. (2009a) using Miles and Snow's (1978) typology as their lens, found that while centralisation had no independent effect on service performance, its impact is contingent on the strategic stance taken by organisations. They found that when it comes to good quality service performance, centralised decision making works best when coupled with a *defender* stance (high degree of hierarchical authority and low staff involvement in decision making) while decentralised decision making works best when coupled with a *prospector* stance (low degree of hierarchical authority and high staff involvement in decision making), suggesting that PSOs should focus attention on the interaction between structure and strategy when considering performance.

While the evidence presented provides initial indications on efforts that are likely to lead to improved performance, the theoretical and empirical basis of our knowledge concerning strategy in PSOs are insubstantial at this juncture (Poister, Pitts et al. 2010, Andrews and Ashworth 2015).

2.3.5 Inter-institutional collaborative efforts.

Within the context of public services delivery the term "network" is often applied to inter-institutional collaborative efforts, where the emphasis is placed on bringing together a wide range of PSOs to pool resources, co-ordinate decision making and share services (Currie, Grubnic et al. 2011, Saz-Carranza and Ospina 2011, Cristofoli, Markovic et al. 2014). The approach is availed of as a vehicle to help modernise public services (Currie, Grubnic et al. 2011, McGuire and Agranoff 2011, Sedgwick 2017). The purpose for doing so is to find an overall collective governance solution to problems that cannot be solved independently by single PSOs, and avoid running into operational and performance barriers particularly when power within the "network" is divided among various PSO managers, technical experts and staff members (O'Toole 1997, Metcalfe and Lapenta 2014). Within this

context it is important to understand that the role of the "network" is to recommend action rather than decide policy, and for this reason, the "network" is limited in terms of what it can do to make things happen (McGuire and Agranoff 2011, Esteve, Boyne et al. 2013). Consequently, governance of the "network" is not vested in the boards of the individual organisations that make up the "network" and nor is it vested in a lead organisation from within the "network", instead it is entrusted in the form of funding and oversight roles to a government agency external to the network (Hill and Lynn 2005, Currie, Grubnic et al. 2011, Müller-Seitz 2012). The agency is tasked with performing the principal role of setting policy and governing relationships within the network and its activities (Provan and Kenis 2008, Saz-Carranza and Ospina 2011, Cristofoli, Markovic et al. 2014).

2.3.6 Meaning of strategy within the public service domain.

As described in sections 2.3.1 and 2.3.2., the main difference between strategy in PSOs compared to their counterparts in the private sector, is that PSOs derive their strategies from public policy (i.e. the government agenda). Within PSOs the development and implementation of strategy is what the organisation does to meet the expectations and requirements of all its stakeholders, whereas in the private sector it is what the organisation does to compete.

Within the public service domain, strategic management is a process aimed at producing a strategy that is unlikely to undergo significant changes in the short term and when implemented, will result in substantial changes to the organisation's practices and competencies thus transforming the organisation and resulting in value to its stakeholders (Nutt and Backoff 1993a, Andrews, Boyne et al. 2009a, Bryson, Berry et al. 2010). Within the public service domain, it is incumbent on managers who direct strategic activities to collaborate with their overseeing body and consult widely with all stakeholders when crafting strategy (Nutt and Backoff 1993b). Having crafted a strategy, the organisation has a plan of action and an approach which will guide it towards achieving its desired goals. The better the fit a PSO has with its environment, the better the chances it has of obtaining financial and political support (Boyne and Walker 2004, Meier, O'Toole et al. 2007). It is therefore essential that those involved in crafting the strategy follow through with support for its implementation, albeit that this provides significant challenges in itself (Talbot 2009, Poister, Pitts et al. 2010).

2.3.7 Summary of the evolution of strategy within the public service domain.

Having reviewed the literature on strategy within the public service domain, four salient points emerge with prominence. First, little has been learned about the extent to which PSOs participate in strategic management, with most studies into public service strategy emphasising the differences between private and public service strategies (Boyne and Walker 2004, Poister, Pitts et al. 2010, Stewart and Chakraborty 2011). Second, research emphasis has been on strategic planning and the actors involved in the process as distinct from strategic management, therefore little is known on how PSOs manage their strategic plans on an on-going basis (Bryson, Berry et al. 2010, Poister 2010, Nieto Morales, Wittek et al. 2013). Third, the importance of the political dimension and wider stakeholder interest in formulating and implementing strategy in the public sector cannot be overstated (Llewellyn and Tappin 2003, Rabovsky 2012), while at the same time the control professionals within PSOs have over strategic matters has diminished and been overtaken by managers who have been tasked with formulating and implementing strategy (Nutt and Backoff 1995, Talbot 2009). This places matters pertaining to policy at the door of government and matters pertaining to strategy at the door of managers (Stewart 2004). Fourth, there is a certain amount of agreement that more widespread contribution to the strategic management process involving managers from different levels within the organisation as well as external stakeholders, is advantageous (Meier, O'Toole et al. 2007, Poister, Pitts et al. 2010).

Unlike private sector organisations who are privately owned and engage in trading for the purpose of making profits, PSOs are owned by political communities and engage in the provision of services to meet the need of the public (Nutt 1999, Christensen, Laegreid et al. 2007, Malatesta and Carboni 2015). Such a scenario implies approaches to strategic management within the private sector may not be the most appropriate for the public sector (Nutt and Backoff 1993a, Boyne 2002, Johansen and Zhu 2014). The frameworks and typologies developed for the private sector have limited relevance for PSOs as they are fundamentally designed to assist in profit making and ignore many of the features unique to PSOs, particularly the imposition and regulation of strategy (Boyne and Walker 2004, Stewart and Chakraborty 2011). In response, Boyne and Walker (2004) developed a framework suitable for PSOs based on the framework developed by Miles and Snow (1978) and the five force model developed by Porter (1980). Studies using this framework confirmed that strategy does indeed impact the performance of PSOs (Meier, O'Toole et al. 2007, Walker and Brewer 2009).

When it comes to performance, PSOs face a myriad of measurements to help determine if their services are efficient, effective and equitable, while at the same time if they meet the expectations of numerous stakeholders. While some studies have been carried out (Andrews, Boyne et al. 2005, Andrews and Ashworth 2015) in an attempt to determine performance within PSOs, our current knowledge concerning strategy and PSOs performance is low on empirical evidence and therefore to obtain a comprehensive understanding of strategic management within the public sector domain, a great deal more research is required (Poister, Pitts et al. 2010).

As my research question concentrates on the praxis undertaken by the IS manager, I now consider the various roles undertaken by the highest ranking IS executive.

2.4 Positioning the roles undertaken by the highest ranking IS executive.

Since the early 1980s, IS has become more ubiquitous and hence an integral part of business strategy (Applegate and Elam 1992, Carter, Grover et al. 2011, Peppard, Edwards et al. 2011). The extent to which an organisation utilises IS for strategic purposes, invariably reflects on the job title given to, and the role undertaken by, the highest ranking IS executive (Ross and Feeny 2000, Chun and Mooney 2009, Strickland and Theodoulidis 2011, Dahlberg, Hokkanen et al. 2016). Job titles such as Data Processing (DP) manager, Management Information Systems (MIS) manager, IS manager and CIO are assigned to the highest ranking IS executive in organisations (Stephens, Ledbetter et al. 1992, Hunter 2010). The roles are numerous and in the main, are reflected in the job title (Benjamin, Dickinson Jr et al. 1985, Applegate and Elam 1992, Karlsen, Gottschalk et al. 2002, Dahlberg, Hokkanen et al. 2016). The roles include those of a business strategist, an advisor to senior management and a functional manager that assists end users realise benefits from the IS in which the organisation has invested (Beatty, Arnett et al. 2005, Chun and Mooney 2009, Peppard, Edwards et al. 2011).

While the job title CIO is commonly used within the literature to describe the most senior executive responsible for establishing policy and controlling information resources, other comparable job titles exist for the person carrying out these functions such as IT Director, Director of Information Resources and Vice President of IS (Grover, Seung-Ryul et al. 1993, Karimi, Gupta et al. 1996, Banker, Hu et al. 2011). The CIO (and its comparable job titles) is *"a senior executive responsible for establishing corporate information policy,*

standards, and management control over all corporate information resources" (Synnott and Gruber 1981:66). The CIO has become a business strategist and is a business person as much a technology person, with the ability to communicate their vision, and therefore influence how IS can be deployed to gain a competitive advantage (Computing 2014, Dahlberg, Hokkanen et al. 2016). Other job titles which include DP manager, MIS manager and IS manager, reflect a functional manager role with line responsibility for IS products and services (Stephens, Ledbetter et al. 1992, Earl 2000, Remenyi, Grant et al. 2005). Put succinctly, the difference between the CIO and the functional manager (e.g. MIS manager) is akin to the difference between the Chief Financial Officer (CFO) and the Financial Controller. Just as the MIS manager has a strong concentration on technology and the Financial Controller has a strong concentration on accounting, the CIO and CFO are executives first and functional specialists second (Denford and Dacin 2009).

In organisations where IS has a strategic orientation, the highest ranking IS executive's role extends beyond the technical and line management to include business, strategic and political roles (Karimi, Gupta et al. 1996, Bassellier and Benbasat 2004), and to spending more time interacting with those outside the IS unit (Stephens, Ledbetter et al. 1992, Enns, Huff et al. 2003, Hunter 2010). Such individuals are typically given the title of CIO and are accepted as a member of the executive team. Unfortunately for many, this acceptance has been short lived as they struggle to marry a strong business orientation and understanding with their mastery of IS (Ross and Feeny 2000, Bassellier and Benbasat 2004, Hunter 2010). Of course, not all organisations use IS to affect business strategy and prefer to employ it in a support role through leveraging the organisation's IS to reduce cost and gain efficiencies (Chun and Mooney 2009, Dahlberg, Hokkanen et al. 2016). In essence, the ability to align roles and responsibilities of the highest ranking IS executive with the strategic goals of the organisation, will always feature prominently in that person's effectiveness (Hooper and Bunker 2013, Smith 2016).

There has also been a focus on the highest ranking IS executive's reporting structure and whether he/she should report to the CEO or the head of finance, or some other equivalent executive. To date, we simply do not have sufficient empirical evidence to help identify the most appropriate reporting structure and are therefore not in a position to use the reporting structure as a measurement to help establish the strategic role of IS in the organisation (Banker, Hu et al. 2011). However, the literature does suggest that no one reporting structure is optimal for all organisations, and the closer the reporting line of the

highest ranking IS executive to the CEO, the greater the contribution IS can make to the achievement of business goals (Ross and Feeny 2000, Luftman and Kempaiah 2008, Banker, Hu et al. 2011).

2.4.1 Evolution of the roles undertaken by the highest ranking IS executive.

While much has been written about the challenges faced by the highest ranking IS executive, and the skills and knowledge required to be business focused while leading a technology based function, the role required of the individual continues to evolve depending on the business requirements at a given time (Remenyi, Grant et al. 2005, Smaltz, Sambamurthy et al. 2006, Chun and Mooney 2009). The role has evolved considerably from a technician managing a service (cost centre) function, to that of a fully-fledged business strategist playing a more central role in overall strategy (Ives and Olson 1981, Benjamin, Dickinson Jr et al. 1985, Applegate and Elam 1992, Ross and Feeny 2000, Karlsen, Gottschalk et al. 2002, Chun and Mooney 2009). The following high level, staged review, of the literature on the role of the highest ranking IS executive can help us better understand this phenomenon.

Stage 1 - 1980 to 1989. An analysis undertaken by Ives and Olson (1981) found the IS manager's role to be primarily that of a functional manager involving coordinating, motivating and planning, with technical support coming from a cadre of experts both internal and external to the organisation. While Rockart's (1982) empirical study provides support for this analysis, his study, along with a set of guidelines for future IS executives developed by Rockart, Ball et al. (1982), found that the IS manager ought to place a strong emphasis on organisational politics and communication skills in order to garner executive support for IS plans. Such an emphasis was not a core requirement for the IS manager prior to the 1980s when the IS function primarily concentrated on processing historical accounting data only (Ives and Olson 1981, Rockart 1982). In their study into the changing role of the highest ranking IS executive, Benjamin, Dickinson Jr et al. (1985) found the job holder achieves his/her primary goals through staff activities and operates as a proactive executive reporting to the CEO or one level below. While this study also provides support for the analysis undertaken by Ives and Olson (1981), it also points towards the changing role of the highest ranking IS executive which is ultimately targeted at moving beyond technology to include business concerns, particularly the contribution of IS to the business.

Stage 2 - 1990 to 1999. In an effort to determine if the CIO was truly an executive with responsibility *" for establishing corporate information policy, standards, and management control over all corporate information resources"* (Synnott and Gruber 1981:66), or whether CIO was merely a name change for the IS manager with line responsibility for IS products and services, Stephens, Ledbetter et al. (1992) found a clear distinction between large and small organisations. Having achieved executive rank and attended strategy meetings, the CIOs in large organisations perceived their role as strategic. In small organisations, the CIO (mainly referred to as IS manager) did not perceive their role as strategic and were quite reticent when it came to matters of a strategic nature. Taking an alternative approach, (Applegate and Elam 1992) compared the roles of newly appointed CIOs (in their position for two years or less) with the roles of established CIOs (in their position for five years or more). The main differences between the two groups was that the newly appointed CIOs were active in IS strategic planning and control, whereas the established CIOs were not, and 27% of the newly appointed CIOs reported directly to the CEO compared to only 17% of the established CIOs. In their study into the managerial roles of the CIO, Grover, Seung-Ryul et al. (1993) found that CIOs do not have the authority or the ability to achieve changes that were envisaged when the position was initially proposed and that more realistic expectations for the role could be established on an organisation by organisation basis rather than aiming for one standard CIO position. To do so, it is important that the rank, role and qualifications of the CIO, reflect his/her organisation's strategic use of IS and that decisions relating to the organisation's strategic use of IS be aligned with the organisation's business strategy (Karimi, Gupta et al. 1996). We were now beginning to witness the development of the CIO as a business strategist while his/her role reflected an increasing responsibility for organisational growth (Chun and Mooney 2009). This pointed towards the CIO becoming an equal member of the TMT, so as to pursue a shared vision with business objectives, thus adding value to the organisation (Strickland and Theodoulidis 2011).

Stage 3 - 2000 to date. While functional managers such as IS managers are not members of their organisation's TMT, that is not to say they do not play a role in strategy. Regardless of rank held by the highest ranking IS executive, he/she can directly influence (as distinct from exerting authority upon) the strategic impact of IS within their organisation (Storey 2005, Narayanan, Zane et al. 2011). This can be achieved through building relationships with, and providing education for, key executives. This in turn influences the attitudes of key executives towards IS. In addition, by working with their

organisation's principal IS suppliers, the highest ranking IS executive can bring influence to bear on the IS offerings to their organisation. Such actions have increasingly shifted the role of the CIO from that of a functional manager to that of an executive, with a subsequent increase in his/her interaction with other departments and greater involvement in strategic planning (Ross and Feeny 2000, Karlsen, Gottschalk et al. 2002, Enns, Huff et al. 2003).

From an empirical study carried out in the healthcare sector Smaltz, Sambamurthy et al. (2006) found six salient roles carried out by the CIO. First is the *strategist*, who is called upon to take part in the organisation's strategic planning and decisions. Second is the *relationship architect* who builds relationships across the organisation and outside the organisation with principal IS suppliers. Third is the *integrator* who focuses on facilitating the integration of organisation-wide IS in support of business process integration. Fourth is the *educator* who provides understanding and insights into IS, to help the organisation's senior decision makers reach appropriate decisions about the business value of IS. Fifth is the *utility provider* who builds and sustains a robust IS infrastructure, and sixth is the *information steward* who provides advice and guidance for the attainment of high quality data from current IS. The study concludes that those CIOs who report to the CEO and the extent to which they have developed trusting relationships with other executives, were regarded as credible business strategists. A study conducted by Peppard, Edwards et al. (2011) across a wide range of industries found five salient roles carried out by the CIO. First is the *utility IT Director*, who typically reports to the CFO and is an operationally focused executive with the primary function of providing efficient IS services at lowest cost. Second is the *evangelist CIO* who engages in raising the profile of IS within the organisation to show that IS can be leveraged to generate significant business value. Third is the *innovator CIO* who identifies opportunities to deploy IS that will provide the organisation with a competitive advantage. Fourth is the *facilitator CIO* who is responsible for ensuring IS skills and capabilities permeate all parts of the organisation and fifth is the *agility IT Director/CIO* who is responsible for supplying IS for an organisation with ever changing business. The study concludes that while the five CIO roles are distinct, significant ambiguity as to what CIO role(s) is/are the most appropriate at a given time for an organisation exists. The authors of the study believe it is precisely this ambiguity that can cause strategic and operational opportunities provided by IS to be missed, and is one reason why many investments in IS underperform.

At a more macro level Chun and Mooney (2009) and Hunter (2010) found the role of the CIO to have evolved in two directions. The first is that of the executive whose primary objective is to work with other executives (both inside and outside the organisation) with a view to formulating and implementing strategy. The second is a technical manager whose primary objective is to obtain efficiencies from current IS. Carter, Grover et al. (2011) found CIOs who report to the CEO are more likely to participate in an organisation's strategic activities than CIOs who do not report to CEOs. They conclude that formal power, rather than technical credibility, facilitates active participation as a strategist. They also suggest that organisations who do not place a strategic emphasis on IS, need a CIO who places an emphasis on developing and maintaining an IS infrastructure as a means to provide an effective and reliable IS service. Rather than divide CIOs between those who play a role in promoting strategic initiatives and those who focus on IS technical/operational issues, Strickland and Theodoulidis (2011:2) contend the focus should be on both, with the primary role of the CIO being *"to equilibrate between strategic decisions and technical implementation"*. However, from my review of the CIO literature, it is very clear that those CIOs who do not report to the CEO, find such equilibration more difficult because of the additional high level of communication and relationship building required to do so.

This high level, staged review, of the literature on the role undertaken by the highest ranking IS executive comprises studies that have been executed within the private sector only. Only a few researchers have undertaken studies on the role of the CIO within PSOs and include Lawry, Waddell et al. (2007) and Hooper and Bunker (2013) to name two. Findings from these studies show that while the CIO was not involved in strategic planning, it was vital he/she possessed a good understanding of their organisation's strategic objectives so he/she could advise on innovative use of IS. The studies also found CIOs were not included in setting strategic direction, but were required to have a strategic perspective and be involved in advising how IS can support the attainment of business objectives. With regard to vendor management, CIOs involvement was limited to managing issues of an operational nature and did not extend to seeking new opportunities with vendors.

2.4.2 Conclusion to roles undertaken by the highest ranking IS executive.

The role of the highest ranking IS executive has evolved significantly since the early 1980s from that of a Data Processing manager, to a line manager managing a service function, to

that of a fully-fledged business strategist playing a central role in overall strategy. The literature reveals such individuals can be called upon to play a number of roles and the nature of these roles coupled with the title assigned to the job, is a clear indication of the role expected of IS within a given organisation.

2.5 Conclusion.

Not much has been learned about strategic management within PSOs, hence little is known as to how they manage their strategic plans on an on-going basis (Bryson, Berry et al. 2010, Poister, Pitts et al. 2010, Stewart and Chakraborty 2011) and the role undertaken by the highest ranking IS executive in this management (Strickland and Theodoulidis 2011, Dahlberg, Hokkanen et al. 2016). However, we do know that strategic management within PSOs is both a political and developmental process requiring shrewd management of the needs of many stakeholders (Nutt and Backoff 1993b, Boyne and Walker 2004). By studying the evolution of the strategic management domain, we see that many researchers are now focusing on the role and practices of individuals to determine how strategising is undertaken in organisations.

With the focus of my research on how the alignment of business and IS strategies is practiced by IS managers in IIT, the following chapter is concentrated on presenting my chosen methodology and an account of how I executed my study.

Chapter 3 - Research methodology, design and execution.

3.1 Introduction.

The objective of this chapter is to present, justify and execute the most appropriate methodology to answer the following research question:

How is the alignment of business and IS strategies practiced by IS managers in IIT?

My choice of methodology will be guided by my research question, my existing knowledge, the amount of resources I have available and my own philosophical assumptions. My methodology will be the dominant influence on the research process I undertake, the methods I employ and the findings I uncover (Doolin 1998). For reasons of clarity I will apply Minger's (2001:242) definition of methodology which is *"a structured set of guidelines or activities to assist in generating valid and reliable research results. It will often consist of various methods or techniques, not all of which may be used every time."*

The chapter begins with a short discussion on why decisions surrounding my methodological choices are predominately guided by my research question and philosophical stance, rather than by the dominant practices within the IS domain. In section 3.3, approaches to research within the IS field are discussed. The discussion commences with an account of the philosophical approaches to research within the IS field. An explanation of the major differences between quantitative and qualitative approaches to research within the IS field is provided, followed by a more detailed explanation of the three-fold paradigmatic classification scheme of positivist, interpretive an critical, put forward by Orlikowski and Baroudi (1991). The section concludes with an overview of IS research practices, explaining that while the majority of IS research remains within the ositivist paradigm, the interpretive paradigm is gaining ground mainly due to the growth of IS research into complex organisational/managerial and social phenomena. Section 3.4 presents five methodological choices faced and provides the rationale as to why I chose a practice-based approach. In section 3.5, I present a brief history of SaP research and explain why I draw upon a SaP lens within the interpretive paradigm for my study. Section 3.6 elucidates why I chose Whittington's (2006b) integrative framework for SaP as the most appropriate SaP theory to guide data collection and analysis, supported by the constructivist grounded theory coding method for executing data analysis, bounded within a case study research design. In section 3.7, I present how I executed my study through the

application of my methodology that comprises the three pillars of Whittington's (2006b) integrative framework for SaP, constructivist grounded theory coding and case study. Section 3.8 concludes the chapter by providing a summary of my methodological choices and how they were executed in practice. The section also provides a lead into chapter 4 where I present and defend the use of my SaP lens as a means to review the SA literature.

3.2 Approach to answering the research question.

According to Senn (1998:25), *"Good research, whether theoretical or applied in nature, always begins with selection of the issue and a formulation of a meaningful question for investigation",* and only then should the researcher determine how to investigate the question. Following my review of the pertinent literature, I now endeavour to determine the most appropriate methodology to answer the following research question which is of both a theoretical and practical significance;

How is the alignment of business and IS strategies practiced by IS managers in IIT?

Bryman (2007) contends the conventional view put forward in the discourse concerning methodology in social research, is that the research question guides the decisions about research design and methods, a view supported by Edmondson and McManus (2007) and Denzin and Lincoln (2011). Bryman (2007) also notes an alternative view exists whereby many researchers conduct their research in a habitual manner rather than being guided by their research question(s). Among other things, habits are often formed by the need for funding, the pressure to publish and the desire to obtain policy makers attention. Becker and Niehaves (2007) and Walsham (2012) proffer that methodological choices are often driven by the historical discourse in the researcher's discipline or research community. My methodological choices will be guided by my research question as it would be imprudent to have them decided upon from elsewhere (Adler and Hansen 2012, Constantinides, Chiasson et al. 2012). This is not to say that I will ignore past and present practices within the IS research field. On the contrary, my methodological choices will be influenced, but not dictated by, such practices. Other influencing factors in my choice of research methodology will include knowledge I have gained from my literature reviews, my ontological and epistemological positions, my methodological predispositions and the resources I have available to me (Van de Ven and Poole 2005, Saunders, Lewis et al. 2015).

3.3 Approaches to research in the IS field.

In this section an overview of the philosophical approaches to research in the IS field is put forward in sub-section 3.3.1. In sub-section 3.3.2, the major differences between quantitative and qualitative approaches to research within the IS field are discussed. Sub-section 3.3.3 provides an overview of the three most prominent research paradigms. A synopsis of research practices within the IS field is provided in sub-section 3.3.4, followed by concluding remarks in sub-section 3.3.5.

3.3.1 Overview of philosophical approaches to research in the IS field.

The approach a researcher takes to answering his/her research question will be influenced by his/her research philosophy and approach (Shepherd and Challenger 2013, Saunders, Lewis et al. 2015). The field of IS is no different to any other field within the social sciences, insofar that social scientists approach the domain of their research with three main assumptions about what takes place in the social world and how this world can be investigated. Burrell and Morgan (1982:1-3) describe these three sets of assumptions as *ontology, epistemology and human nature*. The main question of an ontological nature faced by the researcher is whether the subject matter to be investigated is external to the individual or not, in other words whether reality is of an objective nature or whether reality is a product of the individual's own mind. Assumptions of an epistemological nature are concerned about understanding the world we inhabit and communicating this knowledge to others. Assumptions regarding human nature are concerned with the relationship between humans and their environment. Each of these assumptions has a major bearing on how the researcher goes about investigating and gathering knowledge about the social world. If the researcher perceives the social world as external to the individual, then the analysis is one of searching for universal laws which explain the reality being observed (i.e. positivist). From an ontological perspective the researcher and reality are completely separate, whereas from an epistemological perspective reality exists beyond the human mind (Sandberg and Tsoukas 2011). If on the other hand the researcher perceives that the individual helps create the social world he/she inhabits, then the analysis focuses on the role the individual plays in creating, influencing and interpreting the world which he/she occupies (i.e. interpretive) (Walsham 1995b). From an ontological perspective the researcher and reality are inseparable, whereas from an epistemological perspective knowledge of the world is constructed through a person's lived experience. Whatever view the researcher holds, the common concern among all researchers is to justify the knowledge claims they make (Walsham 1995b, Doolin 1996, Mingers 2004, Weber 2004).

3.3.2 High level view of the major differences between quantitative and qualitative approaches within the IS field.

Qualitative and quantitative researchers have different approaches to their work, mainly in terms of different epistemologies and different forms of representation. The quantitative researcher uses among other methods, statistical analysis, mathematical models and graphs, to obtain and present their data (Miles, Huberman et al. 2014). They then use this data to test prior hypotheses or theories and write about their research in an impersonal manner (Denzin and Lincoln 2011). Qualitative studies are required if the aim of the research is to uncover the experiences of individuals and how the individuals interpret their experiences (Bluhm, Harman et al. 2011). The qualitative researcher seeks out among other things, historical narratives, first person accounts and life histories so they can obtain a rich view of what real life is like (Kaplan and Maxwell 2005). They collect their data in close proximity to where the action takes place. They write their narrative only after interpreting the data (Walsham 1995a). Qualitative data are seen by many as the best way to discover or construct new theory, understand causal processes, explore a new area, develop hypotheses for later testing and facilitate later action based on the results of the research (Walsham 1995a, Kaplan and Maxwell 2005, Denzin and Lincoln 2011, Miles, Huberman et al. 2014). In essence, the quantitative researcher plays an impersonal role and aims to explain, whereas the qualitative researcher plays a personal role and aims to understand (Stake 2010).

My research question is ideally suited to the qualitative approach, as I am aiming to understand how the alignment of business and IS strategies is practiced by IS managers in IIT.

3.3.2.1 Quantitative approach to research in the IS field.

The quantitative approach to research within the IS field comprises the positivist paradigm only (Myers 1997). This approach is based on Karl Popper's differentiation between scientific theory and myth, whereby scientific theory can be falsified but never proven and a myth is based on observation thus rendering it non-scientific (Keuth 2005). The approach is built on two pillars; quantitative data and a positivist paradigm. The first pillar concentrates on quantities insofar as the studies rely primarily on quantitative methods, therefore they are restricted to readily available static (rather than dynamic) constructs, ignoring the social, cultural and political issues. Numbers represent values and theoretical

constructs and it is the interpretation of the numbers that provides the view as to how a particular phenomenon works. Empirically sourced numbers is what lies at the centre of the scientific evidence. It is this emphasis on numerical analysis that is central to positivism, whereby the emphasis is on falsifying an existing theory by formulating hypotheses that can be tested by controlled experiment or statistical analysis. In essence, the researcher views the world as having an objective reality that can be tested via hypotheses (Straub, Gefen et al. 2004, DeVilliers 2005).

3.3.2.2 Qualitative approach to research within the IS field.

In contrast to the quantitative approach, the qualitative approach is highly subjective (Myers 1997). The researcher employing a qualitative approach views the world as a social construction, hence a large degree of variance is possible depending on how the researcher both observes (induces) and interprets (deduces) the phenomenon (Urquhart and Fernandez 2013). The researcher places himself/herself in the world to be studied trying to make sense of the social and cultural phenomena (Denzin and Lincoln 2011). Typically, research questions for qualitative studies are framed as "what," "how," and "why" queries, rather than questions geared towards falsifying scientific theory (Saunders, Lewis et al. 2015). For this reason, the researcher must become familiar with the behaviour, attitudes and language of the people involved in the study, so that he/she can identify the key concepts (Kaplan and Maxwell 2005). Methods for collecting and analysing qualitative data are not standardised and are highly influenced by the research setting and the research question (Bluhm, Harman et al. 2011).

Unlike the quantitative approach, the qualitative approach has more than one paradigm. The qualitative approach can be positivist, interpretive or critical (refer figure 3.1), although this number may well increase. The words "qualitative" and "interpretive" are not synonymous, as a qualitative approach to research may or may not be interpretive depending on the underlying philosophical assumptions of the researcher (Myers 1997, Conboy, Fitzgerald et al. 2012). The important point is that over the past thirty years the IS field has evolved into a discipline of multiple paradigms, a trend that is likely to continue (Cecez-Kecmanovic, Klein et al. 2008, Klein and Hirschheim 2008).

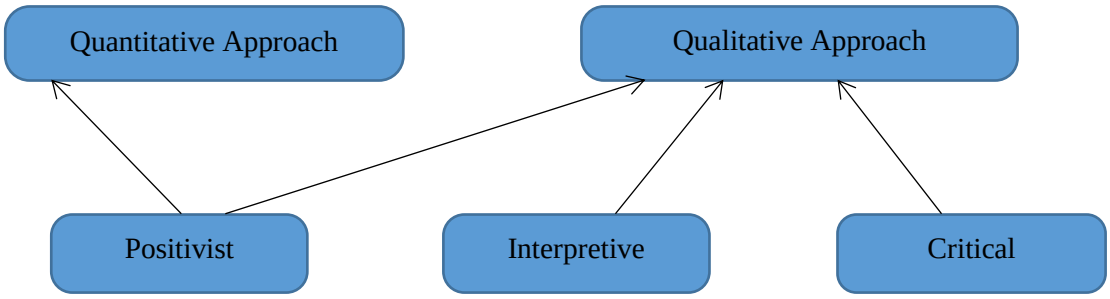


Figure 3.1 Epistemological assumptions for quantitative and qualitative research approaches. (Adapted from Myers, 1997)

3.3.3 Paradigm.

Paradigm, a term frequently used in the social sciences, can lead to confusion because of its tendency to have numerous meanings (Saunders, Lewis et al. 2015). Guba and Lincoln (1994:105) define research paradigm as *"the basic belief system or worldview that guides the investigator, not only in choices of method but in ontologically and epistemologically fundamental ways."* For the purposes of this research the words paradigm and epistemology take on the same meaning.

The majority of research within the IS field (most notably from the USA) is underpinned by a positivist philosophy (Chen and Hirschheim 2004, Myers and Liu 2009, Holohan and McDonagh 2014a). This is despite the strong links between IS and other organisational/behavioural research that take a far greater qualitative approach to research (Kaplan and Duchon 1988). During the 1980s and 1990s the positivist paradigm within the qualitative approach to IS research was joined by the interpretive paradigm (Walsham 1995b, Mingers 2004, Conboy, Fitzgerald et al. 2012) and since then has been joined by the critical paradigm (Straub, Gefen et al. 2004, Cecez-Kecmanovic, Klein et al. 2008, Wynn and Williams 2012).

3.3.3.1 The positivist paradigm.

The positivist paradigm within the qualitative approach is the same as the positivist paradigm within the quantitative approach (refer section 3.3.2.1. above). Reality is independent of the researcher and the aim is to test theory so as to increase the predictive understanding of the phenomena under study (Myers 1997).

3.3.3.2 The interpretive paradigm.

The underlying philosophy of the interpretive researcher is the assumption that reality can be reached only through social constructions such as language, shared meanings and consciousness (Walsham 1995b). The interpretive researcher views positivism as inadequate when it comes to researching human action, because unlike positivism, interpretivism does not predefine any variables, rather it focuses on human sense making within a given context (Myers 1997, Doolin 1998). Interpretivism has been recognised and advocated as the " *natural science model*" of social science research and has been widely adopted within the social sciences, particularly in organisational research (Lee 1991:343). It can aid the production of deep insights into various IS phenomena including the management of IS (Klein and Myers 1999).

Interpretivism takes the view that our knowledge of reality is socially constructed by humans and that fieldwork is the basis of interpretive studies (Walsham 2006). The interpretive researcher's view of data collected during interpretive studies is not that the researcher is reporting facts; *"instead, they are reporting their interpretations of other people's interpretations"* (Walsham 1995b:78) . For this reason, research triangulation often takes place to alert the researcher to potential analytical errors and omissions (Kaplan and Duchon 1988, DeVilliers 2005, Kaplan and Maxwell 2005, Edmondson and McManus 2007).

3.3.3.3 The critical paradigm.

Critical researchers strive to produce practically relevant research and assume social reality is a product of history produced and reproduced by humans (Cecez-Kecmanovic, Klein et al. 2008). The researcher recognises that while people can try to change their social and economic circumstances, they are often restrained from doing so by social, cultural and political forces (Mingers, Mutch et al. 2013). Critical research aims to be emancipatory, in that it seeks to eradicate the causes of alienation and domination (Myers 1997, Brooke 2002). It is this emancipatory aspect that separates the critical research paradigm from the positivist and interpretive research paradigms.

Kvasny and Richardson (2006) and Wynn and Williams (2012) argue that although critical research is gaining interest in the IS field, many difficulties remain, most notably the lack of a clear theoretical basis for critical research in IS. Simply, as of yet, there are

insufficient exemplars to help researchers in the IS field execute critical research (Wynn and Williams 2012).

3.3.3.4 Concluding comments on paradigm.

Interpretivism is very suitable for studying human behaviour and social phenomena that take place in natural settings, leading to subjective explanations that may well differ depending on the researcher, as objective reality can never be fully captured and the product of the analysis is an interpretation rather than an objective account (Denzin and Lincoln 2005, Kaplan and Maxwell 2005). Through its focus on human sense making within a given context and its requirement to extend beyond the development of IS into social, cultural and political issues, it has the ability to enable a deep understanding of IS organisational phenomena (Doolin 1996, Klein and Myers 1999, Wynn and Williams 2012). For these reasons, interpretivism is the most appropriate epistemological position to take in order to answer my research question.

3.3.4 IS research practices.

From a survey of 155 IS research articles published in four top IS journals between 1983 and 1988, Orlikowski and Baroudi (1991) found positivism to be the dominant paradigm accounting for 96.8% of the studies with 3.2% accounting for an interpretive paradigm. Based on such an extreme positivist dominance it is not surprising that in terms of research design, the survey method dominates at 49.1%, with laboratory experiment at 27.1% and case studies account for 13.5%. This, they contend, has restricted research within the IS domain and has resulted in a limited set of IS phenomena being studied to the detriment of phenomena such as that proposed by my research question, which involves the study of relationships between people, organisations and IS.

Chen and Hirschheim (2004) undertook an examination of 1,893 articles published in eight of the leading IS journals between 1991 and 2001. They found that despite the widening of the IS community's interest in epistemological and methodological issues, positivist research still dominates accounting for 81% of the empirical research, compared to 19% for interpretive based studies. Further breakdown of these figures shows that 58% of the publications account for US positivist studies, 23% account for European positivist studies, 7% account for USA interpretive studies and 12% account for European interpretive studies. This provides a clear indication that US based studies are significantly dominated by the positivist paradigm, whereas this is less so for European based studies. While there

has been a gradual increase in European interpretive studies, in terms of research design the survey method still dominates at 41%, while the case study method has grown considerably to 36%, at the expense of laboratory experiment accounting for 18%.

A study undertaken by Avison, Dwivedi et al. (2008) examined research practices in 285 IS research articles published in the Information Systems Journal (an international IS journal) during the period 1991 to 2008. Unlike other examinations of IS research, the authors found that research published by the Information Systems Journal was predominantly interpretivist with 70.9% of articles fitting this paradigm, while only 29.1% were of the positivist paradigm. While this may seem to contradict all other examinations of published IS research, it can be explained by the original objectives of the editors who sought to provide a natural home for interpretive based research. In terms of research design it was the library research/literature method that dominated at 34.2%, with survey at 11.6%, case study at 22.9% and laboratory experiment at 4%.

Myers and Liu (2009) examined 1,329 research articles published in the AIS basket of top journals, from 1998 to 2007. They found the positivist paradigm accounted for 77% of the articles and the interpretive paradigm accounted for 23%. In terms of research design the survey method accounted for 43%, case study accounted for 31%, and laboratory experiment accounted for 18%. While these findings demonstrate a dominance of positivism over interpretivism, they do show the gap is narrowing. Not unlike Chen and Hirschheim (2004), they found USA based studies are significantly dominated by the positivist paradigm with 56% of the publications accounting for USA positivist studies, 21% accounting for European positivist studies, 9% accounting for USA interpretive studies and 14% accounting for European interpretive studies.

My own examination of 173 SA empirical research articles from 1983 to 2012 found the positivist paradigm accounted for 66% of the articles and the interpretive paradigm accounted for 34% of the articles (Holohan and McDonagh 2014a). In terms of research design the two most widely used methods were survey which accounted for 60% and case study which accounted for 29%. The figure of 66% for the positivist paradigm reflects the fact that 60% of the articles were for studies based fully or partially in the USA. It is also interesting to note that 80% of articles with an interpretive paradigm were published from 2000 onwards.

Table 3.1 Epistemological and method diversity in IS research

Author(s)	Epistemology		Methods			
	Positive	Interpretive	Survey	Lab Experm	Case Study	Lib/Lit
Orlikowski and Baroudi (1991)	96.8%	3.2%	49.1%	27.1%	13.5%	-
Chen and Hirschheim (2004)	81%	19%	41%	18%	36%	-
Avison, Dwivedi et al. (2008)	29.1%	70.9%	11.6%	4%	22.9%	34.2%
Myers and Liu (2009)	77%	23%	43%	18%	31%	-
Holohan and McDonagh (2014a)	66%	34%	60%	-	29%	-

While it is clear from these studies (refer table 3.1) that the positivist paradigm remains dominant within the IS domain, it can be seen that the interpretive paradigm is growing, particularly outside the USA. This is not surprising in a highly dynamic field such as IS, where research into complex organisational/managerial and social phenomena continues to grow and cannot be carried out by applying the positivist paradigm alone (Orlikowski and Baroudi 1991). An added benefit from this trend is the potential to move the discourses between scholars and practitioners closer together, thus providing the practitioner community with prescriptions for engagement (Orlikowski and Baroudi 1991, Harvey and Myers 1995).

Chan (2000) concludes from her study of articles published in four leading North American IS journals between 1993 and 1998, that future research into IS value related matters might be better served through theory generation rather than a reliance on the more positivist traditions that currently dominate the IS literature. Harvey and Myers (1995) who note that all aspects of IS have a highly complex and ever changing social context, share Chan's opinion insofar that they believe such complexity requires the development of richer theories in IS. Research questions that lend themselves to theory generation are of the "how" and "what" type nature, which is exactly the type of research question I am setting out to answer.

3.3.5 Concluding comments on approaches to research in the IS field.

As a researcher, I hold the philosophical view that I am inseparable from reality, hence reality needs to be interpreted. Interpretivism is very suitable for studying human behaviour and social phenomena that take place in natural settings, leading to subjective explanations that may well differ depending on the researcher, as objective reality can never be fully captured and the product of the analysis is an interpretation rather than an

objective account (Kaplan and Maxwell 2005, Denzin and Lincoln 2011). My research is focused on organisational/managerial behaviour and social phenomena that take place in a natural setting. Such a perspective suggests my research is ideally suited to the interpretive paradigm within the qualitative approach.

Within the domain of IS research, the interpretivist paradigm is gaining ground as is case study as a research design. The main driver behind this evolution is the growth in IS research into complex organisational/managerial and social phenomena. However, the positivist paradigm is still the dominant research paradigm within the IS domain, particularly in the USA. Despite this dominance, there have been calls within the IS research community going back as far as Orlikowski and Baroudi (1991), to include the interpretivist paradigm in IS research, particularly now that much of the research into IS related issues is of an organisational/managerial and social phenomena as distinct from the traditional technical issues. However, when undertaking research within an evolving domain such as IS, the underlying reason for choice of paradigm and method should always be driven by the research question and not by the dominant practices within the domain itself. This is exactly the path I have chosen to answer my research question.

3.4 Methodological choices.

Within the interpretive paradigm, there are a number of research methodologies. These methodologies enable the researcher to move from his/her philosophical assumptions to research design and data collection (Myers 1997). IS research has reached the stage where a number of different methodologies are accepted as appropriate, depending on the goals of the research. Such a choice behoves the researcher to be aware of the potential benefits and risks of the different methodologies, and to establish the most appropriate methodology for the planned research (Myers 1999). As my research question requires I gain an understanding of how the practices engaged in by IS managers shape the alignment of business and IS strategies in PSOs, and as such shaping manifests itself over time, I require a research design that accommodates a longitudinal study (Kozlowski, Chao et al. 2013, Peppard, Galliers et al. 2014). The five research methodologies I will consider are; action research, ethnography, processual, grounded theory and practice.

3.4.1 Action research.

Baskerville and Wood-Harper (1996) note that action research has been put forward in the literature as an exemplary methodology suited to the study of technology in a human

context. It is an established research methodology within the social sciences since the mid-twentieth century. They credit Lewin (1951) with developing the methodology at the University of Michigan Research Centre for Group Dynamics so as to study social psychology. Independently, another group of researchers at the Tavistock Institute developed an operational research version to study psychological and social disorders among war veterans. The two developments merged when Lewin joined Tavistock. Scientists strived to understand the causes of social illnesses and this gave rise to the idea of social action. As the scientists intervened in each case through changing some aspect(s) of the patient's surroundings, the scientists were now acting participants (as well as researchers) in their own research (Baskerville and Myers 2004).

The overall goal of action research is to understand the complex human process and at the same time satisfy the aims of both the researcher and client, thus helping to provide an answer to both validity and relevance challenges (Eikeland 2012). This is done by generating actionable knowledge that satisfies both the researcher and the practitioner (Coghlan 2011). These dual aims are achieved by expanding scientific knowledge and solving current practical problems (Baskerville and Pries-Heje 1999, Coghlan 2009). The classical birth of an action research project is when the client with a serious and immediate problem seeks help from a reputable researcher i.e. the problem finds the researcher. By gaining access to an organisation at the organisation's request to help facilitate change, the researcher is given access to information that may not be provided to those perceived as outsiders. The methodology is one where the researcher intervenes in a collaborative manner with the client by becoming actively involved as both an observer and a participant in the phenomena being studied (Baskerville and Wood-Harper 1996, Goldkuhl 2012). Changes are then introduced to the social situation under study, with the ensuing changed behaviour undergoing analysis by the researcher (Coghlan 2010). Unlike other interpretive research methodologies, action research is explicitly focussed on action with a particular concern for organisational change and is very suited to the social science discipline of IS, as it produces research results grounded in practical action aimed at solving an immediate problem while at the same time generating theory (Baskerville 1999, Baskerville and Myers 2004). It has grown in popularity as a research methodology in IS since the end of the 1990s because of its emphasis on organisational change (Avison, Baskerville et al. 2001, Saunders, Lewis et al. 2009).

The collaborative nature of action research requires that well-functioning (rather than well defined) relations are established between the researcher(s) and the practitioner(s). This reduces the researcher's control over the research process and its outcomes i.e. the two way challenge of research and action, while at the same time the practitioner(s) must be critical of their own practices and be willing to report failures where they exist (Baskerville 1999). In addition, the participatory nature of action research provides the client with a certain amount of control over theoretical developments which may well be in conflict with the predefined research program of the researcher (Mathiassen 2002). The researcher has an ethical responsibility not to walk away just because the research has gone down a route at variance with his/her predefined research program. After all, the primary focus is on improving practice which means the research agenda is driven by how practice evolves. Likewise, the client also has an ethical responsibility not to walk away midstream, having sought the assistance and commitment of the researcher. In either case resources will have been wasted, relationships will have crumbled and a serious practical problem will remain unresolved. These potential problems can be minimised through trust and respect. This requires that well-functioning relations be at work, therefore it is necessary to spend a great deal of time and effort on managing the various personal and organisational agendas involved (Avison, Baskerville et al. 2001, Baskerville and Myers 2004). The application of action research is as Coghlan (2011:79) states *"not a one-off summary or retrospective activity but is continuous throughout"* the research study.

Action research does not provide a smooth journey for the researcher seeking publication of his/her work. There is no agreed criteria for evaluating action research and its qualitative philosophy coupled with its interpretive paradigm, makes it a difficult choice of methodology for researchers who place publication high in their list of priorities (Baskerville 1999).

Being a methodology that is suited to the study of practice in a human context and suited to the social science discipline of IS, supports the argument that I should employ action research to answer my research question. However, I have not received a request from any PSO to help facilitate organisational change and nor am I seeking such a challenge. In addition, I do not envisage working in collaboration as an equal partner with the client. For these reasons I am discounting action research as a methodology to help answer my research question.

3.4.2 Ethnography.

Ethnography has its roots in the discipline of social and cultural anthropology where the researcher is required to undergo a long residence in the field for at least a period of one year. Bronislaw Malinowski was the first anthropologist to adopt ethnography when in 1922 he published his book "Argonauts of the Western Pacific" which was based on his fieldwork among the Kiriwina Islanders (Harvey and Myers 1995). The ethnographic researcher immerses him/herself in the situation under study so that he/she almost becomes more native than the natives themselves, so as to understand from the native's perspective (Miettinen, Samra-Fredericks et al. 2009). Through such immersion, a great deal of non-interventionist observation takes place and the researcher gains a deep understanding of the people, the organisation and the context within which they work by interpreting from the perspectives of those involved (Schultze 2000). There is also the view that anthropologists do not require empathy with their subjects and can obtain their data through searching and analysing symbolic forms or artefacts such as words, images, buildings and culture (Myers 1999) . Whichever view is taken, the researcher allows him/herself to be led by the social setting in which he/she finds him/herself, while forever cognisant of the need to question what we take for granted (Sanday 1979, Myers 1999, Schultze 2000).

The methodology is firmly embedded in the inductive approach to gathering data, with the researcher acting as an interpreter by developing a rationality between the data and the generation of theory (i.e. carrying out analysis via an induction/deduction approach) (Harvey and Myers 1995). Still, the methodology is highly dependent on the researcher's prior experience and knowledge, thus the construction of theory is influenced by his/her subjectivity, resulting in the need to find ways of striking a balance between subjectivity and objectivity (Myers 1999). Ethnographic research is well suited to IS research as it is a methodology that can provide rich insights into the human, social and organisational aspects of IS (Sanday 1979, Schultze 2000, Saunders, Lewis et al. 2009).

With its emphasis on the inductive/deductive approach and its suitability towards providing rich insights into the human, social and organisational aspects of IS, an ethnographic methodology will certainly help answer my research question. However, the time required to immerse myself in the field and to prepare the members of the organisation for such an in-depth study, inhibits me from applying such a methodology, because I am a part-time Ph.D. student and I cannot therefore give the time required of ethnography (Harvey and Myers 1995).

3.4.3 Processual.

A process study addresses questions of a temporal evolving phenomena and therefore, on the face of it, should help answer my research question (Langley and Tsoukas 2010).

Pettigrew (1992) discusses the character and significance of strategy process management research, focussing on the analysis of process issues in strategic management. He is of the view that when conducting process strategy research, the researcher should always remain acutely aware that the logical and the physical i.e. the process and the content, be considered inseparable. He builds on one of three meanings of strategy process put forward by Van de Ven (1992:169) which is that strategy process *"is a sequence of events that describes how things change over time."* This meaning involves the researcher directly observing the process in action for a time, where the unit of analysis under study changes in content or shape over that time, enabling the researcher to explain the links between processes, context and outcomes (Pettigrew 1997, Sminia 2009). Pettigrew (1992:7) describes this meaning as *"a historical developmental perspective."* It involves seeking answers to questions about the description, analysis and explanation of recurring patterns in the process of strategic management, with the focus on actions taken in a given context. Such questions are linked to the actions and performance of what Pettigrew (1992:11) terms the *"managerial elites"* in organisations. He also notes that when analysing a single process, the researcher does so alongside other processes, leading to the need to understand a network of interwoven processes. Pettigrew (1997) contends this understanding is seldom accomplished by the majority of process scholars because it is difficult to build theory about constellations of forces that shape the character of the process and its outcome.

Pettigrew (1997:338) puts forward the working definition of process as *"a sequence of individual and collective events, actions and activities unfolding over time in context,"* while Ferlie & McNulty (1997:368) define process research as *"the dynamic study of behaviour in organisations, focussing on organisational context, sequences of incidents, activities and actions which unfold over time."* These definitions build on the one put forward by Van de Ven (1992) insofar that the actions and activities take place in a given context and the aim of the researcher is to capture these actions and activities in flight, or as Langley (2009:2) states *"process research addresses dynamic questions about temporally evolving phenomena."* Such context includes external elements to the

organisation under study including the economic, social, political and competitive environments, and the internal elements such as the organisation's structural, cultural and political environments. As processes are deeply embedded in context, they can only be studied within such context (Pettigrew 1997). This is not to rule out retrospective studies when it comes to processual research, as the chronological reconstruction of accurate temporal activities from archives, coupled with interviewing, can be an effective and efficient approach. Such an approach can be particularly useful when the researcher wishes to compare cases or when the level of analysis is too broad to undertake real-time analysis. However, nothing can substitute for being present in real-time and catching events in flight, particularly when the researcher has access to a major change initiative that is just about ready to commence (Langley 2009). Unfortunately, real-time observation can be extremely time-consuming due to the hours required of the researcher in the field, particularly when the process itself can be spread out over many years. As such, obtaining an answer to my research question may require my investigation to take place *"over years"* Pettigrew (1997:341) and the open ended nature of longitudinal studies can give rise to uncertainty, unlike a study of micro-processes at group or individual levels which do not demand such long windows in time (Langley 2009, Langley and Tsoukas 2010).

If, as Pettigrew (1997) contends, the majority of process scholars find it difficult to deal with a network of interwoven processes, then perhaps I should seek a methodology less stringent. I do not have an objective to undertake a substantial amount of real-time observation in the field, which can lead to an open ended longitudinal study and give rise to uncertainty in terms of time and scope. For these reasons I am discounting processual research.

3.4.4 Grounded theory.

In 1967 Anselm Strauss and Barney Glaser published their landmark book titled "The Discovery of Grounded Theory: Strategies for Qualitative Research" which introduced a general method for discovering theory. This was followed by the publication of Anselm Strauss and Juliet Corbin's book in 1990 titled "Basics of Qualitative Research: Grounded Theory Procedures and Techniques" which initiated a very public and acrimonious split between Glaser and Strauss. Kathy Charmaz (2014) published her book titled "Constructing Grounded Theory: A Practical Guide Through Qualitative Analysis," which is based on the interpretive tradition (active role of the researcher in the process of conceptual development) whereas the publications by Glaser and Strauss, and Strauss and

Corbin reside in the positivist tradition whereby the researcher plays a passive role and relies on induction (Bryant 2009, Charmaz 2014).

Gasson (2004) is of the view that an interpretive approach is only relevant to research questions such as mine, i.e. where the question is not well explained by existing theoretical constructs. Whether grounded theory is discovered (positivist tradition) or whether it is constructed (interpretive tradition), the basic premise is that the innovative theory is developed from empirical data systematically obtained by researching social phenomena relevant to the research question, where the researcher engages with the actors and their contexts (Glaser and Strauss 1967, Bryant 2002, Gasson 2004, Urquhart, Lehmann et al. 2010, Charmaz 2014).

Grounded theory is used to generate theory where little is already known, or to provide a fresh view on existing knowledge (Bryant 2002, Urquhart, Lehmann et al. 2010). The essential difference between grounded theory and other qualitative research methodologies is the emphasis placed on generation of theory firmly grounded in empirical phenomena (aim is to explore), rather than verification (generate theory by deduction from priori assumptions) (Gasson 2004, Charmaz 2014). Grounded theory *"is a method of qualitative inquiry in which data collection and analysis reciprocally inform and shape each another through an emergent iterative process"* Charmaz (2011:360). In essence, it enables the researcher to collect data and build theories through successive levels of data analysis and conceptual development . It is therefore inductive insofar that the facts are derived from the data and it is deductive insofar that the researcher interprets the data to help develop the emerging theory. The theory emerges as a result of the constant interplay between the data and the researcher's conceptualisations (Smit and Bryant 2000, Bryant 2002, Urquhart, Lehmann et al. 2010, Loonam and McDonagh 2011).

The appeal of grounded theory is in its guidelines that help the researcher develop theory. Guidelines and procedures are followed that enable the researcher to develop concepts and categories from the data he/she gathers. There are three main procedures namely; constant comparative analysis, theoretical sampling and emerging theory(Urquhart and Fernandez 2013, Charmaz 2014). Constant comparative analysis involves identifying categories and their properties (concepts) that are embedded in the data and then constantly comparing instances of data labelled as a particular category with other instances of data in the same category. Constant comparative analysis helps establish generality of a fact. Theoretical

sampling involves deciding on where to sample from next in the study thus enriching the categories. This is done through a rigorous coding and integration technique, ensuring the theory is grounded in the data, while control of the process is safeguarded by adhering to the emerging theory. The result of the process is a construct of a hierarchy of integrated categories which lead to the emerging theory. Such a process supports the view put forward by Glaser and Strauss (1967:43) whereby *"the generation of theory, coupled with the notion of theory as a process"* requires that data collection, coding and analysis be carried out simultaneously. Despite the many strengths procedures bring to the research process, the researcher needs to be aware of their time consuming nature (Glaser and Strauss 1967, Hughes and Jones 2004, Urquhart and Fernandez 2013).

My aim is to build substantive theory about how the alignment of business and IS strategies is practiced by IS managers in IIT. Grounded theory provides a set of procedures for analysing and coding data suited to the interpretive epistemology while ensuring the analysis stays close to the data, thus providing for inductive discoveries leading to the development of theory (Urquhart and Fernandez 2006, Fendt and Sachs 2008, Charmaz 2011). Grounded theory as a methodology has become increasingly common in interpretivist IS related studies beginning with Orlikowski's (1993) paper on CASE tools as organisational change, mainly because the methodology is very useful where no previous theory exists (Urquhart, Lehmann et al. 2010). It incorporates the complexities of organisational context into the understanding of the phenomena. It is ideally suited to studying process and change, as well as gaining an understanding of IS related issues within social and organisational contexts (Smit and Bryant 2000, Urquhart and Fernandez 2006).

Grounded theory is suitable to help answer my research question because of its compliance with the question and its logical consistency with my own interpretive stance. In addition, its consistency with interpretive case based field studies dealing with social and organisational phenomena, make it a very suitable methodology to help answer my research question.

I have chosen not to use grounded theory because of its time consuming nature. With its emphasis on the simultaneous collection and analysis of data, grounded theory requires that I spend a great deal of time going back and forth to the field (driven by theoretical sampling – where to go next) to obtain theoretical accountability, which is something I am

inhibited from doing due to the distance between my case sites (Bryant and Charmaz 2007b).

3.4.5 Practice.

As described in chapter 2, in recent years, practice research has been adopted across a number of fields in organisational studies (Miettinen, Samra-Fredericks et al. 2009), with the focus placed on the practices themselves, to help understand organisational phenomena. This denotes that practices and not practitioners, are the basic unit of analysis for understanding organisational phenomena (Reckwitz 2002, Goldkuhl 2011, Nicolini 2012). Therefore an understanding of the performance of practices rather than the performance of the organisation, is what's required to understand how strategic activity is constructed (Whittington 2006b, Jarzabkowski, Balogun et al. 2007), with the practice perspective demanding practices be studied from within (Whittington 2014). This implies that practices shape reality, thus supporting the claim that practices be treated as the *"focal lens through which to inquire into social reality"* Orlikowski (2010:26). Practice research has also taken hold within IS research as evidenced by the contributions from Orlikowski (2000), Levina and Vast (2006), Galliers (2007) and Goldkuhl (2011).

Common across practice studies is an appreciation that practitioners adapt to make best use of the resources at hand, to carry out their work (Whittington 2003, Rasche and Chia 2009). As strategy making is now seen as a continuous process (Brown and Eisenhardt 1997), it follows that researchers are interested in the activities of practitioners (Johnson, Langley et al. 2007), thus providing opportunities to inquire into both deterministic and opportunistic IS strategy formation practices (Henfridsson and Lind 2014). Therefore, within practice research, the human practitioner is never an individual detached from context, but is defined by the practices in which he/she partakes (Vaara and Whittington 2012). Practice is something that practitioners do, influenced by activities that take place both inside and outside the organisations to which they belong (Whittington 2006b). This turn towards practice research, with its focus on practices that are executed in the doing of strategy, provides the opportunity to obtain a deeper understanding of the nature of strategic events within organisations (Rasche and Chia 2009) and provides the opportunity to *"advance our theoretical understanding in a way that has practical relevance"* Golsorkhi, Rouleau et al. (2010:1).

Feldman and Orlikowski (2011) identify three approaches (empirical, theoretical and philosophical) that describe the field of practice theory as it is practiced in relation to organisational phenomena. The three approaches constitute the "what" in terms of how people act in organisations, the "how" in terms of trying to understand the links between the actions people take and the structures of organisational life, and the "why" in terms of the role practices play in producing organisational reality across time and space (Vaara and Whittington 2012). According to the description put forward by Feldman and Orlikowski (2011) and supported by Vaara and Whittington (2012), my research question is clearly focussed on the "how", as I set out on an exploratory journey with a view to understanding the links between the practices engaged in by IS managers and the alignment of business and IS strategies in IIT. This requires I treat practices engaged in by IS managers as the focus through which to understand how such practices shape the alignment of business and IS strategies in IIT (Orlikowski 2010). To do so I will utilise the "*apparatus of practice theory*" to execute my study Feldman and Orlikowski (2011:1241), as it will enable me determine the genesis, reinforcement and alterations of practices engaged in by IS managers in the alignment of business and IS strategies in IIT (Orlikowski 2010, Nicolini 2012, Suddaby, Seidl et al. 2013).

3.5 SaP lens within the interpretive paradigm.

Sub-section 3.5.1 presents a brief history of SaP research and elucidates why I draw upon a SaP lens for my study. Concluding comments are provided in sub-section 3.5.2.

3.5.1 Brief history of SaP research and why I will draw upon a SaP lens for my study.

In February 2001 when a group of approximately 50 researchers met at the European Institute for Advanced Studies in Management in Brussels, the SaP approach to strategy research began to emerge. An output from this meeting was a special issue of the Journal of Management Studies and the subsequent establishment of a SaP community as evidenced by the official website www.strategy-as-practice.org and the continuous publications under the flag of SaP, thus obtaining a distinctive identity along with credibility and legitimacy among the academic community (Johnson, Melin et al. 2003, Carter, Clegg et al. 2008, Vaara and Whittington 2012). Since then, a major drive behind the SaP movement has taken place (Whittington 2002, Whittington 2006b, Johnson, Langley et al. 2007, Jarzabkowski and Spee 2009).

SaP research brings human actors and their activities into the core of strategy research (Jarzabkowski and Spee 2009). By considering strategy in such a manner, SaP presents the opportunity to enquire deeply into the day-to-day practices carried out by people within organisations (Bartunek, Balogun et al. 2011, Darbi and Knott 2016). Such an approach helps to explain how strategy making is both enabled and constrained by the widespread organisational and social activities that are carried out in the doing of strategy, which are best understood through interpretive approaches (Carter, Clegg et al. 2008, Rasche and Chia 2009, Vaara and Whittington 2012).

The more researchers enquire into what strategists (practitioners at various organisational levels) actually do, the better our understanding of strategy will become and it is this understanding that the SaP perspective aims to foster and develop (Whittington 2002, Hoon 2007). With its research emphasis on activities, the outcome from SaP depends greatly on the skill of the practitioners involved and because each practitioner is unique in terms of his/her socio-political and rhetorical skills, each practitioner has a distinctive impact on what can and cannot be achieved (Jarzabkowski and Whittington 2008, Vaara and Whittington 2012).

3.5.1.1 Principal influences.

SaP scholars draw on a wide range of practice theoretical perspectives to guide SaP enquiry (Hendry and Seidl 2003, Jarzabkowski 2003, Whittington 2006b, Jarzabkowski, Balogun et al. 2007, Jarzabkowski and Spee 2009), that are consistent with the various strands of practice theory such as those put forward by Wittgenstein, Giddens, Bourdieu and Foucault (Suddaby, Seidl et al. 2013). This makes SaP a theoretically diverse, or as Carter, Clegg et al. (2008:89) couch it, *"promiscuous"* field. SaP theories allow for initiative and performance, which is critical, as performing a practice requires that the practitioner be able to adapt to new circumstances and not just slavishly repeat what has been done before (Nicolini 2012, Rouleau 2013).

Whittington (2006b) and Regner (2008) assert the growth in SaP research is part of a wider growth within social theory that started in the 1980s. SaP conceptualises strategising as comprising the nexus between practitioners, practices and praxis (Jarzabkowski, Balogun et al. 2007, Suddaby, Seidl et al. 2013, Marabelli and Galliers 2017). Practitioners are those who do the work of strategy (Jarzabkowski and Spee 2009). These people are not limited to senior executives only and include people at all levels within the organisation,

and people external to the organisation such as consultants, advisors and regulators (Whittington 2006a). Within SaP, these levels are represented by the micro, meso and macro (Jarzabkowski and Spee 2009). Practices are the shared routines of behaviour and represent the done thing "*routinised types of behaviour"* while praxis represents what is actually done involving the formulation and implementation of strategy *"the whole of human action"* Reckwitz (2002:249). The difference between practice and praxis is the difference between the routine that guides activity and the actual activity carried out (Reckwitz 2002, Whittington 2006a, Balogun, Best et al. 2015). Therefore, while praxis is informed and guided by practices, it is unique in that it exists only in the present and includes the routine as well as the non-routine (Whittington 2006b, Suddaby, Seidl et al. 2013).

3.5.1.2 Research focus.

The SaP approach asserts that we should focus on the lived experiences of strategists themselves and how they engage in the work of strategising, including how they interact within their social contexts while carrying out their day-to-day activities (Jarzabkowski 2004, Chia and MacKay 2007, Bjerregaard and Klitmøller 2016).

In their review of SaP, Vaara and Whittington (2012) found SaP research enhances strategy management research in four ways. From a theoretical perspective, SaP draws principally from sociological theories of practice rather than from the economic based theories found in strategic management research. Second, firm performance is not the focus of attention for SaP research as it is with strategic management research, because it concerns itself with a range of effects including reality construction, actor networks and practitioners. Third, strategic management research focuses primarily on the economic performance of privately owned organisations, whereas SaP research has been applied to many studies concerning PSOs thus extending the sectoral scope of strategic management research. Fourth, because SaP focuses on activities carried out by people in organisations, SaP research has a strong emphasis on qualitative methods which is a major departure from the preferred statistical studies found within strategic management research.

SaP challenges the macro-structures, processes, institutional and resource based approaches that have dominated the strategic management literature and goes far beyond the conventional view that strategy can be explained by models of decision making while belonging exclusively to the TMT (Chia 2004, Chia and MacKay 2007, Vaara and

Whittington 2012, Bjerregaard and Klitmøller 2016). SaP is concerned with *"the doing of strategy; who does it, what they do, how they do it, what they use and what implications this has for shaping strategy"* Jarzabkowski and Spee (2009:69). Johnson, Langley et al. (2007:7) perceive SaP as being concerned with *"what people do in relation to strategy and how this is influenced by and influences their organisational and institutional context"*. By placing the focus on activities carried out by people, SaP provides us with an understanding of the unique characteristics and micro-level details of managerial activities (Langley 2007, Whittington 2007, Bartunek, Balogun et al. 2011). SaP interprets strategy as a *"social practice"* (Whittington 1996:731) and rather than studying an organisation's competencies, it studies the practical competencies of the practitioner as a "*strategist"* (Whittington 1996:732). Therefore, the main focus of SaP is on the "*performance of the individual practitioner"* (Whittington 1996:734) with little concern centred on economic performance (Whittington 2003, Vaara and Whittington 2012, Arnaud, Mills et al. 2016).

By studying how people engage in the doing of strategy, we come to understand the nature of strategising and the practices drawn upon to do so (van Wessel, van Buuren et al. 2011, Jarzabkowski, Spee et al. 2013, Arnaud, Mills et al. 2016). Therefore, the value offered by SaP is in the moving away from what strategy should be or how it should be done, to how it is *"actually done in practice"* Mueller, Whittle et al. (2013:1169) by people, including those with no formal strategy role (Rouleau 2005, Bartunek, Balogun et al. 2011), as they construct, implement and realise their strategic objectives (Kaplan 2007, Jarzabkowski, Spee et al. 2013, Arvidsson, Holmström et al. 2014), while taking cognisance of the wider social context to which they belong (Carter 2013, Suddaby, Seidl et al. 2013). Therefore SaP brings practitioners, their actions, their interactions and context, into the heart of strategy research, thus extending the range of outcomes from traditional strategy research beyond that of economic performance to the performance of individuals, groups and organisations (Rousseau 1985, Brown and Thompson 2013, Ericson 2014, Paroutis, Loizos et al. 2016).

SaP scholars place a high importance on understanding micro phenomena not in isolation, but rather within the wider social context upon which they draw (Whittington 2006b, Jarzabkowski, Balogun et al. 2007, Dameron, Lê et al. 2015), therefore enabling a better understanding of micro activity and how it impacts on the stability and instability of organisations (Suddaby, Seidl et al. 2013, Golsorkhi, Rouleau et al. 2015). By going beyond rational strategy analysis, SaP broadens the range of outcomes by drawing

attention to activities engaged in by practitioners and their effects, which includes the ability to connect micro level analysis with micro, meso and macro level considerations (Regnér 2008, Vaara and Whittington 2012, Marabelli and Galliers 2017).

3.5.1.3 Why I will draw upon a SaP lens for my study.

SaP is concerned with what is taking place outside the organisation as well as within (Bjerregaard and Klitmøller 2016). The praxis that take place within an organisation are intrinsically linked with the wider context (Whittington 2006a, Marabelli and Galliers 2017). In relation to my research, this suggests the praxis carried out by IS managers within IIT, are in part, a direct consequence of the needs of the wider stakeholder groupings.

Strategic activity is shaped by practitioners and this in turn depends on who the practitioners are and the praxis they undertake (Jarzabkowski, Balogun et al. 2007, Lom 2016). Without doubt, IS managers are playing a crucial role in the development and implementation of IS strategies in PSOs that are directed by a public service reform agenda (Floyd, Cornelissen et al. 2011). Research in this area can aid our understanding as to how the alignment of business and IS strategies is practiced by IS managers in IIT.

While functional managers such as IS managers do not assume a leadership role in strategising (Narayanan, Zane et al. 2011) that is not to say they do not play a role in strategising (Storey 2005, Lom 2016). With its focus on the social, interpretive and personal knowledge base of various actors, SaP helps determine how strategy is shaped and implemented, as strategy is a shared responsibility between top and lower level management (Ugboro, Obeng et al. 2011) as well as external actors such as consultants and regulators (Hodgkinson, Whittington et al. 2006). SaP research does not overly concern itself with falsifying theories but rather concentrates on how things are done by explaining elements of the connections between practitioners, practices and praxis, and their role in the social attainment of strategy (Jarzabkowski, Balogun et al. 2007). My research is similar in that it is focused on how the alignment of IS and business strategies is practiced by IS managers in IIT, therefore not separating the human from the area under investigation (Johnson, Melin et al. 2003, Vaara and Whittington 2012). Consequently, the SaP approach is an appropriate approach to examine this phenomenon, as it enables an exploration of what IS managers do.

3.5.2 Concluding comments on SaP lens within the interpretive paradigm.

To answer my research question, which is focused on practice phenomena within an organisational context, I will draw on a SaP lens (Orlikowski 2010, Brown and Thompson 2013). SaP, an interpretive approach, with its roots in sociological theories of practice and with a focus on the doing of strategy work, offers the opportunity to obtain a deep level of understanding as to how the alignment of business and IS strategies is practiced by IS managers in IIT.

3.6 SaP, grounded theory coding and case study.

Having decided upon a SaP lens to guide data collection and analysis, in sub-section 3.6.1 and its sub-sections, I review three principal SaP theories and justify my choice of Whittington's (2006b) integrative framework for SaP. In sub-section 3.6.2 and its subsections, a brief history of grounded theory is provided as is an explanation as to why I chose the constructivist grounded theory coding method as my data analysis tool. In sub-section 3.6.3 and its subsections, an overview of the main characteristics within case study research is provided as are the reasons why a case study design is the most suitable research design to help answer my research question. Therefore, my proposed research methodology is distinctive in that it comprises Whittington's (2006b) integrative framework for SaP to guide data collection and analysis, the constructivist grounded theory coding method espoused by Charmaz (2014) to execute data analysis, and is bounded within a case study research design. This novel methodological approach will enable me to carry out my study and build a mid-range SaP theory, as to how the alignment of business and IS strategies is practiced by IS managers in IIT. The section comes to a close in sub-section 3.6.4 with concluding comments on SaP, grounded theory coding and case study.

3.6.1 SaP theories.

I will choose a SaP theory as the lens to help guide my data collection and analysis, because my research question is focused on how practices help shape reality and hence requires to be explained via *"practice theoretic accounts of organisational phenomena"* Orlikowski (2010:27).

The SaP theory I choose must;

i. delineate between practitioners, practices and praxis at the micro, meso and macro levels of activity; and

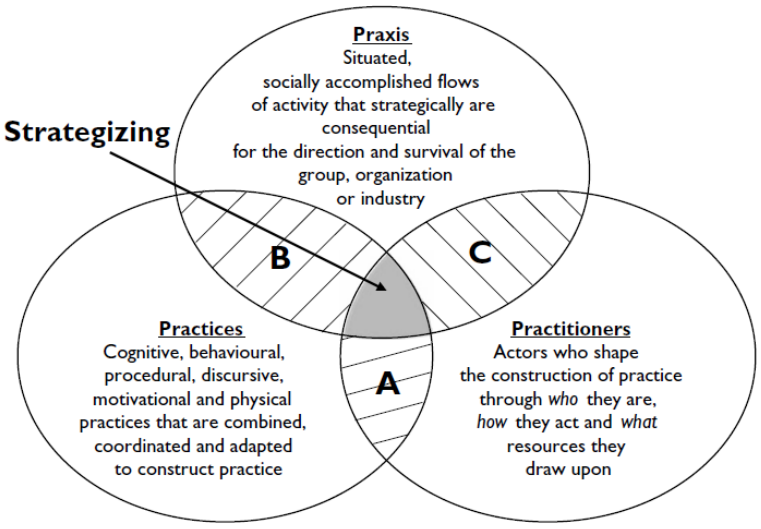
ii. facilitate the development of mid-range theory in terms of how the alignment of business and IS strategies is practiced by IS managers in IIT.

I will therefore review the main SaP theories put forward in the literature and choose the one best suited to achieving both aims. Before doing so, I wish to clarify what I mean by SaP theory. SaP theory can take the form of typologies/taxonomies of social phenomena, or conceptual frameworks developed specifically for describing sociality, as long as they are expressed in general and abstract terms (Schatzki 2005). The main SaP theories that fit these criteria, have been developed by the two principal scholars behind the development of SaP. These are a conceptual framework for analysing SaP by Jarzabkowski, Balogun et al. (2007), an activity theory framework by Jarzabkowski (2003) and an integrative framework for SaP by Whittington (2006b). Suffice to note such theories are not recipes that can be applied to every situation, rather they are adjusted to suit a given situation (Seidl 2007).

3.6.1.1 Conceptual framework for analysing SaP.

Jarzabkowski, Balogun et al. (2007) developed their conceptual framework for analysing SaP, based on the three discrete, but interrelated routines (practitioners, practices and praxis), that constitute strategising. Their interconnection entails that it is not possible to study any one routine in isolation of the other two, as each routine draws on aspects of the other two. As depicted in figure 3.2, strategising takes place at the interconnection between the three routines, but depending on the research question, the empirical focus will usually be on a particular area i.e. A, B, or C. So, in the case of A, a study would foreground the interconnection between practitioners and practices, while placing praxis in the background. My research question is primarily focused equally on the interconnection between all three (i.e. IS strategising), as it aims to understand how the alignment of business and IS strategies is practiced by practitioners (IS managers) in IIT.

With its emphasis on foreground/background interconnections and with no clear mechanism to delineate between practitioners, practices and praxis at the micro, meso and macro levels of activity, the conceptual framework is not a suitable SaP theory to help answer my research question.



Strategizing comprises the nexus between practice, practices and practitioners. A, B, and C represent stronger foci on one of these interconnections depending upon the research problem to be addressed

Figure 3.2 Conceptual framework for analysing SaP (Jarzabkowski, Balogun et al. 2007)

3.6.1.2 Activity theory framework.

Jarzabkowski (2003) draws on activity theory to analyse strategy praxis carried out in three UK universities. Her rationale for drawing on activity theory is that such theory offers a framework that deals with four interactive components from which strategy emerges. These four components are; collective structures of an organisation, primary actors, practical activities of the actors and formal strategic practices. Jarzabkowski uses the framework to explain the role formal strategic practices have in the construction of SaP and how to analyse strategy praxis. Each of the three universities is recognised as an activity system where the TMT interacts with the collective structures of the university (history, culture and other actors), in an attempt to influence strategic praxis undertaken by members of the university community (refer figure 3.3). Therefore, practical activity is positioned as strategic praxis, which in turn comes from the interaction between the TMT actors and the collective structures of each university (Leonard and Higson 2014).

The activity theory framework, just like the conceptual framework developed by Jarzabkowski, Balogun et al. (2007), has no clear mechanism to delineate between practitioners, practices and praxis at the micro, meso and macro levels of activity. Therefore it too, is not a suitable SaP theory to help answer my research question.

Figure 3.3 Activity theory framework for SaP (Jarzabkowski 2003)

3.6.1.3 Integrative framework for SaP.

Similar to the conceptual framework for analysing SaP (figure 3.2) developed by Jarzabkowski, Balogun et al. (2007), the integrative framework for SaP (figure 3.4) developed by Whittington (2006b) elucidates the mutual dependency and interconnectedness of practitioners, practice and praxis. In addition, the integrative nature of Whittington's (2006b) framework helps to explain the importance of connecting micro activity with the micro, meso (intra-organisational field) and macro levels (extra-organisational field), therefore allowing for the recognition of multilevel implications (Rousseau 1985, Bélanger, Cefaratti et al. 2014).

Whittington's (2006b) integrative framework for SaP integrates the tripartite perspective of practitioner, practice and praxis into a mutually dependent whole (refer figure 3.4). At the base are a set of practitioners e.g. IS managers, finance managers and marketing managers (A, B, and C) who at particular intervals engage in various strategising activities e.g. meetings, writing reports, presentations, seminars and form filling or otherwise known as episodes of strategy praxis (i, ii, iii, iv and v). As the practitioners engage in strategising,

they employ an assorted array of strategy practices e.g. Porter's five force model, Andrew's SWOT, Boston Consultancy Grid (1, 2 and 3).

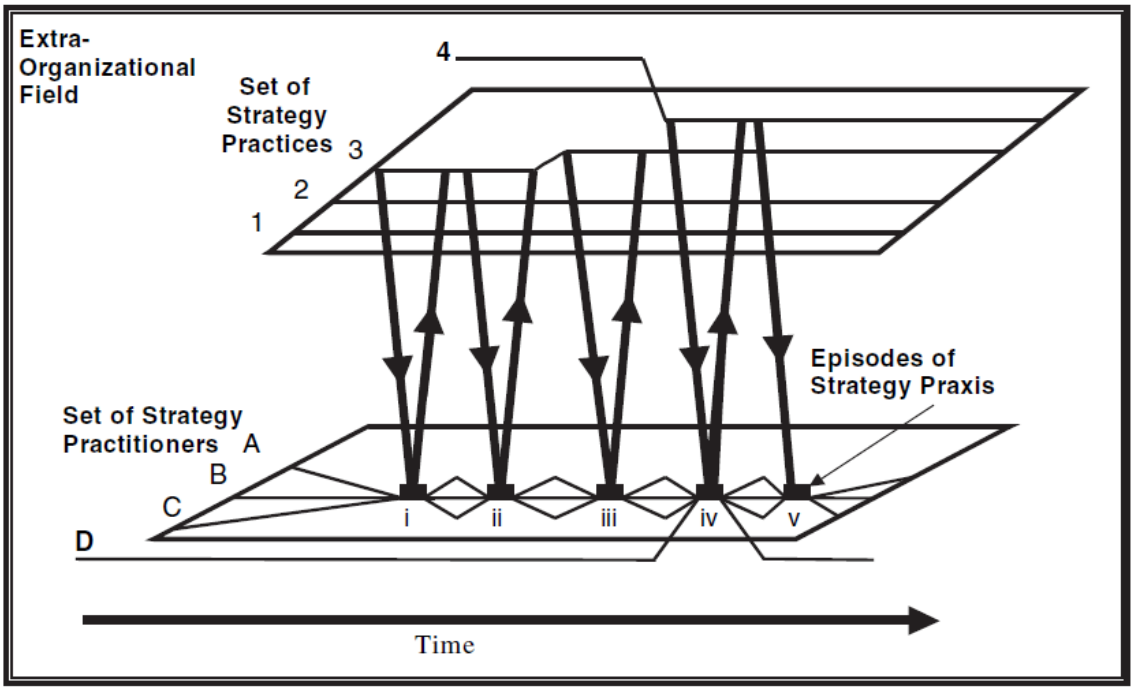


Figure 3.4 Integrative framework for SaP (Whittington 2006b)

If an organisation was to rely solely on its existing inventory of practices, then in turn, praxis can end up ensnared by such routine. Figure 3.4 illustrates how strategy praxis can be developed thus not allowing an organisation rely solely on its existing practices. Focusing on practitioners A, B, and C, they utilise a range of practices 1, 2 and 3 (at the meso and micro levels), and in so doing they become more and more reliant on these practices unless the practices are further developed. Such development can occur when one or more of the practitioners learn from being involved in episode(s) of strategy praxis (e.g. exchange information at seminars in the extra-organisational field) and as a consequence, update a current practice (represented by the kink in practice 3) which then becomes accepted as a new practice at the meso and micro levels. Alternatively, practitioner D (a consultant) could enter the organisation from the extra-organisational field at interval iv and bring with him/her a new practice (e.g. brainstorming). This new practice of brainstorming then becomes an established practice within the organisation, thus refreshing the current set of practices at the meso and micro levels. In addition, this practice of brainstorming may well be further developed while being utilised in the organisation and be brought by practitioner D (the consultant) out into the extra-organisational field to be applied elsewhere at the macro level.

The integrated nature of Whittington's framework helps to explain how practitioners, practices and praxis bind at the micro, meso and macro levels and how such binding can subsequently shape what takes place at the various levels. This provides the framework with a clear mechanism to link praxis undertaken at each of the micro, meso and macro organisational levels. *"Completing the practice turn involves looping"* the levels more closely together, Whittington (2006b:617). The framework rejects the notion that structure (e.g. PSOs) and agency (e.g. IS managers praxis) are separate entities, and are instead jointly constituted with organisations affecting praxis and praxis affecting organisations (House, Rousseau et al. 2013, Golsorkhi, Rouleau et al. 2015), which is also a widely held view among practice theorists (Orlikowski 2010). Therefore, the framework is very well positioned to support qualitative multilevel research such as mine and hence aid the development of mid-range theory in terms of how the alignment of business and IS strategies is practiced by IS managers in IIT. As such, the integrative framework for SaP (Whittington 2006b) is a suitable SaP theory to help guide my data collection and analysis.

3.6.1.4 Most appropriate SaP theory to guide data collection and analysis.

At a minimum, the SaP theory I choose must meet the two criteria stated above in section 3.6.1. My review of three SaP theories reveals that Whittington's (2006b) integrative framework for SaP is the only SaP theory that has the potential to do so.

In terms of exploring how the alignment of business and IS strategies is practiced by IS managers in IIT, Whittington's (2006b) integrative framework for SaP will act as my lens to do so. The framework leaves open to interpretation, the levels to which extra-organisational and intra-organisational refer to. For my study, the extra-organisational refers to the macro level and the intra-organisational refers to the meso and micro levels. This will help ensure I identify the level to which each praxis undertaken by the IS manager belongs. Therefore, I will link my data collection and analysis to the theoretical constructs within the framework. Not to do so, would lead to confusion during my data collection and analysis (Klein, Dansereau et al. 1994, Holohan and McDonagh 2017b).

Referring to figure 3.4 and relating it to my research question, the upward arrows denote that practices relating to the alignment of business and IS strategies in IIT typically emerge from praxis carried out by IS managers. The downward arrows indicate the influence of practices on IS manager's praxis and the opportunity for change, particularly change

shaped by practices that come from outside the organisation. Although the focus of my research question is on what the upward arrows indicate more so than what the downward arrows indicate, from a SaP perspective, I need to be aware that praxis are intrinsically linked to both intra-organisational (meso and micro levels) and extra-organisational (macro level) practices, and that IS managers are the critical link between them (Whittington 2006a). Therefore, Whittington's (2006b) integrative framework for SaP, with its multilevel design, facilitates designating the praxis undertaken by IS managers as the unit of analysis through which to understand how the alignment of business and IS strategies is practiced by IS managers in IIT, through the collection of qualitative data, which are central to a SaP study (Johnson, Langley et al. 2007, Mathieu and Chen 2011). This in turn, will aid the development of mid-range theory in terms of how the alignment of business and IS strategies is practiced by IS managers in IIT.

3.6.1.5 Challenges with data analysis.

There are challenges faced by the researcher in analysing data when undertaking SaP research. SaP research lacks a formalised and codified set of research techniques, which can lead to the accusation that it lacks standards and risks developing an invalid and unreliable knowledge base (Ferlie and McNulty 1997). Codification is therefore necessary to help the researcher work out what to do and to keep track of what he/she has done. Codification helps demonstrate how the research was undertaken, how data was collected, how data and theory are linked, and how conclusions are drawn. (Hinings 1997). Although SaP research lacks a formalised and codified set of research techniques, it is similar to other interpretive research methodologies insofar that it is an art rather than a science thus requiring creative insight, laden with intuition, judgement and tacit knowledge (Pettigrew 1997). For this reason it can draw on procedures and rules from other interpretive research methodologies to overcome these shortcomings (Langley and Tsoukas 2010).

Grounded theory provides tools and procedures for analysing data (Smit and Bryant 2000, Matavire and Brown 2013). Urquhart, Lehmann et al. (2010) and Seidel and Urquhart (2013) report that many studies in IS do not use the full set of grounded theory methods with a view to generating theory, but they do avail of a grounded theory coding method as a qualitative data analysis tool to supplement other qualitative research methodologies. While this may appear limited, it is perfectly suited to cases where theory building via the full application of grounded theory methods is not the primary purpose. An analysis undertaken by Matavire and Brown (2013) of the eight AIS senior scholar's basket of

journals between 1985 and 2008, reveals 34 out of 76 papers containing grounded theory studies apply grounded theory coding techniques only, and do so for the sole purpose of data analysis. I will therefore draw on a grounded theory coding technique, applicable to the interpretive paradigm, to analyse my data.

3.6.2 Grounded theory approaches.

Since the 1990s, a number of researchers (see Bryant, 2002, Charmaz 2011, Mills, Bonner et al. 2006) have moved grounded theory away from its positivist assumptions and assert that grounded theory guidelines can be adapted to undertake a range of diverse studies that remain true to the core principle of grounded theory, whereby knowledge can be increased by generating new theories (Bryant 2002, Heath and Cowley 2004, Fendt and Sachs 2008, Loonam and McDonagh 2011, Charmaz 2014). Whether grounded theory is discovered (positivist paradigm) or whether it is constructed (interpretive paradigm), the basic premise is that the innovative theory is developed from empirical data systematically obtained by researching social phenomena relevant to the research question, where the researcher engages with the actors and their contexts (Glaser and Strauss 1967, Bryant 2002, Gasson 2004, Urquhart, Lehmann et al. 2010, Charmaz 2014).

3.6.2.1 The constructivist approach.

The main difference between a constructivist approach and the earlier approaches of grounded theory, is the tools and guidelines of grounded theory are adopted while the positivist assumptions are not (Fendt and Sachs 2008, Charmaz 2014). Unlike the view put forward by Glaser and Strauss (1967) and Corbin and Strauss (2008), whereby they assume an external reality exists awaiting discovery by an unbiased observer who records facts leading to theory discovered from systematically obtaining and analysing data, the constructivist approach concentrates on researcher involvement, whereby the researcher pays detailed attention to empirical realities and locates him/herself in these realities thus placing an emphasis on action and practice (Mir and Watson 2000, Mills, Bonner et al. 2006, Seidel and Urquhart 2013).

The constructivist is of the belief that a qualitative approach cannot depend on deduction alone and the researcher needs to construct what he/she interprets as data, based on his/her engagement in the field (Mills, Bonner et al. 2006, Seidel and Urquhart 2013, Charmaz 2014). This results in an analysis based on more than mere description as it involves the researcher's interpretation of reality created from shared experiences and relationships with

participants, rather than an objective reporting of reality (Glaser and Strauss 1967, Heath and Cowley 2004, Charmaz 2011, Pinnington, Meehan et al. 2014). Therefore, the constructivist approach is not about the existence of phenomena, but rather about *"our ability to understand them without a specific theory of knowledge"* Mir and Watson (2000:942). Such an approach fits very well with my own philosophical and epistemological assumptions insofar that it is based on a qualitative approach to research within the interpretive paradigm.

3.6.2.2 The constructivist grounded theory coding method.

Miles (1979:590) is of the view that *"the most serious and central difficulty in the use of qualitative data is that methods of analysis are not well formulated … the analyst faced with a bank of qualitative data has very few guidelines for protection against self-delusion."*

To guard against SaP research's lack of a formalised method of analysis, I will draw on the constructivist grounded theory coding method. The coding process selects, separates and sorts the data gathered, thus enabling the researcher to begin analysis. Charmaz (2014:113) describes coding as *"the pivotal link between collecting data and developing an emergent theory."* Her constructivist grounded theory coding method involves four sets of coding namely; initial, focused, axial and theoretical (refer table 3.2). Initial coding involves the researcher exploring theoretical possibilities that can be interpreted from the data. The codes are therefore grounded in the data but remain provisional as the researcher must be open to other possibilities that best fit the data. Charmaz is of the view that to help initial coding stay close to the data, the researcher should try to code with gerunds (action verbs) thus helping to stifle the tendency towards conceptual leaps prior to undertaking analysis. Coding with gerunds will help me place the emphasis on praxis and practices rather than on explaining, thus supporting my interpretive, and in particular, my SaP approach. The resultant theory, while acknowledging subjectivity, will be tied closely to the empirical data I gather (Urquhart and Fernandez 2006, Fendt and Sachs 2008, Charmaz 2011).

Table 3.2 Constructivist grounded theory coding method (Charmaz 2014).

Constructivist grounded theory coding method
Initial coding
Focused coding
Axial coding
Theoretical coding

While Charmaz recommends the researcher stays close to the data and constructs short codes, she leaves it up to each individual researcher to choose between word-by-word coding, line-by-line coding, or incident-by-incident coding. In general, word-by-word coding works best with data concerning images and meanings, and line-by-line coding works best with data obtained from interviews, observations and documentation. However, descriptions of practitioner's actions are not amenable to either word-by-word or line-by-line coding, because such coding does not take account of context. For this reason, incident-by-incident coding works best as a means to highlight the active and constitutive nature of practice as a means of doing rather than static concepts (Jarzabkowski and Spee 2009), and also helps to identify properties of emerging concepts (Charmaz 2014).

Focused coding involves using the most significant and frequent codes from initial coding to sift through the large amounts of data the researcher has gathered (Charmaz 2014). Charmaz (2014) differs from Strauss and Corbin (2008) when it comes to axial coding, as she does not advocate adhering rigidly to their formal and time consuming procedures that aid verification, because it depends too heavily on preconceived prescriptions (Bryant and Charmaz 2007a) and introduces a needless level of complexity (Urquhart 2007), which together introduce the threat of forcing the data to fit the theory (Suddaby 2006). Theoretical coding follows closely the codes already selected during focused coding by specifying relationships between the categories developed during focused coding, and the theory begins to take shape (Seidel and Urquhart 2013).

My approach towards coding will be to code using gerunds while at the same time build the code syntax based on the each theoretical construct within Whittington's (2006b) integrative framework for SaP and code my data incident-by-incident. Therefore the syntax for my initial codes will be as follows:

`Gerund-level-practitioner-prct/prx-int/ext`

The gerund reflects the praxis. The level is the level at which the praxis takes place (macro, meso or micro). The practitioner is the person who carries out the praxis. The prct/prx reflects whether it is a routinised practice or not, and the int/ent reflects whether the practice has been established within the intra-organisational filed (micro and meso levels) or come from the extra-organisational filed (macro level). I will code the data in accordance with the constructivist grounded theory method espoused by Charmaz (2014) and I will not apply axial coding for the reasons given above. Coding in this manner will greatly support structuring my case narratives and executing my data analysis, while at the same time provide a clear and logical chain of evidence (Orlikowski 1993, Pan and Tan 2011).

In summary, for the purpose of developing mid-range theory via the application of Whittington's (2006b) integrative framework for SaP, the constructivist grounded theory coding method advocated by Charmaz (2014) does indeed compensate for the lack of a formalised and codified set of research techniques within the framework. Such an approach follows that applied by numerous researchers within the IS field (Seidel and Urquhart 2013).

3.6.2.3 Software as an aid.

I will need to keep track of numerous sources of data, view them in different ways, seek relationships between them, develop theory and present findings. Any aids that can assist me in undertaking these activities are to be welcomed. One such aid is NVivo, which is directed at increasing the researcher's efficiency in carrying out the data handling, analysis and reporting (Hutchison, Johnston et al. 2009, Charmaz 2014). It is imperative I make the software work for me and not fit my research to suit the software. I will use the software to carry out the data retrieval and presentation tasks, while I focus on the analytical work, so as to avoid generating a superficial analysis. The software will provide an audit trail enabling retracing of the analytical steps taken, thus making the research process transparent and enabling explanations to conclusions reached.

3.6.3 Case study.

Case study has gained respect within IS research for a number of reasons (Keutel, Michalik et al. 2014). Case study is highly flexible and can be applied to IS research that takes the quantitative or qualitative approach, the positivist or interpretivist paradigm, and to IS research that applies a range of methodologies and methods (Walsham 1995b, Dubé and

Paré 2003). The reporting on real-life phenomenon and the holistic nature of our investigations so that we can understand the interactions between people, organisations and technology, means case study is very suitable for IS research (Cavaye 1996, Dubé and Paré 2003). The recognition of social and organisational issues in relation to IS has led many IS researchers to adopt empirical approaches that have their focus on human interpretations and meanings, and the vehicle for such research is often case study (Benbasat, Goldstein et al. 1987, Walsham 1995b, Cavaye 1996, Darke, Shanks et al. 1998, Dubé and Paré 2003).

Although case study in IS has been dominated by the positivist tradition, there now exists a notable increase in interpretive case research to study IS issues and such studies have made a valuable contribution to both IS theory and practice (Myers and Liu 2009, Holohan and McDonagh 2014a). Dubé and Paré (2003) found from their analysis of seven leading IS journals that interpretive case research has emerged as a growing trend, representing 18% of all case studies published from 1995 to 1999. From my analysis of the SA literature, for the period 2000 to 2012, I found this trend to have grown considerably with 55% of all case studies published being of the interpretive paradigm (Holohan and McDonagh 2014a). A major difference between interpretive case study research and positivist case study research is that interpretive case study research places a strong emphasis on close interaction between researcher(s) and participant(s) throughout the case study process, therefore considering case members as participants in the building of the case narrative (Bygstad and Munkvold 2011).

The case study approach is very suitable for gaining answers to "how" type questions, where the experience of the practitioners is important as well as the context in which the action takes place and is often used in theory building research of an exploratory nature where little is known at present (Siggelkow 2007, Pan and Tan 2011). Yin (2014) sees case study as the preferred approach when the research question is of a "how" or "what" type, where the research focus is on a contemporary phenomenon within a real-life context and the researcher has little control over the actors or events. Case study facilitates small sample numbers and allows for the creative use of numerous data sources while placing the emphasis on historical outcomes as the key area to be examined (Easton 1995). Case study is very suitable to the Irish IoT context due to constraints enforced on cross-sectional studies by the small population of IoTs of any size and complexity (Leavy 1996).

Eisenhardt (1989:534) defines case study as *"a research strategy which focuses on understanding the dynamics present within single settings ... and can involve either single or multiple cases."* Gerring (2004:342) defines case study as *"an intensive study of a single unit for the purpose of understanding a larger class of (similar) units."* Although there is a difference in both definitions in terms of where the study might take place, both definitions have an aim to discover knowledge beyond the realm of a single unit. These definitions, support a case study approach to answering my research question which is focused on building mid-range theory to help understand a real-life phenomenon, in-depth, within IIT.

I am in no doubt as to the large amount of time and effort I will have to apply to execute my case research (Yin 2014). While the research will place a heavy demand on my intellect and emotions, I am of the belief that due to both my professional and academic experience, I possess the required skills to carry out such research. Such skills include conceptual aptitude, ability to inductively recognise patterns in data, talent to collect data, proficiency in data analysis and writing skills (Pettigrew 1997).

3.6.3.1 Case study as a research design.

The basic framework for undertaking research, is the research design itself (Cavaye 1996). Yin (2014:28) describes research design as *"a logical plan for getting from here to there, where here may be defined as the initial set of questions to be answered, and there is some set of conclusions about these questions."* A number of steps have to be undertaken to get from the "here" to the "there" and the principal purpose of research design is to help the researcher ensure evidence he/she seeks and obtains, addresses the research question(s). According to Yin (2014:29), and supported by Dubé and Paré (2003:627), five components of research design are specifically important for case studies:

1. A study's question. As my question is of the "how" type, it is very suited to a case study design;
2. A study's propositions, if any. My study is of an exploratory nature and therefore has a very clear purpose rather than a proposition;
3. Unit(s) of analysis. The unit of analysis in my study are the praxis engaged in by IS managers as they endeavour to align business and IS strategies in IIT.
4. The logic linking the data to the purpose. For my study this will be uncovered by utilising Whittington's (2006b) integrative framework for SaP, as the apparatus to guide data collection and analysis; and

5. Criteria for interpreting the findings. I will avail of the constructivist grounded theory coding method for analysing and interpreting my data, and I will compare my findings with the literature.

Current state of the art for case study research design does not provide detailed guidance on how to carry out steps 4 and 5 (Yin 2014), i.e. there is no standard for data collection and analysis, therefore placing greater demands on the researcher during these two phases. However, Whittington's (2006b) integrative framework for SaP coupled with the constructivist grounded theory coding method, will help me overcome these shortcomings.

A key issue in case study research design is whether to include one or more cases in the project. Single and multiple-case study designs are suitable for exploratory research like mine. Single-case study designs are suited towards in-depth investigation and rich description, whereas multiple-case study designs are ideal for cross-case comparison and literal or theoretical replication (Gable 1994, Darke, Shanks et al. 1998, Dubé and Paré 2003). Four different types of case design are put forward by Yin (2014), refer figure 3.5. Single and multiple case studies indicate different design situations and within each alternative, there can be unitary or multiple units of analysis. My study employs a multiple-case embedded design, thus allowing for the exploration as to how the alignment of business and IS strategies is practiced by IS managers in IIT, at different levels of analysis and enabling comparison between cases over an elongated period of time.

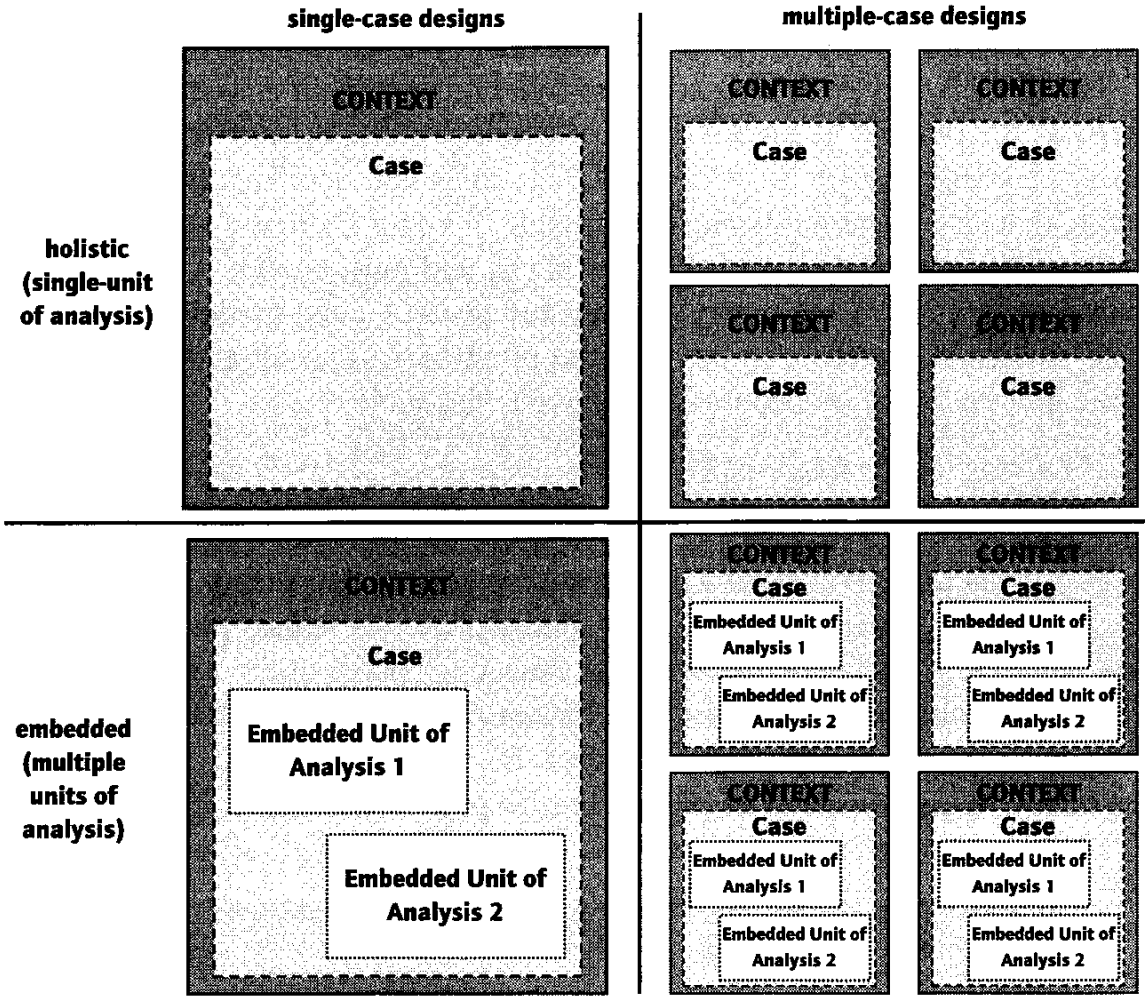


Figure 3.5 Basic types of designs for case studies (Yin 2014:50).

Having selected a multiple-case study design, I need to decide on the number of cases. Regardless of how many cases I choose, the main determinant is that each case has to have a rich source of data (Perry 1998). As all IoTs are constituted under the same legislation and implement strategic plans driven by public sector reform agenda, with a deliberate attempt to align business and IS strategies, we can expect all cases to contain rich data, with little if any significant difference between the business and IS strategies of each IoT. This therefore, points towards literal replication (i.e. predict similar results) as distinct from theoretical replication (predict contrasting results), with all predictions based on foreseeable reasons (Yin 2014). Two to three cases is sufficient for literal replication, whereas more would be required to pursue different patterns of theoretical replication (Yin 2014). Therefore two cases within reasonable travelling distance, practicable for a sole researcher are deemed appropriate from the thirteen IoTs, thus offering the potential to gain theoretical insight into a phenomenon about which little is currently known (Baskerville and Pries-Heje 1999, Eisenhardt and Graebner 2007).

3.6.3.2 Methods of data collection.

Yin (2014:105) identifies six of the most common sources of evidence referenced during case study research as: *documentation, archival records, interviews, direct observation, participant observation and physical artefacts*. Each source has its strengths and weaknesses, but taken together the sources complement one another by providing a rich set of data that support the research findings, hence the researcher using case study as a research design should strive to use as many of the sources as possible (triangulation) to limit his/her biases (Benbasat, Goldstein et al. 1987, Paré 2004, Miles, Huberman et al. 2014, Yin 2014).

Documentation can include letters, memoranda, reports, meeting agendas, minutes of meetings and media articles (Benbasat, Goldstein et al. 1987, Yin 2014). The researcher should always remain aware the data contained in documentation should not be blindly accepted as fact, as many will have been deliberately edited and all are not written with the case study in mind (Paré 2004, Yin 2014). Documentation is very useful in case research for corroborating and augmenting evidence from alternative sources (Miles, Huberman et al. 2014, Yin 2014).

Archival records and their usefulness vary from case to case. Not unlike documentation, the researcher should determine the conditions under which the records were produced and their level of accuracy (Paré 2004, Yin 2014). Such records can include data from the Central Statistics Office such as census data, organisational records such as financial or marketing reports and survey data collected during previous studies.

Interviews are one of the most important and common methods employed in case study research. Walsham (1995b), Paré (2004) and Schultze and Avital (2010) are of the view that interviews are the primary data source for the researcher who acts as an outside observer, as it is an ideal way to gather data about the experiences of participants and how they interpret them. The interview should be guided rather than structured, to take advantage of the information that can be gathered within a face-to-face real-time setting (Miles, Huberman et al. 2014, Yin 2014). Such interviews, commonly referred to as semi-structured interviews, enable the researcher to obtain the information he/she requires while at the same time provides the interviewee with the freedom to discuss various concepts (Stake 2010). Hermanowicz (2002:480) describes the semi-structured interview as

"among the most basic and fundamental of methods … if executed well, brings us arguably closer than many other methods to an intimate understanding of people and their social worlds." The semi-structured interview, rather than trying to elicit facts, takes on the role of a site for the construction of meaning, an attribute that sits well with Whittington's (2006b) integrative framework for SaP. The researcher should not become unduly influenced by one or two key informants. He/she should interview numerous and knowledgeable informants who see the phenomena under study from alternative perspectives (Eisenhardt 1989, Miles, Huberman et al. 2014).

By taking place in the natural setting and as long as the phenomena of interest are not entirely historical, case studies provide the opportunity to undertake direct (real-time) observation (Yin 2014). Formal observations can include sitting in on meetings, observing a teacher in the classroom or watching how factory floor work takes place. Less formal observation can include a site visit during which work practices and office trappings can be observed indicating the culture within an organisation. Evidence gathered from direct observation is useful for providing additional information about the topic being studied (Paré 2004, Yin 2014).

A participant observer can take on a number of roles within a case study and may even participate in the events under study (Paré 2004, Yin 2014). This is not a role that I will be undertaking during my research.

More suited to the ethnographic methodology, collecting physical artefacts can provide additional data (Paré 2004, Yin 2014). However, as my study is not of an ethnographic nature, I am discounting the collection of physical artefacts.

3.6.3.3 Data analysis.

A major criticism levelled at case study is related to the analysis of large amounts of qualitative data, whereby there is no standard analysis approach (Darke, Shanks et al. 1998) Eisenhardt (1989:539) maintains that *"analysing data is the heart of building theory from case studies, but is both the most difficult and the least codified part of the process."* In introducing his chapter on analysing case study evidence, Yin (2014:133) states *"analysis of case study evidence is one of the least developed aspects of doing case studies."* He holds the view that the researcher, as part of his/her research design, should develop a data analysis strategy because without one, the data will remain as raw data

without a story to tell. Unlike statistical analysis, there are few cookbook approaches that can be followed in analysing case data, hence the analysis is highly dependent on the researcher's integrative skills. The constructivist grounded theory coding method detailed in sub-section 3.6.2.2, with its systematic and robust procedures for analysing data collected from case studies, resembles such an approach. In addition, by designing my code syntax to include each theoretical construct within Whittington's (2006b) integrative framework for SaP, I ensure my data analysis strategy addresses each theoretical construct.

To increase the reliability of the analysis, it is imperative the researcher maintains a logical chain of evidence. Such a chain of evidence will enable an external reviewer to determine how the evidence is supported, by being able to follow the data trail and application of logic from initial research question right through to findings and conclusions (Benbasat, Goldstein et al. 1987, Dubé and Paré 2003, Yin 2014). My use of NVivo will enable me to maintain such a logical chain of evidence.

3.6.3.4 Strengths of theory building from cases.

By studying a phenomenon in its natural setting, case study research enables the capturing of reality (Tsang 2014, Yin 2014). A major strength of building theory from case studies is the propensity to generate novel theory based on research questions of an exploratory rather than a confirmatory nature (Baskerville and Pries-Heje 1999, Eisenhardt and Graebner 2007). Theory building from cases, involving comparative analysis by reconciling across cases, between cases and the literature, often yields insightful novel theory. The comparison of conflicting and confirmatory data tends to neutralise the researcher's preconceptions, resulting in theory likely to be devoid of researcher bias (Eisenhardt 1989, Saunders, Lewis et al. 2015). Case studies can motivate a research question and inspire new ideas (Siggelkow 2007), both of which are consistent with the exploratory ambitions of my research.

Another strength, is case research can develop and refine concepts for future studies, as the resultant theory can be used to test measurable constructs and hypotheses in subsequent research. In addition, because the theory building process is tied so closely to the data garnered in the field, it renders the theory empirically valid (Eisenhardt 1989, Orlikowski and Baroudi 1991, Cavaye 1996, Siggelkow 2007).

3.6.3.5 Weaknesses of theory building from cases.

Theory built from cases can be over complex due to the demanding use of empirical evidence (Eisenhardt and Graebner 2007, Crowe, Cresswell et al. 2011). The theory may well be rich in detail but can lack parsimony if the researcher tries to capture everything taking place (Eisenhardt 1989, Cavaye 1996). This has a tendency to happen more often when methods such as those outlined section 3.6.3.2 are not employed to aid data gathering and methods such as coding are not employed to aid data analysis (Miles, Huberman et al. 2014). With the lack of procedural guidelines, case research can lack rigor in the evaluation of evidence (Yin 2014), however rigor will always be contingent on the informed judgement and scrupulous recording of the researcher (Walsham 2006).

Another weakness is that due to a lack of procedural guidelines, resultant theory from case research might be idiosyncratic and narrow, hence the preference for a multiple-case study design (Eisenhardt 1989, Yin 2014). Even with multiple-case study design, it is important to note that unlike quantitative analysis techniques, it is not possible to generalise the findings statistically to a population (Eisenhardt 1989, Cavaye 1996, Eisenhardt and Graebner 2007). However, because my research question is centred on a particular phenomenon, this weakness is not of any great significance to my research and the understanding I gain about the phenomenon can be tested and expanded through subsequent studies (Eisenhardt 1989, Gerring 2004, Siggelkow 2007). As Mintzberg (1979:583) has commented "*What, for example, is wrong with samples of one*?" Consistent with the acceptance of small sample sizes "*single case can be a powerful example*" (Siggelkow 2007:20).

3.6.4 Concluding comments on SaP, grounded theory coding and case study.

My research question is concentrated on IS strategising carried out by IS managers, which is an activity that occurs at the interconnection between the practitioner (e.g. IS manager) their practices (routinised behaviour) and their praxis (the whole of their action). To guard against *"the fallacy of the wrong level"* Rousseau (1985:5), which is to attribute data from one level to another level, I need a guiding theory that takes issues of level into account. Following my review of three SaP theories, I have chosen Whittington's (2006b) integrative framework for SaP, as it is the only SaP theory I found, that has the potential to help answer my research question through meeting the dual criteria laid out in section 3.6.1.

Although SaP research lacks a formalised and codified set of research techniques, it can draw on procedures and rules from other interpretive research methodologies to overcome these shortcomings. I have chosen the constructivist grounded theory coding method, as it complements the Whittington (2006b) integrative framework for SaP as a data analysis tool, and fits very well with my own philosophical and epistemological assumptions, insofar that it is based on a qualitative approach to research within the interpretive paradigm.

My research design will be that of case study, a design that has made valuable contributions to the field of IS theory and practice. The case study design is very suitable when the research is focused on real-life phenomena where little, if any, theoretical knowledge exists and where the phenomena cannot be studied outside the context in which it occurs. Although case study is an appropriate design to help answer my research question, it lacks guidance for data analysis, giving rise to practical limitations in terms of rigor and effectiveness. However, I am satisfied that when data analysis is guided by Whittington's (2006b) integrative framework or SaP and executed via the constructivist grounded theory coding method, the full benefits of applying case study as a research design can be realised. This makes case study a very suitable research design to help answer my research question, and will ensure my findings and their validity, stand up to rigorous scrutiny.

By linking data collection and analysis to the theoretical constructs within Whittington's (2006b) integrative framework for SaP, by constructing my codes in accordance with the constructivist grounded theory coding method, and by bounding within a case study research design, the combined value of these three pillars will be realised, as I answer my research question and develop mid-range theory to help understand the phenomenon contained therein.

3.7 Execution of the study.

This section presents how my chosen research methodology and design were applied in practice, to answer the following research question;

How is the alignment of business and IS strategies practiced by IS managers in IIT?

The execution of my study was undertaken through the application of my chosen research methodology, comprising the three pillars of Whittington's (2006b) integrative framework for SaP, constructivist grounded theory coding and case study.

Section 3.7.1 provides an overview of the key elements involved in executing my chosen research strategy, in practice. In section 3.7.2, I draw explicit attention to the manner in which I identified and selected two cases for my study. Section 3.7.3 draws out the manner in which I engaged with both cases and pays particular attention to how I structured the investigation and undertook data collection. In section 3.7.4, I explain how I analysed my data and how this approach supported the development of my case narratives and taxonomy. Section 3.7.5 describes the steps I took to ensure a high degree of quality was applied to my study. Section 3.7.6 brings the section to a close.

3.7.1 Overview of key elements applied in the execution of chosen research strategy.

My chosen research strategy is that of a qualitative approach, underpinned by an interpretive paradigm. More specifically, the methodology comprises Whittington's (2006b) integrative framework for SaP to guide data collection and analysis, the constructivist grounded theory coding method as espoused by Charmaz (2014) to execute data analysis, bounded within a case study research design.

3.7.2 Case selection.

The selection of suitable cases to answer my research question was directed by certain criteria. The criteria were highly influenced by the relevance of the cases to my research question (Pan and Tan 2011). Having worked as an IS professional for twenty years, seven of which were as an IS manager, my initial interest was on the practices of the IS manager and the role of such practices in the alignment of business and IS strategies. Further interest focused on the IoT sector based on my fifteen years as a lecturer within the sector and on the specific regional role the IoTs have played in the evolution of third level education in Ireland. Being an employee of Case X, I had relatively easy access to documentation, meetings and key people. This reduced the risk inherent in gaining access to organisations where I wouldn't be known, therefore reducing elements of chance, luck and serendipity, in order to gain access (Walsham 2006). With its relative small size in terms of an assembly of third level institutions and their geographical proximity, multi-level analysis is more easily facilitated within the IoT sector than it would be in a larger

national context. From my review of the strategic alignment literature, it became apparent that the role of the IS manager in aligning business and IS strategies was under researched as was a public sector context, with the primary focus being on other executives within private organisations. In addition, the literature contained numerous calls for studies into the alignment of business and IS strategies that would focus on the practices of the IS manager (Ciborra 1997, Renaud and Walsh 2010, Gast and Zanini 2012, Hiekkanen, Helenius et al. 2013, Marabelli and Galliers 2017).

The cases selected required to be undergoing a program of fundamental change (driven by a public service reform agenda and directed by strategising) so as to enable me to capture a rich set of data, relating to the alignment of business and IS strategies as practiced by IS managers. The cases also required to have at least two periods of strategic planning and implementation, so that the study could be undertaken availing of an elongated period of time. This would help ensure the praxis engaged in by IS managers while aligning business and IS strategies over an elongated period of time, could be studied. Therefore, the five criteria that guided the selection of the most suitable cases were;

1) IoTs. Carrying out research in the same sector minimises the risk of variance that is inherent in cross-sectoral comparisons (Eisenhardt 1989, Jarzabkowski 2003),
2) The cases must be undergoing a program of fundamental change, driven by a public service reform agenda,
3) Strategising is a core element that directs the reform,
4) Alignment of business and IS strategies is an integral part of strategising, and
5) A history of at least two periods of strategic planning and implementation.

Within the Irish public higher education sector, the thirteen Institutes of Technology (IoTs) have undergone fundamental change since the passing of the IoT Act 2006. This change has its roots in the Strategic Management Initiative (SMI) launched in 1994 and is now driven by the recommendations laid out by Hunt (2011). The change continues unabated, as the *"challenges of scale and the rationale for change in the Institutes of Technology are more immediate"* than those in the universities, Hunt (2011:99).

The IoT Act 2006 provides for greater institutional autonomy, improved governance and a statutory guarantee of academic freedom for each IoT. Furthermore, the Act requires the GB of each IoT to ensure a strategic plan is in place, with the HEA having an oversight role on these plans. This role is underpinned by the funding model introduced by the HEA,

whereby each IoT is required to have in place a strategic plan within which there is a deliberate attempt to align business and IS strategies.

Two similar cases among the thirteen IoTs were chosen. Both cases had taken a central position in the sector's evolution to date, with the only difference being one choosing to pursue TU status while the other chose to remain as an independent IoT. Such a choice enhances the likelihood of strong theoretical sampling (Eisenhardt 1989). Both cases were embarking on the development of their third strategic plans, having implemented two separate strategic plans over the past decade. As repeat visits were required to both sites for the purposes of data collection, time considerations and geographic proximity were also taken into consideration.

The Presidents of the chosen cases requested anonymity for their institutions and interviewees. If the anonymity of interviewees alone was guaranteed, this in itself would identify the IS manager, as each case has one IS manager only. Therefore both cases and all interviewees were granted anonymity. For this research, the two cases will be referred to as Case X and Case Y, while interviewees will be referred to by job title.

While there were some differences in their overall strategic plans, both IoTs were pursuing a deliberate attempt to align business and IS strategies. Both were similar in size (refer table 3.3 and table 3.4) and competed with a university in their own region. Both were seen as leaders in their field, evidenced by their attainment of the Sunday Times IoT of the year, each on two occasions, in recent years. In 2014, they formed an alliance involving a detailed program of enhanced collaboration, co-operation and development, based upon a shared vision derived from their strategic plans, national policy and regional/national skills needs. Both have clustered with other higher education institutes in their own regions, which in due course will merge into one cluster. From an IS perspective, both avail of the same core administration systems (student registration, library, human resources and finance), hosted by a third party. Finally, the position of the highest ranking IS executive (i.e. IS manager) in both cases, was one level below the organisation's EMT. For these reasons, I deemed Case X and Case Y as the two most suitable cases for literal replication among the thirteen IoTs, so as to enhance our understanding as to how the alignment of business and IS strategies is practiced by IS managers in IIT.

Table 3.3 Student enrolment numbers for Case X academic year 2011/2012 and for Case Y academic year 2010/2011.

	Case X (2011/2012)			Case Y (2010/2011)		
Enrolments	Full-Time	Part-Time	Total	Full-Time	Part-Time	Total
Undergrad.	4,631	817	5,448	5,363	960	6,323
Postgrad.	112	107	219	154	13	167
Other (foundation and FETAC)	0	360	360	121	343	464
Total	4,743	1,284	6,027	5,638	1,316	6,954

Table 3.4 Staff numbers and expenditure for Case X academic year 2011/2012 and for Case Y academic year 2010/2011.

	Case X (2011/2012)	Case Y (2010/2011)
Staff		
Academic	406	364
Support	230	283
Total Staff	636	647
Expenditure	€57,196,000	€63,590,000

Based on the above choices, my study will provide a comparable database of Case X and Case Y, which will serve as an account of major changes in strategising and other key events relating to how the alignment of business and IS strategies is practiced by IS managers in IIT.

3.7.3 Engaging with the cases.

As an employee of Case X, engaging with both cases was relatively straightforward. In the first instance, I approached the President of Case X by making an appointment to see her via her secretary. At the initial meeting on 25th May 2012, I explained the purpose of my work was twofold. First, it was going to form part of my Ph.D. thesis and second, it was to develop mid-range theory to help understand how the alignment of business and IS strategies is practiced by IS managers in IIT. I explained that when developed, the mid-range theory may be applied as an instrument to help organisations like Case X, align their IS and business strategies. I requested access to documentation, access to people for interviews and permission to sit as a passive observer in selected meetings. Based on her request, I assured the President of Case X that all data would remain confidential as would the identity of the institute and all interviewees. The President made a list of the background material I was seeking and also included additional material that she believed would be beneficial to my study. I informed the President that once I had reviewed the background material, I would come back with a list of people I would like to interview and meetings to which I would like passive observer status. The President committed to

seeking the support of all those I wished to interview and she also permitted me to attend selected meetings as a passive observer.

On 22nd March 2013, the President of Case X introduced me to the President of Case Y, via email, after which I arranged to meet with the President of Case Y on 14th June 2013. Similar to my meeting with President of Case X, I explained the purpose of my work to the President of Case Y. I requested access to documentation, access to people for interviews and permission to sit as a passive observer in selected meetings. Based on his request, I assured the President of Case Y that all data would remain confidential as would the identity of the institute and all interviewees. The President made a list of the background material I was seeking and informed me that most was available via the website of Case Y and the IS manager of Case Y. I informed the President that I would arrange to meet with the IS manager sometime in the future, as I was not intending to carry out my data collection in Case Y for at least another year. I also informed the President that once I had reviewed the background material (including that which I would receive from the IS manager), I would come back with a list of people I would like to interview and meetings to which I would like passive observer status. The President committed to seeking the support of all those I wished to interview and he also committed to providing me with passive observer status for meetings he deemed acceptable for me to attend.

On 29th October 2014 I met with the IS manager of Case Y. At this meeting I explained the nature of my research and afterwards, the IS manager forwarded to me some additional documentation I was seeking.

3.7.3.1 Review background material.

The information I obtained from the background material referred to in this section, helped enhance my sensitivity towards the distinctive features and pertinent issues of both cases (Pan and Tan 2011).

As both cases are in the IoT sector, I reviewed background material relevant to both cases (listed in appendix 1). This material was used to provide an overview of the Irish Higher Education sector and in particular, an overview of the IoT sector. I availed of this material to help compile interview guides for Case X and Case Y (appendices 10 and 11 respectively) by writing memos to capture the pertinent points and identify interviewees.

During April 2012 and May 2012, I searched the website of Case X for relevant background material and I also received additional background material from the President of Case X. This material (listed in appendix 2) was used to provide an overview of Case X from 2006 to mid-2014, its strategic activities and the context in which it operated. I also availed of the material to help compile the interview guide for Case X (appendix 10) by writing memos to capture the pertinent points and identify interviewees. This exercise was completed in June 2012 at which stage I supplied the President of Case X with the list of people I would like to interview. I was granted all interviews I requested. The list of interviewees together with the time and duration of the interviews is provided in appendix 3. I also asked the President for permission to attend meetings as a passive observer. The list of meetings along with their dates and locations are provided in appendix 4.

During November 2014 and December 2014, I searched the website of Case Y for relevant background material and I also received additional background material from the President and the IS manager of Case Y. This material (listed in appendix 6) was used to provide an overview of Case Y from 2004 to mid-2015, its strategic activities and the context in which it operated. I also availed of the material to help compile the interview guide for Case Y (appendix 11) by writing memos to capture the pertinent points and identify interviewees. This exercise was completed in December 2014 at which stage I supplied the President of Case Y with the list of people I would like to interview. I was granted all interviews I requested. The list of interviewees together with the date and duration of the interviews is provided in appendix 7. I also asked the President for permission to attend meetings as a passive observer. The list of meetings along with their dates and locations is provided in appendix 8.

Taken together, the background material, the interviews and the meetings I attended as a passive observer, provided a rich source of data and enriched the validity of the results for both Case X and Case Y, due to triangulation of findings (Eisenhardt 1989, Walsham 1995b).

3.7.3.2 Negotiating access.

In June 2012 and August 2012, the President of Case X emailed the people I wished to interview and asked them for their support. All eleven people the President emailed, plus the President herself, agreed to be interviewed. The interviews took place over the period July 2012 to April 2013. Prior to each interview I sent each interviewee a letter thanking

them for agreeing to be interviewed and details of the interview itself. A sample letter is provided in appendix 5. As the chair of each meeting I wanted to attend was included in the twelve interviewees, I myself contacted the chair of each meeting and obtained their permission to attend as a passive observer.

On 20th December 2014, I emailed the President of Case Y with a list of the eleven people I wished to interview. On 29th December 2014 the President of Case Y emailed me to say that all eleven people had agreed to be interviewed. The interviews took place over the three month period of January 2015 to March 2015. Prior to each interview I sent each interviewee a letter thanking them for agreeing to be interviewed and details of the interview itself. A sample letter is provided in appendix 9. As the chair of each meeting I wanted to attend was included in the thirteen interviewees, I myself contacted the chair of each meeting and obtained their permission to attend as a passive observer.

3.7.3.3 Structuring the investigation.

To help structure my investigation, I first developed a CRF (appendix 14) by adapting and amalgamating the CRFs developed by Eisenhardt (1989) and Maimbo and Pervan (2005). Such an approach was taken as it provided an ideal roadmap to guide my research, in that it synthesises previous work on qualitative methods, and the design of case study research (Eisenhardt 1989, Maimbo and Pervan 2005).

My CRF provided the context within which I developed my CSP. My CSP (appendix 15) contains the research instrument itself and a comprehensive set of guidelines that contain the procedures for executing my research (Perry 1998, Miles, Huberman et al. 2014). Such an approach contributes significantly to the reliability of case study research (Maimbo and Pervan 2005, Yin 2014). As my research involved collecting data from multiple locations over an extended period of time, my CSP helped guide data collection and analysis in a consistent manner across both cases. My CSP was also employed to inform people engaged in the study, as to the purpose of the study itself.

3.7.3.4 Data collection.

A practice-based study such as mine, requires linking specific levels of activity namely; micro, meso and macro. The Whittington (2006b) integrative framework for SaP facilitated such linking, by clearly bounding the levels at which praxis takes place. In addition, the framework enabled the identification of data critical to praxis engaged in by

IS managers as they practice the alignment of business and IS strategies (Hughes and McDonagh 2014).

I conducted in-depth case studies of Case X for the period 2006 to mid-2014, and of Case Y for the period 2004 to mid-2015. The final collection of real time data was in mid-2015, thus providing a natural ending to the study's timeframe. The data was collected from four main sources i.e. documentation, archival records, passive observer status at selected meetings and semi-structured interviews (refer appendices 1, 2, 3, 4, 6, 7 and 8). In addition to providing a rich source of data and enriching the validity of the results for both Case X and Case Y due to the triangulation of findings (Eisenhardt 1989, Walsham 1995b), these four sources also lessened bias that could potentially result from reliance on a single source of data (Nidumolu, Subramani et al. 2001, Hanseth, Jacucci et al. 2006) and provided sufficient data to develop a holistic view as to how the alignment of business and IS strategies is practiced by IS managers within Case X and Case Y (Pettigrew 1990).

Twelve interviews were carried out in Case X and thirteen interviews were carried out in Case Y, with a mean length of just over one hour. Of the twenty five interviewees, only four (the current IS managers, a former IS manager and a consultant) were not members of the EMT. This ensured representation came from a *"variety of voices"* Myers and Newman (2007:22). In both cases, my first interview (which was informal and did not form part of the twenty five) was with the President (the gatekeeper), as he/she was able to provide an overview of the phenomena under study. While each President did not possess a detailed knowledge of all aspects of the phenomena being studied, they were able to identify the people I should interview and documentation I should read, to obtain the data I was seeking (Pan and Tan 2011). Each interview included open-ended exploratory questions that covered a number of strategy related themes, therefore supporting enquiry of an interpretive nature (appendix 10 and appendix 11). The focus of each interview was on both retrospective and current strategic actions and praxis, particularly those of the IS managers. Depending on the interviewee's involvement and knowledge in IS related strategising, certain themes were more deeply pursued than others. With the permission of each interviewee, each interview was audio-taped and a copy of the transcript was forwarded to each interviewee along with a letter (appendix 12) thanking them for their contribution to the study.

As a passive observer, I attended three strategic level meetings across both cases. These meetings provided me with an understanding of the context in which IS strategising took place. I wrote a letter (appendix 13) to the chair of each meeting thanking them for allowing me to attend. Other background information I availed of to enhance my observations included informal discussions with participants which was facilitated by my daily access to many of them.

3.7.3.5 Organising the data.

All data was organised in a case study database. This database consists of two separate parts:

i. The data collected during the study and
ii. My case report.

This structure provides a chain of evidence by having a separate set of evidentiary data from any reports, memos or field notes, thus increasing the reliability of the entire case study (Yin 2014). Such a structure enables a reader of the case study to trace all the steps from the research question to the findings and from the findings back to the research question (Eisenhardt 1989, Bazeley 2009). All electronic sources of data were organised in a hierarchical structure in NVivo, while all non-electronic sources of data were stored in archival boxes, and electronically referenced in NVivo. This organised structure preserved all my case data in retrievable form and supported the process of data analysis.

3.7.4 Data analysis.

Writing memos was core to analysing the full set of data I gathered. It was this explicit act of writing that helped me to develop my conceptual ideas, explore and refine them (Klag and Langley 2013).

The process of analysing my case data commenced by writing memos to distil the pertinent data relating to strategising, from documentation at the macro, meso and micro levels, and from notes I compiled as a passive observer at meetings at the macro and meso levels. These memos (sixty eight in total) were then coded as were the twenty five interview transcripts. The data contained in the full set of initial, focused and theoretical codes was availed of to write my case narratives in chapter 5 and to structure a set of forty six analytical memos. These analytical memos formed the content and structure for the case analysis in chapter 6. The data contained in all initial codes that specifically referred to the

practitioner as the IS manager along with their focused and theoretical codes, was availed of to write and structure a further set of eight analytical memos. These eight analytical memos contained the data that enabled the effective development of my taxonomy in chapter 7.

3.7.4.1 Effecting coding and analysis of the data.

The coding and analysis of my case data are depicted in figures 3.6 and 3.7 respectively.

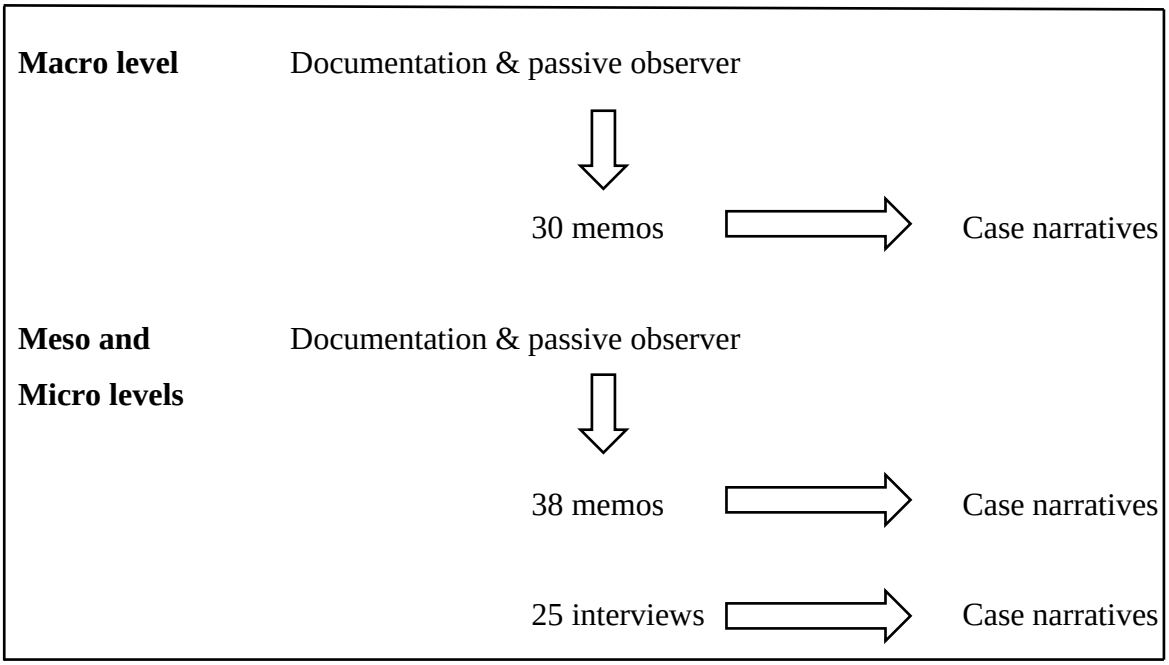


Figure 3.6 Coding of case data

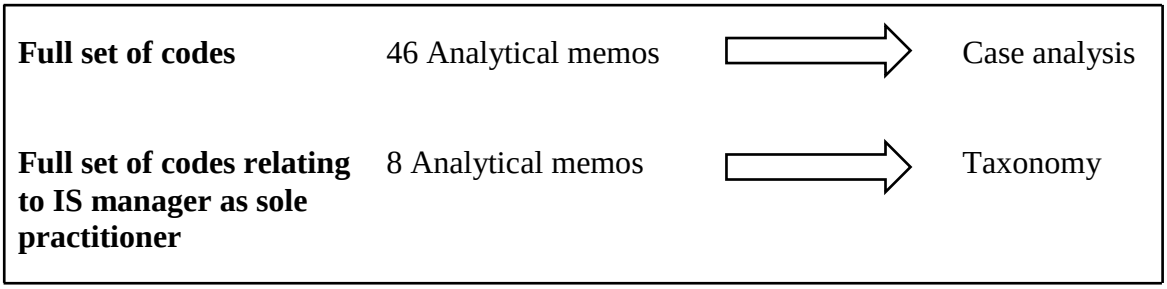


Figure 3.7 Analysis of case data

My case narrative at the macro level is based on the data I gathered from macro level documentation and passive observer status. I wrote thirty memos on the data and coded the content of these memos in accordance with my code syntax (refer appendix 17 for sample memo1). My case narratives at the meso and micro levels for both Case X and Case Y, is based on the data I gathered from meso and micro level documentation, passive observer status and interviews. Data pertaining to the meso and micro levels for Case X is

based on the data I gathered from Case X documentation, passive observer status and the twelve Case X interviews. I wrote twenty one memos on the data gathered from the documentation and passive observer status, and coded the content in accordance with my code syntax (refer appendix 18 for sample memo2). I also coded the twelve interviews in accordance with my code syntax. Data pertaining to the meso and micro levels for Case Y is based on the data I gathered from Case Y documentation, passive observer status and the thirteen Case Y interviews. I wrote seventeen memos on the data gathered from the documentation and passive observer status, and coded the content in accordance with my code syntax (refer appendix 19 for sample memo3). I also coded the thirteen interviews in accordance with my code syntax.

Overall, my coding process resulted in 240 initial codes, 18 theoretical focused codes and 3 theoretical codes. The code book (appendix16) shows each code, a description of each code, the number of sources (i.e. interviews, documentation and passive observer status meetings) to which the code is attributed, and the number of times the code is referenced. The code could be referenced a number of times in one source, hence the larger number of references compared to sources.

Building towards my taxonomy, I undertook a second round of memo writing consisting of two sets of analytical memos. Writing analytical memos enabled me to carry out analysis on my ideas about the codes, the data behind the codes, and helped clarify exactly what was taking place in the area under study (Charmaz 2014). From the data behind each of the 240 initial codes, I developed forty six analytical memos from which I was able to develop the content and structure (macro, meso and micro) for the case analysis in chapter 6 (refer appendix 20 for sample analytical memo1).

From the 240 initial codes I selected all codes with the IS manager as the practitioner, because my mid-range theory is focused on the IS manager as the sole practitioner. There were 72 initial codes in total that had the IS manager as the practitioner. From the data behind each of the 72 initial codes, I developed eight analytical memos and structured them in accordance with the 3 theoretical codes (refer appendix 21 for sample analytical memo2). By asking questions of the data contained in the eight analytical memos, I identified attributes for each concept and was therefore able to define nine concepts within the taxonomy, thus populating each of the 3 theoretical codes (advocate, administer IS and innovate) at each of the three levels (macro, meso and micro).

NVivo proved to be invaluable throughout the coding process, as it significantly reduced the amount of time required to code the mass of qualitative data manually and created an electronic audit trail. The electronic audit trail enables retracing of my analytical steps, making my research transparent and providing explanations to conclusions reached (Glaser and Strauss 1967, Hutchison, Johnston et al. 2009, Charmaz 2014).

3.7.5 Quality of the research.

Four tests are commonly availed of to establish the quality of empirical social research such as mine (Yin 2014). The four are: construct validity; internal validity; external validity; and reliability.

Construct validity was applied by availing of multiple sources of evidence during data collection and was further enhanced by the establishment of a chain of evidence. The chain of evidence was established by organising all electronic sources of data in a hierarchical structure in NVivo, and storing all non-electronic sources of data in archival boxes, electronically referenced in NVivo. The chain of evidence was further improved by writing memos and applying the constructivist grounded theory method, based on the theoretical constructs within Whittington's (2006b) integrative framework for SaP.

Internal validity seeks to establish a causal relationship and is therefore applicable to explanatory or causal studies, and not to an exploratory study such as mine.

External validity was ensured by applying a literal replication logic when selecting the two cases. This provided an expectation for similar results from the outset. Having obtained similar results across the two selected IIT, the taxonomy can now serve as a basis to assess and manage how the alignment of business and IS strategies is practiced by IS managers in IIT at the macro, meso and micro levels.

When undertaking academic enquiry, the researcher is required to possess a strategy that guides the execution of the study (Maimbo and Pervan 2005). Such a strategy should enable another researcher reconstruct all the evidence by linking data to its source, without reference to any other part of the original researcher's work. However, as both researchers are in essence diverse research instruments, executing the study at different times, it would be imprudent to expect full replication of the study to take place. Therefore, reliability of

the research was safeguarded by constructing and utilising a CSP, and by developing a case study database consisting of two separate parts.

3.8 Conclusion.

As a researcher inseparable from reality and seeking to answer an exploratory research question, my research approach is of a qualitative nature, underpinned by an interpretive paradigm. Practice theory is designed to understand the links between the actions people take and the structures of organisational life. This is ideally suited to help answer my research question, which is focused on examining how the alignment of business and IS strategies is practiced by IS managers in IIT. With such an emphasis on practice, I deemed a practice-based study as the most appropriate, to help answer my research question. This approach answers the calls of Ciborra (1997), Renaud and Walsh (2010), Chen, Mocker et al. (2010), Schlosser (2012) and Hiekkanen, Helenius et al. (2013) for practice-based studies, to aid our understanding of what practitioners do to help and/or hinder the achievement of aligning business and IS strategies.

SaP presents the opportunity to enquire deeply into the praxis carried out by IS managers in IIT and how such praxis influence, and are influenced, by the wider organisational and institutional practices. Having reviewed three principal SaP theories, I chose Whittington's (2006b) integrative framework for SaP, as it is the only SaP theory I have found, that has the potential to help answer my research question through meeting the dual criteria laid out in section 3.6.1. While Whittington's framework does lack a formalised and codified set of research techniques for analysing data, the constructivist grounded theory coding method advocated by Charmaz (2014) compensates for this void. My research design is that of case study, as it is an ideal design to help answer my research question where, both the practitioners and the context are of vital importance to constructing mid-range theory of a real-life phenomenon within IIT, of which little is known at present.

I have also presented how my chosen research methodology and design were executed in practice. The reasons why I chose two cases as the appropriate setting within which to execute my study, as well as the pragmatic considerations for Case X and Case Y selection, were put forward. I then presented how I engaged with both case sites, which was made possible by negotiating access to meetings, documentation and key people for the purpose of interviews. I structured my investigation through the utilisation of a CRF

and CSP. Collection of primary and secondary data was then explained as was the organisation of data in a case study database consisting of two distinct parts. The building blocks for my case narratives and taxonomy were presented as was how I executed data analysis. Finally, the steps I took to ensure a high degree of quality was applied to my study, were explained.

In the following chapter, my approach to reviewing the SA literature is underpinned by a framework comprising three pillars that make up my SaP lens. The three pillars comprise:

(i) the SaP typology developed by Jarzabkowski and Spee (2009);

(ii) a classification scheme developed in accordance with the approach put forward by Yang and Tate (2012), underpinned by the coding system for the constructivist grounded theory method espoused by Charmaz (2014); and,

(iii) the approach taken by Schatzki (2006) and Jarzabkowski and Spee (2009) towards practices as bundles of interrelated routines.

In carrying out my literature review in this manner, I ensure consistency (methodological fit) between my review of the SA literature, my research question and my methodological choices (Edmondson and McManus 2007, Halaweh, Fidler et al. 2008).

Jarzabkowski and Spee (2009) applied their typology to classify the SaP literature based on how studies conceptualise the strategy practitioner and the level of strategy praxis. Their typology does not address practices or praxis, which are both critical components of the SaP research agenda (Whittington 2003, Jarzabkowski, Balogun et al. 2007). The typology part of my lens will enable me to classify the SA literature by conceptualising the SA practitioner(s) and the level of SA praxis, while the grounded theory part of my lens will enable me to classify the various concepts within the SA literature and identify the praxis within. Such a classification follows the approach taken by Yang and Tate (2012) who applied the grounded theory method to construct a classification scheme from the cloud computing literature. This approach aids a high quality review through the use of grounded theory and its analytical focus on concepts (Webster and Watson 2002, Wolfswinkel, Furtmueller et al. 2013). Therefore, by constructing a lens from both a SaP typology (Jarzabkowski and Spee 2009) and the constructivist grounded theory method (Charmaz 2014), I will attend to practitioners and praxis in a coherent and comprehensive manner that the Jarzabkowski and Spee (2009) SaP typology on its own does not facilitate.

Schatzki (2006) and Jarzabkowski and Spee (2009:81) found the practice aspect of their review to be most challenging "*because so many different concepts of practice are used"* within the SaP field. They note that practices are a complex bundle of interrelated routines and it is exactly this approach I will take towards classifying practices within the SA literature.

By undertaking a review of the SA literature through a SaP lens, I move beyond extant reviews and offer the opportunity to extend the research agenda with a focus on the stakeholder community and their SA praxis (Coltman, Tallon et al. 2015, Renaud, Walsh et al. 2016).

Chapter 4 - Literature review: The nature of strategic alignment.

4.1 Introduction.

Based on my research question:

How is the alignment of business and IS strategies practiced by IS managers in ITT?

this chapter, through the application of a SaP lens, develops a rich perspective on the SA literature, and in so doing, further defines the research gap identified in chapter 1 and identifies opportunities for further enquiry.

SA is one of three core themes within the IS strategy literature (Galliers, Merali et al. 1994, Teubner 2013) and remains a focus of attention for both research and practice alike, primarily because of its potential to contribute towards enhanced organisation performance (Chan and Huff 1992, IBM 2009, Chen, Mocker et al. 2010, Computer Sciences Corporation 2011). With the potential to increase performance, SA has remained a top concern for IS executives over the last three decades (Niederman, Brancheau et al. 1991, Luftman, Kempaiah et al. 2006, Luftman and Ben-Zvi 2011, Kappelman, McLean et al. 2016).

Section 4.2, provides a high-level overview of the IS strategy literature which locates SA as one of three central themes in this domain of enquiry and elucidates the critical nature of SA by summarising the voice of practice through the views of practitioners and consultants. A detailed critique of my approach to reviewing the SA literature is provided in section 4.3, as is my analysis of the SA literature. This approach is guided by a six stage process that utilises my SaP lens. Utilising my SaP lens, I present my review of the SA literature in section 4.4. My analysis and review identify gaps in current research that have not to date been clearly articulated within the SA literature and these are reported on in section 4.5 along with my proposed 16 avenues for further enquiry into SA. Section 4.6 reflects on the content of the chapter relative to my research question. The chapter draws to a close in section 4.7.

4.2 Locating SA.

The strategic value of IS to organisations is reflected in the stream of research consisting of three closely related sets of literature developed since the late 1970s within the IS domain (Chan and Huff 1992, Ward 2012). The sets comprise of IS for competitive advantage,

SISP, and alignment between IS strategy and business strategy (Chen, Mocker et al. 2010, Merali, Papadopoulos et al. 2012). Each literature set is of importance to both practitioners and academics alike (Luftman and Kempaiah 2008, Teubner 2013). Each literature set is centred around the key concept of IS strategy, which is in turn a major element of corporate strategy (Pyburn 1983, Baets 1992, Benbasat and Zmud 2003, Schlosser, Wagner et al. 2012).

4.2.1 Alignment between IS strategy and business strategy.

During the 1980s the focus within the IS strategy literature was on establishing the importance of IS to corporate strategy (Merali, Papadopoulos et al. 2012). From the mid-1980s onwards, a stream of literature concerning 'IS for competitive advantage' emerged. This stream of literature led to the use of business based typologies in IS strategy thinking and approaches to assist in determining how IS might create competitive advantage and/or help avoid competitive disadvantage (Earl 1993, Ward 2012). Subsequently, the importance of SISP increased due to the pervasiveness of IS within organisations and the expectation that IS can lead to competitive advantage (Grover and Segars 2005). SISP is concerned with identifying a portfolio of computer based IS aimed at supporting an organisation's business plans, thus helping the organisation attain its business goals while making a competitive impact (Lederer and Sethi 1988, Earl 1993, Doherty, Marples et al. 1999). Karimi (1988:5) puts it succinctly when he states the overall purpose of SISP is to "*provide a systematic process for developing a long-range plan for information systems on the basis of the organisation's overall strategic plan"*.

This union between IS and business strategy is a central quest in IS strategy research (Galliers, Merali et al. 1994, Tanriverdi, Rai et al. 2010) giving rise to the theme of SA (Jarvenpaa and Ives 1990, Henderson and Venkatraman 1993, Petter, DeLone et al. 2012). With its emphasis on aligning IS with an organisation's objectives, SA is now a central theme for both research and practice alike (Segars and Grover 1999, Chen, Mocker et al. 2010, Kappelman, Nguyen et al. 2017), mainly because it can help lead to an increase in organisation performance (Chan and Huff 1992, Hatten and Hatten 1997, Merali, Papadopoulos et al. 2012, Briggs and Shingles 2015).

SA has been researched extensively since it first emerged as a theme within the IS domain in the mid-1980s. Since then, perspectives on SA evolved due to its complexity and the ever changing business environment it seeks to serve (Chan 2002, Merali, Papadopoulos et

al. 2012). Today's challenge is not to achieve SA only when plans are devised, rather it is to continuously align IS and business goals by periodically addressing all major aspects of IS planning (Salmela and Spil 2002, Vessey and Ward 2013).

4.2.2 Recognising the voice of practice.

Having established from the IS strategy literature that SA is of central importance in helping organisations achieve their goals, this section provides a brief review of the practitioner and consulting press to help ascertain the extent of that importance.

4.2.2.1 Practitioner views.

From my review of the literature, the first reference to SA as a top concern for IS executives was reported by Niederman, Brancheau et al. (1991) in their survey of institutional and board members of the Society for Information Management (SIM) in the USA. While SA did not feature as one of the top ten concerns, their forecast for the 1992 to 1994 period placed SA as the 7th top concern for IS executives.

In the intervening period a number of surveys were carried out involving institutional and board members of the SIM (Luftman and McLean 2004, Luftman 2005, Luftman, Kempaiah et al. 2006, Luftman and Kempaiah 2008, Luftman, Kempaiah et al. 2009, Luftman and Ben-Zvi 2010b, Luftman and Ben-Zvi 2011, Luftman and Derksen 2012a, Kappelman, McLean et al. 2013, Kappelman, McLean et al. 2014, Kappelman, McLean et al. 2016, Kappelman, Nguyen et al. 2017). Two common themes emanate from these studies. The first is that SA increases in importance as organisations endeavour to link dynamic business strategies and evolving technologies, as a means to support organisation change and increase organisation performance. The second is that there is a strong correlation between SA maturity and organisation performance.

A number of studies with a global, as distinct from a USA perspective, were also carried out (Watson, Kelly et al. 1997, Luftman and Ben-Zvi 2010a, Luftman and Derksen 2011, Luftman and Derksen 2012b, Luftman, Zadeh et al. 2013, Derksen and Luftman 2014, Chui and Henke 2017). These global studies add support to what stems from the USA based studies insofar that organisations seek mature levels of SA as a means to increase organisation performance.

4.2.2.2 Consultant views.

Within the consulting press, SA shows up as a perennial top management concern and in many cases, the CIO's time is spent on activities aimed at actively trying to improve SA across the organisation (Orlov, Cullen et al. 2006, IBM 2009, Briggs and Shingles 2015). In their surveys of CIOs working in major European and USA organisations, Computer Sciences Corporation (2011, 2012, 2014)) found the greatest challenge faced by CIOs was to constantly reinforce SA.

In her prescriptive piece, Cramm (2008) takes a trip into 2015 and finds that while SA matured and improved within many organisations, there is still a clear distinction between business work and IS work in the minds of business executives. Georgiou (2013) found that while CIOs consider strategy and planning as their highest priority, CEOs do not, reflecting a similar finding to Cramm (2008) in that CEOs do not see a major role for CIOs in business strategy and planning.

While business executives expect IS to support innovation and growth, this support cannot happen unless Boards of Directors (BOD) play a far more active role in deciding how SA can be achieved (McKinsey&Company 2011, Khan and Sikes 2014, Henke, Bughin et al. 2016). Each of these studies point to the importance SA plays in supporting organisations goals, while at the same time highlighting the need for a joint effort between business and IS executives in order to do so.

4.2.3 Conclusion.

Within the academic and practitioner literature, SA is shown to be a top concern for IS executives since the early 1990s. SA can improve strategic planning and help manage the dynamism associated with modern business strategies and evolving technologies, leading to improvement in organisation performance. Put succinctly, the literature demonstrates that SA provides the potential to provide organisations with the opportunity to gain efficiencies, achieve competitive advantage and increase profits.

4.3 Approach to reviewing the SA literature.

I undertook my review with three objectives in mind. First, my approach must facilitate a systematic review of the SA literature in a qualitative manner, second, it must provide the basis to review the SA literature through a SaP lens, and third, it must identify research gaps and opportunities for further enquiry (Okoli and Schabram 2010, Rowe 2012,

Schryen 2013). By achieving these three objectives, both individually and collectively, I develop a distinctive approach to reviewing the SA literature.

My review is systematic insofar that it follows a replicable and transparent process, while at the same time minimises bias as I undertake an exhaustive literature search (Tranfield, Denyer et al. 2003, Okoli and Schabram 2010). My review also contains elements of a qualitative systematic review in that it searches for concepts that are within and/or across individual studies and are synthesised through the application of a qualitative narrative synthesis i.e. constructivist grounded theory coding (Grant and Booth 2009). Therefore I offer a systematic review of the SA literature in a qualitative manner, an approach I did not come across from my reading of the SA literature to date.

My review makes four contributions. Firstly, it provides an analysis of the SA literature by means of a SaP lens, thus providing an understanding of how SA is enacted in practice. Secondly, it assists in identifying gaps in the literature and offers a basis to propose new research avenues for SA, thus providing clear direction for members of the academic community interested in undertaking such research. Thirdly, it enables practitioners to evaluate the current "state of play" within the SA domain and fourthly, it offers an abundance of material for education and development purposes.

4.3.1 The review process.

To guide my review, I developed a six stage process by adapting and amalgamating parts of Tranfield, Denyer et al.'s (2003) stages of a systematic review, Okoli and Schabram's (2010) systematic guide to literature review of IS research, and Wolfswinkel, Furtmueller et al.'s (2013) grounded theory literature review method. The six stages comprise (i) clarifying the purpose of the review; (ii) determining appropriate resources; (iii) performing a literature search; (iv) filtering and classifying the sample; (v) analysing the literature; and (vi) writing the review. This six stage process is outlined in Table 4.1.

Table 4.1 Six stage process for reviewing the SA literature

Number	Task
i	Purpose of review
ii	Determine appropriate resources
iii	Perform a literature search
iv	Filter the sample
v	Analyse the literature
vi	Write the review

Adapted from Tranfield, Denyer et al. (2003), Okoli and Schabram (2010) and Wolfswinkel, Furtmueller et al. (2013)

Stages (i) to (v) are now addressed in greater detail, with stage (vi) presented in section 4.4.

4.3.2 Clarifying the purpose of the review.

My research question sets out to explore how the alignment of business and IS strategies is practiced by IS managers in IIT. I therefore develop a rich perspective on the SA literature, by means of a SaP lens, to further define the research gap identified in chapter 1.

The SA literature suggests that SA results more from relationships between people than from any methodological analysis or business strategy (Tan and Gallupe 2006, Silvius 2007, Schlosser, Beimborn et al. 2015, Kahre, Hoffmann et al. 2017). This attention to the relationships between people points towards the need for practice-based studies at all levels (Motjolopane and Brown 2004, Schlosser, Wagner et al. 2012), rooted in our everyday experiences so as to aid our understanding of what practitioners do to help and/or hinder the achievement of SA (Ciborra 1997, Gast and Zanini 2012, Karpovsky and Galliers 2015). These calls for practice-based studies mirror the practice turn in the social sciences that started in the 1980s (Whittington 2006a, Wagner and Weitzel 2008), with the SaP perspective now firmly established within the strategic management literature (Jarzabkowski 2004, Chia and MacKay 2007, Paroutis, Loizos et al. 2016) and has also become part of the IS strategy research agenda, including SA (Hiekkanen, Helenius et al. 2013, Henfridsson and Lind 2014).

4.3.3 Determining appropriate resources.

The major contributions are to be found in leading journals (Webster and Watson 2002) and because IS in as interdisciplinary field and my review is focused on issues pertaining to SA, I extended my search to include journals from the strategic management domain.

To determine the leading journals I consulted the Association for Information Systems (AIS) website (2010) http://ais.site-ym.com/?AboutAIS as the organisation is "*the premier professional association for individuals and organisations who lead the research, teaching, practice, and study of information systems worldwide.*" The website contains a list of senior scholars' basket of journals consisting of eight journals which are; European Journal of Information Systems, Information Systems Journal, Information Systems Research, Journal of AIS, Journal of Information Technology, Journal of MIS, Journal of Strategic Information Systems, and MIS Quarterly. Having obtained this list I then compiled a selection of journals from the strategic management domain. I consulted the Association of Business Schools Academic Journal Quality Guide (Wood and Peel 2015) and selected three top grade (grade 4) journals, Academy of Management Review, Strategic Management Journal and British Journal of Management, two grade 3 journals, California Management Review and Harvard Business Review, and one grade 2 journal, European Management Journal. While not exhaustive, this selection did provide me with a range of journals representing the strategic management domain.

I then searched for an article that reviewed the SA literature among the senior scholars' basket of journals and found such an article by Chan and Reich (2007). The article includes an annotated bibliography from which I identified many of the journals noted above and others namely; IEEE Transactions on Engineering Management, IBM Systems Journal, Information and Management, Communications of the Association for Information Systems, Information Systems Management, Scandinavian Journal of Information Systems, and MIS Quarterly Executive.

I also located a number of conference websites with a reputation for quality, the main ones being International Conference on Information Systems, American Conference on Information Systems, and European Conference on Information Systems. Lesser known conferences included Australasian Conference on Information Systems, Pacific Asia Conference on Information Systems, European Mediterranean and Middle Eastern

Conference on Information Systems, UK Academy for Information Systems, and Hawaii International Conference on System Sciences.

I then located websites of consulting firms to obtain a number of consulting and practitioner papers.

4.3.4 Performing a literature search.

I scanned the table of contents for all journals listed above from 1983 to 2017, as 1983 was the first year I found any reference to SA within the literature. Likewise, I scanned the table of contents for all conference proceedings listed above from 1997 to 2017, as 1997 was the first year I found any reference to SA within conference proceedings. Using Google Scholar, I searched under the key words "strategic alignment" for the period 1983 to 2017 to capture articles I missed from my scanning exercises. As advocated by Webster and Watson (2002), I then applied the "go backward" technique by reviewing the citations of all articles found, followed by the "go forward" technique to identify articles that cited key articles identified in the previous steps . Finally, I searched the websites of consulting firms and obtained a number of consulting and practitioner papers. This process resulted in the identification of 346 articles.

4.3.5 Filtering and classifying the sample.

The first step involved filtering out doubles. Perhaps due to the manual nature of my search, only four doubles were included. The next step involved manually scanning abstracts and in some cases it was also necessary to delve further into the paper to obtain a better understanding of the paper's key features. The main aim of this step was to exclude articles that did not deal with SA as a core theme, but merely referred to SA as part of general coverage. In addition, other articles were identified that covered the same contributions by the same authors, in which case the most recent was kept and the others were discarded.

This process resulted in a total of 233 articles, all with a clear focus on SA. Of the 233 articles, 152 are journal articles, 52 are conference proceedings, 25 are consultant/practitioner papers while 4 are working papers. Of the 233 articles, 199 are empirical of which 131 are positivist and 68 are interpretive.

By far the most popular approach to enquiry within the literature is the survey. 105 of the of the articles take a survey approach, 67 take a case study approach and a further 7 take a mixed survey/case study approach. A total of 10 articles applied a grounded theory approach to enquiry, the first being in 2005. Model development is the primary approach to enquiry within 11 articles. Prescriptive and descriptive reports are the approaches applied in 18 and 1 articles respectively. A review of the SA literature is carried out in 13 articles while a lone article applies an action research approach.

114 articles include involvement from the USA. 65 are based solely in the USA while the remaining 49 are multinational studies that include the USA. 41 articles report on European based studies, while 12 are based in Australia and 8 in Canada. 38 articles obtain their data from a variety of countries around the globe while the remaining 20 do not identify the location of their studies. A major change commenced in 2000, whereby the location of SA studies began to include countries outside North America.

Of the 199 empirical articles, 98 are dedicated to the private sector alone. A total of 79 include a mixture of private organisations and PSOs while 22 concentrate solely on PSOs. It was not until the early 2000's that researchers started to include the public sector in their studies in any significant way.

A combination of business and IS executives form the main body of informants, accounting for 103 of the 233 articles. In many cases the authors of these articles argue that neither business executives alone nor IS executives alone can provide a balanced view of SA and that a joint perspective is required. Contrary to this view are 37 articles that seek the views of IS executives alone, with authors arguing only the IS executive can fully understand the technical aspects of SA. Another contrary view is put forward in 25 articles where the views of business executives alone are sought because authors believe the business view should determine direction, with IS following the business lead. In latter years a strong tendency emerged to include staff as well as executives, with the authors of 26 such articles arguing alignment is required at the tactical and operational levels of the organisation as well as the strategic level. 9 articles provide the views of the researchers and consultants. 33 articles did not provide any details on informants.

4.3.6 Analysing the literature.

In order to help present my review of the SA literature (section 4.4) and help identify research gaps within while at the same time establishing a future research agenda (section 4.5), I analysed the literature in accordance with the three pillars of my SaP lens. What follows is a succinct representation of my analysis.

4.3.6.1 Typology of twelve possible domains.

I developed a typology of nine possible domains based on how each of the 199 empirical articles conceptualise the practitioner and on how each explains the level of SA praxis. I deliberately excluded the 34 non-empirical articles because while it was possible to identify praxis, it was not possible to identify the level of praxis in such articles.

My typology is constructed in accordance with the rubrics set out by Jarzabkowski and Spee (2009). The practitioner(s) can either be internal to the organisation (e.g. permanent employees) or external (e.g. contractors brought into the organisation to undertake a specific task). Therefore, the four categories of actor within my typology are internal individual actors, internal aggregate actors, external individual actors and external aggregate actors. Praxis is an embedded concept that can be operationalised at any three levels. The first is micro, which is an individual actor's or aggregate actor's activity at sub-organisational level, such as chairing a departmental meeting. Second is meso, which is an individual actor's or aggregate actor's activity at the organisational level such as implementing a company-wide software package. Third is macro, which is an individual actor's or aggregate actor's activity at the institutional, market or industry level such as contributing to the design of a network infrastructure for the Institute of Technology (IoT) sector, on foot of a directive from the Higher Education Authority (HEA).

My typology enables an understanding where the SA field is well researched, not so well researched and not researched at all. What follows is an explanation of my typology (figure 4.1), as it applies to the SA literature.

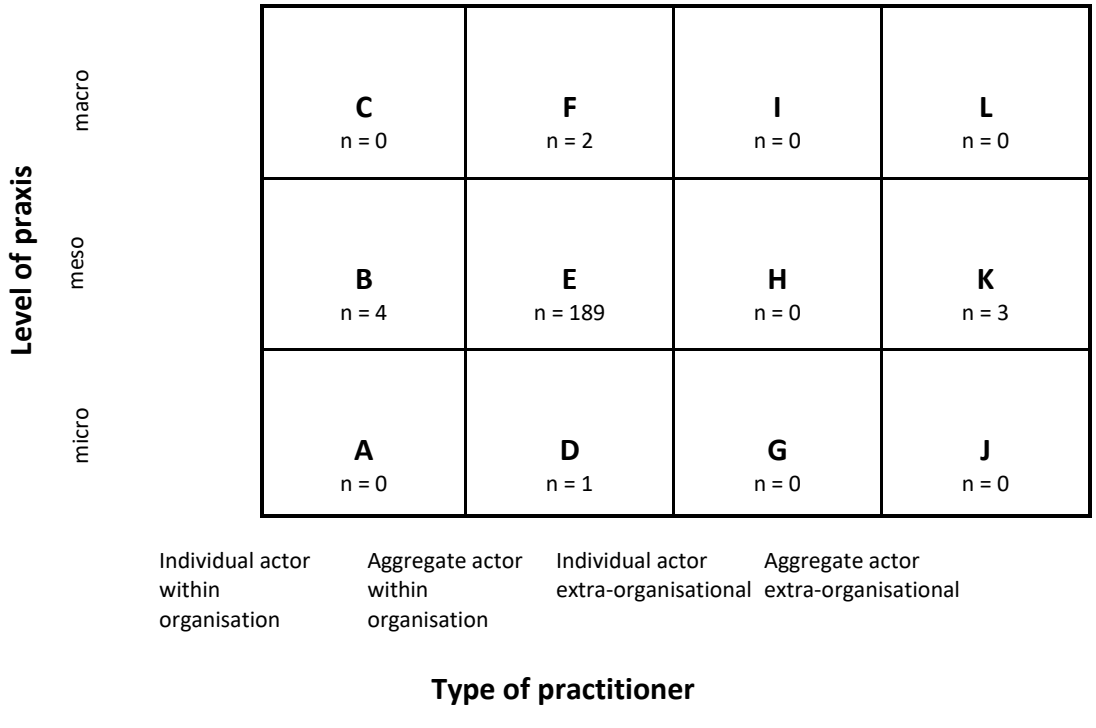


Figure 4.1 Typology of strategic alignment empirical literature by type of practitioner and level of praxis (adapted from Jarzabkowski and Spee 2009).

Domain A contains no studies, indicating I did not find any studies within the SA literature at the micro level of praxis where the practitioner is an individual actor from within the organisation.

Domain B contains a total of four studies that help explain an internal individual actor's activity at the meso level of praxis. One such study is that carried out by Preston & Karahanna (2009b) who investigate how the CIO develops a shared understanding with members of the TMT, so as to facilitate SA within the organisation.

Domain C contains no studies, showing I did not find any studies within the SA literature at the macro level of praxis where the practitioner is an individual actor from within the organisation.

Domain D contains one study. The study undertaken by Tallon (2008) concentrates on the activities undertaken by IS and business executives at the micro level, that contribute to SA.

Domain E is concerned with examining the activity of aggregate actors from within the organisation at the meso level of praxis. The SA literature is dominated by studies within this domain with a total of 189 out of 199. An example is the study undertaken by Wilson, Baptista et al. (2013) where the authors gain a deep understanding as to how the activities carried out by groups of stakeholders in relation to managing strategic IS projects, impact positively on an organisation's SA.

Domain F contains two studies. The study undertaken by Fedorowicz, Galinas et al. (2009) concentrates simultaneously on inter-organisational G2B (government to business) and G2G (government to government) initiatives undertaken by a variety of functional and senior managers.

Domains G, H and I contain no studies, showing I did not find any studies within the SA literature at the micro, meso or macro levels of praxis where the practitioner is an external individual actor.

Domain J contains no studies, showing I did not find any studies within the SA literature at the micro level of praxis where the practitioners are external aggregate actors.

Domain K contains three studies. One such study is that carried out by Wijnhoven, Spil et al. (2006) who found that creating an IS policy when merging three hospitals into one, depends highly on the political process including government pressure and the actions of hospital user associations.

Domain L contains no studies, reflecting I did not find any studies within the SA literature at the macro level of praxis where the practitioners are external aggregate actors.

4.3.6.2 Praxis within the SA literature.

While some authors take a chronological or author-centric approach towards organising their literature reviews, this can result in a summary rendition of the articles, devoid of a plot, which is exactly what I did not want to do (Bem 1995, Webster and Watson 2002). I therefore developed a classification scheme that is concept-centric. The concepts and the praxis identified therein, shaped how I organised my written review in section 4.4.

My classification scheme is based on categorising the research focus of the 199 empirical articles and the 34 non-empirical articles. I was able to include the 34 non-empirical articles because my focus was on praxis only and did not include the level of praxis.

The approach I took to building the classification scheme is based on the constructivist grounded theory coding method as espoused by Charmaz (2014), an approach that provides a rigorous method for reviewing literature (Wolfswinkel, Furtmueller et al. 2013). It is precisely this application of grounded theory that enabled me to develop a concept-centric review of the SA literature.

Initial codes were generated from analysis of each article's abstract, contribution, findings, and conclusions. This resulted in the identification of 78 initial codes (praxis). The next step involved developing focused codes. This step was carried out by selecting the most significant and frequent codes from the 78 initial codes. This work reduced the 78 initial codes to 19 focused codes, which represent the 19 concepts. Theoretical coding was then carried out on these 19 concepts, which involved specifying relationships between them and resulted in four top level topics. This gave rise to the classification framework shown in table 4.2.

Table 4.2 Classification of topics and concepts from the SA literature

Topics	**Concepts**
Factors that drive SA	Strategic planning, organisation performance, dynamic/static nature of SA, environmental factors.
Organisation context	Organisation structure, CIO position in the organisation, top issues for IS executives, multi business unit, process view of SA, post-mergers, all levels of the organisation.
Management issues	Enablers and impediments, models/measurement, relationship between IS governance and SA, sourcing and integrating various IS services, business analytics.
Human aspects	Shared understanding, social dimension, and education.

4.3.6.3 Practices within the SA literature.

From my review of the SA literature, I did not find a dominant view of practices. I therefore followed the approach taken by Schatzki (2006) and Jarzabkowski and Spee (2009) by identifying practices as bundles of interrelated routines. I identified four in total comprising; (i) SA formation practices, (ii) management practices, (iii) organisational practices, and (iv) group interaction practices.

4.3.7 Conclusion.

I have presented an approach to carry out a systematic qualitative review of the SA literature, via a six-stage process. This distinctive approach towards reviewing the SA literature permits an up to date understanding of the subject (section 4.4), and allows for the identification of gaps within current research and establishes a future SA research agenda (section 4.5). Suffice to say, the written review is distinctive and as part of a doctoral dissertation makes an original contribution (McDonagh 2014).

4.4 The written review.

Building on the stages of the literature review process outlined in the previous section, this section presents the product of stage six which is the written review itself. The first part of my written review provides a chronological perspective on SA as rendered in the literature, so as to clarify the meaning of SA. Various definitions are put forward and I settle on the interpretation put forward by Karpovsky and Galliers (2015). I then present my review of the SA literature from a praxis perspective, structured in accordance with the classification scheme in table 4.1.

4.4.1 Definition of SA.

SA continues to evolve since it first came to prominence in the mid-1980s. In many ways its evolution reflects the evolution of strategy within the strategic management and IS domains over the same period. Undoubtedly, SA's evolution contributes to its numerous and evolving definitions put forward in the literature (Gerow, Grover et al. 2016).

In the 1980s and 1990s a number of definitions were put forward. The notion of "fit" was observed by Venkatraman and Camillus (1984) to be a major theme in the literature on business strategy. Tavakolian (1989) found the way IS is structured is strongly related to competitive strategy thus supporting the idea of "organisational fit", while Chan (2002) focuses on the degree of "fit" between IS and the business. The term "co-ordination" was introduced by Lederer and Mendelow (1989) to explain that IS strategy is directly derived from business strategy. Henderson and Venkatraman (1993) introduced the term "balance" to signify that a balance between their four perspectives on SA (IS strategy, business strategy, organisational structures and processes, and IS infrastructure and processes) is required to achieve SA. Luftman, Lewis et al. (1993) are of the view that for SA to take place, the business and IS need to work in "harmony". Luftman and Brier (1999:109) add support to the notion of "harmony" as they conclude SA can be best achieved by applying

IS *"in an appropriate and timely way and in harmony with business strategies.*" Not unlike the notion of "harmony" Broadbent and Weill (1993) found successful alignment between business and IS strategies was evident where "congruence" was realised between various factors such as; on-going senior management responsibility for long term IS developments and business ownership of IS. Taking the idea of "congruence" a stage further, Ciborra (1997) likens SA to a bridge that links business and IS strategy. He argues that the bridge requires constant modification, to meet the ever changing needs of business and IS strategies. Reich and Benbasat (1996:55) use the term "linkage" to describe SA from the intellectual perspective which focuses on the tools of SA, and from the social perspective which focuses on the praxis of practitioners as they engage in SA (Karpovsky and Galliers 2015).

These definitions were built on in the 2000s. Palmer and Markus (2000) define SA as the "correlation" between an organisation's business strategy and IS strategy. Maes, Rijsenbrij et al. (2000:19) define SA as "*the continuous process, involving management and design sub-processes, of consciously and coherently inter-relating all components* of *the business-IS relationship"*. This definition differs from those preceding it insofar that it recognises SA a dynamic process not confined to the strategic level only. Benbya and McKelvey (2006) take a similar view in that they assert SA is not limited to the strategic level of the firm, but extends to include the operational and individual levels also, through the "co-evolution" of IS at all three levels. Gartlan and Shanks (2007) provide a definition of SA based on a synthesis of definitions they found within the literature. They conclude that at the core of successful SA, is a planned alliance between IS and business strategy that is measureable and business focused. The theme of planned alliance between business and IS strategies is also echoed by Chan and Reich (2007), Shpilberg, Berez et al. (2007) and Silvius (2007).

With all these various terms and definitions in the literature, it is difficult to determine what exactly SA is. Avison, Jones et al. (2004:225) note that although a clear and agreed definition for SA does not exist, in all cases, "*it concerns the integration of strategies relating to the business and IT/IS*" and this is a view fully supported within the nascent SA literature (Cumps, Martens et al. 2009, Al-Hatmi and Hales 2010, Leonard and Seddon 2012, Reynolds and Yetton 2015). As my research question places the focus on praxis carried out by IS managers in their efforts to align business and IS strategies, I move beyond (not replace) the definitions outlined above, and place the emphasis on SA praxis

(day-to-day activities) as distinct from SA process (abstract phases). In doing so, I avoid treating SA as a monolithic construct and embrace the view put forward by Karpovsky and Galliers (2015:3) whereby the practice of SA is *"all activities that may contribute to tightening links between IS and business across an organisation"*.

4.4.2 Review of the SA literature – a praxis perspective.

Following the structure of the classification scheme in table 4.2, I now present my review of the SA literature in four main sections that mirror the four topics in table 4.2. Each main section is further sub-divided into the concepts in table 4.2, hence providing a praxis perspective.

4.4.2.1 Factors that drive SA.

Numerous factors drive SA, none more so than strategic planning (Pyburn 1983, Earl 1993, Kearns and Sabherwal 2007, Khan and Sikes 2014). With the union between IS and business strategy becoming a central quest in IS strategy research, it is not surprising they both share common drivers (Henderson and Sifinos 1988, Simonsen 1999, Smaczny 2001, Silvius 2009). The literature demonstrates that SA can impact both positively and negatively on organisation performance (Sabherwal and Kirs 1994, Benbya and McKelvey 2006, Mithas and Rust 2016). The literature also reports that in the dynamic organisational environment of today, flexibility and the ability to learn and adapt, are major factors in an organisation's ability to achieve SA (Burn 1996, Baker, Cao et al. 2009, Wilson, Baptista et al. 2013). Finally, other factors that drive SA are environmental factors and although many of them may be outside the control of the organisation, their influence on SA is controlled by the actions of top management (Choe 2003, Denford and Chan 2009).

Strategic planning.

For successful IS planning to take place, the head of IS must play an active role as a general manager and initiate discussion (Pyburn 1983). To help ensure SA is addressed, the head of IS must participate in business planning while business managers must participate in IS planning (Kearns and Sabherwal 2007). This pro-active integration between practitioners of business and IS planning is significant because it positively influences IS contributions to the organisation (Teo and King 1996). To facilitate these actions taking place, the CEO must support such action personally or do so through the appointment of a champion (King and Teo 1994, Huang and Hu 2007). Even when a high linkage exists between an organisation's business and IS plans, quite often the full

potential of IS is not realised because the promised resources to implement IS are not provided (Lederer and Sethi 1988, Earl 1993, Baets 1996, Khan and Sikes 2014). These studies from the literature demonstrate the need to find more effective means for IS planning, and the need to link IS and business plans together through consensus, if integration of strategies relating to the business and IS is to be achieved.

To help achieve SA, Simonsen (1999) and Peak, Guynes et al. (2005) advocate starting alignment early in the IS development process, which is akin to the pro-active approach put forward by Teo and King (1996) and the partnership approach put forward by Kearns and Sabherwal (2007). Smaczny (2001) argues that sequential development between business and IS plans does not produce IS that are aligned with business strategies. He suggests that business and IS strategies be developed and implemented simultaneously, if competitive advantage is to be achieved, a view supported by Prahalad and Krishnan (2002), Weiss and Anderson(2004) and Gutierrez, Orozco et al. (2009). Whether an iterative or a structured approach is taken towards IS planning, SA can be best achieved by pursuing a strategic planning process that includes planning at the strategic, tactical, and operational levels of the organisation (Henderson and Sifinos 1988, Motjolopane and Brown 2004, Silvius 2009).

Although the literature suggests it may well be desirable to jointly develop business and IS strategy, this suggestion does not reflect what is taking place in practice. Avison, Jones et al. (2004) found IS strategy remains separate from, but supported by business strategy, at the strategic, tactical and operational levels.

Organisation performance.

Numerous studies since 1994 across industry sector and location, found a wide range of positive effects from the relationship between SA and organisation performance. Such studies include Sabherwal and Kirs (1994), King, Cragg et al. (2000), Croteau, Solomon et al. (2001), Byrd, Lewis et al. (2006), Velcu (2010), Gartner (2012a) and Mithas and Rust (2016). These effects do not transpire by accident, as their genesis is in strategic decisions taken by an organisation's top management (Kefi and Kalika 2005, Benbya and McKelvey 2006). Cumps, Viaene et al. (2006) found SA impacts positively on business performance and effectiveness, and because each organisation's SA is different, it can be applied to build a sustainable competitive advantage by cultivating a unique and inimitable organisational capability, a finding supported by Chan, Sabherwal et al. (2006) and

Schwarz, Kalika et al. (2010). This inimitable capability can be enhanced by an organisation's ability to become more agile in responding to opportunities and threats, which in turn influences SA's effect on an organisation's performance (Tallon and Pinsonneault 2011, Sabherwal and Jeyaraj 2015). Gartner (2010) found a modern business imperative is to demonstrate a clear linkage between IS investments and business results. Such a linkage requires IS departments to reach out and align themselves with the businesses they serve. This is at a time when both strategic and tactical issues relating to IS are moving out from under IS departmental control and out into the business itself (Gartner 2011, Gartner 2012b).

Contrary findings are put forward by Palmer and Markus (2000) who found no linkage between SA and firm performance, but unfortunately they do not offer a plausible explanation for this finding. Bergeron, Raymond et al. (2004) argue that using SA to explain organisation performance is valid, but only when an organisation achieves a minimum threshold of business strategy, business structure, IS strategy and IS structure.

The results of these studies clearly demonstrate, that for SA to result in increased organisation performance, many factors need to be taken into consideration and acted upon depending on the organisation, its external environment, and the strategic direction it wishes to pursue.

Dynamic/static nature of SA.

Sabherwal, Hirschheim et al. (2001) found SA evolves over time punctuated by transitions that lead to different patterns of SA. Each pattern can continue over a long period either because the level of SA is high or, worryingly, the organisation's management does not realise how low the level of SA is and therefore see no reason to intervene. Suggesting a way to overcome management's lack of realisation, Baker and Jones (2008) argue that an organisation requires the ability to develop an on-going SA competency in order to maintain SA over time. Chen, Sun et al. (2008) agree with this view in that they found it important for an organisation to develop dynamic capabilities that are critical for the creation and strengthening of IS resources to help achieve SA. Building further on this theme Baker, Cao et al. (2009) and Baker, Jones et al. (2011) conclude that if an organisation develops a dynamic competency to maintain SA over time, the organisation then possesses a source of competitive advantage that is inimitable and cannot be substituted, therefore providing an enduring capability difficult for competitors to replicate.

Burn (1996) and Wilson, Baptista et al. (2013) found SA to be dynamic rather than static. They conclude the dynamic nature of SA requires IS and business strategies to continuously swap roles between leader and laggard so as to maintain a high degree of SA. In a similar vein, Sha, Cheng et al. (2011) suggest SA can be achieved by executing IS strategy implementation and business driven strategy implementation consecutively, in separate time periods. Rondinelli, Rosen et al. (2001) found SA to be a chaotic and continuous process, full of complexities, requiring strong leadership and buy-in from many stakeholders.

The literature clearly shows SA is not an end state, but rather evolves over time while underpinned by complexity and chaos. The problem is compounded by the dynamic nature of both the business and technology environments. This requires any organisation that seeks SA, to possess a dynamic competency within its management capabilities to compete successfully in the long term.

Environmental factors.

From a study carried out over a five month period involving Korean businesses, Choe (2003) concludes that efforts to facilitate high degrees of SA increase in an uncertain and competitive environment. Yayla and Hu (2009) found the positive effect of SA is significant only in environments with high uncertainty, whereas when the environment possesses low uncertainty, SA does not significantly influence measures of organisational performance. Denford and Chan (2009) found the common difference between high and low performing organisations was whether SA was appropriate or not to the organisations' environmental factors. The findings from these studies suggest the influence exerted by the external environment can effect an organisation's SA, and top management must play an active role in formulating SA, to take advantage of the opportunities presented.

4.4.2.2 Organisation context.

Within the topic of organisation context I identified seven concepts. The concept of "Top issues for IS executives" has been dealt with comprehensively in section 3.2 and therefore does not feature in this section. Suffice to note that since the early 1990s, IS executives consider SA as a top issue (Niederman, Brancheau et al. 1991, Luftman and McLean 2004, Luftman and Derksen 2011, Chui and Henke 2017). To avail of opportunities presented by the forever changing environment in which they operate, organisations require to

constantly appraise the suitability of their structure. Such suitability includes flexibility in IS structures to help with the achievement of SA (Raymond, Paré et al. 1995, Chan 2002). The CIO can influence how the CEO and other top executives perceive IS. This influence is at its greatest when the CIO plays an equal part with other top executives in the strategic planning process (Rockart, Earl et al. 1996, Enns and McDonagh 2008, Briggs and Shingles 2015). Critical to the success of multi business unit organisations is the ability to implement SA within each unit and across the units. If such an organisation fails in this task, then major misalignment between the overall organisation's strategy and IS strategy could take place, with a resulting loss in efficiencies and competitive advantage (Ives, Jarvenpaa et al. 1993, Grant 2003, Reynolds and Yetton 2015). The process view is concerned with concentrating more on how IS can support individual processes rather than an organisation's strategy, so as to achieve SA (Chan and Reich 2007, Tallon, Queiroz et al. 2016). In considering organisation mergers and the issues presented from a SA perspective, the issues are of a political/power relations nature. These issues surface after the merger takes place, because SA is not considered a major issue while the organisation is undergoing the merger (Wijnhoven, Spil et al. 2006, Baker and Niederman 2014). All organisations carry out tasks at strategic, tactical, and operational levels, with a view to achieving among other things, the organisation's strategic goals, which in turn can be greatly supported by SA (Benbya and McKelvey 2006, Schlosser, Wagner et al. 2012).

Organisation structure.

From their study of the design of organisation structures, Brown and Magill (1994) found that in general, changes are made to IS structures so the responsibilities of the IS organisation can be better aligned with the characteristics of the overall organisation. Raymond, Paré et al. (1995) found that IS sophistication is positively related to organisational structure sophistication. Chan (2002) found that informal organisation structure plays an important role in improving IS performance and may well prove to be the most enduring aspect of SA. Perhaps this is because an informal structure can be implemented in an impromptu manner, therefore facilitating SA a great deal faster than formal structures.

CIO position in the organisation.

The literature demonstrates that the CIO's influence on the knowledge and thinking of the CEO and other members of the TMT, strongly influences the implementation of SA (Rockart, Earl et al. 1996, Chowa 2010, Schobel and Denford 2013). This influence is best

exerted by the CIO playing an equal part as each member of the TMT in strategic planning and implementation. This does not require the CIO to become a bona fide member of the TMT, although by becoming such, provides a formal structure for the CIO to share IS knowledge with them and influence their thinking (Rockart, Earl et al. 1996, Enns and McDonagh 2008, Briggs and Shingles 2015).

Multi business unit.

Alignment of worldwide IS with integrated global business strategies was found by Ives, Jarvenpaa et al. (1993) to be critical to the success of multinational firms. Despite this finding, when Jarvenpaa and Ives (1993) examined the fit between IS and global business structures, they found in half the organisations they surveyed, the way IS activities are structured is inconsistent with the way the organisation is reportedly structured. The primary reason is because business strategies are developed within individual strategic business units that are not always congruent with business strategies developed at the corporate level (Reynolds and Yetton 2015). Grant (2003) contends that this can lead to IS investment being driven by functional level interests. These interests include a resistance to implement an organisation wide IS, resulting in major misalignment between overall organisational strategy and IS (Fonstad and Subrami 2009).

Process view of SA.

By focusing on SA at the process level, concentration is solely on those processes that contribute towards providing the organisation with the required level of SA (Chan and Reich 2007, Tallon 2008). However, because such a focus often concentrates on IS support (rather than development) of business strategy, it can fail to account for how IS can enable the development of new business strategies (Tallon, Queiroz et al. 2016). To help overcome this limitation, Heath and Singh (2011) developed an analytical framework to assess misalignment from an organisational view of business processes. To date, I have not found any studies within which the framework has been tested.

Post-mergers.

Wijnhoven, Spil et al. (2006) found that while software and hardware are easily integrated, it is not so easy to integrate IS policies and organisation procedures after a merger, because they require a process of socialisation. They conclude the type of integration strategy to adopt depends largely on the political process and the power relations between the merging parties. Mehta and Hirschheim (2007) found that SA was a minor concern for newly

merged organisations and only late in the post-merger process did the merged organisations consider integrating their business and IS strategies. While this may indicate that SA may not be achieved, Baker and Niederman (2014) found that SA can be achieved through the emergent perspective on strategy.

All levels of the organisation.

Levy, Powell et al. (2001) draw a clear distinction between strategic IS and support IS such as e-mail. While strategic IS should be aligned with the strategic context of the business, e-mail should not. That is not to say that strategic IS are the only IS concerned with SA, a viewpoint that may well indicate why numerous studies highlight wasted investment in IS and deployment of IS, irrelevant to the business (Tarafdar and Qrunfleh 2010). Benbya and McKelvey (2006) take the view that the occurrence of SA is not limited to the strategic level of the organisation only and extends to include the operational and tactical levels also, a view supported by Tarafdar and Qrunfleh (2009) and Walentowitz, Beimborn et al. (2010). To this end Gutierrez and Serrano (2008) developed a SA assessment instrument to assist with the sharing of knowledge needed to attain SA between participants at the operational, tactical, and strategic levels of the organisation. Acknowledging the dynamic nature of SA and the dominance within the literature on high level measures of SA, McLaren, Head et al. (2011), Gutierrez and Lycett (2011) and Schlosser, Wagner et al. (2012) all call for an approach to measure SA at both an overall (strategic) and detailed (tactical and operational) level.

4.4.2.3 Management issues.

The literature illustrates that most enablers of SA are presented as social and most impediments are presented as intellectual (Broadbent and Weill 1993, Silvius 2007, Bush, Lederer et al. 2009). Therefore, great scope remains to carry out research into enablers that are intellectual and the impediments that are social. Approximately 25% of the literature is devoted to models/measurement methods for SA, most of whose roots are in the strategic alignment model (SAM) developed by Henderson and Venkatraman (1993). SAM is prescriptive in nature and was developed at a time when both technological and organisational environments were a lot simpler and more stable than the digital, networked and complex environments that exists today (Hiekkanen, Helenius et al. 2013). New models have been developed since, to take account of the ever evolving business and IS domains (Luftman 2000, Kalika and Walsh 2010, Wang, Xue et al. 2011). Although the relationship between IS governance and SA receives little attention in the SA literature,

possibly because a separate set of literature exists that deals with the topic of IS governance, the SA literature demonstrates that good IS governance can impact positively on SA (Shpilberg, Berez et al. 2007, Ping-Ju Wu, Straub et al. 2015). Achieving SA is the responsibility of an organisation's senior management, who must possess the knowledge and skill required to successfully integrate the various components (from wherever they are sourced) that make up a modern IS infrastructure, if SA is to be attained (Dutta 1996, Chung, Rainer Jr et al. 2003, Mikko 2011). Business analytics is concerned with the extensive use of data to guide decision making. It therefore has the potential to create value and provide a competitive advantage (Shanks, Bekmamedova et al. 2012, Henke, Bughin et al. 2016).

Enablers and impediments.

Within organisations, activities take place that can either assist or hinder the attainment of SA. In the main, the literature refers to these activities as enablers and inhibitors. Early studies found that effective SA took place, in particular, when top management were committed to the strategic use of IS, when purposeful communication of strategy took place within functional areas, and when programmes were in place aimed at improving the business understanding of IS staff and IS understanding of business managers (Broadbent and Weill 1993, Luftman and Brier 1999, Luftman, Papp et al. 1999, Teo and Ang 1999, Burn and Szeto 2000, Hirschheim and Sabherwal 2001). Likewise, these studies found effective SA was absent when the aforementioned practices did not take place. Silvius (2007) concludes that SA appears to result more from the relationship between business and IS executives (i.e. social) than it does from any methodological analysis or business strategy (i.e. intellectual). Gartlan and Shanks (2007) found that from the three categories of people, process, and organisational, people issues were the most important. Not unlike Gartlan and Shanks (2007), the studies carried out by Bush, Lederer et al. (2009) and Burns, Neutens et al. (2009) found organisation complexity to be an impediment to SA and organisation culture (particularly a culture of learning) an enabler of SA.

Models/measurement.

Within the literature the concept of models/measurement can be broken into four main areas. The development of new models, adaptation of models, application of models, and criticisms of models. With a total of 58 articles devoted to the concept of models/measurement, I provide a selection from the literature.

The principal SA models include the following. Henderson and Venkatraman (1993) developed the strategic alignment framework (SAM) as a tool to help managers understand the potential of IS for their organisations. In their paper, they illustrate the usefulness of SAM in terms of strategic fit (interrelationships between internal and external components) and functional integration (integration between business and functional domains). Burn (1993) developed a framework called the organisational cultural audit (OCA) to examine the relationships between organisational behaviour and strategy formulation process, that can help in the management of organisational change and in identifying the most suitable IS strategy formulation approaches. Luftman (2000) developed the strategic alignment maturity assessment model (SAMM) which can be used to measure an organisation's SA maturity level and can provide a roadmap to identify opportunities for enhancing SA. Kalika and Walsh (2010) developed a model called the Translated Strategic Alignment Model (TSAM) aimed at having practical meaning by including the views of practitioners, views which up to now were excluded from SA models. Interesting to note the authors claim their model of SA emerges from the praxis of organisations.

Many of the SA models are adapted by researchers to help investigate SA in alternative ways. Adapting the survey instrument developed by Venkatraman (1989), Chan, Huff et al. (1997) built a conceptual model they term "strategic orientation of the existing portfolio of information systems applications" (STROEPIS), to help illustrate proposed links between SA and performance. Maes, Rijsenbrij et al. (2000) unify two frameworks (one being an elaboration of SAM) to help transform the concept of SA into a practical method. They are of the view that the resulting framework is a valid starting point for deeper investigation of SA, as it helps to pay clear attention to human factors. Ekstedt, Jonnson et al. (2005) build on Luftman's SAMM to address the lack of practical application and theory associated with SA. Campbell and Peppard (2009) contend that a complete model of SA does not exist, but what does exist are partial models of individual aspects of SA. They adapted a co-evolutionary approach to construct a causal-loop model of the process of SA from empirical data. The model highlights the complexities of SA in practice.

To test their validity as well as measure an organisation's level of SA, SA models were applied in various settings. Avison, Jones et al. (2004) report on the use of SAM in an Australian financial services firm. They conclude that SAM not only possesses a conceptual value, but also a practical value, in that it helps management to assess current SA levels and amend as required. Using SAM, Hsu, Hu et al. (2006) analysed Taiwanese

government agencies SA choices, the outcomes, and performance associated with that alignment. They found different alignment choices among the various agencies lead to different outcomes and performances. Sledgianowski and Luftman (2005) describe the use of SAMM in helping to promote long term SA and provide empirical evidence to support using the model. Basir (2006) examines the interoperability of SAMM in the context of Malaysian public institutes of higher learning (MPIHL). He concludes SAMM is valid for such a purpose and applicable in a non-profit context such as (MPIHL). By applying SAMM to eleven domestic companies in China and eleven multinationals operating in China, Chen (2010) found a significant difference in the level of SA between the two types of organisations. Multinationals were found to possess a higher level of SA than the domestic companies, mainly due to the management culture within the organisations. Wang, Xue et al. (2011) applied SAMM to measure the level of SA in two Chinese firms and found government support along with social culture preferences, contribute to changes in the maturity levels of SA.

Ciborra (1997:100) is of the view that research into SA is not based on real life within organisations, but rather a good example of how researchers and practitioners can fall into the trap of worshiping what he terms "*simplified models*" with short life cycles. He claims the models/measurement methods put forward in the literature do not exhibit practical relevance, because they are far too mechanistic to be of any worth to organisations operating in the dynamic world of IS and strategy. Not unlike the criticisms of Ciborra (1997), Smaczny (2001) and Renaud, Walsh et al. (2016) argue SAM comprises a largely mechanistic view of organisations and is disconnected from organisational reality and practices. Leonard (2008) and Gerow, Thatcher et al. (2015) echo the views of Ciborra (1997) and Smaczny (2001) insofar that they conclude SA models could be greatly strengthened by considering the modern organisation and technology environment, rather than reflecting the mechanistic view alone, and in so doing, could improve their SA (Luftman, Lyytinen et al. 2017).

Relationship between IS governance and SA.

From their global study, Shpilberg, Berez et al. (2007) conclude that a combination of high IS effectiveness and high SA, underpinned by sound IS governance, is what a company should strive for, because aligning ineffective IS with an otherwise effective business will not help achieve SA. DeHaes and VanGrembergen (2008) and DeHaes and VanGrembergen (2009b) found a clear relationship between the use of IS governance

practices and SA. While exploring further the positive relationship between IS governance practices and SA, DeHaes and VanGrembergen (2009a) found a high degree of SA is likely to happen in organisations that leverage a combination of IS governance practices, whereas organisations that fail to leverage such practices end up with a low level of SA. Providing support to these findings, the same correlation between IS governance practices and SA were uncovered by the studies undertaken by Xie, Wang et al. (2013) and Ping-Ju Wu, Straub et al. (2015).

Sourcing and integrating various IS services.

In a comparative study showing how two banks pursued SA, Dutta (1996) chose one bank that manages its IS in-house and another bank that outsources its IS. He found regardless of the approach taken, each bank's management is responsible for managing SA and it is not possible to outsource the management of SA without handing over part-management control of the business to the outsourcing vendor. Chung, Rainer Jr. et al. (2003) found the internal management of SA, which includes practitioners with the ability to connect the various services together, to be of crucial importance to SA. Mikko (2011) concludes from his study of Finland's 500 largest companies, that by outsourcing the less strategic IS transactions, outsourcing enables the IS practitioners focus more on improving SA. In his descriptive report on enterprise-wide computing in the manufacturing industry, Ndede-Amadi (2004) concludes that IS are reaching outside organisational boundaries and now embrace external stakeholders including customers and suppliers. He found this trend within the manufacturing industry resulted in a quantum leap in SA driven largely by the integration in IS as evidenced by ERP II. In their study of over 3,000 government agencies in Taiwan, Hsu, Hu et al. (2006) found SA between each agency's business strategy and the National Archives Association (NAA) technology strategy is essential from a group wide perspective and they also found different alignment choices between agencies resulted in various outcomes. Agencies that chose to outsource application development possess fewer problems than agencies that adopted the NAA's application for their use, or agencies that developed their own application. While these approaches may point towards an applications development issue, it is interesting to note agencies that chose the outsourcing route were far more satisfied with the assistance and services provided by NAA, possibly suggesting that their ability to integrate various services was superior to the agencies that did not take the outsourcing route.

Business analytics.

The concept of business analytics first entered the SA literature via the study undertaken by Shanks, Bekmamedova et al. (2012). The authors explore how business analytics enable SA in an international mining company and conclude that business analytics played an important strategic role in bringing about SA. In their report on the global application of business analytics, (Henke, Bughin et al. 2016) state that organisations with the ability to harness business analytics as a means to achieve SA, will create significant value and be able to differentiate themselves from competitors.

4.4.2.4 Human aspects.

Where a shared understanding exists between an organisation's business and IS executives, SA is strong (Tan 1999, Khandelwal 2001, Karahanna and Preston 2013). If this shared understanding diminishes in any way, be it at an executive level or among managers further down the line, SA will weaken (Kearns and Lederer 2003, Benlian and Haffke 2016). To date, the main focus of research into SA is on the intellectual dimension while the social dimension remains somewhat neglected in comparison (Ciborra 1997, Renaud and Walsh 2010, Marabelli and Galliers 2017). No matter what level of the organisation a person works at, their influence on SA can only be enhanced if they are educated in matters pertaining to the subject (Rockart, Earl et al. 1996, Preston and Karahanna 2009a).

Shared understanding.

Hartung, Reich et al. (2000) and Wagner (2014) found evidence that the IS function's understanding of the business is a factor that improves SA, while a lack of understanding impedes SA. Enns, Murray et al. (1997) and Ravishankar, Pan et al. (2011) do not fully agree with this finding and argue that to achieve enhanced SA it is not sufficient to possess a shared understanding of goals and objectives only, it is also necessary to hold a shared understanding about the IS implementation process. They argue this shared understanding includes technical aspects that are often considered to be outside the domain knowledge of the business executive, such as a shared understanding that can lead to a blueprint for an IS infrastructure .

In a study exploring SA from a cognitive perspective, Tan (1999) concludes that an important aspect of the relationship between business and IS executives is a shared understanding of SA. Building on this work Tan and Gallupe (2006) found a higher level of cognitive commonality between business and IS executives positively effects SA.

Distinguishing between the alignment of the information systems plan (ISP) with the business plan (BP) and the alignment of the BP with the ISP, Kearns and Lededrer (2000) found business and IS executives shared an understanding of the role of ISP aligning with BP in creating competitive advantage from IS investments. However, a shared understanding of the role of BP aligning with ISP was absent, indicating a lack of reciprocal and equal participation.

In a study of misalignment between the management skillset of Australian CEOs and IS managers, Khandelwal (2001) found that to achieve on-going SA, CEOs need to possess management level understanding of IS and IS managers need to possess a business oriented perspective. Of course, CEOs cannot be coerced into attaining management level understanding of IS, they need to commit to doing so, a commitment that Hussin, King et al. (2002), Kearns and Lederer (2003) and Benlian and Haffke (2016) found to positively impact SA. In examining how a shared understanding between the CIO and the TMT influences SA, Preston and Karahana (2005) and Karahanna and Preston (2013) found that such an understanding positively influences the development of SA. They also found that a shared understanding is promoted if the CIO speaks the language of the business and not that of IS. In three further studies, again concentrating on a shared understanding between the CIO and TMT, Preston and Karahana (2009b), Johnson and Lederer (2010) and IBM (2012) conclude a shared vision between the CIO and the TMT is essential for achieving and sustaining SA.

Campbell (2005, 2007) and Campbell and Peppard (2009) found that regardless of calls within the literature for a shared understanding between business and IS executives, such an aspiration can be difficult to achieve. They found that rather than developing a shared understanding, what often occurs in organisations with major differences between espoused strategies and strategies in use, is that IS managers tend to retreat from a strategic viewpoint to one of concentrating on technological solutions. However, if a collaborative response between business and IS managers is adopted, then SA is driven by business goals.

Social dimension.

Focusing on the linkage between IS and business executives, Reich and Benbasat (1996:58) define the social dimension of SA as "*the level of mutual understanding of and commitment to the business and IS mission, objectives, and plans"*. In a later study into

the social dimension of SA, Reich and Benbasat (2000) found that only shared domain knowledge between IS and business executives impacts SA in the long term. Ghosh and Scott (2009) also place a strong emphasis on shared domain knowledge, but only as a means to foster relationship alignment. They found from their investigation into relationship alignment in offshore outsourcing, improvements in shared knowledge between client and vendor staff helped close the knowledge gaps that impede relationship alignment, resulting in improvements to SA. Adding support to this finding, Campbell, Kay et al. (2005) and Dulipovici and Robey (2013) found social issues of trust play an important role in achieving SA.

Renaud and Walsh (2010) argue the majority of SA literature neglects the social dimension, a dimension they see as essential for practitioners. Schlosser, Beimborn et al. (2015) support this view in that SA needs to be constructed not from an intellectual perspective alone, but also from a managerial and stakeholder perspective. SA is equally critical at the strategic, tactical and operational levels (Gast and Zanini 2012) and to help us better understand SA at each of these levels, we require a great deal more research into the social dimension of SA at each of these levels (Schlosser 2012, Marabelli and Galliers 2017). These views complement Ciborra's (1997) call for a research approach to SA rooted in our everyday experiences that include both the formal and informal roles of practitioners (Hiekkanen, Helenius et al. 2013). Indeed, Ciborra (1997) places an emphasis on practice and argues that toying and inventiveness are more likely to result in increased SA, than are formal planning methods.

Education.

The study undertaken by Preston and Karahana (2009a) is the only article I found with "education" as its main concept. The authors found that by orchestrating educational events, the CIO can be the catalyst for enhancing top management's strategic IS knowledge. Similarly, other studies that comment on educational needs, concentrate solely at senior management level (Rockart, Earl et al. 1996, Khandelwal 2001, Preston and Karahanna 2005, Kearns and Sabherwal 2007). This concentration at senior management level is not surprising given that research into SA beyond the strategic level, is insufficient to date.

4.4.3 Reflections on the literature.

The above praxis evaluation of the literature, combined with my SaP typology (figure 4.1) and practices identified in section 4.3.6.3, enabled me to accomplish my first and second objectives laid out in section 4.3. I have therefore undertaken a systematic review of the SA literature in a qualitative manner, through the application of a SaP lens.

The main focus of attention within the literature is on the intellectual dimension of SA and within this focus a strong emphasis exists on measuring organisation level SA in the pursuit of increased organisation performance. Indeed, such a focus can also be found within other streams of IS literature, most notably, SISP.

With approximately 25% of the literature devoted to models/measurement that provide a mechanistic view, as distinct from practical relevance, these studies provide little value in aiding our understanding of issues that are social as distinct from intellectual. Likewise, the survey based studies that recognise the voice of practice, limit the views expressed to those that are supplied within the survey, most of which are also intellectual. As a result, the social dimension of SA is somewhat neglected in comparison to the intellectual dimension, within the literature.

Throughout the literature a pronounced importance is placed on the praxis of the aggregate actor within the organisation at integrating strategies relating to the business and IS, at the meso level only. Such an emphasis at the meso level may well be due to the prominence placed on SA helping to increase organisation performance. This prominence is reflected in my SaP typology (figure 4.1) whereby 189 of the 199 articles concentrate on the praxis of the aggregate actor within the organisation, at the meso level.

The full potential of IS is often not realised because what is written in strategic plans can differ greatly to what is implemented in practice. This difference is a consequence that regularly results from an absence of the promised resources to implement IS. The literature suggests that SA results more from relationships between people than from any methodological analysis or business strategy. This indicates, that what we need, are practice-based studies at all levels, rooted in our everyday experiences, to aid our understanding of what practitioners do to help and/or hinder the achievement of SA.

4.5 Gaps in the SA literature and recommendations for further enquiry.

To achieve my third objective as laid out in section 4.3, I identify gaps in SA research and I propose 16 avenues for further research. To identify gaps, I availed of the findings generated from:

1) my typology of SA empirical literature;
2) my filtering of the SA literature; and,
3) my praxis perspective review of the SA literature, grouped within the four practices identified.

4.5.1 Gaps identified from typology of SA empirical literature.

Referring to figure 4.1, empirically, the SA field is dominated by studies in domain E. This dominance signifies research in the SA field continues to be primarily focused on how aggregate actors engage in practices relating to SA at the meso level. This mirrors the focus of academic research within the IS strategy field, but differs from the focus of practitioner IS strategy research which includes research at the macro level (Schlosser, Wagner et al. 2012, Teubner 2013). The paucity of research focusing on extra-organisational actors (both individual and aggregate) is very surprising given the plethora of consulting houses and individual consultants that are engaged in consulting on strategy related matters. Equally surprising is the dearth of research focusing on the individual actor within an organisation, if for no other reason than to help establish how such actors engage in helping to attain SA.

I only found one study concentrated at the micro level of praxis which is concerned with the micro activities carried out during daily strategy practice (Johnson, Melin et al. 2003). Research at this level is called for within the SA literature (Ciborra 1997, Gast and Zanini 2012, Schlosser 2012) but as yet, remains in an embryonic state. At the macro level of praxis a total of two studies were unearthed, which once again is surprising given that research into SA at this level could greatly contribute to our understanding of SA (Schlosser, Wagner et al. 2012). These gaps, at both actor and the level of praxis, provide considerable fertile ground for future SA research.

4.5.2 Gaps identified from filtering the SA literature.

My filtering of the SA literature resulted in the identification of two main gaps. The first, is the need to include the views of practitioners from all levels of the organisation and not the views of executives alone. The second, is the dearth of studies into PSOs.

4.5.3 Gaps identified from praxis perspective review of SA literature, grouped within four practices.

My praxis perspective review of the SA literature identified a number of research gaps within each of the four practices identified in section 4.3.6.3. While it may be desirable to jointly develop business and IS strategy, within **SA formation practices**, there is a need to explore what actually takes place. This need includes exploring the roles carried out by various practitioners in aligning business and IS strategies (Tan 1999, Kearns and Lederer 2000, Ravishankar, Pan et al. 2011, Benlian and Haffke 2016), the influence the practitioner possesses depending on his/her position in the organisation (Rockart, Earl et al. 1996, Chowa 2010, Schobel and Denford 2013), and the impact of environmental factors on SA (Choe 2003, Yayla and Hu 2009).

Most of the gaps I identified are within **management practices.** The development, adaptation, and application of models for the purpose of measuring SA, may well be the most popular concept within the literature, but is targeted solely at the meso level (Henderson and Venkatraman 1993, Luftman 2000, Weiss, Thorogood et al. 2006, Renaud, Walsh et al. 2016). Should future research also target the micro and macro levels, there will be ample scope to enhance and use models as a means to measure SA at all three levels. The literature provides us with rich insights into the enablers and impediments of SA (Luftman and Brier 1999, Hirschheim and Sabherwal 2001, Burns, Neutens et al. 2009). It shows that most enablers of SA are presented as social and most impediments of SA are presented as intellectual. These rich insights provide great scope to carry out research into enablers that are intellectual and the impediments that are social. Various IS services are sourced and integrated to help an organisation achieve SA (Dutta 1996, Chung, Rainer Jr et al. 2003, Mikko 2011). These services, such as outsourcing and cloud computing, are sourced from external providers thus providing opportunities to research the influence such providers can exert on an organisation's SA. In addition, opportunities also arise to research how an organisation's management of the relationship with the provider, impacts SA. Organisations require a management competency to manage the dynamism associated with strategy (Burn 1996, Sabherwal, Hirschheim et al. 2001, Baker, Jones et al. 2011, Pelletier and Raymond 2014). How managers obtain and exercise this competency when seeking to achieve and maintain SA, poses on-going research opportunities. IS governance can directly impact SA and hence an organisation's performance (Shpilberg, Berez et al. 2007, Ping-Ju Wu, Straub et al. 2015). While a

separate literature set exists on IS governance, the relationship between IS governance and SA on firm performance, remains under researched. I found only two studies that concentrate on business analytics and both demonstrate, that SA as well as organisational transformation, can be attained through the application of business analytics (Shanks, Bekmamedova et al. 2012, Henke, Bughin et al. 2016). As the concept of business analytics is new to the SA literature, there remains ample scope for future research into how this concept can aid SA.

Regarding **organisational practices,** studies that concentrate on the link between SA and organisation performance, show many factors can influence the link (Sabherwal and Kirs 1994, Byrd, Lewis et al. 2006, Tallon and Pinsonneault 2011). If these factors are managed fittingly by a well-informed TMT, then increased organisation performance can result, whereas poor management of these factors can result in negative effects on the organisation. Such factors will continue to evolve, hence providing a constant source of new research opportunities. While studies show that SA can be facilitated by an IS structure that is flexible and supportive of the organisation structure (Brown and Magill 1994, Chan 2002), future research into how a flexible IS structure can be maintained to meet with the dynamic nature of SA could provide fruitful results. The literature informs us unequivocally that within the context of the organisation, a comprehensive view of what needs to happen to achieve overall organisational SA, can only be obtained by considering requirements at all levels of the organisation (Levy, Powell et al. 2001, Tarafdar and Qrunfleh 2010, Schlosser, Wagner et al. 2012). To this end, research into how SA can be achieved and sustained at all levels within organisations, should take place.

People and political issues dominate **group interaction practices.** The concept of shared understanding receives a good deal of attention within the literature at the organisational level, but is not considered in any great detail between the organisation and its external stakeholders (Tan 1999, Preston and Karahanna 2005, Wagner 2014). As many organisations conduct much of their business electronically with external stakeholders, research into shared understanding with external stakeholders could help uncover the impact of such understanding on an organisation's SA. While Campbell, Kay et al.(2005) support this view, they found research undertaken on the social dimension, takes place primarily at the CEO/CIO level. Therefore, in undertaking this research we need to concentrate not only on the social dimension of the TMT, but also among and between, all levels of the organisation and external stakeholders (Johnson and Lederer 2010, IBM

2012). Researching these social issues will undoubtedly pose many challenges as the focus shifts from formal procedures towards the micro activities we encounter in practical daily strategy activities. Similarly, the literature that concentrates on the impact of mergers on SA, demonstrates software and hardware are easily integrated compared to issues requiring a process of socialisation (Wijnhoven, Spil et al. 2006, Baker and Niederman 2014). Mirroring the SA literature in general, the SA literature that concentrates on educational matters focuses only at the top level of organisations (Rockart, Earl et al. 1996, Khandelwal 2001, Kearns and Sabherwal 2007). Research into education at all levels should help us better understand its impact on SA. Overall, deeper and more widespread research into the social aspects of SA will enrich our understanding as we address the imbalance on intellectual aspects.

4.5.4 Avenues for further enquiry.

Rowe (2012:471) states *"the ultimate goal of a literature review is to transform the identification of these research gaps into research avenues."* Having identified current gaps within SA research, I now propose 16 research avenues for further enquiry into SA. Not surprisingly, these 16 avenues reflect the 19 praxis perspectives in table 4.2, and although the vast majority of research into SA is reflected within domain E as per figure 4.1, research into SA within this domain is incomplete. I therefore recommend that all 16 avenues be researched at the three level of praxis and where appropriate, focus on the activities carried out by all four types of practitioners. Suffice to note that all sixteen research avenues are equally applicable to PSOs and private sector organisations. Drawing a close and clear link between figure 4.1 and table 4.2, facilitated the construction of table 4.3 which portrays my proposed 16 avenues for further enquiry.

Table 4.3 Proposed avenues for further enquiry.

Practice	Avenue for further enquiry
SA formation practices	1. How do practices undertaken by practitioners help achieve SA? 2. How does the occupation held by practitioners influence their SA practices? 3. How do practices of external practitioners influence the practices of internal practitioners, and what is the resultant impact on SA?
Management practices	4. Develop SA models and enhance current SA models, with a focus on practices at the micro, meso and macro levels. 5. How do practices undertaken by practitioners enable the intellectual dimension of SA and impede the social dimension of SA? 6. How do practices concerned with sourcing IS services from outside the organisation, shape SA? 7. How do practitioners avail of dynamic competencies to inform practices that assist in the attainment of SA? 8. How do practices undertaken by practitioners in the development of IS governance, support SA? 9. How do practices undertaken by practitioners in the development of business analytics, support SA?
Organisational practices	10. How do practices undertaken by practitioners in the pursuit of SA, influence organisation performance? 11. How do practices undertaken by practitioners in the building and maintenance of IS infrastructure, impact SA? 12. How do practices undertaken by practitioners at the micro, meso and macro levels, help achieve and sustain SA?
Group interaction practices	13. How do practices that influence a shared understanding between internal and external practitioners, help attain SA? 14. How do practices aimed at the social dimension of SA, help achieve and sustain SA? 15. How do practices undertaken by practitioners within the largest partner in a merger, facilitate SA within the new organisation? 16. How do practices of practitioners educated in the potential benefits of SA, differ from practices of practitioners who are not educated in the benefits of SA?

4.6 Chapter relative to the research question.

This chapter is fashioned in a manner that reflects on my research question. The chapter has achieved a distinctive approach to reviewing the SA literature by providing a systematic qualitative review, through the application of a SaP lens and the identification of research gaps and opportunities for further enquiry.

The review has established the primary reason organisations strive to attain SA, is because it has the potential to help an organisation increase its performance (Chan and Huff 1992, IBM 2009, Merali, Papadopoulos et al. 2012, Sabherwal and Jeyaraj 2015). The main focus of attention within the SA literature is on the intellectual dimension with a significant emphasis on models concerned with measuring SA (Venkatraman and Camillus 1984, Miller 1993, Basir, Anual et al. 2006, Marabelli and Galliers 2017), thus providing us with

a largely mechanistic view of SA. These studies provide little value to help aid our understanding of issues that are social as distinct from intellectual, as they do not exhibit practical relevance to be of any worth to organisations operating in the dynamic world of IS and business strategies (Ciborra 1997, Smaczny 2001, Leonard 2008, Schlosser, Beimborn et al. 2015). This indicates we need practice-based studies, rooted in our day-to-day experiences, to help us understand what practitioners do to help and/or hinder the achievement of SA (Chan and Reich 2007, Renaud and Walsh 2010, Karpovsky and Galliers 2015). One such practice approach is the SaP perspective that has entered the literature within the strategic management domain (Jarzabkowski 2004, Chia and MacKay 2007) and has also become part of the IS strategy research agenda, including SA (Hiekkanen, Helenius et al. 2013, Henfridsson and Lind 2014).

I have decided to study how the alignment of business and IS strategies is practiced by IS managers in IIT for the following reasons. Firstly, SA has remained a top concern for IS executives over the last three decades (Niederman, Brancheau et al. 1991, Luftman, Kempaiah et al. 2006, Luftman and Derksen 2011, Kappelman, Nguyen et al. 2017). Secondly, a high level of cognitive commonality of matters pertaining to SA between IS managers and other stakeholders (in particular senior executives), positively effects SA (Ciborra 1997, Hartung, Reich et al. 2000, Tan and Gallupe 2006, Wagner 2014). Thirdly, as demonstrated by my typology (refer figure 4.1), the emphasis of SA research to date has been on the activities of aggregate actors as distinct from individual actors (Holohan and McDonagh 2014a, Karpovsky and Galliers 2015) and while the job title of "IS manager" is reflected in the literature as a functional manager (Stephens, Ledbetter et al. 1992, Earl 2000, Remenyi, Grant et al. 2005) and not a member of his/her organisation's TMT (Narayanan, Zane et al. 2011), this is not to say he/she does not play a role in strategy and directly influences the strategic impact of IS within his/her organisation (Storey 2005, Hooper and Bunker 2013). Fourthly, there is a dearth of studies into PSOs. Therefore, by concentrating on the praxis undertaken by the IS manager in ITT, I begin to help ameliorate our current limited understanding as to what this central practitioner does to help achieve SA.

4.7 Conclusion.

I have carried out a systematic review of the SA literature in a distinctive qualitative manner. The review has been executed via a six stage process underpinned by a framework constructed from a SaP typology, a classification scheme constructed from the

coding method of the constructivist approach to grounded theory, and the identification of practices as bundles of interrelated routines. Taken together, these three pillars afforded the basis to review the SA literature through a SaP lens with an emphasis on all three Ps (practitioners, practices and praxis). I demonstrated that while we possess a good understanding of SA, we have a great deal more to learn and can do so through pursuing a proposed agenda of 16 avenues for further enquiry, based on a range of practice perspectives that have not to date been clearly articulated within the SA literature.

Because my findings were unearthed via the application of a SaP lens and because SaP focuses on what people do in carrying out their day-to-day activities, perhaps future research can be executed by availing of such a lens. Taking the view that the practice of SA concerns all activities that can contribute to tightening the links between an organisation's business and IS strategies (Karpovsky and Galliers 2015), then research into SA affords the potential to contribute to the wider academic IS strategy stream of research that Teubner (2013:249) found to have *"considerably waned"* since the late 1990s.

By carrying out my study within the IIT sector, I contribute to the wider academic IS strategy stream of research. The following chapter presents the cases from my field work.

Chapter 5 - The cases.

5.1 Introduction.

This chapter focuses on the cases chosen for my study. It contains, from the evidence gathered, a rich and holistic view of strategising within Case X and Case Y.

The sequencing of sections in this chapter follows a theory building logic, with each section revealing a new part to the theoretical argument I put forward (Walsham 1995b, Yin 2014). Such a structure aids in the production of a convincing and notable case narrative, as it strengthens the linkages between the various sections of the case report, resulting in a clear chain of logic (Orlikowski 1993, Pan and Tan 2011).

Section 5.2 provides a background to the national and sectoral context within which both cases reside. This is accomplished by providing a brief overview of public service modernisation and reform in Irish higher education, with a specific focus on the IoT sector from 2004 to mid-2015, which mirrors the combined timeline of the two cases under study. Section 5.3 presents the case narratives for both Case X and Case Y, with each narrative structured in accordance with each level (i.e. macro, meso and micro) investigated. Refer table 5.1 for structure to presentation of cases. Section 5.4 concludes the chapter, leading to chapter 6 where I present my intra-case and cross-case analyses in accordance with each level (i.e. macro, meso and micro) explored. This approach corresponds with the reporting method applied in 93% of case study papers within the IS domain, whereby the case background is presented prior to interpretation/analysis (Sarker, Xiao et al. 2013).

Table 5.1 Presentation of cases.

Context	National and Sectoral
Case X Narrative	Case X - Macro level Case X - Meso level Case X - Micro level
Case Y Narrative	Case Y - Macro level Case Y - Meso level Case Y - Micro level

5.1.1 Boundaries of the study.

Remaining true to a SaP perspective, the data collected for each case encompasses the macro, meso and micro levels (refer table 5.2). More specifically, the macro level comprises the Department of Finance (DoF), the Department of Education and Science (DES) from 2004 to 2010, the Department of Public Expenditure and Reform (DPER), the Department of Education and Skills (DoES) from 2011 to mid-2015, the Irish higher education sector with a specific focus on the Higher Education Authority (HEA) and the IIT as represented by the Institute of Technology Ireland (IoTI) from 2005 to mid-2015. The meso level consists of Case X and Case Y and includes the two strategising periods for both cases. The two strategising periods for Case X are from 2006 to 2010 and from 2011 to mid-2014, whereas the two strategising periods for Case Y are from 2004 to 2009 and from 2010 to mid-2015. The micro level also includes the two strategising periods for both cases, with a focus on schools, departments and central services within each case.

Table 5.2 Boundaries of the study.

MACRO		
GOVERNMENT	HIGHER EDUCATION	IIT
DoF, DES, DPER & DoES	HEA	IoTI
MESO		
SELECTED CASES CASE X & CASE Y		
MICRO		
INDIVIDUAL CASE SCHOOLS, DEPARTMENTS & CENTRAL SERVICES		

5.2 The national and sectoral context.

The macro level context for Case X and Case Y is firmly situated at a national level and sectoral level. The national level comprises the DoF and the DES, the DPER and the DoES. The sector within which Case X and Case Y reside is the Irish higher education sector with a specific focus on IIT.

5.2.1 National level context.

Each government department is headed by a Minister who has overall responsibility for policy of his/her department (Government of Ireland 2015). Underpinning the work of the DoF and the DPER are a number of Government initiatives aimed at reform and renewal,

most notably, ‘Government Statement on Transforming Public Services’ (Task Force on the Public Service 2008), ‘Government Statement Public Service Reform Plan’ (Department of Public Expenditure and Reform 2011), ‘The National Recovery Plan’ (Government of Ireland 2011) and ‘Public Service Reform Plan 2014-2016’ (Department of Public Expenditure and Reform 2014). Central to these initiatives is a focus on delivering public service reform which includes a drive for greater efficiencies and savings in public service spending, through the implementation of shared services models, including one for IS within the higher education sector (Howlin 2012).

For the period of my study, the Centre for Management and Organisation Development which was a division within DoF from 2004 to 2010 and is now a division within the DPER since 2011, plays a strategic role for IS within the Irish public service, including chairing and managing the Public Service CIO Council, the application of IT services, policies and application development (Watt 2012). In June 2013, this strategic role was passed to the newly appointed Government CIO, who reports to the Secretary General of the DPER (Watt 2013). This strategic role provides a platform to help facilitate public service reform, through the provision of IS within the public service (Howlin 2012).

From 2004 to 2010 the DES played the leading role in shaping the Irish higher education landscape. In 2008 the DES initiated a National Strategy for Higher Education to guide the future development of the sector, that included a revised HEA model for the funding of higher education institutes (HEIs) (Department of Education and Science 2008). In 2011 the implementation plan for the ‘National Strategy for Higher Education to 2030’ (Hunt 2011), was published by the DoES (Department of Education and Skills 2011). This plan provides the basis for government policy on the development of higher education in Ireland up to 2030, including a new funding model for higher education in Ireland (Department of Education and Skills 2011, Hunt 2011).

5.2.2 The higher education context.

In the main, provision of higher education in Ireland is undertaken by seven Universities, thirteen IoTs, Dublin Institute of Technology and seven Colleges of Education. There are also a number of other HEIs that provide specialist education in disciplines such as medicine, theology, music and law, art and design, and business studies (Department of Education and Skills 2015). A HEI is deemed as such, if it is in receipt of funding from the HEA (Elwood 2010).

Enactment of the Qualifications Act (1999) transferred statutory responsibility for qualification awards from the National Council for Educational Awards (NCEA) to the Higher Educational and Training Awards Council (HETAC). This transfer also granted delegated authority to all IoTs, hence allowing them to confer their own awards, in some cases up to doctoral level. Following on from this, a National Framework of Qualifications (NFQ) was published in 2004 against which all qualifications awarded in Ireland could now be measured. In November 2012 the Quality and Qualifications Ireland (QQI) body was established following the amalgamation of HETAC, Further Educational and Training Awards Council (FETAC), National Qualifications Authority of Ireland (NQAI) and Irish Universities Quality Board, therefore assuming all functions of these four bodies while at the same time becoming the custodian for the NFQ (Quality and Qualifications Ireland 2013). QQI is a state agency under the aegis of the DoES.

In 2003 the Organisation for Economic Co-Operation and Development (OECD) secretariat was invited by the DES to undertake a review of Irish higher education with the specific aim to evaluate the performance of the sector and make recommendations as to how it could better meet Ireland's strategic objectives for the sector. The invitation culminated in the publication of a report in September 2004 titled, 'Review of National Policies for Education: Review of Higher Education in Ireland' (OECD 2004). Among the most salient recommendations of the secretariat in relation to my research, are:

i. there should be a new funding model for resource allocation to HEIs devised by a Tertiary Education Authority; and
ii. steps should be taken to bring the universities and the IoTs under a common authority and in so doing ensure the IoTs have the freedom to manage themselves with the objective of significantly reducing the amount of external regulation.

Both recommendations have been implemented by the government's decision to bring both the universities and the IoTs (through enacting the IoT Act 2006) under the control of the HEA. Prior to enacting the IoT Act 2006, responsibility for the IoT sector lay with the DES (Comptroller and Auditor General 2007, Duffy, O'Mara et al. 2007).

Following publication of the OECD report in September 2004, attention was drawn to a requirement for a national strategy for higher education, when a large majority (86%) of key stakeholders from within higher education in Ireland proffered the view, that the

absence of a national strategy for higher education was hindering advancement of the sector (Duffy, O'Mara et al. 2007).

As described in section 5.2.1., various government initiatives followed as did the publication of 'Building Ireland's Smart Economy: A Framework for Sustainable Economic Renewal' (Government of Ireland 2008), all of which contributed to the publication of the 'National Strategy for Higher Education to 2030' (Hunt 2011), which now provides the basis for government policy on the development of higher education in Ireland up to 2030 (Department of Education and Skills 2011, Hunt 2011). Among its many recommendations the 'National Strategy for Higher Education to 2030' (Hunt 2011) recommends the HEA be *"accountable to the minister for the funding and oversight of the sector"*, and that a new process be introduced *"to enhance accountability and performance, while respecting institutional autonomy"* (Hunt 2011:22). In 2012, these recommendations received further support from the Economic and Social Research Institute, whereby it suggested income contingent loans be launched in conjunction with structural reform, thus helping to reduce existing inefficiencies (McGuinness, Bergin et al. 2012).

5.2.2.1 Role of the HEA.

The HEA is the statutory planning and development body for higher education and research in Ireland and is also the funding authority for Ireland's HEIs (Department of Education and Skills 2015). It receives its statutory powers through the Higher Education Act 1971, which was amended by the Universities Act 1997 and the IoT Act 2006 (McGuinness, Bergin et al. 2012).

The Irish higher education system has achieved many successes over the past number of years, but has now reached a point of unwelcome growth in institutional homogeneity, which has led to unnecessary duplication and anxiety around the quality and sustainability of the system (Higher Education Authority 2012c). There is general agreement among policy makers that the system needs to be reformed with the rationale for such reform provided in the 'National Strategy for Higher Education to 2030' (Hunt 2011). This reform involves creating, from the existing disparate elements, a more coherent and complementary set of HEIs (McGuinness, Bergin et al. 2012, Quinn 2012, Higher Education Authority 2012b).

Following publication of the 'National Strategy for Higher Education to 2030' (Hunt 2011), the HEA published a document titled 'Consultation on Implementation of the National Strategy for Higher Education to 2030' (Higher Education Authority 2011) in which it outlined a view of the higher education sector in Ireland. This document sets out guidelines for the development of HEI clusters in Ireland and for HEI mergers. The document makes clear that mergers may or may not happen, whereas *"clusters must happen"* because clusters have the ability to *"advance the capacity, performance and contribution of the higher education system as a whole"* (Higher Education Authority 2011:7). Furthermore, the document sets out a system for strategic dialogue between all HEIs and the HEA, which includes the need for clear policy direction from the HEA in terms of what is required of the higher education sector, scope for HEIs to develop and propose their own targets, and systems to allocate funding based on performance.

In February 2012 the HEA published a document titled 'Towards a Future Higher Education Landscape' (Higher Education Authority 2012a) in which it set out requirements in terms of structure and landscape, for the higher education system to meet the objectives laid out in 'National Strategy for Higher Education to 2030' (Hunt 2011). Within this document are guidelines for developing regional clusters and the criteria for establishing a technological university (TU). The document stipulates that establishment of a TU requires "*consolidation of two or more institutions"* (Higher Education Authority 2012a:13). All HEIs were asked by the HEA to prepare a response presenting their strategic vision, in terms of where and how they see themselves positioned within the future higher education landscape.

All HEIs prepared and submitted their responses by the end of July 2012 to the HEA. These responses represented the first round of institutional consultations. An analysis of all responses was published by the HEA in September 2012 in a document titled 'Institutional Responses to the Landscape Document and Achieving the Objectives of the National Strategy for Higher Education: A Gap Analysis' (Higher Education Authority 2012c). The submissions established significant progress towards consolidation, with three expressions of interest for TU status and the emergence of four core groups of IoTs (Higher Education Authority 2012d). However, it was felt within government and the HEA, the level of change and rationalisation required to produce a new coherent system of HEIs would not be achieved based on these first round submissions (Quinn 2012, Higher Education Authority 2012c). In parallel, in August 2012, an international expert panel

prepared a report for the HEA titled 'A Proposed Reconfiguration of the Irish System of Higher Education' (Higher Education Authority 2012b). This report recommended an optimal configuration for the Irish system of higher education for the next ten to twenty years and was used in conjunction with the institutional responses to evaluate the alignment of institutional aspirations against a range of criteria, in the context of both the 'National Strategy for Higher Education to 2030" (Hunt 2011) and 'Towards a Future Higher Education Landscape' (Higher Education Authority 2012a) documents.

The HEA published a report in January 2013 titled 'Completing the Landscape Process for Higher Education' (Higher Education Authority 2013a). The aim of this report was to provide a focus for discussion and consultation with the HEIs, after which the HEA would provide the Minister for Education and Skills with *"definitive advice"* on the future pathway for higher education in Ireland, (Higher Education Authority 2013a:3). In April 2013 this advice was provided in the form of a report titled 'Report to the Minister for Education and Skills on systems reconfiguration, inter-institutional collaboration and system governance in Irish higher education' (Higher Education Authority 2013b). The report sets out how the HEA believes key elements of 'National Strategy for Higher Education to 2030' (Hunt 2011) can be implemented, thus leading to, over time, reform of the Irish higher education system (Higher Education Authority 2013b). Included in the report are proposals for the make-up of regional clusters, TUs, and the process and criteria for designation of such. On the 30th May 2013, the Minister for Education and Skills wrote to the chair of the HEA, stating that he concurred fully with the approach laid out in their report of April 2013 and that it was now the role of the HEA to mediate the accountability for performance of all Irish HEIs (Quinn 2013a). On the same day, the chief executive officer of the HEA wrote to the Presidents of Ireland's HEIs notifying them that the HEA would initiate the major reform contained within the April 2013 report and also emphasised the introduction of a direct relationship between funding and performance of each HEI (Boland 2013). The day ended with a press release from the Minister for Education and Skills announcing a major reorganisation of Ireland's higher education sector (Quinn 2013b).

In December 2013, the HEA published a report titled 'Towards a Performance Evaluation Framework: Institutional and Sectoral Profiles' (Higher Education Authority 2013d) which sets out an initial performance evaluation framework for Irish Higher Education and includes HEI profiles that were developed within the 'Higher Education System

Performance Framework 2014-2016' (Higher Education Authority 2013d). This was followed by the publication of a two volume report titled 'Higher Education System Performance Framework 2014-2016' (Higher Education Authority 2014a, Higher Education Authority 2014b), which outlines a national framework to advance funding and governance reform, and sets out the context for strategic dialogue between the HEA and the HEIs. The outcome from this process was a proposed configuration of institution types (e.g. universities, TUs and IoTs) including opportunities for mergers and clusters, as advised to the Minister for Education and Skills in April 2013.

Reform was now well underway with sixteen HEIs involved in mergers and a further five in regional clusters. Each HEI entered into a performance compact with the HEA which forms the basis for measuring performance, with 10% of funding contingent on that performance (Boland 2015). This program of reform is one of the most significant in the government's overall strategy for reform of the public service (Higher Education Authority 2014a).

5.2.2.2 Ireland's Institutes of Technology.

The Steering Committee on Technical Education (1967) published their report titled 'Report to the Minister for Education on Regional Technical Colleges' (also known as the Mulcahy Report) in which they recommended the establishment of Regional Technical Colleges (RTCs) to provide technically skilled education for trade and industry, therefore helping to provide balance to the academic bias that was prevalent in the Irish higher education system at the time (O'Hara 2010). From 1970 until 1992 these RTCs were run under Section 21 (2) of the Vocational Education Acts. In 1992 the RTC Act (1992) was passed thus placing each RTC on an independent footing and allowing them partake in research. Furthermore, the RTC Act (1992) as amended by section 11 of the IoT Act 2006, mandated that each RTCs' governance structure include a President to lead the EMT of the college, a GB to oversee the work of the President, and an Academic Council to protect, maintain and develop academic standards. The President may delegate functions to other members of staff and they in turn are answerable to the President for the performance of those functions. Notwithstanding any such delegation, the President shall at all times remain answerable to the GB in respect of functions delegated. In 1998 the RTCs were re-designated as IoTs and with this came a renewed focus on the ability of each IoT to manage its own affairs (Elwood 2010). An important initiative was undertaken in 2006, when as part of the DES strategy, responsibility for the IoTs was transferred to the HEA

following the enactment of the IoT Act 2006 (Department of Education and Science 2005). While such initiatives provide direction at a macro level for the HEA and the IoTs, both the HEA and the IoTs are responsible for developing and implementing their own strategic plans in accordance with the direction provided by government (Howlin 2012). A major emphasis was now posited on strategic planning within each IoT, and this strategic planning was placed on a statutory footing by the IoT Act (2006) wherein Section 21 (C1) states, *"A governing body shall … require the Director to prepare … a strategic development plan that shall set out the aims of the governing body for the operation and development of the college and its strategy for achieving those aims."*. Indeed, it was a requirement that such plans specify relevant indicators and targets against which performance can be clearly measured, through the application of key performance indicators (KPIs) or other such indicators (Institute of Technology Ireland 2011). Many IoTs are now implementing their second strategic plan, and with this experience, the quality of such plans has according to the Higher Education Authority (2014b), significantly improved and fits within the coherent national framework set out in the'National Strategy for Higher Education to 2030' (Hunt 2011).

Following publication of the 'National Strategy for Higher Education to 2030' (Hunt 2011), considerable consolidation within the IoT sector commenced. Four formal expressions of interest, comprising ten IoTs in total, were received by the HEA under the process for application for TU. The remaining three IoTs expressed their intention to remain as stand-alone IoTs, with close links in their regional clusters (Higher Education Authority 2013a).

At national level, the thirteen IoTs are represented by IoTI. The IoTI, incorporated in 2005, is a non-profit organisation comprising the thirteen Presidents of Ireland's IoTs. Its primary roles are to coordinate the work of the IOT sector, help advance common positions on the development of higher education, and advise the government on higher education policy (Institute of Technology Ireland 2015).

5.2.2.2.1 IS in Ireland's Institutes of Technology.

While the Government CIO plays a major role in the provision of IS within the public service, including the implementation of shared services models within the higher education sector, each IoT is responsible for delivering its own strategic plans (Howlin 2012).

In October 2007, following an examination of the implementation of MIS in the IoTs, the Comptroller and Auditor General (C&AG) published a report titled 'Management Information Systems in the Institute of Technology Sector' (Comptroller and Auditor General 2007). This report notes that in 1993, the concept of a common MIS (i.e. shared services model) had been proposed for the IoTs. The applications within this MIS included student administration, financial management, human resources and payroll management, library administration and executive reporting. In the intervening period, all of these applications apart from executive reporting, have been implemented albeit in a non-integrated manner, and sourced from different suppliers. It took a *"total of 59 separate implementations"* to arrive at this juncture, with many challenges still existing, (Comptroller and Auditor General 2007:8). In August 2005, a limited company, An Chéim, was established as a subsidiary of Dublin Institute of Technology (DIT), to cater for support of the system's future development and on-going implementation. Its BOD was made up of senior executives from the IoTs, DIT and DES.

An Chéim carried out their role up to April 2015 at which stage a new company by the name of EduCampus Service Limited was established as a subsidiary of HEAnet and took over from An Chéim (Hinfelaar 2015). HEAnet is Ireland's National Education and Research Network, providing Internet, associated ICT and e-Infrastructure services to Ireland's HEIs, research organisations, and all primary and post-primary schools (HEAnet 2015). HEAnet provides all IoTs with their e-infrastructure (including Internet), except for what is inside the buildings of each IoT. Each IoT is responsible for its own internal e-infrastructure. Each IoT is also responsible for the provision of IS services to staff and students, apart from those provided by EduCampus and HEAnet.

Each IoT has its own IS manager, all of whom are members of the National IS Manager's Group. This group meets on a quarterly basis to exchange information on issues pertaining to IS within the sector. The group does not have any executive decision making powers.

5.2.3 Conclusion to national and sectoral context.

The HEA will continue to lead the development and refinement of the Irish higher education sector in conjunction with the HEIs, DoES, and other relevant government departments and agencies (Higher Education Authority 2014b). Integral to the management of this development will be the challenge for IoTs to remain diverse from the

traditional university sector, albeit in a different way than before. This will be achieved through the application of strategic planning practices, encouraged by legislative requirements emanating from the national level context.

5.3 Case narratives.

This section presents the case narratives for both Case X and Case Y. Each narrative opens with an overview of the case, followed by an investigation of the macro, meso and micro levels.

5.3.1 Overview of Case X.

Case X is a multi-campus institution with locations in one of Ireland's main cities and surrounding provincial towns. The institute offers a broad range of over 120 programmes, offering qualifications at different levels from higher certificates to degrees and postgraduate level. Underpinning the institute's education philosophy is active learning through a fusion of theory and practice. Currently there are over 6,000 students registered with the institute (Case X 2011a).

The institute is committed to supporting industrial and commercial development within its region through strong links with Enterprise Ireland and the City and County Enterprise Boards. Supporting this endeavour is an on-campus incubator for innovation and growth, where business start-ups can locate (Case X 2011a).

5.3.1.1 Case X - macro level.

Apart from the IoT Act 2006, there wasn't any other change of note initiated from within the macro environment that had an impact on the way Case X operated during the period 2006-2010. Case X focused on implementing its strategic plan for the period 2006-2010, with measurement of the plan being performed by monitoring KPIs set for each of the ten strategic goals specified in the plan.

Following extensive consultation with all stakeholders, the institute launched its "Strategic Plan 2006-2010" (Case X 2006) on 14th June 2006. The plan's ten strategic goals are as follows:

- Educational Philosophy. Underpinned by active learning strategies based on best practice within and outside the institute.

- Development and Growth. By consolidating the institute's market position and ensuring programmes are aligned to the identified needs of industry and the wider stakeholders in the region.
- New Learner Groups. Take initiatives to encourage a wider participation by non-traditional segments.
- Qualification Levels and Quality Assurance. By offering access and intermediate progression routes in its major discipline areas, within the context of the National Qualifications Awards Institute (NQAI) Framework and the emerging European Framework of Qualifications.
- Research. Further develop and nurture research capacity in niche areas.
- A Partnership Culture. The institute's strategy is firmly grounded in the dynamics of both the internal and external environment.
- Macro and Meso Developments. Monitor developments at the macro and meso levels and assess their relevance to Case X as a whole as well as to individual departments.
- Human Resources. Further develop a culture where individual staff and teams will take responsibility for making a distinct contribution to the educational philosophy of Case X.
- Infrastructure. We will develop into one of Ireland's leading facilities, in terms of the variety, quality and relevance of the physical resources provided for our students, staff and other stakeholders.
- Resources. Maximise all available funding to achieve the goals set out in this strategic plan.

Source: 'Strategic Plan 2006-2010' (Case X 2006)

Given the rapid pace of change due to take place in the macro environment within which Case X operated, it was felt the five year strategic plan, with its detailed objectives and performance indicators that are likely to be overtaken by events, would no longer suffice (Case X 2010). In March 2011, the institute, informed by its charter of 2009-2014 (Case X 2009a), launched its vision and strategic direction for the following ten years when it published its strategic plan 'Strategic Plan 2011-2020' (Case X 2011a) in the form of a long term overarching vision statement to 2020. The development of this plan took place against a backdrop of difficult challenges for the state, the region in which the institute operates, and the higher education sector. In particular, the institute committed to being

proactive in its response to the 'National Strategy for Higher Education to 2030' (Hunt 2011) by agreeing to measure performance against efficiency and effectiveness benchmarks (Case X 2011a).

'Strategic Plan 2011-2020' has thirteen strategic goals, placed into the three broad domains of academic profile, institutional sustainability and the environment (Case X 2011a). Academic profile covers the core services to the public, institutional sustainability presents how a range of resources will help the institution deliver the profile it is seeking, and the environment provides the framework for continuous analysis of the institute's operating environment and how it will play its part (Case X 2011a). Each of the thirteen strategic goals was broken down into a number of objectives, and where possible, quantifiable KPIs were developed to measure on-going progress. These KPIs built on lessons learned from implementing the 'Strategic Plan 2006-2010' (Case X 2006), in particular the outcomes of the 'Institutional Review Self Evaluation report' (Case X 2010), national best practice and HEA guidelines. The 'Strategic Plan 2011-2020' (Case X 2011a) is structured as follows:

Academic Profile.

- Our Learners. Provide the learner with an excellent educational experience.
- Our Teaching. Embrace a distinctive and agile educational philosophy.
- Our Learner Supports. Offer a high-quality and supportive learning environment for all types of learners.
- Our Knowledge Transfer - Research. Engage in innovative applied research in partnership with industry.
- Our Knowledge Transfer - Enterprise Development. Support new enterprise, accommodating the full spectrum of low to high risk/reward profiles within our area of academic and business support expertise.

Institutional Sustainability.

- Our People. Key motivating factors for the institute staff are a culture of pride and loyalty towards the learners, graduates and other clients, and a culture of pride and loyalty towards the institute itself.
- Our Communications. The institute will communicate efficiently with learners, alumni, employers, staff, stakeholders and the wider population using the most appropriate media.

- Our Places. The physical learning environment at the institute will continue to be conducive to the teaching and learning philosophy we have embraced.
- Our Systems. The technical and human sides to our systems must support the smooth operation of the institute.
- Our Funds. Develop a financial management strategy which can provide an overarching rationale for policies, decision making and responding to challenges in our operating environment.

The Environment.

- Our Region. Enhance further our leadership profile by being responsive to the needs of the region
- Our Sector. Aim to be at the forefront of new evolving structures and collaboration within higher education.
- The World Around Us. At institute and school level, conduct on-going analysis of the macro environment in which we operate.

Source: 'Strategic Plan 2011-2020' (Case X 2011a)

In March 2012, as part of its preparations in formulating a response to the HEA's document 'Towards a Future Higher Education Landscape' (Higher Education Authority 2012a), Case X signed a memorandum of understanding (MOU) with two other IoTs to pave the way for developing proposals on the establishment of a TU in accordance with the HEA's process and criteria (Case X 2012c). As requested by the HEA, in July 2012, Case X responded to the HEA's document 'Towards a Future Higher Education Landscape' (Higher Education Authority 2012a). In its response, Case X reiterated its ambitions to become part of a new TU that would also incorporate the other two IoTs (Case X 2012a). As part of its submission, Case X provided an overview of its campus development plan that was drawn up in close discourse with city and county authorities. The purpose behind the plan was to help facilitate the expansion Case X foresaw to its student numbers by 2027. The campus masterplan was launched by the Minister of DoES on 3rd September 2012 (Case X 2012b). However, the HEA viewed Case X's response as a desire to accomplish TU status rather than realise the natural synergies of the three IoTs (Higher Education Authority 2012c).

In early 2013 further consultation took place between Case X, other HEIs and the HEA, utilising the HEA's report 'Completing the Landscape Process for Higher Education'

(Higher Education Authority 2013a) as a focus for discussion. Stated clearly in this report, was Case X's intention to cease its involvement in the creation of a TU and remain as a separate IoT with close links in its regional cluster. In the report titled 'Report to the Minister for Education and Skills on systems reconfiguration, inter-institutional collaboration and system governance in Irish higher education' (Higher Education Authority 2013b), this was confirmed as Case X's preferred position, with the proposed cluster consisting of Case X, a university and a teacher training college.

In February 2014, following a process of strategic dialogue between Case X and the HEA, Case X published its performance compact (Case X 2014a). The performance compact recognises Case X as an autonomous HEI, that needs to contribute towards creating a transparent and accountable system of administration of state funding. By setting out Case X's development plans and objectives, taken from Case X 'Strategic Plan 2011-2020' (Case X 2011a), the quality of Case X's strategic planning process would be evaluated by measuring performance against the KPIs set out in the performance compact (Case X 2014a). Although Case X is an autonomous HEI, it is required to develop alliances with other HEIs in accordance with national policy. To this end, Case X entered into two such alliances in May 2014. The first is a cluster consisting of Case X, a university and a teacher training college. By signing an MOU (Case X 2014b), the three HEIs created a cluster as envisaged in the 'National Strategy for Higher Education to 2030' (Hunt 2011). The second alliance responds to the Minister of DoES decision regarding the development of synergies between clusters and facilitates Case X working with Case Y (Case X 2014a, Case X 2014c).

5.3.1.2 Case X - meso level.

The EMT charged with implementing the 'Strategic Plan 2006-2010' (Case X 2006) was headed by the Director and included the Secretary/Financial Controller (who also undertook the role of secretary to the GB), the Registrar and the Head of Development. The senior management team comprised four Heads of School (School of Art and Design, School of Science, Engineering and IT, School of Built Environment and School of Business and Humanities), all of whom reported to the Director and became full members of the EMT in 2007. All members of the EMT contributed to academic and executive decision making across the Institute and played a significant role in liaison with external stakeholders and organisations. In 2007 the title of Director changed to President. Each of the ten central services managers (including the IS manager) reported to either the

Secretary/Financial Controller, the Registrar or the Head of Development. The heads of the ten academic departments each reported to a Head of School. The micro level roles of the Secretary/Financial Controller, the Registrar, the Head of Development, the four schools, the ten academic departments and the ten central services areas are discussed in section 5.3.1.3 (Case X - micro level). The organisation chart depicting the structure of Case X for the period 2006-2010 is provided in appendix 22.

For the first two years of the 'Strategic Plan 2006-2010' (Case X 2006), an MIS Steering Group dealt with operational issues in relation to the IS provided by An Chéim (Case X 2006-2008). In April 2008 the group's title was changed to Information Systems Strategy Group (ISSG) to reflect that all IS in Case X came under its remit and not only those supplied by An Chéim (Case X 2008-2014).

In 2008 the Secretary/Financial Controller was appointed to a new position on the EMT titled "Executive in Strategic Change" (EiSC). This new position had two main roles. The first was to support the President and the EMT in determining KPIs that could be used as benchmarks to measure the institute's performance against strategic priorities and objectives. The second was to support the implementation and monitoring of outcomes in the 'Strategic Plan 2006-2010' (Case X 2006) and to help solve deficiencies in data gathering and analysis for policy development (Case X 2008a). In May 2008, the EiSC put forward a proposal to form fourteen high level KPIs which would be used to assess all aspects of Case X's performance and recommended these KPIs be regularly supplied to the GB using a traffic light style indicator (Case X 2008c).

In October 2008, a draft report on reviewing the ten goals in the 'Strategic Plan 2006-2010' (Case X 2006) using the KPI methodology was published (Case X 2008b). The report also included a review of a further two goals namely, Governance Leadership and Management, and Knowledge Transfer and Relationships. The report noted the KPI exercise highlighted difficulties in turning strategy into actual targets and actions. Consultation then took place with all management who had a responsibility for specific goals and objectives within the 'Strategic Plan 2006-2010' (Case X 2006) and with members of staff. The process resulted in an interim review of the 'Strategic Plan 2006-2010' (Case X 2006) being published in February 2009 (Case X 2009b). This interim review highlighted the changes taking place within Case X's operating environment, specifically the downturn in the economy and the transition of the higher education

sector's funding model. In terms of performance, the interim review showed many of the goals were on target while others may *"have been over-ambitious"* (Case X 2009b:11). Very clear from the interim review was the change brought about in Case X's EMT focus from activities to outputs.

In April 2010, Case X published an Institutional Review Self Evaluation Report (Case X 2010). Overall, nine of the twelve strategic goals were on target or better. The three goals not achieved comprised of; an increase in the proportion of new student groups, undergraduate recruitment, and funding. The reason proffered for the decrease in funding was because of the decline in public finances. Plans were put in place to address the non-attainment of these three goals. The review coincided with Case X embarking on its next strategic planning process, therefore allowing for the lessons learned to form part of the input to the process. Indeed, it was also noted that the KPI evaluation process itself could be improved and therefore a consultant was hired to produce a report proposing a set of KPIs that would be appropriate for the next strategic plan (Case X 2011b).

The conclusion of the previous strategic planning period (i.e. 2006-2010) also marked the beginning of the enlarged Case X institution, as it now incorporated a former stand-alone HEI from September 2011 (Case X 2011a).

The EMT charged with implementing the 'Strategic Plan 2011-2020' (Case X 2011a) was headed by the President and included the EiSC, the Secretary/Financial Controller (who also undertook the role of secretary to the GB), the Registrar, the Head of Development, and five Heads of School (School of Art and Design, School of Science, Engineering and IT, School of Built Environment, School of Business and Humanities and School of stand-alone HEI), all of whom reported to the President. The increase from four to five Heads of School was due to the former stand-alone HEI being designated school status (Case X 2011a). All members of the EMT contributed to academic and executive decision making across the Institute and played a significant role in liaison with external stakeholders and organisations. Each of the ten central services managers (including the IS manager) reported to either the Secretary/Financial Controller, the Registrar or the Head of Development. The heads of the twelve academic departments each reported to a Head of School. The micro level roles of the Secretary/Financial Controller, the Registrar, the Head of Development, the five schools, the twelve academic departments and the ten central services areas are discussed in section 5.3.1.3 (Case X - micro level). The

organisation chart depicting the structure of Case X for the period 2011 to mid-2014 is provided in appendix 23.

A template was developed against which each of the three executive function areas and the five schools could report on their performance against the 'Strategic Plan 2011-2020' (Case X 2011a). These reports took the form of eight separate presentations to the GB over the period 2011 to 2013.

The terms of reference for the ISSG was distributed on 17th October 2011. Among its main terms was that the ISSG will *"facilitate the development and implementation of a cohesive information systems strategy"* (Case X 2011d:1). As at mid-2014, a documented IS strategy did not exist.

In May 2011, the GB of Case X invited a consultant to undertake a review of the merger with the former stand-alone HEI. The consultant reported that while progress at the managerial and administrative levels was satisfactory, a serious deficiency in planning at the academic level existed as did a deficiency in the rationalisation of academic programming (Case X 2011c). The consultant also noted Case X had the opportunity to become a "*demonstration model for the sector"* (Case X 2011c:7), in the context of the 'National Strategy for Higher Education to 2030' (Hunt 2011). Most critical of all however, was a recommendation to revise the 'Strategic Plan 2011-2020' (Case X 2011a) due to its lack of any clear strategy in terms of academic structure, programmes and profile. While the consultant acknowledged the 'Strategic Plan 2011-2020' (Case X 2011a) was indeed a respectable vision statement, it was by no means a strategic plan because it was devoid of a plan as to how Case X would develop into the future (Case X 2011c). The consultant recommended the establishment of an Academic Integration Group to be chaired by the President and tasked with leading academic rationalisation.

The following year the services of another consultant were engaged to;

1) propose the structure and functions of a planning office,
2) propose a suite of management information and a method to monitor performance against KPIs,
3) advise on how best to embed annual planning cycles, and

4) determine how best the planning function can contribute to the strategic and operational decision making processes of the institute.
Source: 'Development of a Strategic Planning Function for Case X' (Case X 2012e)

This consultant reported in September 2012 and recommended the creation of up to two new posts, reporting to the EiSC (Case X 2012f). Having reviewed the report, the EMT's view was that one new post would suffice and the planning function role be one of support in the collation of KPI data at institute and school level.

Following these consultant reports, and in particular that of Case X (2011c), the President of Case X issued a consultation document in November 2012 (Case X 2012d), as a means to obtain input from unions and wider staff across Case X. Consultation had already taken place at EMT and central management levels. The objective behind this wider consultation, was to examine how Case X is *"structured and organised"* so that it could deliver on its *"strategic goals and make some necessary improvements"* (Case X 2012d:3). The proposed structure did not recommend changes to the EMT, but did through the restructuring of schools and departments, bring all cognate areas together regardless of geographic location. This would go some way towards addressing the serious deficiency in planning at the academic level and the deficiency in the rationalisation of academic programming highlighted in (Case X 2011c). At EMT level, the proposal was to introduce the title of "Vice-President" (VP) for the four executive managers reporting to the President. The Secretary/Financial Controller was renamed to VP Finance and Corporate Affairs, the Registrar was renamed to VP Academic Affairs, the Head of Development was renamed to VP Research, Development and Innovation, and the EiSC was renamed to VP Strategy.

A consultant was engaged by Case X to review the new academic structures and submitted a report in June 2013 (Case X 2013b). Worryingly, the consultant found that in some cases, senior staff were in direct opposition to the new structures and this, *"in turn, means that full integration between subject areas will be only partially achieved, or not achieved at all"* (Case X 2013b:4). On the positive side, the consultant found Case X *"has the potential to evolve into an even more dynamic institution"*, but to do so, *"a clear understanding of the new academic structures"* needs to exist *"beyond the senior management level"* (Case X 2013b:13). The consultant was invited back to undertake an evaluation of progress in the implementation of the new academic structures and submitted

a report in June 2014 (Case X 2014d). The consultant found evidence that full academic integration and strategic positioning within the higher education landscape as an autonomous IoT, could be realised, with "*senior management progressing the agreed key objectives*" (Case X 2014d:14).

5.3.1.3 Case X - micro level.

The micro level comprises the schools, the academic departments reporting to each school, and the central services areas reporting to each executive function area. The main duties of members of the EMT, Heads of Department and Heads of central services are documented in their respective employment contracts, in generic terms.

Activity at the micro level for the two strategising periods being investigated (2006-2010 and 2011 to mid-2014), was undertaken availing principally of the same organisation structures (refer appendices 22 and 23). The only difference of any significance was the addition of the stand-alone HEI as a school within Case X for the 2011 to mid-2014 period. This school comprised two departments (IT and business) and although they mirrored two departments that were each within separate schools in Case X, full integration did not take place, leaving the stand-alone school and its two departments operating as they did prior to the merger with Case X.

The Academic Council Regulations and Procedures for Case X sets out the procedures for the operation of schools, departments, and programmes. The Head of School reports to the President and is responsible for the strategic and operational management of the school within the overall strategic plan of the institute. The school is the management unit within which each of its allocated departments operate. The school's role includes the co-ordination of academic and administrative procedures, overseeing programme development, and allocation of staff and other school resources. From a financial perspective the Head of School is the budget holder and is accountable for all school expenditure against budget. The responsibility for ensuring quality management of the academic processes in accordance with institute policy, lies with the school its departments and programme boards. Individual members of staff are required to co-operate with these quality management procedures, within academic structures laid out. Each school has a school board whose minimum representation consists of the Head of School, Heads of Department and three representatives from each department. The function of the school board is to advise and assist the Head of School with regard to the academic and resource

requirements for all programmes within the school. Such advice includes recommending membership of validation and review panels, putting forward list of internal and external examiners, advocating applications for accreditation, counselling on validation of programmes, and contributing to the annual reports for Academic Council.

The departments that comprise each school are the basic organisational units to which resources and programmes are allocated. Each department is the operational academic unit responsible for delivering the day to day teaching programmes, timetabling of classes, ensuring the quality of each teaching programme and development of its programmes. Programmes consist of apprentice, level 6, level 7, level 8, masters and Ph.Ds. Each Head of Department is responsible for the provision of the most appropriate and effective learning services to students within their department, given the resources and budget available. The Head of Department is also responsible for staff development planning, programme delivery and in conjunction with lecturers, the quality assurance of each programme.

Each department has a department board. Its primary function is to advise and assist the Head of Department at an operational level, with regard to the academic and resource requirements for each programme within the department. The minimum membership of a department board consists of the Head of Department, the senior lecturers, the programme representatives for each programme within the department, student representatives and the line Head of School. In addition to its primary responsibility, the department board also advises the school board on academic matters relevant to work in its area, and monitors the learning and research resource within the department. The department board meets at least once per term. Appendices 26 and 27 provide a breakdown of number of students by department for each of the strategising periods 2006-2010 and 2011 to mid-2014. The most notable feature from these statistics, is the low numbers of students within the Department of Built Environment Management and the Department of Construction and Civil Engineering. These low numbers can be attributed to the collapse in demand for courses within these disciplines, due to the downturn within the Irish construction industry.

A programme board exists for each programme offered by a department. The programme board has the primary responsibility, under the overall guidance of the Head of Department, for developing and operating the programme. The membership of each programme board comprises of at least all members of lecturing staff on core and cognate

modules within the programme and all related lines head of function, typically Head of School and Head of Department. Co-opted members from outside bodies such as student and industry representatives may also be members, where appropriate. Each programme board meets at least once a term. All programmes conducted within each department are subject to periodic review, normally on a five yearly cycle as part of a programmatic review of the school. The programmatic review is an opportunity for each programme board to carry out a fundamental re-appraisal of its programmes and make major modifications where considered appropriate. The principal process involved in a programmatic review is a fundamental critical self-study and re-appraisal of programmes, by the programme board. All programmes are reviewed with full regard to the changing external environment. A peer review by an external panel of experts competent to make national and international comparisons in relation to the programmes takes place. The panel issues a report specifying any conditions and recommendations for approval. The objective is to help the programme board improve the programme and provide an opportunity for those delivering the programme to improve its quality and delivery. While a programmatic review normally takes place on a five yearly cycle, the programme board is also responsible for revisions to syllabi and modifications to programme structure as appropriate, in between each programmatic review. The programme board is also responsible for monitoring the academic progress of students and can take appropriate remedial action when necessary. The programme board validates examination results by way of participation in examination boards.

For the strategising period 2006-2010, the two departments within the School of Art and Design underwent programmatic reviews in the academic year 2008-2009, with their new programmes being validated in May 2009. The four departments within the School of Science, Engineering and IT underwent programmatic reviews in the academic year 2006-2007, with their new programmes being validated in May 2007. The two departments within the School of Built Environment underwent programmatic reviews in the academic year 2007-2008, with their new programmes being validated in May 2008. The two departments within the School of Business underwent programmatic reviews in the academic year 2009-2010, with their new programmes being validated in May 2010. For the strategising period 2011 to mid-2014, the two departments within the School of Art and Design underwent programmatic reviews in the academic year 2013-2014, with their new programmes being validated in May 2014. The four departments within the School of Science, Engineering and IT underwent programmatic reviews in the academic year 2011-

2012, with their new programmes being validated in May 2012. The two departments within the School of Built Environment underwent programmatic reviews in the academic year 2012-2013, with their new programmes being validated in May 2013. In the academic year 2014-2015, the two departments within the School of Business were scheduled to undergo programmatic reviews.

In addition to the programme boards, a provisional programme board may be established for the development of a new programme leading to a major award. Such a board must submit programme documentation through the validation procedures of the institute. Membership of the provisional programme board comprises not less than four members, including the Head of School and Head of Department. The provisional programme board may include lecturers from other departments and external advisors if required. For the two strategising periods being investigated (2006-2010 and 2011 to mid-2014), no provisional programme boards were established.

While each of the executive function heads are members of the EMT charged with implementing the strategic plan of the institute for the two strategising periods being investigated (2006-2010 and 2011 to mid-2014), they each also have responsibility for a number of central services. The central services areas reporting to each, will now be considered from a micro level perspective.

At the micro level the Secretary/Financial Controller has executive responsibility for finance, human resources, estates and IS services. Activity within the finance department is managed by the Finance manager and includes production of accounts, maintenance of a fixed asset register, administration of payroll and management of petty cash. The finance department is also the custodian for policies and procedures that include collection of student fees, travel expenses for staff, and purchasing and tendering procedures. Activity within human resources is managed by the Human Resources manager and includes the management and administration of the following; employee assistance programme, employment policies such as grievance procedure and disciplinary procedure, recruitment policy and procedures, staff development, leave of absence policy and procedure, and the education sector superannuation scheme as it relate to Case X. Activity within estates is managed by the Estate manager and includes maintenance of all buildings and management of the health and safety policy and procedures. IS services is managed by the IS manager who is responsible for the provision of information and communications

technology within the institute. Activity includes the provision of access to all IS supplied by An Chéim via the e-infrastructure provided by HEAnet and the institute's own internal e-infrastructure. Open access computing facilities are provided throughout the institute as are specific computing facilities for staff. Other services provided by the IS department include email, video conferencing and an intranet for both students and staff.

At the micro level the Registrar has executive responsibility for student affairs, quality assurance and library services. Within student affairs a number of services are offered to the student population under the aegis of the Student Affairs manager. These include administering the admissions and examination procedures throughout the year. Other services include support for students with disabilities and a mentoring system whereby each first year student is assigned a mentor and a "drop in" service for additional tutorial support. The student health service offers a confidential medical service to students and the student counselling service offers a professional and confidential service to students via a team of counsellors. The careers service within student affairs assist students in the transition from education to employment, with services that include CV preparation and interview techniques. In addition, the careers service works actively in placing students with employers and arranges employers' visits for presentations and interviews throughout the academic year. The quality assurance handbook on academic policies and procedure is managed by the Quality manager within the Registrar's are of responsibility. The quality assurance procedures comply with the national framework for higher education quality assurance and continue to evolve with input from all stakeholders, but in particular through the demand from Case X staff to maintain a high degree of professionalism and service. The Registrar is responsible for co-ordinating the implementation and maintenance of the institute's quality assurance framework, which is a series of academic policies and procedures. A core resource for the institute and in particular the student population is the library. Under the management of the librarian, the library provides a variety of resources and services to support learning, teaching and research. These resources include print books and ebooks, print journals and ejournals, databases, theses and final year project collections. Services include borrowing of books and other material, inter library loans, over 560 study spaces, group study rooms, over 200 open access PCs, WiFi and, photocopying and printing facilities. The library also provides information skills training workshops throughout the academic year, with an emphasis on skills required for writing theses. The Registrar is also responsible for capturing and maintaining student records. One of the core activities involved in this process is to manage the annual registration of

students via the student records IS Banner. Management of this process is done in close collaboration with IS Services.

At the micro level the Head of Development has executive responsibility for research, enterprise and international. Case X focuses on research that impacts on industrial leadership and societal changes through innovative applied research in partnership with indigenous and international industrial partners, which is concentrated on existing and emerging areas of expertise within Case X. Research occurs through sixteen dedicated centres and groups encompassing a wide range of disciplines from fine art and design, to social sciences, biotechnology, interactive systems, energy management, and sustainable development. All research centres and groups focus on developing niche areas of expertise to attract international researchers and external funding, so as to provide products for Case X industry partners and develop postgraduate research opportunities. Case X provides support to enterprise in its region through its enterprise ladder system. The system which comprises six incubation centres, combines the resources of the institute (academic, research facilities and finance) to create bespoke packages of support that include collaborative research and development projects, training, mentoring and consultancy, in order to help start-up businesses and established businesses throughout the region become a viable, profitable and thriving businesses. Each centre has evolved its own blend of support to suit the companies it works with and the local sector strengths. Through providing this support, Case X has made a substantial contribution to the creation of over 150 businesses and 600 jobs during the period 2006-2014. The international office within Case X provides support to all of its international students as they prepare to come to Ireland and while they are in the country. Such support includes assisting with visa applications, helping to find accommodation and integrating international students within the student population through sport and other social activities. Case X takes part in Erasmus, which is a European Union funding exchange programme. Students from a European partner third level institution are eligible to study at Case X for a semester or an academic year, provided their institution has an Erasmus agreement in their specific subject area.

5.3.2 Overview of Case Y.

Case Y is a multi-campus institution with locations in one of Ireland's main cities and surrounding provincial towns. The institute offers a broad range of over 115 programmes, offering qualifications at different levels from higher certificates to degrees and

postgraduate level. The institute's core activity is the development of life-long learning opportunities through teaching and research, bringing together students, staff and the region, to share, apply, test and create knowledge. It is a student centred organisation and currently has approximately 7,000 students registered with the institute (Case Y 2010b, Case Y 2013b).

The institute is committed to promoting economic development, social cohesion and regional growth, by supporting regional development consistent with national higher education policy. To this end, the institute will continue to develop as a regional organisation with an international focus, committed to the personal and professional enrichment of its students, the needs of its region, national priorities and global opportunities (Case Y 2010a).

5.3.2.1 Case Y - macro level.

Apart from the IoT Act 2006, there wasn't any other change of note initiated from within the macro environment that had an impact on the way Case Y operated during the period 2004-2009. Following a wide-ranging consultation process with both internal and external stakeholders, Case Y developed its 'Strategic Plan 2004-2009' (Case Y 2004). The plan provided Case Y *"with a framework for continuous improvement and development"* (Case Y 2005:3). Implementation of the plan was contingent on the institute's resources being aligned with the plan and its organisational capacity and structures reconfigured to ensure successful implementation. Measurement of the plan was to be carried out on an annual basis by comparing formal targets against each of the following four strategic goals and sub-goals:

1. Placing the student at the centre of the institute.
   - Proportion of part-time modes.
   - Proportion of international students.
   - Proportion of students from disadvantaged backgrounds.
2. Promoting the development of a learning region.
   - Number of programs targeted to industry and business in the region.
   - First destination statistics of graduates.
   - Links with appropriate bodies in the region.
3. Enabling employee professional development.
   - Qualifications' profile of staff.
   - Indicators from staff development programme.

4. Integrating research, teaching and regional development.
   Number of post-graduate students.
   Research revenues and publications.
   Number of staff engaged in research.

Source: 'Strategic Plan 2004-2009' (Case Y 2004)

The plan was cognisant of changes that were about to occur within the Irish higher level education sector over the next decade. In particular, changes to the traditional student base, new funding arrangements, new societal and economic demands, and the inclusion of IoTs under the HEA umbrella. Compliance with these developments would require each IoT to *"explain what they are doing, how they are doing it and how well they are doing it."* (Strategic Plan 2004-2009 2004:16).

In April 2010, the institute, informed by section 1.8 of its Charter (Case Y 2008a), fulfilled its requirement to publish its strategic development plan for the next five years, by launching its 'Strategic Development Plan 2010-2015' (Case Y 2010a). Just like Case X, the development of this plan took place against a backdrop of difficult challenges for the state, the region in which the institute operates, and the higher education sector. Just like Case X, the institute committed to being proactive in its response to the 'National Strategy for Higher Education to 2030' (Hunt 2011) by agreeing to measure performance against efficiency and effectiveness benchmarks in the format of KPIs. For each of the five pillars, the following KPIs were identified:

1. Learning and teaching/student experience.
   Student enrolment.
   Student retention.
   Student achievement.
   Learning and teaching strategy implemented.
   Programme portfolio managed annually.
2. The learning environment/sustainability.
   Flexible modes of delivery.
   Campus development plan implemented.
   Graduate destination statistics.
   Students' evaluation of their experience.
   Unit cost.

3. Research and innovation.
   Top quartile status for research within IoT sector.
   Through flow of companies through IiBCs (innovation/incubation business centres).
   Formal research led collaborations with other institutions.
   Increased number of graduating research post-graduates.
   Number and value of research projects.
4. Community engagement.
   Participation rates of under-represented groups.
   Proportion of mature students.
   Number of on-line programmes developed.
   Number of programmes with 30 credits directly attributable to learning which is industry, business or community based or takes place overseas.
5. Internationalisation.
   Proportion of international students.
   Number of strategic agreements with HEIs overseas.
   Number of Case Y students studying abroad.
   Source: 'Strategic Development Plan 2010-2015' (Case Y 2010a)

In February 2011, in accordance with developing its third pillar (research and innovation) of its 'Strategic Development Plan 2010-2015' (Case Y 2010a), Case Y signed an MOU with a specialist institute (institute M) so as to maintain and develop both institutes' research capabilities (Case Y 2011a). This was followed in May 2011 with the signing of a memorandum of agreement (MOA) with a university (institute N) in their region, to service the educational, social and economic needs of their students and the wider regional/national community (Case Y 2011b). Based on the stimulus generated by the 'National Strategy for Higher Education to 2030' (Hunt 2011), Case Y signed a strategic alliance agreement with two other IoTs in July 2012, to facilitate delivering on jointly agreed strategic objectives that meet the higher educational service needs of the business and wider communities within its region (Case Y 2012a). Within this agreement is a stated ambition to achieve re-designation as a TU.

As requested by the HEA, in July 2012, Case Y responded to the HEA's document 'Towards a Future Higher Education Landscape' (Higher Education Authority 2012a). In its response, Case Y drew attention to the various collaborative partnerships it had entered

into and reiterated the strategic ambition among the three partner IoTs, to achieve the metrics required necessary to apply for re-designation as a TU. Case Y also stated the three partner IoTs were of the view that a regional cluster should be formed comprising their alliance along with a teacher training college, and institute N (Case Y 2012b). What exactly such a cluster would achieve was not made clear, with the HEA expressing concern that the proposed cluster *"involved several widely dispersed institutions with little evident benefit"* (Higher Education Authority 2012c:26). However, the HEA did not dismiss out of hand the proposed cluster, but did instead see it linking with the cluster to which Case X belonged, whereby both clusters could operate as one to maximise benefits for all constituent institutions and stakeholders (Higher Education Authority 2013b).

In the report titled "Report to the Minister for Education and Skills on systems reconfiguration, inter-institutional collaboration and system governance in Irish higher education" (Higher Education Authority 2013b), the proposed cluster comprising Case Y's alliance with a teacher training college and institute N is put forward as offering the potential to amalgamate with the cluster to which Case X belonged. The report also notes the longer term ambition of the three partner IoTs is to apply for re-designation as a TU. In September 2013, the three partner IoTs published an implementation plan which contained the stated objective to pursue a trajectory that achieves re-designation as a TU (Case Y 2013a).

The 'Strategic Development Plan 2010-2015' was designed to cover the period 2010-2015 (Case Y 2010a). Since publication of 'National Strategy for Higher Education to 2030' (Hunt 2011) significant developments within the higher education sector took place. Consequently, the EMT of Case Y undertook a mid-term review of 'Strategic Development Plan 2010-2015' (Case Y 2010a) to cover the period 2013-2016 Case Y (2013b). Their review found that overall, the pillars in the 'Strategic Development Plan 2010-2015' (Case Y 2010a) provide a good framework. However, collaboration between HEIs and the development of regional clusters gave rise to a new pillar titled "Collaboration and Alliances". Therefore the five pillars were revised to synchronise the 'Strategic Development Plan 2010-2015' (Case Y 2010a) with the performance compact (Case Y 2014a). As part of the process Case Y and the HEA agreed the KPIs to be applied. The five pillars for the 2013-2016 period are:

1. Learning and teaching.
2. Collaboration and alliances.

3. Research, development and innovation.
4. Student-community engagement.
5. Internationalisation.

Source: 'Strategic Plan Revision 2013-2016: Strategic Pillars Summary' (Case Y 2013b)

In February 2014, following a process of strategic dialogue between Case Y and the HEA, Case Y published its performance compact (Case Y 2014a). The performance compact recognises Case Y as an autonomous HEI, and contributes towards creating a transparent and accountable system of administration of state funding. By setting out Case Y's development plans and objectives, taken from 'Strategic Plan Revision 2013-2016: Strategic Pillars Summary' (Case Y 2013b), the quality of Case Y's strategic planning process is evaluated by measuring performance against the KPIs set out in the performance compact (Case Y 2014a). In May 2014, Case Y responded to the Minister of DoES decision regarding the development of synergies between clusters, by entering into an alliance with Case X (Case Y 2014c).

In September 2014, the three partner IoTs published the second version of their implementation plan to pursue a trajectory that achieves re-designation as a TU (Case Y 2014b). This plan included the attainment of an expression of interest by early 2015, submission of the plan to meet the criteria in early 2017, evaluation of the plan in late 2017 and application for re-designation as a TU in 2022. In March 2015, the three partners submitted their expression of interest for re-designation as a TU, signalling their ambition to become a TU that could better serve the higher education needs of the region (Case Y 2014d).

5.3.2.2 Case Y - meso level.

The institute is structured into various schools, executive functions, departments and central services. This structure has evolved in tandem with the growth of the institute. When new academic departments have been established, responsibility for their overall management has been allocated to a Head of School. These allocations are made on the basis of where these academic departments logically fit in terms of the overall institute structure. The EMT charged with implementing the 'Strategic Plan 2004-2009' (Case Y 2004) was headed by the Director and included the Secretary/Financial Controller (who also undertook the role of secretary to the GB), the Registrar, and Head of Learning and Teaching, (Case Y 2006b). The senior management team comprised six Heads of School

(School of Business, School of Humanities, School of Engineering, Hotel School, School of Science and School on another campus) all of whom reported to the Director and became full members of the EMT in 2007. All members of the EMT contributed to academic and executive decision making across the Institute and played a significant role in liaison with external stakeholders and organisations. In 2007 the title of Director changed to President. Each of the thirteen central services managers (including the IS manager) reported to either the Secretary/Financial Controller, the Registrar or the Head of Learning and Teaching. The heads of the thirteen academic departments each reported to a Head of School. The micro level roles of the Secretary/Financial Controller, the Registrar, the Head of Learning and Teaching, the six schools, the thirteen academic departments and the thirteen central services areas are discussed in section 5.3.2.3 (Case Y - micro level). In addition to the EMT, a management group, that derives its authority from the President to whom it is accountable, is made up of all heads of department and central services, supported the EMT. The organisation chart depicting the structure of Case Y for the period 2004-2009 is provided in appendix 24.

In 2006, a consultant undertook a review of the adequacy and effectiveness of the internal management structures and decision making processes (Case Y 2006b). The review noted the role of the EMT to be primarily strategic and the role of the management group to be essentially operational, and recommended the terms of reference for both bodies be reviewed with a view to clearly defining the strategic role of the EMT and the operational role of the management group. The consultant recommended the institute should initiate a detailed review of the management structure and its appropriateness, to the current and future needs of the institute. The consultant also recommended the setting up of a centralised management reporting unit be considered to oversee the production of reports for both internal and external use, and that consideration be given to the centralisation of major institute wide systems (Case Y 2006b).

Annual reports were published for each year from 2004 to 2009 (Case Y 2005, Case Y 2006a, Case Y 2007, Case Y 2008b, Case Y 2009b). These reports provided various accounts of activities that took place within the institute that aligned with the four strategic goals set out in the ‘Strategic Plan 2004-2009’ (Case Y 2004) and provided very detailed financial and other quantitative measures. While the reports provided quantitative measures for many of the sub-goals, they did not, as envisaged at the launch of the

‘Strategic Plan 2004-2009’ (Case Y 2004), compare formal targets against actual achievement.

By December 2009, consultation with all Case Y staff on the first stage of the next strategic plan had reached a conclusion. This consultation included seven focus group sessions involving fifty staff in total. Drawing upon this feedback, the strategic planning steering group (formed in June 2009 and headed by the President) envisaged prioritising five strategic pillars over the period 2010-2014, as follows:

1. Learning and teaching/student experience.
2. The learning environment/sustainability.
3. Research and innovation.
4. Community engagement.
5. Internationalisation.

Source: ‘Strategic Plan 2010-2015: Post Consultation Update’ (Case Y 2009a)

It was envisaged within the ‘Strategic Development Plan 2010-2015’ (Case Y 2010a) that an operational plan would be developed for each of the five pillars, with clear targets for each KPI within each pillar. I did not find any evidence to show this took place. The EMT charged with implementing the ‘Strategic Development Plan 2010-2015’ (Case Y 2010a) was headed by the President and included the Secretary/Financial Controller (who also undertook the role of secretary to the GB), the Registrar, Head of Research, and Head of International Activities. The executive function of Head of Learning and Teaching from the previous strategic planning period of 2004-2009 was disbanded, with its central service of international office now becoming the sole central service of the new executive function of Head of International Activities and its central service of student services now coming under the control of the Registrar. In addition, the central services functions of incubation centre and research were moved from the Secretary/Financial Controller to the newly created executive function of Research. The six schools were reduced to five, with the School of Humanities disbanded and its Department of Art and Design and Department of Humanities transferred to the Hotel School. All members of the EMT contributed to academic and executive decision making across the institute and played a significant role in liaison with external stakeholders and organisations. The heads of the twelve academic departments each reported to a Head of School. The micro level roles of the Secretary/Financial Controller, the Registrar, the Head of Research, the Head of International Activities, the five schools, the twelve academic departments and the thirteen

central services areas are discussed in section 5.3.2.3 (Case Y - micro level). In addition to the EMT, a management group, that derives its authority from the President to whom it is accountable, is made up of all heads of department and central services, supported the EMT. The organisation chart depicting the structure of Case Y for the period 2010-2014 is provided in appendix 25.

In June 2010, Case Y undertook an institutional review (Case Y 2010b). This review took place during a time when new challenges and opportunities were arising due in particular to changes in the macroeconomic and social environments, publication of Case Y 'Strategic Development Plan 2010-2015' (Case Y 2010a) and the imminent publication of the 'National Strategy for Higher Education to 2030' (Hunt 2011). The process was used to evaluate the perception of the previous strategy and to gather opinion on the five pillars for the new strategic development plan launched the previous month. It is very interesting to note that staff responses indicated a lack of awareness of operational planning for the previous strategic plan, even though an annual plan of work was agreed by the EMT. It is also very interesting to note a proposal for "*development of an overall strategic planning framework for the institute where school and functional area plans will be aligned with the implementation plans of the key objectives set out in the strategic development plan 2010-2015"* (Case Y 2010b:17), so that KPIs for each of the five pillars could be assigned and monitored. I did not find any evidence to show this took place. The institutional review process demonstrated that governance and management within Case Y had served the institute well. However, it was felt changes were now required so as to align the management structure and capacity, in support of the 'Strategic Development Plan 2010-2015' (Case Y 2010a).

A consultant was asked to review the existing management structures and reported back in July 2010 (Case Y 2010c). A follow-up on recommendations made in a previous consultant report Case Y (2006b), was performed as part of this assignment. Among the recommendations put forward by the consultant who requested these be implemented over the following twelve months were:

- The institute should move to a more consolidated school structure by setting up of two schools only, so as to encourage innovation, flexibility and collaboration across functions.
- EMT owners should be assigned to KPIs and operational plans at school and functional level should be aligned with the strategic development plan.

- Terms of reference for the EMT and the management group should be amended so that the EMT's focus be on strategic matters and the management group's focus be on operational matters. It was noted the EMT was excessively engaged at operational level rather than at strategic level.
- A new executive position of Head of International Affairs and Marketing be established and responsibility for the internationalisation pillar of the strategic development plan 2010-2015 be assigned to this post.
- A central MIS reporting unit be established and report to the Registrar's office.

Source: 'Case Y Organisational Structure Review' (Case Y 2010c)

With regard to the two recommendations made by the first consultant in 2006, the first; a detailed review of the management structure and its appropriateness to the current and future needs of the institute, was performed as part of the recommendations put forward by the second consultant (Case Y 2010c). However, the second; the setting up of a centralised MIS reporting unit to oversee the production of reports for both internal and external use, and that consideration be given to the centralisation of major institute wide systems, has not been addressed (Case Y 2010c).

5.3.2.3 Case Y - micro level.

The micro level comprises the schools, the academic departments reporting to each school, and the central services areas reporting to each executive function area. The main duties of members of the EMT, Heads of Department and Heads of central services are documented in their respective employment contracts, in generic terms.

Activity at the micro level for the two strategising periods being investigated (2004-2009 and 2010 to mid-2015), was undertaken availing principally of the same organisation structures (refer appendices 24 and 25). The differences of significance going from one strategising period to the other included the disbanding of the executive function of Head of Learning and Teaching. Its central services function of international office was allocated to the new executive function of International Activities and its central services function of student services was allocated to the executive function of Registrar. The School of Humanities was disbanded with its Department of Art and Design and Department of Humanities transferred to the Hotel School. This resulted in the number of schools being reduced from six to five. In addition, the central services functions of

incubation centre and research were moved from the executive function of Secretary/Financial Controller to the newly created executive function of Research.

The Academic Council Regulations and Procedures for Case Y sets out the procedures for the operation of schools, departments, and programmes. As these procedures are based on the IoT Act 2006, it is hardly surprising that the operation of schools, departments and programmes within Case Y are the very same as those within Case X. Like Case X, the Head of School reports to the President and is responsible for the strategic and operational management of the school within the overall strategic plan of the institute. The school is the management unit within which each of its allocated departments operate. The school's role includes the co-ordination of academic and administrative procedures, overseeing programme development, and allocation of staff and other school resources. From a financial perspective the Head of School is the budget holder and is accountable for all school expenditure against budget. The responsibility for ensuring quality management of the academic processes in accordance with institute policy, lies with the school its departments and programme boards. Individual members of staff are required to co-operate with these quality management procedures, within academic structures laid out. Each school has a school board whose minimum representation consists of the Head of School, Heads of Department and three representatives from each department. The function of the school board is to advise and assist the Head of School with regard to the academic and resource requirements for all programmes within the school. Such advice includes recommending membership of validation and review panels, putting forward list of internal and external examiners, advocating applications for accreditation, counselling on validation of programmes, and contributing to the annual reports for Academic Council.

Just like Case X, the departments that comprise each school are the basic organisational units to which resources and programmes are allocated. Each department is the operational academic unit responsible for delivering the day to day teaching programmes, timetabling of classes, ensuring the quality of each teaching programme and development of its programmes. Programmes consist of apprentice, level 6, level 7, level 8, masters and Ph.Ds. Each Head of Department is responsible for the provision of the most appropriate and effective learning services to students within their department, given the resources and budget available. The Head of Department is also responsible for staff development planning, programme delivery and in conjunction with lecturers, the quality assurance of each programme.

Each department has a department board. Its primary function is to advise and assist the Head of Department at an operational level, with regard to the academic and resource requirements for each programme within the department. The minimum membership of a department board consists of the Head of Department, the senior lecturers, the programme representatives for each programme within the department, student representatives and the line Head of School. In addition to its primary responsibility, the department board also advises the school board on academic matters relevant to work in its area, and monitors the learning and research resource within the department. The department board meets at least once per term. Appendices 28 and 29 provide a breakdown of number of students by department for each of the strategising periods 2004-2009 and 2010 to mid-2015. The most notable feature from these statistics, is the low numbers of students within the Department of Civil Engineering. These low numbers can be attributed to the collapse in demand for courses within this discipline, due to the downturn within the Irish construction industry.

Each programme in Case Y has a programme board consisting of all lecturers involved in its delivery, and ex officio, the Head of School, Head of Department and a minimum of two student representatives from the department. Programme boards act in an advisory capacity to the Academic Council and reporting is carried out through the line management structures within the institute. Boards must have an elected chairperson and secretary, and are responsible for the quality assurance of their programmes, including the monitoring of the delivery of the programme and student performance. Each programme board actively engages in; the implementation of the NFQ, the review of student performance and attendance, the evaluation and relevance of its programmes, and helping to identify resources required to support its programmes. The programme board validates examination results by way of participation in examination boards. All programmes are subject to a programmatic review every five years. The programmatic review is an opportunity for each programme board to carry out a fundamental re-appraisal of its programmes and make major modifications where considered appropriate. The programmatic review is a three-stage process. Initially the school undertakes a self-study which involves consultation with all the main stakeholders including student representatives, graduates of the programme, employers of graduates, industry and professional bodies. All programmes are reviewed with full regard to the changing external environment. A peer review by an external panel of experts competent to make

national and international comparisons in relation to the programmes takes place. The panel issues a report specifying any conditions and recommendations for approval.

While a programmatic review normally takes place on a five yearly cycle, the programme board is also responsible for revisions to syllabi and modifications to programme structure as appropriate, in between each programmatic review. The introduction of new programmes and amendment, termination or suspension of existing programmes are considered annually, in line with criteria agreed upon by the board. This process results in a portfolio of programmes that are relevant to the needs of students, industry and regional requirements. In addition to the formal approval and validation process for new programmes, there is a process through which amendments can subsequently be made to validated programmes. This evolutionary nature for amending existing programmes is an important aspect of the institute's quality assurance system.

For the strategising period 2004-2009, the two departments within the School of Business underwent programmatic reviews in the academic year 2008-2009, with their new programmes being validated in June 2009. The two departments within the School of Humanities underwent programmatic reviews in the academic year 2006-2007, with their new programmes being validated in May 2007. The three departments within the School of Engineering underwent programmatic reviews in the academic year 2008-2009, with their new programmes being validated in June 2009. The two departments within the Hotel School underwent programmatic reviews in the academic year 2008-2009, with their new programmes being validated in May 2009. The two departments within the School of Science underwent programmatic reviews in the academic year 2008-2009, with their new programmes being validated in June 2009. The two departments within the School Other Campus underwent programmatic reviews in the academic year 2006-2007, with their new programmes being validated in January 2007. For the strategising period 2010 to mid-2015, the two departments within the School of Business underwent programmatic reviews in the academic year 2013-2014, with their new programmes being validated in June 2014. The three departments within the School of Engineering underwent programmatic reviews in the academic year 2013-2014, with their new programmes being validated in June 2014. The three departments within the Hotel School underwent programmatic reviews in the academic year 2013-2014, with their new programmes being validated in May 2014. The two departments within the School of Science underwent programmatic reviews in the academic year 2013-2014, with their new programmes being validated in June 2014. The

two departments within the School Other Campus underwent programmatic reviews in the academic year 2011-2012, with their new programmes being validated in March 2007.

Just like Case X, in addition to the programme boards, a provisional programme board may be established for the development of a new programme leading to a major award. Such a board must submit programme documentation through the validation procedures of the institute. Membership of the provisional programme board comprises not less than four members, including the Head of School and Head of Department. The provisional programme board may include lecturers from other departments and external advisors if required. For the two strategising periods being investigated (2004-2009 and 2010 to mid-2015), no provisional programme boards were established.

While each of the executive function heads are members of the EMT charged with implementing the strategic plan of the institute for the two strategising periods being investigated (2004-2009 and 2010 to mid-2015), they each also have responsibility for a number of central services. The central services areas reporting to each, will now be considered from a micro level perspective.

For both strategising periods, at the micro level, the Secretary/Financial Controller had executive responsibility for finance, human resources, estates, IS services and lifelong learning. For the strategising period of 2004-2009, at the micro level, the Secretary/Financial Controller also had executive responsibility for research and the incubation centre. Activity within the finance department is managed by the Finance manager and includes production of accounts, maintenance of a fixed asset register, administration of payroll and management of petty cash. The finance department is also the custodian for policies and procedures that include collection of student fees, travel expenses for staff, and purchasing and tendering procedures. Activity within human resources is managed by the Human Resources manager and includes the management and administration of the following; employee assistance programme, employment policies such as grievance procedure and disciplinary procedure, recruitment policy and procedures, staff development, leave of absence policy and procedure, and the education sector superannuation scheme as it relate to Case Y. Activity within estates is managed by the Estate manager and includes maintenance of all buildings and management of the health and safety policy and procedures. IS services is managed by the IS manager who is responsible for the provision of information and communications technology to fulfil the

IS requirements of the institute's academic and administrative staff, and students. Activity includes the provision of access to all IS supplied by An Chéim via the e-infrastructure provided by HEAnet and the institute's own internal e-infrastructure. Open access computing facilities are provided throughout the institute as are specific computing facilities for staff. Other services provided by the IS department include email, video conferencing and an intranet for both students and staff. In addition, the IS manager and his team work closely with end users to identify ways of overcoming the rigidity of some core IS, to help meet end user needs. Activity within lifelong learning includes offering a range of accredited programmes on a part-time and/or accumulation of credits and certification of subjects basis. Case Y undertakes specific, customised initiatives in work based learning and specialised training, for national and international companies within the region. These initiatives integrate the expertise of practitioners and academics. For both strategising periods, Case Y's integrated approach to research, development and innovation, was delivered through its research centres and innovation hubs. For the first strategising period executive responsibility was that of the Secretary/Financial Controller, whereas for the second strategising period executive responsibility was that of the Head of Research. Research within Case Y is primarily focused on applied research and development, and its two main research centres are marine and fresh water, and medical and engineering technologies. Both centres are located on the main campus and complement Case Y's established expertise in science and engineering. Linking with enterprise is central to Case Y's research, development and innovation approach. The institute focuses on applying its knowledge in intellectual property and business incubation, by linking with national and international companies. As well as fostering academic excellence Case Y places a strong emphasis on supporting regional development, mainly through its four innovation in business centres. Such support includes providing a supportive environment to the entrepreneur including; office facilities, mentoring, access to research and introduction to investors. Through providing this support, Case Y has made a substantial contribution over both strategising periods, by transferring twenty three start-ups from the innovation in business centres to the commercial environment, providing 246 jobs.

For both strategising periods, at the micro level, the Registrar had executive responsibility for library, registration and records, quality assurance, and the MIS unit. For the strategising period of 2010 to mid-2015, at the micro level, the Registrar also had executive responsibility for student services, whereas the Head of Learning and Teaching

had responsibility for student services for the strategising period of 2004-2009. Under the management of the librarian, Case Y has a library at its main campus and in the school located at a separate campus. The library continues to be a critical learning resource at the institute. Resources at these libraries include over 130,000 books, over 80,000 e-books, approximately 500 print journals, access to over 30,000 online journal articles, over ,1300 DVDs and approximately 190 audio books. In addition to these resources, the libraries provide printing and photocopying facilities, and numerous WiFi hotspots. Services include borrowing of books and other material, and inter library loans. The library also provides information skills training workshops throughout the academic year, with an emphasis on skills required for writing theses. Specific to the main campus library are fifteen group study rooms, five training rooms and 150 PCs for open access. The library at the main campus also houses the IT help desk, which is located in the centre of the library, thus providing it with high visibility to all users. The Registrar is responsible for capturing and maintaining student records. One of the core activities involved in this process is to manage the annual registration of students via the student records IS Banner. Management of this process is done in close collaboration with IS Services. Quality assurance within the institute is designed to foster and embed a culture of continuous improvement. The Academic Council has overall responsibility for developing appropriate procedures for academic quality assurance in the design, delivery, learning and assessment methodologies of programmes having regard to change and best practice. It does so in a spirit of partnership with schools and departments. While all institute staff and students partake in achieving academic excellence, it is the Registrar who has responsibility for co-ordinating the implementation and maintenance of the institute's quality assurance framework, which is a series of academic policies and procedures. The quality assurance framework complies with the national framework for higher education quality assurance and continues to evolve with input from all stakeholders. Due to the difficulty in obtaining an integrated set of management information from the various IS within the institute, an MIS unit was set up and placed within the Registrar's area of responsibility. The unit is staffed with administrative personnel who can call on IS personnel when wishing to extract data from the various IS in a particular format. To date, the unit has proven very successful in providing management information required for EMT meetings that hitherto fore was too difficult to obtain. Within the Registrar's area of responsibility, the office of student services provides a wide range of supports to student in their learning. The "First Year Experience" initiative consists of the first five weeks welcome programme designed to ease the transition to higher education. The "Peer Support Programme" which is a scheme

offering cross-year support between students on the same programme, is designed to engage students more with their own learning and give them a sense of belonging in a large organisation. The independent learning unit, based in both libraries, contains a range of equipment and software aimed at making the academic challenge easier for students. The office of student services also administers the admissions and examination procedures throughout the year. The teaching and learning office engages in a number of activities to help students with their studies. These include technology enhanced learning, online learning, a mentoring system, recognition of any prior learning and a range of services for students with disabilities in response to a national increase in the number of students presenting with disabilities and learning difficulties. The number of students with disabilities registered with the institute rose from 74 in 2004 to 484 in 2015. A careers service is available to all students and recent graduates of the institute. The service helps facilitate the transition from education to employment and engages in the recruitment process between student and potential employers, with services that include CV preparation and interview techniques. A counselling service is provided in a safe and confidential environment, which can help students who are experiencing coping difficulties, to explore academic, personal or mental health concerns. The student health unit provides an acute illness/emergency service via a "walk in" system where a triage nurse makes an initial assessment, followed by a doctor's appointment if deemed necessary. A phone number for medical emergencies is also provided. Students who find themselves in financial difficulty, have access to two funds. The student assistance fund, which is funded by the Irish government and the European Social Fund, provides financial support to disadvantaged students who require additional financial support to help them benefit from their third level studies. The student support fund is a limited emergency fund available to students who experience unexpected financial difficulties during their time at the institute.

For the strategising period of 2010 to mid-2015, at the micro level, the Head of International Activities had responsibility for the international office, whereas the Head of Learning and Teaching had responsibility for the international office for the strategising period of 2004-2009. In 2015 there were a total of 82 nationalities in Case Y student population. The international office within Case X provides support to all of its international students as they prepare to come to Ireland and while they are in the country. Such support includes assisting with visa applications, helping to find accommodation and integrating international students within the student population through sport and other

social activities. Case Y takes part in Erasmus, which is a European Union funding exchange programme. Students from a European partner third level institution are eligible to study at Case Y for a semester or an academic year, provided their institution has an Erasmus agreement in their specific subject area. In 2015, 96 Erasmus students studied at the institute while 86 Case Y students studied in Europe.

5.4 Conclusion.

The macro environment in which cases X and Y operate remained relatively stable from 2004 to 2010, resulting in modest alteration to the way HEIs operated. Since 2011, there have been significant developments within higher education, all underpinned by the 'National Strategy for Higher Education to 2030' (Hunt 2011). Being the statutory body for higher education planning and development, the HEA has been and will remain into the foreseeable future, the main strategic overseer within the macro environment. Strategic planning at the IoT (meso) level is mandated through legislation (IoT Act 2006), whereas no such planning is mandated at the functional (micro) level, be it by legislation, the HEA or an institute itself. This is probably one of the principal factors as to why neither Case X nor Case Y have documented functional strategies, including an IS strategy. The following chapter presents the intra-case and cross-case analyses in accordance with each level (macro, meso and micro) explored.

Chapter 6 - Case analysis.

6.1 Introduction.

This chapter presents the intra-case and cross-case analyses, structured in accordance with each of the three levels explored i.e. macro, meso and micro. This in turn, facilitates answering the following research question, in the subsequent chapter:

How is the alignment of business and IS strategies practiced by IS managers in IIT?

At the practitioner level, the research question is firmly focused on the praxis carried out by the IS manager within each case. However, to obtain a rich view of the alignment of business and IS strategies within both cases, my analysis includes numerous references to the praxis of other practitioners at the macro, meso and micro levels (Walsham 1995b). As I facilitated the various voices and accounts gathered during data collection, I am therefore present in the analysis put forward (Heico van der 2003), or as Walsham (1995b:78) contends, I am not reporting facts, rather I am reporting my interpretation "*of other people's interpretations*".

Section 6.2 presents the analysis of Case X in accordance with the praxis carried out by various practitioners at the macro, meso and micro levels. Section 6.3 presents the analysis of Case Y in accordance with the praxis carried out by various practitioners at the macro, meso and micro levels. Section 6.4 presents the cross-case analysis structured in accordance with the three levels of macro, meso and micro, highlighting similarities and differences. The chapter is brought to a close in section 6.5 with concluding comments and a lead into chapter 7 where I present my mid-range theory in the form of a taxonomy that depicts how the alignment of business and IS strategies is practiced by IS managers in IIT.

6.2 Case X analysis.

Case X analysis is structured in accordance with the praxis carried out by the various practitioners at the macro, meso and micro levels, and explores how these praxis contribute towards the alignment of business and IS strategies within Case X.

6.2.1 Macro level.

The requirement to have a strategic plan is mandated through legislation namely, IoT Act 2006 (Irish Statute Book 2006), with the overriding concern focused on targets that are set in conjunction with the HEA, as these targets ultimately affect funding.

VP Academic Affairs: "*It's not as if the institute decided, oh we should have a strategic plan. We're required to have it.*"

The DoES, through the HEA, funds the IoT sector including An Chéim. Therefore the HEA has a clear view where money is spent, including the amount spent by An Chéim on IS. The money provided to An Chéim is "top sliced" from the total funds Case X and all other IoTs receive from the HEA. An Chéim acts as an IS broker for the provision of shared IS to the IoT sector. Its remit is a difficult one to attain as it is required to meet the core IS needs of all thirteen IoTs. Some core IS meet the needs of all IoTs while some do not. This is particularly evident with the finance IS whereby the requirements of all IoTs are the same, in comparison to the student registration IS whereby the requirements of all IoTs differ. This can lead to serious problems particularly when An Chéim are tasked with supporting an IS they had no role in selecting. Such an IS is the student registration IS that was selected by EMT members from various IoTs. The IS managers had no role in this task. It was not until the student registration IS was installed that its shortcomings in meeting business needs became apparent.

VP Research, Development and Innovation: "*The decision to choose the student registration systems was made by the wrong people … it is the IoT equivalent of PPARS in the Health Service Executive. It should just have been abandoned*".

Through the IoT Act 2006 (Irish Statute Book 2006), Case X has a statutory requirement to report to the HEA. This reporting is in the form of the metrics contained within the compact with the HEA (Case X 2014a), which contributes towards a transparent and accountable system of administration of state funding. The data for this reporting is, in the main, obtained from the core IS supplied by An Chéim. The IoT Code of Governance 2011 (Institute of Technology Ireland 2011) requires that an IoT's strategic plan specifies relevant indicators and targets against which performance can be clearly measured, through the application of KPIs or other such indicators. It is interesting to note that prior to the publication of the compact in February 2014, there were no formal metrics in place for

measuring the performance of Case X. The formal metrics within the compact are monitored and reviewed by Case X through the application of KPIs, however these measurements are not easily attainable, particularly those of an intangible nature. In addition, the current IS do not provide the data in the format required.

VP Academic Affairs: "*In higher education what you're measuring isn't always easily measurable … many are intangible and the data isn't available, particularly from IS."*

In accordance with the IoT Act 2006 (Irish Statute Book 2006), the President is responsible and accountable to the Minister for Education and Skills, and to the GB of Case X. This includes responsibility for the development and implementation of the institute's strategic plan, as well as responsibility for IS issues, albeit the institute employs an IS manager. Case X does not have a documented IS strategy. Like all other IoTs, Case X receives its core IS from An Chéim and its network services (apart from that inside the institute's buildings) from HEAnet. Case X can influence national IS as was the situation when it insisted a particular module be included in a release of the student registration system. The genesis of this started with discussion at the ISSG, to which the IS manager made a significant contribution. The results of this discussion were fed back to the EMT, who in turn fed back to the national development group (the steering group to whom An Chéim reports) and the module was included, albeit at a major cost. The praxis of the IS manager contributing to the ISSG, helped achieve this change to national IS.

In accordance with the IoT Act 2006 (Irish Statute Book 2006) and the institute's charter of 2009 (Case X 2009a), Case X is a regional college. It is only since the publication of the 'National Strategy for Higher Education to 2030' (Hunt 2011) that Case X began to concentrate on recruiting international students. Internationalisation is therefore driven from the macro level and data on international students (such as the intake of non-EU students and the associated revenue stream) now form part of the compact agreement with the HEA. The IS manager's role in the provision of this data is through providing technicians to assist in obtaining the data required from the IS supplied by An Chéim.

The finance needs of all IoTs are very similar. Case X became the pilot site for the implementation of the finance IS, which was already installed and working in many local authorities around the country, and had a strong presence in three of Ireland's universities at the time. During the pilot, the role of Case X was that of user acceptance testing, with

the IS manager's role confined to network and hardware provision. Since the pilot, the role of the IS manager is to schedule software updates while the role of An Chéim is to manage the relationship with the supplier of the IS.

The student registration IS was designed for the higher education market in the USA. An Chéim's role is that of an IS broker on behalf of the IoT sector, managing service contracts with the software providers. The role of Case X is limited to that of an end user, as it uses the system after it has been installed and tested in a number of other IoTs. The IS manager's role consists of scheduling the implementation of modules and supplying one of his technicians on a full time basis to help retrieve data from the system.

Other shared services include procurement of hardware and provision of wide area network services. Case X is part of a regional consortium that arranges hardware purchasing deals for its members. The IS manager represents Case X on this consortium and avails of its influence to obtain the best hardware deals it can for the institute.

Through the National IS Managers' Group, the IS manager has the opportunity to provide feedback to HEAnet and An Chéim. Representatives from both bodies attend National IS Managers' Group meetings to update IS managers on what is planned and to receive feedback from members of the group itself. However, this is very much an information exchange exercise rather than any form of decision making process, which does contribute to the frustration of the IS managers in that they have very little influence in determining what is provided by these shared services. In addition, the IS manager is a member of the services evaluation group for HEAnet and consequently is part of the evaluation team for new services. This provides him with more influence over future plans of HEAnet, than other IS managers within the sector.

Through representative user groups, An Chéim obtains user input for upgrades to national IS. One such group was the national design group for the modularisation module of the student registration IS. The IS manager seconded one of his technicians to the group, who had Case X's design for a new coding system implemented. Therefore by making available an IS technician who had expertise in developing a coding system, the IS manager contributed to the development of a core module contained within a national IS, that meets the specific needs of Case X. Another example as to how the IS manager's praxis has influence via a group was when, in conjunction with a management consultant

and IS managers from other institutes, the IS manager via the National IS Managers' Group, helped develop a generic set of IS policies for the sector. Case X tailors the policies to suit its business needs. This national focus has brought a structure and proactive approach to IS policy development, which when carried out at the meso level tended to be ad-hoc and resulted in much duplication nationally.

Now that national IS are in place, the future direction of IS strategy is not discussed at EMT level in any meaningful way, albeit that Case X does provide user input for national IS upgrades through having user, the IS manager and IS technician representation on selected user groups. Therefore, any IS that members of the EMT may wish to evaluate with a view to installing, and fall within the business areas covered by national IS, are never even considered by the EMT. All decisions around IS strategy take place at national level and this does inhibit implementation of IS to support business needs, at the meso level.

VP Academic Affairs: "*We operate as a sector, strategy is driven at national level. We're recipients of IS strategy, from a national perspective. We have our business strategy, we do develop that ourselves in-house.*"

An Chéim have made a number of attempts to provide a dashboard type system that can facilitate reporting various metrics, but the cost has been exorbitant and all attempts came to a halt as a result. With the emphasis now on reporting metrics to the HEA, the sector is coming to the view that a dashboard type solution is required.

VP Finance and Corporate Affairs: "*There is a lack of control over development and future shape of MIS as this is managed centrally by An Chéim, on behalf of all IoTs".*

6.2.2 Meso level.

The President, also described as the Chief Accounting Officer within the IoT Act 2006, has overall responsibility for the institute. The IS manager is responsible for the day-to-day running and maintenance of IS, and assists the EMT in the strategic development of IS. The role of the IS manager is primarily an operational role. The link between the IS manager and the EMT is via VP Finance and Corporate Affairs. The IS manager's regulatory role is limited to supporting the President in meeting the institute's regulatory requirements. Such support is in the form of helping with the provision of data from the

various IS within the institute and the development and compliance with institute IS policies.

President: "*The IS manager role is a middle management role and isn't part of the executive management team.*"

Development of both strategic plans (Case X 2006, Case X 2011a) received input from the full EMT, all of whom play a crucial role in their implementation. While the IS manager is not a member of the EMT, he does support the team through operating IS that provide the data utilised for monitoring progress of strategy implementation. In addition, through his own initiative and praxis, the IS manager supports the implementation of strategy, albeit that such initiatives and praxis are concentrated at the operational level. One such example is when the IS manager attends international conferences focused on new technologies that support teaching and learning, and then implements some of these new technologies within Case X thus supporting the educational philosophy contained within both strategic plans.

IS strategy is not discussed in any meaningful way by the EMT. The terms of reference for the ISSG (which is chaired by VP Finance and Corporate Affairs, to whom the IS manager reports) includes the development and implementation of an IS strategy, but this has not happened due to the ISSG's heavy focus on operational issues and the major influence An Chéim has on Case X IS strategy. This results in the IS manager focusing on what he perceives as "best practice", in his efforts to align IS with business strategy. From its inception in 2008, the ISSG meets very infrequently and when it does meet, it concentrates on issues of an operational rather than a strategic nature. This is reflected in its composition which is top heavy with middle managers. This is strongly influenced by the need for Case X to concentrate on running the day-to-day business processes efficiently, and report to the HEA in an accurate and timely fashion. Such reporting is not well facilitated by the IS supplied by An Chéim and therefore requires support from the IS manager and his staff. It also means that much of Case X IS activity is concentrated on academic and financial affairs to the detriment of other areas such as marketing and development. Despite these shortcomings, the IS manager does get to hear about end user issues concerning core national IS and does what he can to help. But because An Chéim drives the IS agenda, the IS manager's role is limited to that of an operational nature.

At the meso level, the VP Finance and Corporate Affairs has full control over funding for local IS. On an annual basis, with input from the IS manager, the IS budget is formulated based on agreed capital expenditure and the funding required to maintain current IS. By reporting to VP Finance and Corporate, the IS manager has an advantageous communication channel to explain IS funding requirements. The extent of this advantage is reflected in the fact that the IS manager receives sufficient funding to maintain and improve current IS.

IS services are spread across seven locations. It is headed up by the IS manager and consists of thirty five staff. The staff are made up of senior technical officers, technical officers and technicians. The department is divided into (i) network support, (ii) systems and support, which is the servers and desktops that serve the students and staff, and (iii) the information systems group which provides support to the business for the core IS supplied by An Chéim and for the institute's website and virtual learning environment. While the IS manager and his staff assist in retrieving data from the core IS supplied by An Chéim, it is always checked by a business person within Case X, as the EMT does not trust the student registration IS supplied by An Chéim, to produce valid data.

In May 2008, under the chairmanship of the EiSC, Case X went about setting up a KPI reporting system. Case X decided to monitor only those metrics required for reporting to the HEA. The main reason for this was that the HEA, in conjunction with the HEIs, was developing a system of measurement that would eventually form the compact agreements with each HEI. So as of mid-2014, Case X was only beginning to avail of KPIs as a tool to measure organisation performance, against the metrics within its compact. This is partially due to the fact that KPI measurement is something Case X was learning to do, partially due to the many different views among members of the EMT as to what the KPIs should be and partially due to the difficulty in obtaining the required data from the IS supplied by An Chéim. The role of the IS manager (via one of his technicians) is to provide data retrieval and analytical assistance to the VP Strategy and end users, for IS supplied by An Chéim. Case X would like to report on all its successes, but is unable to do so because it cannot measure many of its achievements. Understanding around the importance of being able to measure organisation performance of Case X is evolving slowly among members of the EMT, however agreement on what to measure and how to measure has yet to be reached. The compact with the HEA has certainly concentrated minds, but only on those metrics agreed with the HEA, principally for reasons of funding.

President: *"If we overstate the number of students that we have in the system and we get overpaid, then you end up having to pay it back and probably get fined as well."*

While core IS are provided by An Chéim, the IS manager plays an important operational role in helping to solve user related problems for Case X, particularly with the student registration system. Not all of these problems are IS problems and have more to do with the IS manager finding ways for end users to work with and work around the IS, by providing advice through dialogue and negotiation. In addition, the IS manager leads a team that provides training for end users in the use of national IS.

The IS manager supports the implementation of national IS infrastructure projects within Case X. While he does not decide on the makeup of the internal network, e.g. moving to category 5 cable, as that is a national decision, he does develop a plan for its implementation that has the least impact on staff and students. Again the role is operational and it is very important that the IS manager knows the schedules of An Chéim and HEAnet for the upgrades.

Unlike national IS supplied by An Chéim, Case X, through its IS manager and in conjunction with user management, decides on the local IS it provides to students and staff. This comprises hardware and software, including applications that are not provided nationally by An Chéim, such as the timetabling system, the student hotel system and the system used for student placement. In doing so, the IS manager is always cognisant of "best practice" which he strives to implement within budgetary constraints. During the period 2006-2010 a major upgrade was undertaken to ensure the student learning environment was adequately served. This upgrade which included upgrading computer laboratories through the replacement of network infrastructure, desktop computers and associated software, was led by the IS manager. The IS manager and his team specified the requirements, undertook the purchasing and installed the hardware and software. When students require assistance in using these facilities, they call the help desk that is managed by the IS manager.

Most IS innovations within Case X are driven by the IS manager. The IS manager has a strong sounding board amongst a range of academics who provide him with feedback on what does and does not work, but it is the IS manager who comes up with new ideas, many

of which he obtains from the outside by attending conferences and visiting other HEIs. An example of how the IS manager brings ideas in from then outside is what he did with the 150 seat lecture theatres. Academics complained about the theatres not being the most suitable teaching environments as they contained poor projection facilities. While on a visit to MIT in Boston, the IS manager came across a facility they had implemented called "idea paint". On his return, the IS manager implemented "idea paint" in the 150 seat lecture theatres and now academics have a large space to project onto and utilise. This is just one example of what the IS manager has done of an innovative nature, to improve teaching facilities. Much of what the IS manager does locally comes about through such innovation.

The IS manager can carry out work on national IS that does not impact on the core code and design, and does not compromise the integrity of the data. An example of this was in 2010, when the President tasked the IS manager with developing a pilot to measure KPIs for one of the institute's schools. The IS manager and the VP Finance and Corporate Affairs, visited another IoT to see what they were doing in terms of mining data from the student registration IS. This resulted in the IS manager developing a prototype that reported on KPI progress. He presented the prototype and a plan for its full development to the EMT, but due to the loss of a developer the project was abandoned. Although the development went no further than a prototype, the work undertaken by the IS manager contributed to the institute's strategic planning process. Another example is when the IS manager and the VP Finance and Corporate Affairs came together and devised a method by which end users can input their own purchase orders without compromising data integrity.

The IS manager led the successful integration of core IS between the former stand-alone HEI and Case X. As part of his work, the IS manager negotiated with key EMT members what would and could be done, to help achieve the integration. This praxis of negotiation was vital in achieving a successful outcome to the integration of core IS within the newly formed institute.

VP Academic Affairs: "*I had one view of what I wanted, IS manager had a different view. We talked about it and we've come to actually almost a bit of both, which is a workable solution*"

The IS manager has played a major role in the success of the virtual learning environment. He cannot force academic staff to use it, but by providing the system on every desktop and by providing training in its use, most academic staff now use the virtual learning environment to some degree or other. This is a prime example of a praxis supported by the IS manager becoming an institute wide practice. The institute's website is part of its interface with the external environment. The IS manager, through his technicians, places content on the website in a way that engages people's attention and takes the content down in a timely manner, thus assisting in the communication efforts of the institute. The website also contains a student portal and a staff portal. An Chéim did want all institutes to use the staff and student portals that came as part of the student registration system, but many of the IS managers resisted implementing this national solution on the basis that it was far too expensive. Case X, through its IS manager, developed their own staff and student portals. This is one example of where the IS manager undertook a successful in-house development, but outside core IS, and saved the institute money in the process. The virtual learning system and the staff portal are examples of IS that the IS manager has supplied to end users, for the end users to avail of as they see fit. In these instances the end users did not know the capabilities of these IS until they were placed on their desktops, which they then worked with and shaped to suit their requirements.

Head of School Business and Humanities: "*So he's provided a platform, he's there as a support, but he's kind of charged us with the responsibility of what we want to do with it and how we want to develop it*".

While attending the national IS Managers' Group is a way to hear about the plans An Chéim and HEAnet have for the sector, the IS manager ceased attending these meetings because he perceives them as a one-way communication channel, with no heed paid to the voices of IS managers. He learns of the plans HEAnet and An Chéim have for the sector through Case X's VP Finance and Corporate Affairs.

6.2.3 Micro level

Apart from the metrics required for the compact with the HEA, Case X is very aware of the need to measure against its strategic plan, as evidenced from the 2009 review of its 2006-2010 strategic plan (Case X 2009b). To this end, in 2010 the President tasked the IS manager with developing a pilot to measure KPIs for one of the institute's schools. The IS manager produced a plan to undertake development of a dashboard that would report on

KPI progress, but this came to a halt when the IS manager's lead developer resigned. Due to human resource policy, the IS manager could not replace his lead developer. So while the IS manager was willing and able to lead the development of a pilot dashboard to help measure organisation performance, it was human resource practice that prevented the development from progressing. In its place, the President, availing of many design features within the IS manager's plan for the dashboard, developed a template that each Head of Function and Head of School used to report performance of their area against the strategic plan 2011-2020 (Case X 2011a), to the institute's GB. Therefore, by developing a plan for a dashboard, the IS manager influenced how each Head of Function and Head of School reported on organisation performance to the GB.

Many of the IS meet end user data processing needs at the micro levels. However, these IS are not integrated in a manner that provides management information required. Even on a stand-alone basis, the student registration IS does not meet the institute's management information needs and is considered not fit for purpose due to the difficulty it presents in retrieving data. For this reason, one of the IS manager's technicians is allocated on a full time basis to extracting data from the system for end users. It is through the allocation of this staff member that the IS manager helps obtain data required for management information, particularly from the student registration IS. Despite its deficiencies with data retrieval, the student registration IS has helped reduce significantly the administration workload by enabling students carry out on-line registration and access their examination results on-line. The IS manager led the implementation of these modules.

The IS manager through his team, provides excellent network support for the incubation centres. This support takes the form of internet provision and firewall security, which adds to the attractiveness of the incubation centres. In the incubation centres of other IoTs, clients are left to fend for themselves when it comes to installing internet and firewall security. The provision of this support is greatly appreciated by the VP Research, Development and Innovation, who has responsibility for the incubation centres.

VP Research, Development and Innovation: "*Of all the functions in the organisation, IS get what we're doing in the enterprise space … they provide the best support of any of the IoTs, they get it*".

The IS manager, through his understanding of the need to support day-to-day business processes, assigns technicians to help users and management obtain the data they require from the core IS. This support is crucial to the running of the business and reporting to external bodies. Indeed, the EMT no longer question the validity of financial data, rather they focus on what the data as presented, is telling them.

VP Finance and Corporate Affairs: "*A critical component of that evolution has been the leadership provided by the IS manager*".

Another example of the IS manager's willingness to support the end user at the micro level was the introduction of on-line leave sheets. This was driven by the IS manager who knew of its availability and resulted in saving a great deal of administrative time within the human resource department that was previously spent operating a manual system. The same drive to improve processes and gain greater efficiencies has occurred with other IS modules, underpinned by the knowledge contained within IS services and the IS manager's willingness to support the end user. The IS manager played a crucial supporting role in the implementation of the human resource and finance IS. This support was in the form of managing data migration from the old IS to the new IS, carrying out system testing and managing the provision of end user training. The IS manager's focus with these initiatives has always been on supporting the business.

When the Minister of DoES launched the campus masterplan in September 2012, it was decided to do so in a city centre campus. The IS manager installed the projector facilities for the launch, ensuring it was done on time, thus contributing to a successful and high profile launch for the institute.

The IS manager, through his technicians, plays a supportive role in the production of data for the EMT. Such data includes student retention and completion statistics, all of which go to the HEA, the Sunday Times annual survey and other external groups. The EMT have confidence in the data sourced from the various IS apart for that sourced from the student registration system. Even at a course board level, the data presented that is sourced from the student registration system is, in many cases, inaccurate. The IS manager and his technicians do what they can and in many instances identify the unreliable data and flag it, before presenting it to the end users.

President: "*It's not a strategic role as in initiating everything, it's very much supportive*".

While Case X does not choose the IS it receives from An Chéim, this can result in IS shortcomings in some areas. An example of this includes an IS for managing research. The VP Research, Development and Innovation chose and purchased Microsoft Dynamics to help with this task, with the IS manager's role limited to installing the system on local hardware. The Research, Development and Innovation function is very much on its own when it comes to running and maintaining the system. Another example is the student hotel system whereby the IS manager and his team were very supportive in terms of installing the system, but could do very little in terms of communicating with the supplier as it was the Head of School who chose and purchased the system.

6.2.4 Summary comments on Case X analysis.

Analysis of the data provides rich findings as to how the alignment of business and IS strategies is practiced by Case X practitioners, at the macro, meso and micro levels.

At the macro level, praxis are principally shaped by legislation requiring Case X to have in place a strategic plan with formal metrics, so as to measure the institute's performance vis-à-vis its compact with the HEA and the IoT Code of Governance 2011. This in turn affects praxis required to operate IS to maximum business effect, which includes ensuring IS are implemented and operated in a secure and coherent manner, supported by IS policies developed at national level. As the Case X representative on a regional consortium, the IS manager obtains excellent hardware purchasing deals for Case X and as a member of the services evaluation group within HEAnet he has meaningful input to the future plans of HEAnet. Another avenue whereby the IS manager provides input to the national IS that can benefit Case X, is through seconding technicians to national design groups established by An Chéim. All decisions around IS strategy take place at a national level, with neither the EMT nor the IS manager playing a role in its formulation. This is primarily the reason as to why the IS manager no longer attends the National IS Manager's Group meetings, as they serve to inform IS managers on IS strategy, rather than to debate and contribute towards IS strategy. Most IS innovations are driven by the IS manager who obtains many of his ideas from outside the institute by attending conferences and visiting other HEIs.

At the meso level, while the IS manager does not have executive responsibility for the institute's strategic plan, he does provide support to the EMT in their efforts to monitor and

report on progress against the metrics within the strategic plan, by managing a team of IS technicians that operate the national IS used to supply the data required, and by undertaking various initiatives such as the development of a pilot dashboard to help measure organisation performance against a set of KPIs. Although a documented IS strategy is not in place for the institute, through his own praxis, the IS manager supports the implementation of strategy at the meso level. These praxis include contributing to discussion at the ISSG thus influencing developments to national IS, providing IS that support teaching and learning, helping inform members of the EMT as to the composition of KPIs, and obtaining sufficient funding to maintain and improve current IS that support the business. Other examples include allocation of an IS technician on a full-time basis, to help end users extract data from national IS for management information purposes and assistance provided by the IS manager in configuring modules within the IS to suit Case X's business needs. The IS manager and his team carry out regular upgrades to the internal network, desktop provision and the student learning environment, all supported through the help desk managed by the IS manager. The praxis of negotiating schedules for the implementation of national IS updates with end users, ensures least disruption to the business, while at the same time improves the impact these IS have in helping to run the business. Training on IS is an on-going praxis provided to end users by the IS manager and his team.

Similar type praxis are also carried out at the micro level, whereby executive functions, schools, departments, central services and individuals are provided with support for their various IS by the IS manager and his technicians. By structuring IS services into three main divisions, the IS manager has streamlined delivery of this support. Praxis include supporting the implementation and running of business IS that are required to help meet a specific school or department business needs, that are both available and not available within the suite of IS supplied by An Chéim. This support also extends to include end user training and vendor relations. Other IS support the IS manager and his team provide at the micro level includes network and internet facilities to the incubation centres.

6.3 Case Y analysis.

Like Case X, Case Y analysis is structured in accordance with the praxis carried out by the various practitioners at the macro, meso and micro levels, and explores how these praxis contribute towards the alignment of business and IS strategies within Case Y.

6.3.1 Macro level.

The requirement to have a strategic plan is mandated through legislation namely, the IoT Act 2006 (Irish Statute Book 2006). Following publication of the National Strategy for Higher Education to 2030 (Hunt 2011) changes started to take place at national level. This occasioned a review of the institute's Strategic Development Plan 2010-2015 (Case Y 2010a) in 2013, resulting in a Strategic Development Plan for the period 2013-2016 that aligned with the Compact (Case X 2014a) between Case Y and the HEA. This fulfilled the institute's statutory requirement to have a strategic plan in place and at the same time aligned the plan with metrics that determined up to 10% of the institute's funding from the HEA. It also fulfilled the requirement of the IoT Code of Governance 2011 in that an IoT's strategic plan specify relevant indicators and targets against which performance can be clearly measured, through the application of KPIs or other such indicators.

Selection of national IS was carried out by EMT members from various IoTs. The IS managers had no role in this task. Now that national IS are in place, the future direction of IS strategy is not discussed at EMT level within Case Y. All decisions around IS strategy take place at national level and this does inhibit implementation of IS to support business needs, at the meso level.

IS Manager: "*We are tied into this national IS strategy and have to work with it".*

Sufficient funding was provided by the DoES to procure the central IS that are provided to the IoT sector via An Chéim. However, funding for an MIS layer to sit on top of the individual applications was not provided. The board of An Chéim does not have an IoT IS manager as one of its members. To no avail, some IoT IS managers objected to this on the basis that they have the skills and knowledge required to offer advice and guidance pertaining to IS provided by An Chéim. When An Chéim were asked to carry out work of an MIS nature, the quotation supplied by An Chéim rendered the work prohibitive and resulted in a small number of IoTs within the sector (including Case Y) developing their own software, which went against the shared services model. Case Y did revert to the shared services version of the software, so as to ensure it was in a position to receive upgrades as they became available. EduCampus Services Limited, which since April 2015 has taken over from An Chéim, has as one of its main aims the provision of a more coherent and affordable set of MIS for the sector.

Secretary/Financial Controller: "*What we can be absolutely sure of is that ten years on, the service model, the solution that we now require isn't the one that was there ten years ago."*

In accordance with the IoT Act 2006 (Irish Statute Book 2006), the President is responsible and accountable to the Minister for Education and Skills, and to the GB of Case Y. This includes responsibility for the development and implementation of the institute's strategic plan, as well as responsibility for IS issues, albeit the institute employs an IS manager.

In accordance with the IoT Act 2006 (Irish Statute Book 2006) and the institute's charter of 2008 (Case Y 2008a), Case Y is a regional college. It is only since the publication of the 'National Strategy for Higher Education to 2030' (Hunt 2011) that Case Y began to concentrate on recruiting international students. Internationalisation is therefore driven from the macro level and data on international students (such as intake of non-EU students and associated revenue stream) now forms part of the compact agreement with the HEA. The IS manager's role in the provision of this data is through providing technicians to assist in obtaining the data required from the IS supplied by An Chéim.

The institute's IS manager was central to the development of sector wide IS policies. He was a member of a committee within Case Y that drafted a set of generic IS policies for the sector. Recommendations from the committee were provided to a management consultant, who in conjunction with the IS manager and IS managers of other institutes via the National IS Managers' Group, developed a suite of generic IS policies for the sector. Each IoT can tailor the IS policies to their individual requirements once they conform to industry standard ISO 27002. This national focus has brought a structure and proactive approach to IS policy development, which when carried out at the meso level tended to be ad-hoc and resulted in much duplication nationally.

Secretary/Financial Controller: "*That's the way to go – that's a shared services model*".

Other shared services include the provision of wide area network services by HEAnet. HEAnet is the body that provides network infrastructure outside the confines of the institute and also offers other services such as file storage and transfer. The shared service provided by HEAnet has been very successful. Development and maintenance of the national core IS for each of the thirteen IoTs is outsourced to An Chéim. These IS are hosted and managed centrally by An Chéim, with each IoT in the country having access to

the IS via the network provided by HEAnet. The IS manager has no role in developing upgrades to national core IS. Some of these IS meet the needs of IoTs while some do not. This is particularly the case with the finance IS compared to the student registration IS. It falls to each IoT to manage its own management reporting from these IS, which in the case of Case Y is carried out by the MIS unit within the Registrar's office, sometimes assisted by the IS manager and his technicians.

The Secretary/Financial Controller of Case Y is a board member of An Chéim and is Chairman of HEAnet. By reporting to the Secretary/Financial Controller, the IS manager does, in the case of major sector projects, provide the Secretary/Financial Controller with his views. This praxis by the IS manager helps the Secretary/Financial controller better understand the importance of decisions that come before the boards.

Prior to 2005, the IS manager was as a member of a national steering group tasked with the implementation of national IS and therefore had a very clear line of communication with An Chéim. Once the steering group was disbanded, the IS manager's primary line of communication at the macro level became the National IS Managers' Group, which is the forum in which the IS manager has the opportunity to communicate with HEAnet and An Chéim. Representatives from both bodies attend the National IS Managers' Group meetings to update IS managers on what is planned and to receive feedback from members of the group itself. However, this is very much an information exchange exercise rather than any form of decision making process, which does contribute to the frustration of the IS managers in that they have very little influence in determining what is provided by these shared services. The absence of a direct line between the IS manager and An Chéim can place the IS manager in a precarious position. One such example occurred in 2009 when an Chéim proceeded with an upgrade to the student registration IS, while Case Y concentration was on uploading details for repeat examinations. The IS came to a halt and end users within the institute looked to the IS Manager for a solution, even though they knew there was very little he could do.

IS Manager: *"The student's union president said to me that he understood as IS manager I had very little effect or control over what was happening, but every student looks to the IS manager to sort this problem out"*.

The IS manager did try to develop a management reporting module with assistance from an external consultant. The project reached the stage where prototypes were built and then funding was sought from the EMT to develop the full module. The funding was not approved on the basis that this was an area for An Chéim and not the IS manager. The problem was exacerbated by politics, with the President and Secretary/Financial Controller of Case Y being board members of An Chéim.

Registrar: *"When you realise the institute is a very strong advocate with the President and the Secretary/Financial Controller on the board of An Chéim, there isn't a lot you can do yourself to go outside of that, nor can the IS manager"*.

By being a member of the national group that designed the common standard design for the student registration IS, the IS manager has an in-depth understanding of the system. Case Y has benefited in that the IS manager provides support for projects that require his expertise.

Registrar: *"We were given the flexibility to play with the system for the modularisation project because there was confidence in the IS manager … we had that latitude as a consequence of the expertise of the IS manager"*.

The IS manager is a board member of an IT association within Case Y's region. His role is to represent Case Y by contributing to deliberations on educational IT issues. The emphasis of the group is collegiate rather than competitive.

The institute's website is part of its interface with the external environment. A portal, linking the three websites of the three IoTs that have come together to seek TU status, has been developed to help with the marketing effort. The IS manager's role is the provision of technical assistance for the portal and Case Y website.

6.3.2 Meso level.

The President, also described as the Chief Accounting Officer within the IoT Act 2006, has overall responsibility for the institute. The IS manager is responsible for the day-to-day running and maintenance of IS, and assists EMT members with the strategic development of IS. At the meso level the IS manager's efforts are concentrated on operational issues. The IS provided to students and staff is very much informed by the staff and student

surveys administered by the IS manager as part of institutional reviews. IS services is located on the main campus, with some IS technicians located on the smaller campuses. It is headed up by the IS manager and consists of eighteen IS technicians (excluding the IS technicians that report directly to Heads of School). There is no formal structure, with each of the eighteen IS technicians reporting to the IS manager. The IS manager and his team are directly responsible for the provision of all IS services to the institute except for the core IS supplied by An Chéim. The services provided by the IS manager and his team include network support, application support, provision and support of servers, desktops and associated software for students and staff, including support for the institute's website and virtual learning environment.

Head of School of Science: *"There's a big focus on making sure that the day-to-day services run, and that's what's expected of the IS manager"*.

Within the institute, IS services is not considered strategic. The IS manager does sit on the institute's management group which is chaired by the Head of School of Business. The reporting line for the IS manager has always been to the Secretary/Financial Controller.

Member of Executive: "*IS services always came under the remit of the Secretary/Financial Controller and when you hide something like that, then I think that speaks volumes to the importance you attach to it*".

Although IS Services, like other functions in the institute, does not have its own strategic plan, the IS manager contributed to the development of the institute's two strategic plans by taking part in focus group sessions. So while work undertaken by IS Services does support what is in the institute's strategic plan, concentration of both the EMT and the management group is very focused on day-to-day issues, with strategic praxis limited to development and/or revisions of the strategic plan.

Head of School of Business: "*I would say it's more of a strategic hope than it is a strategic plan*".

Not one member of the EMT has the same level of knowledge that the IS manager has pertaining to IS issues, be they strategic or operational. The IS manager, through the

Secretary/Financial Controller, assists the EMT with IS strategic issues. This part of the IS manager's job is clearly defined in his job specification.

IS manager job specification: "*The IS manager will assist senior management in the strategic development of computing services in consultation with appropriate members of the Institute's management team*".

By reporting to the Secretary/Financial Controller, the IS manager has an advantageous communication channel to help explain IS funding requirements. For IS projects of a large nature the IS manager makes presentations to the EMT. These presentations are supported by a business case which often contains outcomes specified within the strategic plan, as a means to strengthen the argument for funding. An example of one such project was when the IS manager was tasked with developing a plan to significantly upgrade the institute's website. His presentation resulted in a strategic decision to invest in the project.

Registrar: "*This is as an example of how we rely on the IS manager to take a lead on things, and he did and that has been quite successful*".

Based on budgetary plans, the IS manager plans ahead to ensure the IS infrastructure requirements of the institute are met. This includes internal network requirements, academic IS requirements and student IS requirements. This work involves specifying computer laboratories, preparing the tenders and negotiating with suppliers to obtain the best deals possible.

President: *"The IS manager plans the infrastructure and ensures we have in place the day-to-day bread and butter stuff like the internet, emails and the internal network"*.

Through the IoT Act 2006 (Irish Statute Book 2006), Case Y has a statutory requirement to report to the HEA. This takes the form of metrics contained in the compact with the HEA (Case Y 2014a) and metrics contained in the institute's expression of interest for re-designation as a TU (Case Y 2014d). The EMT are acutely aware of the need for improved MIS, to enable the institute report to the HEA in an efficient and effective manner. The data required for this reporting is in the main, obtained from the core IS supplied by An Chéim. The institute assigned the Registrar with special responsibility to co-ordinate the work required for this reporting. To this end, the MIS unit is located within

the Registrar's area of responsibility. Staff within the unit do not have the technical knowledge to obtain all the data required by the EMT, from the national IS. Therefore, due to his technical knowledge of core IS and how to mine the data within, the IS manager and some of his technicians play a supportive role in constructing the required metrics for the EMT. Such metrics include student retention and completion statistics, all of which go to the HEA, the Sunday Times annual survey and other external groups. Prior to the publication of these metrics, formal metrics for measuring the performance of Case Y were not in place. The annual reports published each year from 2004 to 2009 (Case Y 2005, Case Y 2006a, Case Y 2007, Case Y 2008b, Case Y 2009b) provide quantitative measures for many of the sub-goals within the strategic plan 2004-2009 (Case Y 2004), but none of these reports compare actual performance against these measures. The lack of awareness exhibited by staff towards measurement of operational plans as evidenced from the institutional review of 2010 (Case Y 2010b), revealed a deficiency in performance measurement for this period. Similarly, the absence of evidence to illustrate operational plans were developed with targets for each KPI, so that progress against the five pillars in the strategic development plan 2010-2015 (Case Y 2010a) could be measured, is also indicative of a deficiency in performance measurement.

Head of School of Business: "*Most of the self-evaluation that I've seen around here is largely qualitative. It's qualitative in the sense that we must be doing something right because our points haven't dropped and we get students through"*.

The MIS unit within Case Y is the main provider of data for KPIs. The compact with the HEA (Case Y 2014a) and the institute's expression of interest for re-designation as a TU (Case Y 2014d) has focused attention on the requirement to establish KPIs. As part of their work to seek re-designation as a TU, Case Y has in collaboration and with agreement of the other two IoTs with whom it is partnering, employed a full time data analyst to help establish and measure a set of KPIs. Prior to the publication of these documents and the KPIs within, the main KPI for Case Y was "student headcount" and all other targets were driven by this metric. Therefore KPI establishment has undergone major change, a change that Case Y is in the middle of implementing. Having arrived at this critical juncture, rather than retire, the IS manager was appointed to a new full-time position tasked with developing, in the first instance, a proof of concept for management reporting that will meet the institute's reporting requirements to the HEA. Without such a reporting system, the institute will find it extremely difficult to effectively measure progress of the compact

with the HEA and progress towards TU re-designation requirements. This appointment was somewhat ironic, bearing in mind that the IS manager was admonished by the EMT when he developed a prototype reporting system a few years earlier.

The IS manager's regulatory role is limited to supporting the President in meeting the institute's regulatory requirements. Such support is in the form of helping with the provision of data from the various IS within the institute, and the development and compliance with institute IS policies.

Some international students return to their home place during term and to help them continue with their learning, the IS manager provides IS that enable distance learning take place. For this to take place successfully, the lecturing staff and the IS manager need to liaise closely so as to ensure the IS that enable distance learning, are available for the time required.

From the generic set of IS policies for the IoT sector, the institute developed a set of IS policies to suit its own needs. The committee tasked with their development and on-going review includes the President, four other members of the EMT and the IS manager. The IS manager's role is to draft the policies with the executive sponsor (Head of School of Business). The IS manager's focus is very much on assessing the operational feasibility of what is proposed, whereas the executive sponsor's focus is on compliance with the institute's audit requirements. The draft policies are discussed by the committee and amended as necessary. An example of one such policy is the institute's policy on software installation. IS technicians that report to Heads of School rather than the IS manager, will only install software that conforms to the institute's software policy.

Head of School of Campus A: "*That's against IS policy, you can't do that … local IS technicians tend to be very aware of that*".

EMT members often look to the IS manager when there is a crisis, such as that in 2009 when the student registration IS came to a halt. This "fire-fighting" type praxis can be very frustrating for the IS manager, particularly when contrasted with what he can do when given a free reign. Most IS innovations within Case Y are driven by the IS manager. The IS manager obtains ideas from outside Case Y by attending the National IS Managers' Group, conferences and visiting other HEIs. Indeed it was from his visit to a Scottish

University that he obtained the idea to build the IS centre in the library. The innovation was aided by staff from the Scottish University who visited Case Y and carried out a number of workshops to explain the concept and it benefits. In conjunction with a firm of architects, the IS manager developed a solution resulting in the construction of the IS centre within the library, whereby all students now have access to the basic set of IS resources they require. The IS centre is perceived as a major success among the student and academic communities, which came about by assigning the IS manager the task of chairing a group to acquire the best solution.

IS Manager: *"The President said that's yours, you go sort it out, travel to where you have to travel to and find out what goes on and what we can do".*

Within the institute, various schools and departments often source IS themselves to help meet school/department specific requirements, that national IS do not. The IS manager provides technical support for these IS, by liaising with the external providers to ensure the IS conform to the institute's technical requirements and IS policies. One such example was an on-line examinations IS, whereby the institute was considering the feasibility of engaging in electronic communication with external examiners, so as to make the process more efficient. The IS manager's role was to evaluate the technical feasibility and conformance with the institute's IS policies.

When the IS manager comes across an IS (which may come from an end user) he feels may benefit Case Y, because of limited resources he will organise a pilot. This has been his praxis since 2004 and has resulted in the establishment of a community of practice, which the IS manager avails of as a sounding board for feedback. One such example was how the end users drove the proliferation of the virtual learning environment. In this instance, the IS manager put together a team of six academic staff and two IS technicians, who ran a pilot. The academic staff then sold it to the academic community, with the IS manager and the IS technicians providing the infrastructure. The students now drive the development of the system, with IS services hosting it and the academic community providing the content. This is an example of where the IS manager introduced an IS to the institute, for the end users to avail of as they saw fit. With the help of training from the IS services, the end users got a sense of what the system could do, which they then worked with and shaped to suit their requirements.

The IS manager needs to manage and prioritise the support requests he receives from end users. Those requests aimed at serving the needs of 7,000 students and 650 staff, receive priority over those requests that might for instance serve only a cohort of 40 students and 10 staff. An example of this occurred in summer 2014 with the introduction of wireless printing that enables all users print from anywhere in the institute to a printer they are authorised to use. Another example is the provision of training material for the large number of academic staff and students who use the virtual learning environment. With the Educational Training Officer (ETO) reporting directly to the IS manager, it makes it easier for the IS manager to ensure facilities within the training room are available and functional, when required.

6.3.3 Micro level

Some schools within the institute have their own local IS to support local needs, such as computer aided engineering software within the School of Engineering. These Schools have their own dedicated IS technicians who report to the Head of School and not the IS manager. Consequently, the IS manager's role in relation to these IS and technicians can at times, be somewhat unclear. To help overcome this ambiguity, the IS manager acts as a liaison between the Heads of School and the local IS technicians in the provision of IS services, because the IS manager views all such issues from an overall institute and not a school perspective.

Groups do form on an ad-hoc basis to evaluate local IS needs that are outside those provided nationally by An Chéim and HEAnet. These IS cannot be implemented without the permission of the IS manager, as the IS manager is required to ensure they conform to the institute's IS policies and standards. The virtual learning system is one such example, whereby the robust infrastructure implemented and maintained by the IS manager and his team, facilitates institute wide running of the system.

When a school has a business need to purchase hardware and software that falls outside the standard offering of the institute, and if the IS manager supports such a purchase, he assists in putting together a business case. Without such support, the likelihood is that the request would be turned down, as the EMT does respect and rely on, the views and expertise of the IS manager when it comes to matters of an IS nature.

Many of the IS meet end user data processing needs at the micro level. However, these IS are not integrated in a manner that provides management information required. Even on a stand-alone basis, the student registration IS does not meet the institute's management information needs and is considered not fit for purpose due to the difficulty it presents in retrieving data. The MIS unit with the Registrar's office, assisted by the IS manager and his technicians, do what they can to help overcome this problem. Despite its deficiencies with data retrieval, the student registration IS has helped reduce significantly the workload within administration, by enabling students carry out on-line registration and access their examination results on-line. The IS manager led the implementation of these modules.

Head of School of Science: *"We can't do all the management reporting we want to do without cutting and pasting from the various stand-alone IS … we get what the MIS unit produce, rather than them producing what we might want or need"*.

At the micro level, one of the Schools shares many of its IS services, including video conferencing and email, with students from a university in the city. The role of the IS manager is in the provision of IS technicians to support the running of these facilities.

Through his in-depth understanding of national IS, the IS manager and his technicians provide data retrieval assistance to users. To help reduce replication of their efforts, the IS manager and his technicians will where practicable, write report templates to facilitate regular user requests. In addition, the IS manager and his technicians provide first line technical support for these national IS, by diagnosing if it is an issue that can be resolved locally or if it has to be referred to An Chéim.

Other end user support provided by the IS manager and his technicians includes network support, hardware and software support for servers, hosting the institute's websites, assisting users in choosing IS for needs that are not covered by national IS, specifying computer laboratories, preparation of tenders and negotiating with suppliers, and technical support for academic/student IS such as the virtual learning environment and classroom facilities. With such a wide range of support services in place, they need to be managed centrally. This central management is provided through the IS help desk located within the IS centre. The design of the IS centre has been a success, primarily because its location provides a sole source of access for end users, to the IS facilities they require.

Head of School of Business: *"The service provided by the IS help desk is well viewed and that's all part of the IS manager's role"*.

Due to the agreement with the HEA, Case Y is not authorised to provide telecommunications infrastructure to members of the incubation centre for commercial gain. The level of telecommunications support is limited to the IS manager assisting members with design of their telecommunications infrastructure and their negotiations with telecommunications providers.

The EMT may invite the IS manager to their meetings to obtain his views on a particular issue that involves IS. The IS manager formally communicates with functional managers on IS operational issues via the institute's management group. At this group he informs and seeks agreement from members for IS services plans and also receives feedback on IS operational issues within the institute. Much communication undertaken by the IS manager also takes place at an informal level, through conversations with end users. In many instances the IS manager is managing user expectations within budgetary constraints. If there is a need to seek additional funding outside of what is in the budget, a formal meeting will take place between the users and the IS manager. If the meeting results in agreement to seek additional funding, user management with the support of the IS manager, submit a proposal to the Secretary/Financial Controller. Other meetings the IS manager attends include school executive meetings where he acts in an advisory role and Heads of School have found this very helpful in terms of IS service provision to the schools.

Secretary/Financial Controller: *"In this organisation, individuals make the role. They all bring their own strengths and our IS manager's interpersonal skills and his knowledge of the business, enables him to play a role in the business"*.

6.3.4 Summary comments on Case Y analysis.

Analysis of the data provides rich findings as to how the alignment of business and IS strategies is practiced by Case Y practitioners, at the macro, meso and micro levels.

At the macro level, praxis are principally shaped by legislation requiring Case Y to have in place a strategic plan, by its compact agreement with the HEA, and by its interest in re-designation as a TU, all of which require formal metrics to measure the institute's

performance. This in turn affects praxis required to operate IS to maximum business effect, which includes ensuring IS are implemented and operated in a secure and coherent manner, supported by IS policies developed at national level. The IS manager is well informed on current and planned IS. By being a member of the national group that developed the common standard design for the national student registration module, the IS manager has an in-depth understanding of the IS, which benefits Case Y. By being a regular attendee at the National IS Manager's Group information is exchanged with service providers on future plans and issues concerning the operation of IS. Bereft of any decision making authority, this forum is far from satisfactory for the IS manager, but does keep him informed of IS developments taking place at the macro level. All decisions around IS strategy take place at national level and do not involve the IS manager. Most IS innovations are driven by the IS manager who obtains many of his ideas from attending fora outside the institute such as the National IS Manager's Group, conferences and other HEIs both nationally and internationally, and by administering staff and student surveys as part of institutional reviews.

At the meso level, the IS manager contributed to the development of the institute's two strategic plans, by taking part in focus group sessions. While a documented IS strategy is not in place for the institute, through his own praxis the IS manager supports the implementation of the institute's strategy. These praxis include provision of advice to the Secretary/Financial Controller, presentations to the EMT, contributing to discussion at the management group, providing IS that support teaching and learning, helping obtain data for performance measurement and contributing to the budgetary process so as to secure sufficient funding for the maintenance and enhancement to current IS. Based on the knowledge the IS manager and a number of his technicians have of national IS supplied by An Chéim, they assist end users in obtaining data from these IS, to construct the required metrics. With such importance now placed on performance measurement, the IS manager was appointed to a new full-time position tasked with developing, in the first instance, a proof of concept for management reporting that will meet the institute's reporting requirements.

The IS manager was a member of a committee within Case Y that drafted a generic set of IS policies for the sector as a whole. Each IoT, including Case Y, tailor these policies to their individual institute needs. Case Y avail of the IS manager's expertise, as he is a member of the committee that develops and maintains IS policies to meet the institute's

needs. Also at the meso level, the IS manager and his team of technicians play a supportive role. Examples include helping end users extract data from national IS for management information purposes and assistance provided by the IS manager in configuring modules within the IS to suit Case Y's business needs. The IS manager and his team carry out regular upgrades to the internal network, desktop provision and the student learning environment, all within budgetary plans and supported through the help desk managed by the IS manager. Training on IS is an on-going praxis provided to end users by the IS manager via the ETO.

At the micro level the IS manager and his technicians carry out praxis whereby executive functions, schools, departments, central services and individuals are provided with support for their various IS. This includes provision of support, with the agreement of Heads of School, to IS technicians within schools who do not report to the IS manager. Praxis are also carried out whereby departments and individuals are supported in their use of the various IS by the IS manager and his technicians. Such praxis include liaising with external providers of IS not available from An Chéim, to ensure their IS conform to the institute's technical requirements and IS policies. Other support the IS manager and his team provide at the micro level includes assistance with supplier negotiations, and design for network and internet facilities to the incubation centres. Innovative ideas come through formal and informal communication channels within the institute such as presentations the IS manager makes to the EMT, discussions he has at the institute's management group and informal conversations he has with end users. The IS manager does influence the choice of IS outside those supplied by An Chéim and assists end users at the micro level obtain maximum benefit from them, be it through the provision of training, development, implementation or vendor relations. The IS manager also influences how national IS are utilised at both the meso and micro levels, through the provision of training (via the ETO) and support with data retrieval.

6.4 Cross-case analysis.

This section brings together both case studies around the three levels of macro, meso and micro, highlighting similarities and differences, with explanations for same based on the analysis undertaken.

Both Case X and Case Y operate within the same legislative framework and have implemented strategic plans driven by public sector reform agenda, with a deliberate

attempt to align business and IS strategies. The principal difference between the two cases, which only came about in April 2013, is that Case X decided not to pursue TU re-designation opting instead to remain as a stand-alone institute within a regional cluster, whereas Case Y did decide to pursue TU re-designation through merging with two other IoTs. Therefore, having analysed the data both within and across the two cases for the extended period of 2004 to 2014, it is not surprising that there are a great deal more similarities than differences between both institutions.

6.4.1 Cross-case analysis: Macro level.

The same regulations apply to both cases. The IoT Act 2006 (Irish Statute Book 2006) renders the President responsible and accountable to the Minister for Education and Skills, and to the GB of the institute. The IoT Code of Governance (Institute of Technology Ireland 2011) requires each case to specify relevant indicators within its strategic plan against which performance can be measured. In both cases, the IS manager supports the President in meeting these requirements through the provision of data from the various IS within the institute.

IS strategy for both cases is driven at national level. Neither IS manager has a role in choosing national IS. That role was carried out by EMT members from various IoTs. IS strategy is not discussed in any meaningful way by the EMT of either institute, as all discussions and decisions around IS strategy take place at a national level. The core IS are supplied by An Chéim through a shared services model, as is the network infrastructure (external to the institute) and other services such as file transfer and storage by HEAnet. Unlike specified executives team members of both cases, the IS managers do not have a direct line of communication to An Chéim. Therefore, the influence both IS managers can bring to bear on the development of core IS is limited to informing members of their executive team, particularly the executive team member to whom they report, and via the National IS Manager's Group, which is far from satisfactory because An Chéim's engagement with the group is very limited. With such little engagement, the IS manager of Case X ceased to attend the group's meetings and obtains his macro level information from the VP Finance and Corporate Affairs. The absence of a direct line between IS managers and An Chéim can place the IS managers in a precarious position, such as happened with Case Y in 2009 when the student registration IS came to a halt.

Both cases receive their funding from the DoES via the HEA, from which the money provided to An Chéim is "top sliced". When requests for software development are made to An Chéim, both cases find the quotations provided by An Chéim can be prohibitive.

Both cases have a statutory requirement to report to the HEA. This reporting takes the form of the compact agreement both cases have with the HEA. The EMTs of both cases are acutely aware of the need for better MIS to enable this reporting take place in an efficient and effective manner.

By reporting to the Secretary/Financial Controller, who is also a board member of An Chéim and is Chairman of HEAnet, the IS manager provides the Secretary/Financial Controller with his views. This praxis by the IS manager helps the Secretary/Financial controller better understand the importance of decisions that come before the boards and reflects the fact that the IS manager can indirectly influence decisions at the national level.

Within Case Y, the IS manager was a member of a committee that drafted a generic set of IS policies for the sector. This resulted in the IS managers of both Case X and Case Y contributing to the development of generic set of national IS policies, via the National IS Manager's Group. Each IoT can tailor the policies to suit their business needs. The IS manager of Case X is a member of the services evaluation group for HEAnet and consequently he has more influence over the future plans of HEAnet, than other IS managers within the sector. Case X is a member of a regional consortium that arranges hardware purchasing deals for its members. The IS manager represents Case X on this consortium and avails of its influence to obtain the best hardware deals for Case X.

An Chéim have obtained user input for the design and upgrades to national IS. The IS manager in Case X seconded one of this technicians to assist with the development of a coding system for the modularisation module within the student registration IS. The IS manager in Case Y was a member of the national group that designed the common standard design within the student registration IS. These praxis benefit the institutes, as they make available a level of expertise that An Chéim cannot provide.

6.4.2 Cross-case analysis: Meso level.

The President has overall responsibility for the institute. The EMT member responsible for finance has executive management responsibility for IS. The IS manager is responsible for

the maintenance of IS and assists the EMT with the strategic development of IS. The role of the IS manager is primarily an operational role, with a major focus on ensuring IS (be they those supplied by An Chéim or otherwise) are available to the end user on a day-to-day basis.

Through legislation, namely the IOT Act 2006 (Irish Statute Book 2006) both Case X and Case Y are required to have in place a strategic plan. Over the period of the study, two strategic plans were developed for each case, by their EMTs. The second plan for each case was developed and amended to take account of the changes that were about to occur within the macro environment, following publication of the National Strategy for Higher Education to 2030 (Hunt 2011). Neither case has a documented IS strategy and neither EMT discusses IS strategy in any meaningful way. Case X has in place an ISSG which has as part of its terms of reference the development and implementation of an IS strategy. However, with its heavy focus on IS issues of an operational nature, alignment between business and IS strategy is strongly influenced based on what the IS manager and his technicians perceive as "best practice", and on end user operational requests. Case Y does not have an ISSG, but does have in place a management group which sits one layer below the EMT. Like Case X, Case Y also has a heavy focus on IS issues of an operational nature, hence alignment between business and IS strategy is based on what the IS manager and his technicians perceive as how best to utilise IS to meet business needs, and on end user operational requests. Unlike Case X, Case Y amended a module within the student registration IS to suit its own individual needs, which of course went against the shared services model. Ultimately, Case Y had to revert to the shared services version of the software, so as to ensure it was in a position to receive upgrades as they became available.

Outside these core IS, both IS managers have control on delivery of IS to the student population and staff, which includes the internal network, desktops and related IS. Within Case Y there are IS technicians who report directly to the Heads of School and not the IS manager, with the IS manager liaising between the Heads of School and the technicians, mainly to ensure the solutions provided conform with the institutes IS policies.

The IS manager in both institutions reports to the EMT member responsible for finance, as their role and that of IS services are very much support roles rather than strategic roles. This has always been the case and never did any of the organisation structural reviews recommend otherwise. For both cases, the IS manager assists the executive team member

responsible for finance, formulate an annual IS budget. If during the year, a business need arises to purchase IS not contained within the budget, the IS manager will assist the end user, if he believes the case has merit. In Case X, if the VP Finance and Corporate Affairs believes the case has merit, he will recommend the case to the EMT. In Case Y, the EMT directly considers the recommendations of the IS manager.

KPIs are not yet used by either case as a means to monitor progress against strategy. In 2008 Case X appointed an EiSC to establish, among other things, a KPI reporting system. This system was never developed even though the IS manager did commence development of a dashboard that would report on KPI progress, the project was terminated due to human resourcing constraints. Subsequently, Case X decided to monitor only those metrics contained within its compact with the HEA and the work undertaken by the IS manager in developing the dashboard did feed into how each Head of Function and Head of School reported to the GB. While Case Y does have in place an MIS unit (ably assisted by the IS manager) to obtain data required for its compact with the HEA, it appointed its IS manager to a new role. In this role the IS manager was tasked with developing a proof of concept for reporting requirements, to measure against the compact with the HEA and against TU re-designation criteria. In addition, Case Y has in collaboration and agreement with the other two IoTs with whom it is partnering for TU re-designation, employed a full time data analyst to help establish and measure a set of KPIs. The focus on providing data for metrics within the compact agreements with the HEA is certainly encouraged by 10% of funding being contingent on meeting these metrics, while the different stance taken by each case towards re-designation as a TU is mirrored in the different approach towards assigning staff to the data retrieval and analysis roles.

Because the IS received from the shared services provider An Chéim are not integrated, they do not provide management information required at the meso level. To help overcome this shortcoming, both the IS manager of Case X and Case Y assist end users, directly and/or via IS technicians, retrieve data from the IS in a suitable format that helps with management reporting.

Only since the publication of the 'National Strategy on Higher Education to 2030' (Hunt 2011) did both cases begin to concentrate on recruiting international students and measurements of such recruitment is contained within the compact agreements each case has with the HEA. The IS manager's role in the provision of this data is through providing

technicians to assist in obtaining the data required from the IS supplied by An Chéim. The IS manager in Case Y liaises closely with lecturing staff to ensure the IS that support distance learning are in place when some international students return to their home place during term. This is an established practice within Case Y as it had international students within one school for many years prior to the publication of the 'National Strategy on Higher Education to 2030' (Hunt 2011).

The IS managers of both institutions play a major operational role in the provision of national IS by scheduling their implementation and upgrades, to ensure minimum disruption to the running of the business. The IS managers within Case X and Case Y can be asked to deliver strategic IS that An Chéim do not offer and infrastructure that HEAnet do not provide. Examples of this include when the President of Case X tasked the IS manager with developing a dashboard for management reporting and when the President of Case Y tasked the IS manager with designing and implementing the IS centre.

The websites of both institutes provide an interface with the external environment. The IS manager of Case X, through his technicians, not only hosts the website but also places content on the site and takes it down when he deems it necessary. In contrast, the IS manager in Case Y provides technical assistance only, with no role in deciding content and for how long it should be available. At the meso level, the IS managers of both Case X and Case Y communicate directly with end users and their respective management groups i.e. the ISSG in Case X and the management group in Case Y. From time to time they also address their EMTs, when invited to do so.

6.4.3 Cross-case analysis: Micro level.

Within Case X, IS services is spread across seven locations and consists of thirty five technicians. There are three grades of technicians who are assigned to one of three sections within IS services. In contrast, Case Y has eighteen technicians reporting directly to the IS manager with other technicians reporting directly to Heads of School.

Both cases receive their core IS from the shared services provider An Chéim. These IS (except for the student registration IS) provide a satisfactory service at the micro level. Other IS in both Case X and Case Y such as the student virtual learning environment, videoconferencing, email and stand-alone software applications at the micro level, all

receive support of an operational nature from the IS manager and/or his technicians to ensure they perform as best they can.

Within both institutes, various schools and departments often source IS themselves to help meet specific requirements at the micro level that national IS do not. The IS managers of Case X and Case Y provide technical support for these IS, by liaising with the external providers to ensure the IS conform to the institute's technical requirements and IS policies. Both IS managers introduce various IS into their institute's on a pilot basis, which do not conflict with what is offered by An Chéim. One such example is the virtual learning environment, which has proved very successful in helping meet business needs.

The support provided by the IS managers to the incubation centres differs in that Case X's IS manager provides internet access and firewall security, whereas Case Y's IS manager limits his support to assisting members with the design of their telecommunications infrastructure and their negotiations with telecommunications providers. Both IS managers, through their technicians, assist end users retrieve data from national IS. However, because of his knowledge of the database design, the IS manager of Case Y takes a more "hands on" role in this task. Indeed, this knowledge coupled with the need for additional management reporting, gave rise to the IS manager's new appointment where he has been tasked with developing a proof of concept for management reporting. Other end user support provided by the IS managers and their technicians includes all those IS facilities outside national IS such as network support, hardware and software support for servers, website hosting and content, design of computer laboratories, provision of classroom IS facilities, preparation of tenders and negotiating with suppliers. The main difference in support provided by the two IS managers is training. Because the ETO in Case Y reports to the IS manager, it makes it easier for the IS manager to schedule training appropriate to end user needs.

The efforts of both IS managers are concentrated on operational issues and therefore they have almost full control over IS in the areas of internal IS infrastructure, administrative support, and academic and learner support. In Case Y, the IS manager's views are informed by the staff and student surveys that are carried out as part of institutional reviews. At the micro level, end users do choose IS for their specific business needs. These include IS such as specific engineering IS or hotel IS, that are not available from An

Chéim. The role of the IS managers with these IS is to liaise with suppliers and support their installation, on behalf of the end user.

Most innovations involving IS are driven by the IS managers. In many instances, the IS managers obtain their ideas from outside the institute by attending conferences and visiting other HEIs. By organising pilots around ideas that come from end users, the IS manager in Case Y has been instrumental in building a community of practice that encourages efforts to try new IS.

6.5 Conclusion.

This chapter has presented an analysis of both cases in accordance with the praxis carried out by various practitioners at the macro, meso and micro levels. This was followed by a cross-case analysis also structured in accordance with the three levels of macro, meso and micro, highlighting similarities and differences, resulting in numerous similarities and not too many differences. In the following chapter I utilise the intra-case and cross-case analyses to build and present my mid-range theory in the form of a taxonomy that depicts how the alignment of business and IS strategies is practiced by IS managers in IIT, hence providing an answer to my research question.

Chapter 7 - Theory development.

7.1 Introduction.

This chapter focuses on the principal outcome from the research, which is the development of mid-range theory in the form of a taxonomy, depicting how the alignment of business and IS strategies is practiced by IS managers in IIT.

Section 7.2 recaps on the research question and research approach. Section 7.3 recaps on the process of transitioning from case data to the mid-range theory. I introduce the two key elements of my taxonomy in section 7.4, which are the three categories of SA practices and the three levels at which the practices take place. In section 7.5, I present my taxonomy in detail with support drawn from the case data. A SaP focus is placed on issues associated with coordination and integration of the elements within the taxonomy. In section 7.6, I compare my taxonomy with a broad range of literature comprising a total of four literature sets. With the advent of digital transformation, emerging new roles for the IS function are discussed in section 7.7. The novelty and contribution of my study are reported on in section 7.8. The chapter draws to a conclusion in section 7.9.

7.2 Recap on research question and research approach.

The study sets out to answer the following research question:

How is the alignment of business and IS strategies practiced by IS managers in IIT?

The detailed reasons as to why this research question is important have been elucidated in chapter 4. In overview, SA is one of three core themes within the IS literature (Galliers, Merali et al. 1994, Teubner 2013) and has been the focus of attention within research and practice alike due to its potential to enhance organisation performance (Chan and Huff 1992, IBM 2009, Chen, Mocker et al. 2010, Computer Sciences Corporation 2011). The main focus of attention has been on the intellectual dimension of SA and within this focus, a strong emphasis has been placed on measuring organisation level SA, in pursuit of increased organisation performance (Sabherwal and Kirs 1994, Croteau, Solomon et al. 2001, Velcu 2010). In comparison, the social dimension has been somewhat neglected (Campbell, Kay et al. 2005, Ghosh and Scott 2009, Enns and McDonagh 2012). Within the literature arguments are put forward that suggest SA results more from relationships between people than from any methodological analysis or business strategy (Reich and Benbasat 1996, Hartung, Reich et al. 2000, Ravishankar, Pan et al. 2011), and we need

practice-based studies at all levels (macro, meso and micro) rooted in our everyday experiences, to aid our understanding as to how practitioners help/hinder the achievement of SA (Ciborra 1997, Smaczny 2001, Chen, Mocker et al. 2010, Schlosser 2012, Hiekkanen, Helenius et al. 2013, Holohan and McDonagh 2014b).

The research question is focused on helping to understand how the alignment of business and IS strategies is practiced by IS managers in IIT, which is an activity that occurs at the interconnection between the practitioner (e.g. IS manager) their practices (routinised behaviour) and their praxis (the actual action). Whittington's (2006b) integrative framework for SaP draws attention to practices engaged in by practitioners and includes the ability to connect micro level analysis with micro, meso and macro level considerations. This connection has been consistently iterated within the SaP agenda (Jarzabkowski and Spee 2009, Vaara and Whittington 2012). With its theoretical constructs representing a close fit to empirical reality, Whittington's (2006b) integrative framework for SaP is the most appropriate SaP theory I found, to guide data collection and analysis.

While Whittington's (2006b) integrative framework for SaP does lack a formalised and codified set of research techniques for analysing data, the constructivist grounded theory coding method advocated by Charmaz (2014) compensates for this void. It complements the Whittington (2006b) integrative framework for SaP as a data analysis tool, and fits very well with my own philosophical and epistemological assumptions, insofar as it is based on a qualitative approach to research within the interpretive paradigm.

My chosen research design is case study, a design that has made valuable contributions to the field of IS theory and practice (Dubé and Paré 2003, Holohan and McDonagh 2014a). The case design is very suitable when the research is focused on real-life phenomena where little, if any, theoretical knowledge exists and where the phenomena cannot be studied outside the context in which it occurs (Eisenhardt 1989, Yin 2014). In addition, case study is often seen as the preferred design when the research question is exploratory and of the "how" type, and when the researcher has little control over events (Siggelkow 2007, Pan and Tan 2011). Although case study is an appropriate design to help answer the research question, it lacks guidance for data analysis, giving rise to practical limitations in terms of rigor and effectiveness. However, I am satisfied when data analysis is executed via the constructivist grounded theory coding method, the full benefits of applying case

study as a research design can be realised. This makes case study a very suitable research design to help answer the research question, and helps ensure my findings and their validity, stand up to rigorous scrutiny.

7.3 Recap on transitioning from case data to theory.

This section recaps on the step-by-step process I applied to transition from my case data to my mid-range theory. Mid-range theory accepts generalisations and is also close enough to observed data, enabling it to be tested via propositions that can be empirically validated (Hassan and Lowry 2015).

A major challenge associated with qualitative research is that there are no widely accepted rules as to how the data should be analysed. Descriptions of the data lay the basis for analysis, but to go beyond description, we need to interpret and understand why practitioners do what they do (Gray 2014). The interplay between data and the imagination of the researcher is crucial in developing theory as "*data do not generate theory – only researchers do that*" (Mintzberg 1979b:584). While the data may inspire researcher inferences, it is through theoretical analysis that the researcher constructs theory (Sutton and Staw 1995). For my research, writing memos was the pivotal step between the data I collected and the theory I developed (Holohan and McDonagh 2017a). The process of writing memos can serve a variety of purposes from distilling the pertinent data within documentation to analysing the full set of data gathered, leading to the construction of theory (Charmaz 2014). It is the explicit act of writing that helps produce conceptual ideas, hence rendering memo writing as both a process and an outcome of theorising (Klag and Langley 2013).

The process of transitioning from my case data to my mid-range theory commenced by writing memos to distil the pertinent data relating to strategising, from documentation at the macro, meso and micro levels, and from notes I compiled as a passive observer at meetings at the macro and meso levels. These memos were then coded as were the interview transcripts. The code syntax was built from the theoretical constructs within Whittington's (2006b) integrative framework for SaP, while the coding process was that of the constructivist grounded theory coding method espoused by Charmaz (Charmaz 2014). The syntax greatly aided data analysis, by enabling me to identify praxis carried out by practitioners in their efforts to align business and IS strategies. The data contained in the full set of 240 initial, 18 focused and 3 theoretical codes, was availed of to write and

structure a set of forty six analytical memos. These analytical memos formed the content and structure for the case narratives in chapter 5.

The data contained in all initial codes that specifically referred to the practitioner as the IS manager (72 codes in total), and hence SA praxis exclusively carried out by the IS manager, was availed of to write and structure a further set of eight analytical memos. These eight analytical memos contained the data that enabled the effective development of the nine conceptual SA practices, structured in accordance with the 3 theoretical codes (advocate, administer IS and innovate) at each of the three levels (macro, meso and micro).

7.4 Key elements of taxonomy.

A cookbook approach to writing emergent theory does not exist (Sutton and Staw 1995, Eisenhardt and Graebner 2007). Linking empirical data with theory, so as to create an abstract and explicit set of concepts that may have relevance beyond the context in which they are developed (generalisable), was my aim (Eisenhardt and Graebner 2007, Klag and Langley 2013). To help achieve this in a coherent and logical manner, I introduce the two key elements of my taxonomy in this section, followed by the detail in the next section (7.5), with support drawn from the case evidence.

The first key element consists of three categories of SA practices undertaken by IS managers in IIT. These three categories i.e. *Advocate*, *Administer IS and Innovate,* are the 3 theoretical codes that emerged from analysis of the data. In keeping with the constructivist grounded theory coding method, these theoretical codes specify the relationships between the 18 codes developed during focused coding. For the category of *Advocate,* the key relationships between its focused codes are centred around how the IS manager, through encouraging others, helps to align business and IS strategies. For the category of *Administer IS,* the key relationships between its focused codes are centred around how the IS manager contributes to the alignment of business and IS strategies, through enacting procedures. For the category of *Innovate,* the key relationships between its focused codes are centred around how the IS manager, works with others, to unearth alternative methods to deploy IS in order to help align business and IS strategies. The second key element is the three levels of micro, meso and macro to which the SaP literature draws attention and therefore includes the ability to connect micro level analysis with micro, meso and macro level considerations (Rousseau 1985, Regnér 2008, Vaara and

Whittington 2012). Therefore, SA praxis undertaken by IS managers in IIT can materialise from the bottom up as well as from the top down.

The taxonomy depicted in figure 7.1 shows 9 possible combinations of levels and categories of SA practices (i.e. conceptual SA practices) undertaken by IS managers in IIT are theoretically possible, while not all are equally likely.

The SA practice category of *Advocate* is the least common category in which the IS manager participates, accounting for a fifth of his SA praxis. It shows that while the IS manager can theoretically undertake SA praxis at the macro level, this does not happen in practice. At this level IS strategy is formulated without the direct involvement of the IS manager. However, by not remaining passive and making his voice heard through fora such as the National IS Managers' Group, the IS manager does provide input (Nielsen 2001). This in itself is an important finding, not to be ignored if the proper sequence of theory building and analysis is to take place (Sutton and Staw 1995). At the meso level the IS manager undertakes many SA praxis of an advocacy nature, including advising EMT members and middle management on how best to utilise IS. At the micro level the IS manager undertakes many SA praxis of an advocacy nature, including facilitating the tendering process for IS, where current IS do not align with business needs.

Of the three categories of SA practices, *Administer IS* is by far the most common category in which the IS manager participates, accounting for just over half of his SA praxis. At the macro level most of these praxis involve the IS manager as a member of national committees and keeping abreast of what the macro environment has to offer outside the core IS provided by shared service providers. At the meso level the IS manager works closely with the main stakeholders to determine the most appropriate IS for their needs and how best to integrate them into the business. At the micro level the IS manager provides advice and assistance to the end user population as to how best utilise the installed IS to meet their business needs.

The SA practice category of *Innovate* accounts for just under one third of the SA praxis undertaken by the IS manager. At the macro level the IS manager shares his knowledge and expertise with the main stakeholders to help them determine better ways to support the business. At the meso level the IS manager works with various user groups and individuals to leverage more from current IS and select non-core IS that can help overcome

gaps in current IS. At the micro level, based on his excellent understanding of the interface between the end user and the client, the IS manager advises end users as to how best deploy and utilise IS.

In terms of the levels at which the IS manager carries out his SA praxis, 24% are carried out at the macro level, 64% are carried out at the meso level and 12% are carried out at the micro level.

7.5 Taxonomy of SA practices undertaken by IS managers in IIT.

Good theory requires logical explanations which can be constructed through the provision of graphical representation and supported by the written word (Sutton and Staw 1995). In this section I present my taxonomy in detail with support drawn from the case data, revealing the content and analysis of the 9 conceptual SA practices in sub-section 7.5.1, and the inter-level relationships between them at the three different levels of macro, meso and micro (Sutton and Staw 1995, Bélanger, Cefaratti et al. 2014) in sub-section 7.5.2. Indeed, clear conceptual definitions are essential if we are to understand what it is we are talking about (Podsakoff, MacKenzie et al. 2016), which for this research, is to provide an understanding as to how the alignment of business and IS strategies is practiced by IS managers in IIT. Sub-section 7.5.3 reflects on the taxonomy, thus bringing this section to a conclusion.

Referring to figure 7.1, SA practice category of *Advocate* is represented by the conceptual SA practice of *Endeavour* at the macro level, by the conceptual SA practice of *Communicate* at the meso level and by the conceptual SA practice of *Facilitate* at the micro level. The SA practice category of *Administer IS* is represented by the conceptual SA practice of *Influence* at the macro level, by the conceptual SA practice of *Implement* at the meso level and by the conceptual SA practice of *Support* at the micro level. The SA practice category of *Innovate* is represented by the conceptual SA practice of *Share Knowledge* at the macro, by the conceptual SA practice of *Collaborate* at the meso level and by the conceptual SA practice of *Counsel* at the micro level. The inter-level relationships between conceptual SA practices at the three different levels, is depicted by the arrows and explained in detail in section 7.5.2.

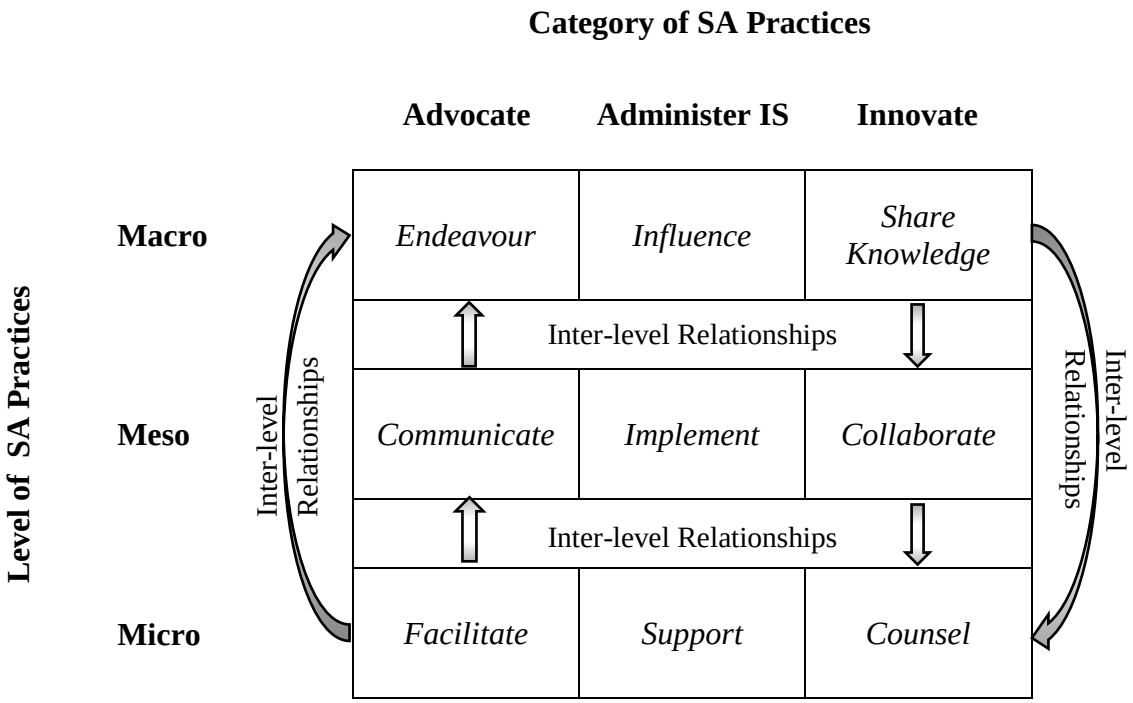


Figure 7.1 Taxonomy of strategic alignment practices undertaken by information systems managers in Ireland's Institutes of Technology.

7.5.1 Conceptual SA practices within the taxonomy.

This section is organised to address each conceptual SA practice in detail. In doing so, specific attention is focused on important taxonomic criteria for judging the conceptual SA practices, namely mutual exclusiveness and internal consistency (Boyne and Walker 2004, Podsakoff, MacKenzie et al. 2016). Sub section 7.5.1.1 addresses the conceptual SA practices contained within the SA practice category of *Advocate* at each of the three levels of macro, meso and micro. Sub section 7.5.1.2 addresses the conceptual SA practices contained within the SA practice category of *Administer IS* at each of the three levels of macro, meso and micro. Sub section 7.5.1.3 addresses the conceptual SA practices contained within the SA practice category of *Innovate* at each of the three levels of macro, meso and micro. Section 7.5.1.4 provides concluding comments on the conceptual SA practices undertaken by the IS manager.

7.5.1.1 SA practice category of Advocate.

At the **macro level** the conceptual SA practice undertaken by the IS manager is that of *Endeavour*. While the IS manager is not called upon to participate in IS strategising at the macro level, analysis of the case data reveals the he does not remain passive and makes his voice heard through various fora and individuals, who do have a formal involvement in IS

strategising at the macro level. Indeed, some of the people who have a formal involvement in IS strategising call on the knowledge and expertise of the IS manager to help them. On occasion, when the IS manager has taken the initiative in relation to SA, he can be limited in what he can do, because it is the President of the institute who decides on what action to take. Despite this limitation to his role, the IS manager continues to try and help with IS strategising decisions taken at the macro level, as it is the IS manager whose job it is to implement them.

Analysis of the conceptual SA practice *"Endeavour".* By not having IS manager representation on the board of the main shared services provider (An Chéim), the IS managers feel excluded from IS strategising activity at the macro level. On the other hand, EMT members of Case X and Case Y argue that the IS managers do input to IS strategising at the macro level, as they have some of their ideas brought to the attention of An Chéim via the chair of the National IS Managers' Group and the Presidents and/or Secretary/Financial Controllers of the institutes to which they belong. This dichotomy can be explained by the IS managers' strong belief that it is they, through their in-depth IS knowledge, who can best represent their institute's SA interests, whereas the Presidents of the institutes are of the view that it is the Presidents' and/or Secretary/Financial Controllers' role to represent their institute's SA interests. While the IS managers may well have an in-depth IS knowledge, they do not have the same responsibility as the Presidents. In accordance with the IoT Act 2006, it is the Presidents who have to account for all actions and expenditure incurred by their institutes. The result is tight management control exercised by the Presidents, with implementation being the responsibility of the IS managers. Put simply, the Presidents are not willing to share their strategic IS responsibilities with the IS managers, when it is they (i.e. Presidents) who have to account for the outcomes. While such a tactic encourages a risk adverse approach to IS strategising on behalf of each IoT, it also reduces the level of SA that could otherwise be attained.

In addition, by being a member of national groups such as the one established to investigate and recommend suitable IS security policies, and the one established to evaluate the services provided by HEAnet, the IS managers of Case X and Case Y assisted with the alignment of IS security policies and on-line storage services to business needs. Once again, this demonstrates how the IS managers do try to help with the attainment of SA, but within the structures established by the IoTI.

Displaying her willingness to consider the views of her IS manager, the President of Case X invited the IS manager to make a presentation to the Case X EMT, to demonstrate how a reporting module to support reporting to the HEA could be developed. Subsequently, the President of Case X was well informed to debate with An Chéim, how best to develop such a reporting module. With his intimate knowledge of the database structure pertaining to the student record IS, the IS manager of Case Y developed a reporting module and presented it to the EMT of Case Y. While the EMT were impressed with the functionality of the reporting module, they refused to fund its further development as such development was within the remit of An Chéim. Clearly, the IS managers have the knowledge and skills to help align business and IS strategies, but it is the Presidents who are accountable for what happens. To this end, the IS managers are willing to help and the Presidents are willing to listen. However, because it is the Presidents who are ultimately responsible for outcomes, it is they who take decisions in relation to IS strategising at the macro level.

At the **meso level** the conceptual SA practice undertaken by the IS manager is that of *Communicate*. The core tenet of this conceptual SA practice is that the IS manager utilises his communicative skills to obtain resources, including the most appropriate IS for the business needs of the institute. The institutes' EMTs receive presentations from the IS manager as to how current and/or new IS can better support business needs. These presentations are not based on random requests and are only undertaken when the IS manager has secured the support of one or more members of the EMT. To help gain this support, the IS manager often draws on elements within the strategic plan to strengthen his business case. Based on his business and IS knowledge, the IS manager supports the EMT in monitoring metrics contained within the strategic plan. Such support is contingent on regular communication between the IS manager and the EMT. By allocating IS technicians to specific areas of the business, the technicians are in regular communication with end users and hence become acutely aware of end user business needs. This results in IS driven by business needs, whether or not those needs are expressly contained within the institute's strategic plan. Maintenance of installed IS (excluding nationally supplied IS) is determined by the IS manager in conjunction with the EMT member who has responsibility for the area in which the installed IS reside, subject to budgetary constraints. Likewise, if a particular piece of required IS infrastructure is not available from a shared services provider, the IS manager will lead the tendering process for such infrastructure, subject to budgetary constraints.

Analysis of the conceptual SA practice *"Communicate"*.

With the support of the Secretary/Financial Controller, the IS manager of Case X undertook a visit to MIT in Boston and learned about a new paint technology that greatly improves acoustics within large lecture theatres. On his return, the IS manager presented a business case to the EMT requesting to equip the large lecture theatres with the new paint technology. To bolster his business case, the IS manager drew on the section within the strategic plan that championed learner supports. All large lecture theatres were upgraded with the new technology. Likewise, with the support of the institute's President, the IS manager of Case Y visited a number of HEIs in the UK for ideas as to how best design a new IT centre. On his return, he received the imprimatur of the President to sell the idea to the EMT. The IS manager achieved this by regularly communicating with the EMT while undertaking various pilots within departments and drawing on the section within the strategic plan that championed the learning environment/sustainability. The result was the construction of the IT centre. What we can see from these praxis undertaken by the IS manager, is that the IS manager not only has to convince members of his EMT about the benefits that can be obtained from new technology, but must also demonstrate that such benefits support the institutes' strategic plans and are based on technology that is not forthcoming from other sources (i.e. mainly the shared services providers). It is also clear that before embarking on his work, the IS manager requires the support of one or more of his institute's EMT members, thus ensuring it is the EMT and not the IS manager, who ultimately direct what technology and IS outside of that supplied from shared services providers, can be implemented to support SA. However, without the ability to understand the strategic plans of the institute and communicate how the new IS/technology can support delivery of these plans, it is highly unlikely the proposals put forward by the IS manager would gain approval.

When the EMT members of Case X and Case Y require detailed analysis and presentation of data contained within the core IS, they invite the IS manager to their meetings. These meetings require real time interaction and communication between the IS managers and executives management team members, as it is the IS managers' knowledge of database structure, data analysis and the business, that enables correct data mining and presentation. Typically these meetings concern discussion around metrics required by the HEA and it is these metrics that decide the funding to be received by the institute. Although it is the EMT of each institute who interpret and present the data to the HEA, it is also the EMT who place trust in their IS managers to present and communicate data that is absolutely

crucial to the running of the institute. As far as the EMTs are concerned, the IS managers' time is far better spent on mining and communicating data crucial to the running of the institute, than developing a reporting system that duplicates the efforts of the shared services provider.

While the IS managers are not in direct communication with all end users, this communication void is filled by the IS technicians allocated to specific business areas. The technicians communicate back to the IS managers the IS needs of those business areas and in so doing help ensure the IS supplied, support business needs. While such IS are specific to a business area, the IS manager can ascertain if a solution for one business area can be applied to other business areas thus ensuring duplication of effort is avoided. As this work is of an operational nature, the EMT are content to have the IS manager communicate with local management to decide on the most appropriate solutions, once they are within budget. This mode of operating ensures control is exercised by the EMT, through allocating or withholding financial resources.

Maintenance requirements of the installed IS that fall outside the nationally supplied IS are reviewed on an annual basis. The IS manager communicates with the EMT member who has responsibility for the area in which the installed IS reside, to determine if they still meet a business need. If the IS no longer meet a business need, they are uninstalled and the revised maintenance requirements form part of the budgetary negotiations. When a piece of IS infrastructure is required by the institute and is not available from a shared services provider, the IS manager leads the tendering process on behalf of the institute. An example of this was the tendering process undertaken for video conferencing equipment. Once again, we can see that the EMT trust the IS manager with local IS operational issues, but maintain control by allocating or withholding financial resources.

At the **micro level** the conceptual SA practice undertaken by the IS manager is that of *Facilitate*. This involves the IS manager facilitating the tendering process for IS at the departmental level when current IS do not meet business needs. The end users benefit from the IS manager's knowledge, particularly in relation to choosing appropriate solutions and managing suppliers.

Analysis of the conceptual SA practice *"Facilitate".*

The Head of School within Case X who has responsibility for the Department of Food and Tourism purchased a hotel administration IS for use in the classroom. Unfortunately, the IS did not perform as expected. The IS manager was asked to undertake a review and while not taking responsibility for implementation, training and budgetary matters, he did facilitate implementation and training in the use of the IS through the provision of a suitable network, hardware and software configuration that was compatible with the current IT infrastructure. Through this facilitation a solution was found, whereas initially the IS was configured by the supplier on a stand-alone basis that was incompatible with the institute's IT infrastructure. This example displays the willingness on behalf of the Head of School, who is also a member of the institute's EMT, to call on the IS manager to help solve a problem not of the IS manager's making. It also displays a willingness on the part of the IS manager to help one school within the institute unravel an IS related problem, for the good of the business as a whole. In Case Y, the IS manager was asked to facilitate the purchase of a computer aided design (CAD) system that was outside the standard IS offering. In accepting the invitation, the IS manager facilitated a successful purchase by ensuring the solution was compatible with the current IT infrastructure, while at the same time met the end user needs and was within budget as allocated by the Secretary/Financial Controller.

Both of these examples demonstrate that a member of the EMT trusts the IS manager to manage IS related issues. However, the same member of the EMT exerts control by retaining control over financial matters.

7.5.1.2 SA practice category of Administer IS.

At the **macro level** the conceptual SA practice undertaken by the IS manager is that of *Influence*. The underlying rationale behind this conceptual SA practice is the prohibition placed on the IS manager, by his President, from liaising directly with An Chéim. The central avenue availed of by the IS manager to liaise with the principal shared services provider in a positive manner, is through his institute's President and/or Secretary/Financial Controller. A secondary avenue availed of is through the National IS Managers' Group. Although the IS manager does not have a direct input to the content contained within software upgrades provided by An Chéim, he can assert influence over how well the new software is integrated into the business, by providing facilities for end user training and the infrastructure on which to run the upgraded software. By being a

member of the local consortia for IS procurement, the IS manager on behalf of the institute, can obtain favourable prices for IS that fall outside the national offering. Through coordinating the development of websites for use by an alliance of IoTs pursuing a common goal, the IS manager plays an influential role in the alliance's marketing activities.

Analysis of the conceptual SA practice *"Influence".*

Not unlike the conceptual SA practice of *Endeavour* within the advocate category of SA practices, the only manner in which the IS manager can bring his *Influence* to bear on An Chéim is via the President and/or the Secretary/Financial Controller of the institute to which he belongs and via the chair of the National IS Managers' Group. However, unlike the conceptual SA practice of *Endeavour,* the IS manager's role is limited to how he can *Influence* the way current IS are administered, rather than being an advocate for IS strategising.

Because the Secretary/Financial Controller of Case Y sits on the board of An Chéim, and because he discusses potential upgrades and software fixes to current IS with his IS manager, he is well informed to understand and discuss the business impact of upgrades and software fixes being considered by An Chéim. The IS managers' influence via the National IS Managers' group is enabled through providing the chair of the group with details on IS issues. One such incident occurred in October 2012 following an IS crash when student registration was taking place the previous month. Subsequently, both the Secretary/Financial Controller of Case Y and the chair of the National IS Managers' group brought the details of the crash to An Chéim and only then did An Chéim address the issue, with an upgrade to the software. When new releases of IS are received from An Chéim, such as the release of the on-line student registration module for Case X, the IS manager arranges training sessions for end users via a specialised training group and part of this arrangement is the provision of a training room with the required IS infrastructure. In addition, the IS manager upgrades the network infrastructure to allow for the increase in end user activity. By providing input as to the best way to develop and apply software fixes to IS and by administering current IS infrastructure in the manner that he does, the IS manager influences the level of SA within his institute. Without such influence, it is clear, the level of SA within the institutes would be far less than it currently is.

By being a member of a local consortia made up of three HEIs in the region, the IS manager of Case X achieves savings when purchasing IS that are not available from shared services providers. This is particularly evident from purchases of standard desktops for end users. Through coordinating the development of a website to promote the development of a TU comprising Case Y and two other HEIs, the IS manager contributed to the marketing efforts of the proposed TU. By carrying out these activities, which are administrative in nature, the IS managers help align business and IS strategies by contributing to reducing costs and promoting their institutes in the marketplace.

At the **meso level** the conceptual SA practice undertaken by the IS manager is that of *Implement*. This conceptual SA practice covers a range of activities associated with IS including initial implementation of IS, support for the implementation of business solutions via installed IS and configuring IS to best suit end user needs. When IS are provided by shared services providers, the IS manager provides local technical support for implementation and live running. This includes assisting end users configure on-line storage of confidential documents and email, in a way that enables end users manage the data content, while at the same time ensuring appropriate security features are implemented. Working with the ETO, the IS manager implements training facilities for training in the various IS utilised within the institute. Implementation of the internal network and its maintenance is managed by the IS manager. When two institutes merged, the IS manager facilitated the merger by managing the integration of Core IS, networks, phone systems and emails. Where an IS manager has an in-depth knowledge of the database within the core IS supplied by a shared services provider, invariably the IS manager receives requests to implement end user requests. These requests tend to occur when the shared services provider does not have the resources, and/or is not in the business of providing such assistance. Through his involvement in developing IS policies at national level, the IS manager plays a principal role in implementing the IS policies in his own institute.

Analysis of the conceptual SA practice *"Implement".*

The IS managers in both Case X and Case Y provide local technical support for the implementation and live running of those IS provided by the range of shared services providers. This includes provision of remote access to end users, assisting end users configure on-line storage of confidential documents on IS such as programmatic review documents and annual leave sheets, in a way that enables end users manage the data

content, while at the same time ensuring appropriate security features are implemented and IS policies are adhered to. Therefore, the primary role of the IS manager is to implement IS that he receives from the various shared services providers who have been appointed to provide the IS. The focus of the IS manager is on running a "tight ship", whereby the IS are implemented in accordance with the standards set out by the various shared services providers and audits undertaken by the C&AG. Therefore, the IS manager executes the role of a functional manager, who receives instructions and parameters developed by others, within which to carry out his work.

Working with the ETO, the IS manager of Case Y implemented training facilities that mirrored the live environment, so that training in the use of new releases for the finance and student registration IS could take place. The internal network infrastructure is managed by the IS manager and when Case X merged with another IoT it was the IS manager's responsibility to manage the integration of Core IS, networks, phone systems and emails. The IS manager worked closely with the EMT member tasked with overseeing the merger, and together they developed and implemented a plan successfully, as evidenced by the integrated IS that now support the newly merged institute. So while the IS manager does configure IS to align with business needs, he does so based on predefined structure and standards, all of which have been previously audited and deemed appropriate for institute business needs. Again, this reflects the role of the IS manager as that of a functional manager, focused on running a secure IS environment based on instructions and standards developed by, and received from others.

The IS manager of Case Y was a member of the end user committee that evaluated the student registration IS and therefore has an in-depth knowledge of the database. Due to this knowledge, the IS manager regularly receives requests from the business to support end users with data mining and reporting activities. Implementing user requests in this way help align IS with business needs by helping end users meet their business objectives. By being a member of the national committee tasked with developing IS policies at national level, the IS manager in Case Y played a leading role in configuring the policies for all IoTs. However, at institute level, the IS manager's role is limited to that of implementing what is developed at national level, reiterating the functional role of his job in aligning business and IS strategies within his own institute.

At the **micro level** the conceptual SA practice undertaken by the IS manager is that of *Support*. This support helps ensure efficient and coherent use of installed IS within each individual department. The IS help desk, managed by the IS manager, is the principal support centre for all end users of IS within each department of the institute. Through the help desk, the IS manager provides support to end users with the aim of providing an efficient and effective IS service, in conformance with the institute's IS standards and policies. When upgrades/refurbishments are carried out within departmental laboratories, lecture theatres and classrooms, the IS manager specifies and costs suitable IS infrastructure to support the upgrades/refurbishments. Support for the installed IS is provided by **t**he IS manager, via the IS technicians he assigns to departments. This support can take the form of assisting Heads of Department compile data from the installed IS for use at various departmental meetings, such as course boards and exam boards. Through the provision of IS training facilities, the IS manager supports the specific IS training needs of department personnel.

Analysis of the conceptual SA practice *"Support"*.

All IS related support calls from end users in both Case X and Case Y are logged, in the first instance, with the IS help desk. The IS help desk in both institutes is managed by the IS manager. The IS mangers have in place a system for screening, prioritising and responding to all calls. Every call is logged and responded to with a plan of action for resolution. Depending on the nature of the problem, the IS manager has in place a system for allocating the problem to an appropriate technician(s) for resolution along with prioritisation. For instance, calls relating to a malfunctioning printer in one office are given a low priority and allocated to a junior IS technician, whereas calls relating to a department's entire email system are given a high priority and allocated to a senior IS technician. By providing support in this manner to each department, the IS manager ensures he allocates his IS resources in accordance with business priorities, thus contributing to an effective alignment of business and IS strategies.

As part of upgrading/refurbishing the computer laboratories belonging to the building department within Case X, the IS manager was part of a team assigned with the task of designing, constructing and implementing the new laboratories. The IS manager's task was, in accordance with the overall plan, to specify, purchase and oversee the realisation of the reconfigured network, new hardware and software. He did so in accordance with his institute's IS standards and policies. In Case Y, some IS technicians report to the Head of

School in which they provide a service, rather than to the IS manager. However, they do have to comply with the institute's IS standards and policies, which along with regular meetings the IS manager has with all the institute's IS technicians, helps ensure upgrades to IS infrastructure is carried out in a uniform manner across the whole institute. By being assigned to specific schools, the IS technicians in both institutes have an intimate understanding of the business activities within the school to which they are assigned. An example of such understanding is when the IS technicians support the Heads of School compile data from the student registration IS and module management IS, for subsequent use at school and course boards. In the absence of this understanding, the precise data mining and reporting would not take place. It is a combination of the career management undertaken by the IS managers and the task management undertaken by the Heads of School, that enables such outcomes. It is also evident that whoever undertakes the work, be it the IS manager or an IS technician who reports to a Head of School, by following institute IS standards, the IS manager is supporting the same standard of alignment between business and IS strategies at school level.

In conjunction with library personnel, the IS managers in both Case X and Case Y provide IS training facilities that enable specific training for departmental academic staff. Such training has included training in the use of IS that support course management and software specifically to help with research activities. By providing this training in a uniform manner, the IS manager is helping to ensure a similar level of end user competency in the use of IS across departments. This in turn reduces the likelihood of widely separate levels of SA being attained, across departments.

7.5.1.3 SA practice category of Innovate.

At the **macro level** the conceptual SA practice undertaken by the IS manager is that of *Share Knowledge*. This conceptual SA practice covers a range of information exchange activities engaged in by the IS manager within the macro environment, that can facilitate discovery of alternative approaches to deploying IS within the institute, so as to help them align with business needs. Not all IS supplied by the shared services provider are required by each institute and occasionally such IS if implemented, could hinder SA. To help avoid such hindrance, the IS manager and the end users work together, to either amend the IS received to suit business needs or reject them outright. On occasion, when end users decide to implement a new business initiative, they liaise with the IS manager to determine if some form of IS can be availed of to help with the implementation of the initiative.

Analysis of the conceptual SA practice *"Share Knowledge"*.

In 2010, An Chéim wanted to implement, in all IoTs, an upgraded version of the student registration IS. Based on an overriding business need, Case X insisted on the implementation of an on-line registration module before implementation of the upgraded version of the student registration IS. The argument supporting the business case was formulated by the EMT of Case X in conjunction with the IS manager. The business case concluded that Case X was no longer in a position to allocate the staff required to operate the IS in its current format, which was by and large a manual process that was extremely time consuming. The IS manager had discussions with his counterparts in two other IoTs that had themselves developed standalone on-line registration modules, albeit the development went against the share services model. The other two IoTs supported the development of a national on-line registration module, as the stand alone modules they had developed were quite rudimentary. The solution was development of a national integrated on-line registration module at a cost of €200,000. By sharing knowledge with members of his EMT and with his counterparts in other IoTs, the IS manager helped formulate a business case that resulted in the development of a national on-line student registration IS. The full development cost of €200,000 was shared among the thirteen IoTs. By sharing his knowledge with others, the IS manager played a prominent role in obtaining a student registration IS that aligned with the business needs of his institute, at a fraction of the cost had the IS not been developed.

When Case Y and its partners in the proposed TU wanted to build a central website to market the proposed TU, it was the IS manager of Case Y who co-ordinated the development of the website on behalf of the three partner IoTs. In doing so, not only did the IS manager help align the website with the marketing needs of his institute, but he also helped align the marketing initiative of all three partner IoTs aimed at helping attainment of TU status.

At the **meso level** the conceptual SA practice undertaken by the IS manager is that of *Collaborate*. This conceptual SA practice involves the IS manager working with end users throughout the institute, in an effort to configure and operate both current and new IS in novel ways to help align with business needs. The emphasis is placed on obtaining an efficient and coherent suite of IS. With core IS being supplied by a shared services provider, the IS manager's knowledge of the business as well as the IS infrastructure and

policies, are crucial in helping to implement core IS to align with business needs. Indeed, such knowledge is equally crucial when non-core IS are introduced to the institute.

Analysis of the conceptual SA practice *"Collaborate".*

Staff within both Case X and Case Y were aware of frustration among students at not being able to access data such as library and examination records, unless the students were physically present on campus and logged into allocated workstations. To overcome this problem, the IS managers of both institutes, in collaboration with their institutes' Presidents and Presidents of the students unions, considered a number of options. The chosen solution for both institutes was to provide both on and off campus access for students, within the institutes' IS policy for data access, thus providing the students with efficient and effective access to the required data. By deciding to partake in this new way of working i.e. collaborating with a range of key stakeholders, the IS managers developed a mutual respect with the key stakeholders, resulting in a greater sense of teamwork when implementing IS, than had previously been the case.

The IS supplied by An Chéim are utilised to help meet objectives set out in the strategic plans of both Case X and Case Y. However, these IS do not help meet the full set of objectives set out in the strategic plans and to help fill this void, the IS managers' knowledge of the business, IS infrastructure and IS policies ar availed of. When Case X was undergoing its merger with another IoT, there was no precedent within the IoT sector for merging the core financial IS. Working with the Secretary/Financial Controller, the IS manager devised a plan that included the technical and business aspects for merging both financial IS together. Case Y had a particular reporting requirement that was not available from one of the core IS supplied by An Chéim. The IS manager, with his business knowledge and his knowledge of the underlying database, developed a reporting module specifically for Case Y. The reporting module was implemented with the full approval of the institute's President, even though such an IS development falls outside the shared services model. The same business and technical knowledge of the IS manager is also called upon when non-core IS are introduced to the institutes. By working in this collaborative manner with members of his institute's EMT, the executives of both institutes have developed a deeper understanding of how the IS managers can help align IS and with business needs. Such an understanding does not mitigate against An Chéim as the main provider of IS to the institutes.

In Case X, the IS manager will introduce new applications on a pilot basis. One such incident occurred when he introduced the on-line learning software that subsequently received overwhelming acceptance among the academic community within the institute. It was the IS manager's business and technical knowledge that guided his choice of pilot, and it was his ability to work with end users that aided its acceptance. It is highly unlikely that such a successful outcome would have been achieved had the IS manager sought the imprimatur of the ISSG to carry out the work, because the academic community are not represented on the ISSG. Through his knowledge of the network infrastructure and the respect afforded to him by end users, the IS manager in Case Y worked in collaboration with end users to devise the most appropriate solution for a specialised imaging IS, that needed to span a number of campuses. As with Case X, it is highly unlikely that such a successful outcome would have been achieved had the IS manager sought the imprimatur of the Management Group, because the campus that had most to gain from the specialised imaging IS, was seldom represented on the Management Group.

At the **micro level** the conceptual SA practice undertaken by the IS manager is that of *Counsel*. This conceptual SA practice concerns the IS manager providing individual departments and schools, via the IS technicians, with advice on how best to deploy and utilise current IS, in an effort to gain efficiencies for the business.

Analysis of the conceptual SA practice *"Counsel"*.

To provide advice to the end users and students within schools, the IS manager within Case X has dedicated a number of his IS technicians to each school on a full time basis. By devoting IS technicians in this manner, the IS technicians are task-managed by the Head of School whereas they are career-managed by the IS manager. This ensures a close and dedicated service to the business while at the same time ensures each IS technician is provided with a clear career path. In essence, the IS technicians in each school are the providers of sound IS related advice to the school, all within the institute's IS policies and standards. Delivery of such advice within Case Y to schools that they have their own IS technicians (i.e. employed by the school and not by IS services) is somewhat different. In this case, the IS manager has a very good and close working relationship with the Heads of School so as to ensure the best interests of the school are served, within the institute's policies and standards.

The IS manager fully understands that the main interface between the student and the institute is at school level. To help ensure IS serve the interests of the student, which in turn serve the business interests of the schools, the IS manager maintains a close relationship with the IS technicians and Heads of School. This close relationship helps to identify the schools' business needs and how best they can be served by IS. From this information, the IS manager devises IS technicians' training and development plans, helping to ensure he maintains a group of technicians with the skills required to counsel the schools on their IS needs, within the institutes' policies and standards.

7.5.1.4 Concluding comments on conceptual SA practices.

The ability of the IS manager to encourage others take a particular course of action to achieve SA, is reflected by the conceptual SA practices the macro level. Without strong business and technical knowledge, and without credence among the institute's EMT, it is highly unlikely the IS manager's points of view would be seriously considered. While the data demonstrates that the IS manager's opinions are considered in earnest and in many cases acted upon, the fact remains that he is not invited to partake directly, or formally, in IS strategising. By far, the majority of the IS manager's praxis are reflected in the conceptual SA practices at the meso level. It is at this level the IS manager has his largest impact on SA. This impact is directed by the strong and intimate functional knowledge the IS manager has about his own institute's business and its IS, underpinned by his solid technical knowledge and ability to work with others. At the micro level, the IS manager's praxis are reflected in conceptual SA practices of an obliging character. The IS manager's praxis at this level conform to the IS policies and standards of the institute.

7.5.2 Inter-level relationships between conceptual SA practices within the taxonomy.

To fully understand, through a SaP lens, how IS managers practice the alignment of business and IS strategies in IIT, it is necessary to explore the inter-level relationships between the conceptual SA practices at the three levels of macro, meso and micro. Such an approach is fully consistent with the way the issue of levels is iterated within the SaP literature (Regnér 2008, Jarzabkowski and Spee 2009, Goldkuhl 2011, Vaara and Whittington 2012).

Referring to my taxonomy (figure 7.1), the inter-level relationships between the conceptual SA practices at the three levels of macro, meso and micro are depicted by the three pairs of

connecting arrows between the levels. The first pair are the two long arrows that connect the macro and micro levels together. The second pair are the two short arrows that connect the meso and micro levels together. The third pair are the two short arrows that connect the macro and meso levels together.

7.5.2.1 Connecting the macro and micro levels.

The arrow travelling from the macro level to the micro level denotes the influence the macro level praxis undertaken by the IS manager have on his micro level praxis within the institute. In his efforts to provide input to IS strategising at the macro level, the IS manager learns a great deal about future IS plans for the IoT sector as a whole. This includes details on IS policies, future upgrades to IS supplied by shared services providers and future upgrades to networking services. By travelling to other HEIs, the IS manager obtains knowledge about alternative designs to computer laboratories, lecture theatres and help desks. He avails of this knowledge when designing similar facilities at the micro level within his own institute. Being a member of local consortia, the IS manager provides input and gains insight into the latest hardware deals his institute can avail of. These praxis provide the IS manager with the information required to tailor his purchasing so that schools and departments within his institute, can maximise the benefits from the deals entered into by the local consortia. Knowing what future IS plans are for the IoT sector as a whole, the IS manager tailors the work he and the IS technicians do at the micro level, so that duplication of effort does not occur and that all work undertaken conforms with the IS policies of the sector. Such a praxis includes not tendering for an IS required at the micro level, when the IS manager is aware that the particular IS will be provided by the shared services provider.

The arrow travelling from the micro level to the macro level denotes the influence the micro level praxis undertaken by the IS manager within the institute have on his macro level praxis. By helping end users with the running of shared service IS and sector wide IS policies, the IS manager obtains an in-depth understanding of the strengths and weaknesses of such IS and IS policies at the micro level. It is this understanding that shapes the praxis he undertakes at the macro level, such as making his voice heard at various fora and meetings at the macro level, in an effort to encourage certain sector wide IS and practices. Depending on how the hardware purchased through the local consortia performs at the micro level, the IS manager avails of this knowledge when discussing hardware purchases with other consortia members.

7.5.2.2 Connecting the meso and micro levels.

The arrow travelling from the meso level to the micro level denotes the influence the meso level praxis undertaken by the IS manager have on his micro level praxis within the institute. When seeking approval to purchase an IS for a school or department not available from a shared services provider, the IS manager with support from the strategic plan and a member(s) of the EMT, will present a business case to the EMT detailing why the IS should be purchased. If successful, this praxis will result in the IS manager overseeing the implementation and support of the IS, at the micro level. Through his involvement in helping the EMT to compile metrics for the HEA, the IS manager brought to their attention an IS that could greatly help with this process. This resulted in the IS manager implementing the IS, in the first instance, at the micro level, hence supporting the compilation of metrics at this level. Having implemented an IS at the meso level and provided institute wide training in its use, it is not unusual for an individual department to seek additional training from the IS manager, particularly when that department turns out to be the main user of the IS. In these instances, the IS manager works with the ETO to tailor a specific training package for the department concerned. On occasion the IS manager has configured an IS at the meso level to help support business needs specific to his institute. Such configuration leads to additional support being provided by the IS manager at the micro level, because the support provided by the IS provider does not account for changes to configuration made by the IS manager.

The arrow travelling from the micro level to the meso level denotes the influence the micro level praxis undertaken by the IS manager have on his meso level praxis within the institute. By allocating the institute's IS technicians in a manner that mirrors the structure of the departments and schools, the IS manager is able to obtain and compile information from the technicians regarding IS use and training at the micro level. Based on this information, the IS manager in conjunction with the ETO, develops institute wide IS training programs. The knowledge gleaned from micro level IS help desk support calls, enables the IS manager to develop institute wide practices that help all users in their use of IS. By running pilots within individual departments, the IS manager receives feedback from end users on improvements they would like. On implementing the improvements, the IS manager releases the software to the wider institute community, who now benefit from the work undertaken by the IS manager at the micro level.

7.5.2.3 Connecting the macro and meso levels.

The arrow travelling from the macro level to the meso level denotes the influence the macro level praxis undertaken by the IS manager have on his meso level praxis within the institute. These influences are very similar to those travelling from the macro level to the micro level. This is not surprising, bearing in mind the IS manager is responsible for IS activity within his institute as a whole and within each individual school and department. Through his praxis at the macro level, the IS manager learns a great deal about future IS plans for the IoT sector as a whole and also about what other HEIs are doing to align business and IS strategies. With this knowledge, the IS manager customises his praxis at the meso level so as to ensure he aligns IS as best he can with business needs, in accordance with best practice and sector wide IS policies. In addition this knowledge informs the training and support structures he puts in place within his own institute. Through being a member of local consortia, the IS manager affects the prices his institute pays for various hardware.

The arrow travelling from the meso level to the macro level denotes the influence the meso level praxis undertaken by the IS manager within the institute have on his macro level praxis. These influences are very similar to those travelling from the micro level to the macro level. Again, this is not surprising, bearing in mind the IS manager is responsible for IS activity within his institute as a whole and within each individual school and department. Being in charge of operating shared service IS and sector wide IS policies within his institute, the IS manager obtains an in-depth understanding of the strengths and weaknesses of such IS and IS policies, from the perspective of his institute. This understanding impacts the praxis he undertakes at the macro level within various fora and meetings, in an effort to encourage certain sector wide IS and practices. Being aware of IS that can be obtained from shared services providers, the IS manager ensures he maintains the shared services ethos by not tendering for similar IS at the meso level. Having affected the purchase of hardware by the local consortia, the IS manager monitors how such purchases help meets the business needs of his institute. The IS manager then avails of this knowledge, as input to policy on hardware purchases by the consortia.

7.5.2.4 Concluding comments on inter-level relationships between conceptual SA practices within the taxonomy.

Although the IS manager's involvement in IS strategising is severely limited at the macro level, this does not prevent him from undertaking praxis at the macro level, but it does

have a major impact on the nature of those praxis. This is evident from the knowledge he gains through his close working relationship with end users at the meso level and his knowledge of the institute's strategic plan, resulting in an in-depth understanding of business needs. This in turn informs his decision making when searching the macro environment for IS that provide functionality not contained within the IS supplied by shared services providers. This knowledge provides the IS manager with the required information to enable him influence decision making within various fora and meetings he attends, at the macro level. At the meso level, the IS manager undertakes many praxis which are shaped by the praxis he undertakes at the macro level. Examples include providing input to sector wide IS policies and local consortia hardware purchasing decisions, which in turn inform the IS policies implemented and the hardware installed at the meso level. Utilising his business and technical knowledge, the IS manager helps his EMT compile metrics required by the HEA, thus building personal credibility among members of the institute's EMT. This personal credibility enables the IS manager carry out additional praxis at all three levels including the sourcing of alternative IS at the macro level and their subsequent piloting at the meso and micro levels. The method by which the IS manager structures the placement of the IS technicians at the micro level, keeps the IS manager well informed as to the IS and training needs of end users. This knowledge informs the IS managers decisions at the macro level in terms of sourcing IS, and providing training at both the meso and micro levels.

From my analysis of the inter-level relationships between the conceptual SA practices within the taxonomy, it is evident that because the IS manager is not a member of his institute's EMT and because he is prohibited from dealing directly with the main shared services provider, this does not equate to having a minor role in the alignment of business and IS strategies. On the contrary, the IS manager has a major role in such alignment, built primarily through his relationships with end users at all three levels. However, the approach he takes to executing and integrating his praxis at each of the three levels, is governed by the IS policies developed at the macro level.

7.5.3 Conclusion to taxonomy of SA practices undertaken by IS managers in IIT.

In this section, I have with support from the case data, presented my taxonomy in detail. This was achieved by presenting each conceptual SA practice at each of the three levels, within the three SA practice categories. My taxonomy reveals that to fully understand how the alignment of business and IS strategies is practiced by IS managers in IIT, it is

necessary to explore the inter-level relationships between conceptual SA practices at the macro, meso and micro levels. To this end, I have presented the inter-level relationships at the macro, meso and micro levels. By presenting all elements of my taxonomy in detail, with support drawn from the case data, it is evident that praxis undertaken by the IS manager to align business and IS strategies are contingent on forming alliances with a range of practitioners at each of the macro, meso and micro levels. My taxonomy provides an understanding as to how the alignment of business and IS strategies is practiced by IS managers in IIT and hence a mid-range theory that provides an answer to the research question.

7.6 Taxonomy relative to literature.

An essential element of theory building from case study is to compare the emergent theory with the extant literature and in so doing, encourage us to think about the phenomenon in a way that we would not from the literature alone (Shalley 2012). This process helps in both confirming and contesting the emergent theory. Confirmatory literature can provide confidence in the findings by providing wider generalisability and a higher conceptual level. Contesting literature can be availed of to help explain conflicting findings, enhance confidence in the findings and provide deeper insight into the phenomenon being studied (Eisenhardt 1989, Orlikowski 1993, Dubé and Paré 2003).

The broad range of literature reviewed, both core and informative, was chosen based on the elements contained within the research question. By comparing my taxonomy with four literature sets, I reiterate what is already known and illustrate precisely how my work enlarges the current body of knowledge. The differences between the literature and the taxonomy discussed in this section, reflect the fact that there is a dearth of practice-based studies rooted in our everyday experiences, to aid our understanding as to how IS managers align business and IS strategies in PSOs. The four sets of literature, all of which were availed of to help answer the research question are: SA literature; strategic management literature; public service strategy literature; and the literature on the role of the highest ranking IS executive.

7.6.1 Taxonomy relative to the SA literature.

In chapter 4, I presented a wide ranging, in-depth review of the SA literature. In this section I compare my taxonomy with my findings from that literature set, a set that is core to my research.

My review of the SA literature found from a total of 199 empirical SA articles, only four involved studies enquiring into praxis carried out by individual practitioners at the meso level. Therefore, while my taxonomy is rare in relation to what is contained in the SA literature in that it is constructed based on praxis carried out by an individual practitioner, it is also unique in that it constructed based on praxis carried out by the individual practitioner at each of the three levels of macro, meso and micro.

Apart from the TSAM model developed by Kalika and Walsh (2010) aimed at having practical meaning, the main area of difference between the SA models presented in the literature and my taxonomy, is that the models have their roots in SAM. SAM was developed when organisations operated in an environment that was a lot more stable than it is today. The models within the literature are mechanistic and take no account of human action in shaping the alignment of business and IS strategies. Therefore, unlike my taxonomy, they are not very suitable for today's dynamic world of IS and strategy (Ciborra 1997, Smaczny 2001, Leonard 2008).

Within the literature, strategic planning and SA are closely associated, with numerous calls for the highest ranking IS executive to participate in business planning and for business executives to participate in IS planning (Pyburn 1983, Teo and King 1996, Kearns and Sabherwal 2007). The taxonomy is constructed based on the praxis of the IS manager and clearly illustrates, as does the literature, that the IS manager does not participate in business planning. Consequently, the IS manager tends to concentrate on providing solutions that help align IS with the business needs of the organisation. On occasion, this requires the IS manager to make changes to the IS team's structure, to facilitate implementation. Such a praxis is also reported within the literature (Brown and Magill 1994, Raymond, Paré et al. 1995, Chan 2002). Within my taxonomy, at the meso level, the IS manager communicates and agrees with departmental management, about such staff changes. While not reported in the literature, my taxonomy accounts for the fact that such changes are only made upon receiving EMT support, which in turn is contingent on the changes being targeted at increasing support for business needs.

Even when a high linkage exists between an organisation's business plans and IS plans, quite often SA is not fully realised because the promised resources to implement IS are not provided (Lederer and Sethi 1988, Earl 1993, Shanks, Bekmamedova et al. 2012) and/or

the IS manager is not in a position to integrate various IS (Chung, Rainer Jr et al. 2003), particularly core IS (Mikko 2011). This is reflected throughout the taxonomy at all three levels, whereby the praxis of the IS manager are focused on overcoming the shortage in IS resources. These praxis include the IS manager sharing knowledge with members of his institute's EMT, in a bid to influence their discussions about the content of core IS, with the shared services provider. Other praxis include the IS manager collaborating with EMT members in the development of a reporting module to sit on top of the IS supplied by the shared services provider, because the promised reporting module was never delivered. It also includes the IS manager counselling Heads of Department on the best way to utilise and integrate current IS to support business needs and providing on-going support for those IS through the allocation of dedicated IS technicians. These praxis are joined together and illustrated in the taxonomy through the inter-level relationships. Therefore, the taxonomy extends our knowledge about the degree of alignment between business and IS strategies, in that is greatly influenced by the praxis of the IS manager. While the literature reports that IS strategy remains separate from, but supportive of, business strategy, thus ensuring a certain degree of SA (Avison, Jones et al. 2004, Peak, Guynes et al. 2005), the strong personal influence of the IS manager depicted in my taxonomy is not to be found within the literature.

The literature reveals SA is in a constant state of flux, contingent on the organisation and the situation in which it finds itself (Burn 1996, Sabherwal, Hirschheim et al. 2001, Baker, Jones et al. 2011). These circumstances can lead to organisations in the same industry achieving vastly different levels of SA, which in turn can be applied to build a competitive advantage through cultivating a unique and inimitable capability (Chan, Sabherwal et al. 2006, Cumps, Viaene et al. 2006, Tallon and Pinsonneault 2011). Having the highest ranking IS executive possess the competency to contribute to the development and maintenance of SA, and influence the knowledge and thinking of the organisation's EMT, provides the organisation with a competitive advantage (Chen, Sun et al. 2008, Baker, Cao et al. 2009). This does not require the highest ranking IS executive to be a bona fide member of the TMT, but it does require him to share his knowledge with the TMT and influence their thinking (Rockart, Earl et al. 1996, Chowa 2010). While both Case X and Case Y avail of the same core IS, the study reveals that an inimitable capability is partly shaped by the competencies of the IS manager and the praxis he undertakes while interacting with other practitioners at the macro and meso levels. The taxonomy also shows that the IS manager facilitates the purchase of and implementation of IS that fall

outside IS offered by the shared services provider. However, the conceptual SA practice of *influence* is not as prominent in the taxonomy as it is in the literature (Weiss and Anderson 2004, Kearns and Sabherwal 2007, Shpilberg, Berez et al. 2007). The likely reason is because the study involved IS managers who are prohibited from dealing with the shared services provider on a one-to-one basis, a circumstance exacerbated by not being a member of the EMT.

Yayla and Hu (2009) and Denford and Chan (2009) found environmental factors have an impact on SA and the level of impact is in direct correlation to the influence the organisation can bring to bear on such factors. While the taxonomy does not provide a measure of correlation, it does present a set of conceptual SA practices at the macro level, that help manage the relationship between the organisation and its environmental factors. These include influencing the work and its sequencing undertaken by the shared services provider, that impact on SA within the institute. The IS manager achieves this by sharing his knowledge of IS and business related issues with his line manager and President, who are also members of the shared services provider's board of management. The other principal methods by which the IS manager can impact on environmental factors that have an influence on SA are through his membership of national groups such as the one established to investigate and recommend suitable IS security policies, and the one established to evaluate the services provided by HEAnet. Therefore my taxonomy extends our knowledge on the influence the organisation can bring to bear on environmental factors that have an impact on SA, by including a set of conceptual SA practcies the IS manager can bring to bear on such factors.

The literature reports that while software and hardware are easily integrated after a merger between two organisations, it is not so easy to integrate organisation procedures including those of SA. Such integration is only attempted late on in the post-merger process, so as to allow time for socialisation among staff to take place (Wijnhoven, Spil et al. 2006, Mehta and Hirschheim 2007). This is exactly what occurred in Case X when it merged with the former stand-alone HEI in September 2011. While full integration had still not been achieved by June 2013 (Case X 2013b) the core IS were merged thus helping to attain a high level of SA, facilitated by discussions and agreements between the IS manager and various managers throughout both institutes. This process is reflected in the conceptual SA practices of the taxonomy at both the meso and micro levels as well as the inter-level relationships between them. At the meso level within both institutes, the IS manager

communicated and collaborated with EMT members to determine the best approach to implement IS integration. Following these discussions, the agreed approach was executed through the IS manager providing each department involved in the process with support and advice, to facilitate the merger of the IS. For the duration of the process, there was constant communication between the IS manager and the EMT at the meso level, as well as between the IS manager and staff at the micro level, to ensure the work was carried out as agreed. These findings extend our knowledge as to how the IS manager engages with practitioners in his own organisation, aimed at achieving SA following the merger of two organisations.

Silvius (2007) is of the view that SA results more from relationships between people than from any methodological analysis or business strategy. These relationships are fostered through the sharing of knowledge between business and IS executives, resulting in narrowing the knowledge gap that can impede SA (Ghosh and Scott 2009, Enns and McDonagh 2012). Bush, Lederer et al. (2009) and Burns, Neutens et al. (2009) found a culture of learning supports the attainment of SA, particularly when educational events are orchestrated by the CIO (Campbell, Kay et al. 2005, Preston and Karahanna 2009a). Unfortunately, the vast majority of the SA literature neglects the social dimension, which is an essential dimension for practitioners at the tactical, operational and strategic levels (Renaud and Walsh 2010, Schlosser 2012). My taxonomy goes some way towards answering the calls of Ciborra (1997), Hiekkanen, Helenius et al. (2013) and others, for research into the social dimension of SA, rooted in our everyday experiences that include both the formal and informal role of practitioners. This is particularly noticeable at the macro level where the IS manager makes his voice heard through fora such as the National IS Managers' Group, influences the content of national IS by being a member of national committees, and shares his knowledge and expertise with the main stakeholders at this level. By working with various groups and individuals at the meso level, the IS manager employs his personable attributes and expertise in his efforts to implement IS in a manner that best contributes to overall SA. At the micro level the same personable attributes and expertise are availed of to facilitate, counsel and support end users in their use of IS to help achieve SA. These IS manager praxis are contingent on the inter-level relationships between them, as each praxis at each level, is shaped by and has a direct impact on, the praxis at the other levels. Therefore, the extent to which SA is strengthened through the inter-level relationships between praxis at the micro, meso and macro levels, very much

depends on the trust and working rapport among the practitioners involved. This issue of trust is a view supported by Campbell, Kay et al. (2005).

7.6.2 Taxonomy relative to the strategic management literature.

In chapter 2, I undertook a high level review of the strategic management literature, as it constitutes a set of literature that informs my research question. In this section, I compare my taxonomy with my findings from that review. My taxonomy offers an alternative to focusing on organisation performance alone, which is so prevalent within the strategic management literature (Rasche and Chia 2009, Brown and Thompson 2013).

The framework developed by Miles, Snow et al. (1978) identifies four strategic types of organisations, namely; *defenders, prospectors, analysers and reactors*. *Reactors* are organisations that take their lead from external environmental pressure when forced to do so (Meier, O'Toole et al. 2007). My taxonomy illustrates that in the case of IS strategy, both Case X and Case Y belong to the *reactor* strategic type, as they take their lead on strategic IS issues from the main shared services providers of An Chéim and HEAnet. This course of action is mandated by the HEA and the IoTI on behalf of DoES and DPER, so as to help ensure cost savings and efficiencies are achieved in relation to IS, across the IoT sector as a whole. By not being allowed to liaise directly with the shared services provider, the IS manager's praxis are limited to those of striving to have his voice heard by the shared services provider via third parties, such as the National IS Manager's Group and/or members of his institute's EMT who sit on the board of the shared services provider.

Dynamic capabilities addresses the firm's capabilities, which includes the firm's distinct skill set held by its employees (Teece 2007, Wang and Ahmed 2007, Chen and Miller 2012). Such competencies form part of a firm's overall strategising capabilities. My taxonomy, through its conceptual SA practices at all three levels, reflects such capabilities are held by the IS manager. This is particularly noticeable at the meso level, where the majority of the IS managers' praxis take place, and where the knowledge held by the IS manager is critical to aligning business and IS strategies. Examples include the IS manager in both institutes communicating with members of the EMT prior to developing and implementing software solutions, to enable measurement of KPIs. Another example involved retaining specific knowledge and expertise held by the IS manager in Case Y, before he was due to retire. As there was nobody else in the organisation who possessed

the same knowledge and expertise held by the IS manager, rather than retire, the IS manager accepted a new appointment to lead the development and implementation of a reporting module. Had the IS manager not accepted the new appointment, the knowledge and expertise held by the IS manager would have been lost to the institute as would the organisation's ability to develop and implement a new reporting module. This example alone, demonstrates the importance of sharing knowledge and expertise between practitioners within an organisation, so as to ensure SA can be continuously improved.

Unfortunately, not all organisations welcome the involvement of lower level management and prefer to keep strategy making a secret within the exclusive domain of the TMT (Hodgkinson, Whittington et al. 2006, Whittington, Cailluet et al. 2011). In reviewing various literature on strategy, Hart (1992) concludes that strategy making need no longer be considered as belonging exclusively to the TMT and must now be considered on an organisation wide basis. Fredrickson (1986) and Ugboro, Obeng et al. (2011) add support to this view by maintaining the CEO and/or TMT in large organisations operating in complex environments share the responsibility of strategy development with lower level management, particularly with those who are tasked with implementing the strategic plans. Tourish (2005) cautions against not doing this, as it can result in lower level management lacking ownership of the firm's strategy and lacking information to help align their actions with it. My taxonomy reflects the approach put forward by Hodgkinson, Whittington et al. (2006) and Whittington, Cailluet et al. (2011), whereby the IS manager is excluded from IS strategy making and consequently spends much of his time working through others to effect IS strategy and its implementation, in his efforts to align business and IS strategies. Therefore, while the IS manager does practice the alignment of business and IS strategies within his institute, opportunities to do so could be greatly enhanced if he was invited to partake in strategy making, and benefits to the organisation in terms of performance could ensue.

7.6.3 Taxonomy relative to the public service strategy literature.

In chapter 2, I undertook a high level review of the literature on public service strategy, as it constitutes a set of literature that informs my research question. In this section I compare my taxonomy with my findings from that literature review.

My review of the SA literature resulted in the identification of two main gaps, one being a dearth of studies within a PSO context. The current study and the resultant taxonomy,

contribute to our knowledge of strategising within the public service and more specifically, to our knowledge as to how IS managers practice the alignment of business and IS strategies in IIT.

Those who play the central role in strategic planning within the public sector, vary from GBs, to EMTs and can even extend to include other managerial levels as well as external stakeholders. In addition to these variations, strategic planning differs in scope from individual departments to entire government departments (Poister, Pitts et al. 2010). My taxonomy illustrates that the EMT play the central role in strategising within Case X and Case Y, albeit they take their lead from the IoT Act 2006, while IS strategy is developed by IoTI and implemented by each IoT's EMT, via shared services providers and the IS manager. Overall, this echoes the findings of Nutt and Backoff (1993a) and Andrews, Boyne et al. (2008) whereby the discretion managers (including IS managers) have over strategy is clearly reliant on, and influenced by, the traits of their regulatory regimes. More specifically, my taxonomy clearly demonstrates the discretion IS managers have over IS strategy is reliant on the knowledge they share with, and the influence they exert over, their EMT who are also board members of IoTI and the principal shared services providers.

In order to effectively report progress against objectives set out in their strategic plans, reforms within the public service encourage line managers as well as senior executives, to use information as a core resource to do so (Brown 2010, Poister 2010). While the taxonomy demonstrates the IS manager engages in such practices, it also clarifies he does so based on his intimate knowledge of IS, rather than on being a bona fide member of the organisation's strategic management team. The significance behind this inclusion is that each institution, in accordance with its compact with the HEA, is required to attain certain KPIs in order to receive full funding from the HEA, which reflects a corporate planning process (Llewellyn and Tappin 2003, Stewart 2004, Ugboro, Obeng et al. 2011). It also demonstrates, as reported in the literature and supported by my taxonomy, that the role carried out by professionals such as the IS manager, remain at an operational and advisory level within PSOs (Nutt and Backoff 1995, Llewellyn and Tappin 2003, Talbot 2009).

7.6.4 Taxonomy relative to the literature on the role of the highest ranking IS executive.

In chapter 2, I undertook a high level review of the literature on the highest ranking IS executive. This literature set was availed of to inform my research question, as it is the

praxis undertaken by the highest ranking IS executive within both cases that constitutes my unit of analysis. In this section I compare my taxonomy with my findings from the review.

Over the past 30 years, the title assigned to the highest ranking IS executive have been many and include DP Manager, MIS Manager, IS Manager and CIO (Stephens, Ledbetter et al. 1992, Hunter 2010). The role of the job holder also differs and includes that of a business strategist, an advisor to senior management and a functional manager who assists end users obtain benefits from the IS in which the organisation has invested (Beatty, Arnett et al. 2005, Chun and Mooney 2009, Peppard, Edwards et al. 2011). The CIO has become a business strategist who influences how IS can be deployed to gain a competitive advantage (Computing 2014, Dahlberg, Hokkanen et al. 2016), whereas the IS Manager is a functional manager with line responsibility for IS products and services (Stephens, Ledbetter et al. 1992, Earl 2000, Remenyi, Grant et al. 2005). My taxonomy and the conceptual SA practices contained within, reflect the fact that the IS manager in both Case X and Case Y are functional managers who concentrate their efforts on assisting end users obtain benefits from their institute's IS products and services. The taxonomy does not reflect an IS executive whose role extends to include business strategy and nor does it reflect an IS executive who has been accepted as an equal member of the EMT. In many organisations IS do not have a strategic orientation and are employed in a support role to reduce cost and gain efficiencies (Chun and Mooney 2009, Dahlberg, Hokkanen et al. 2016). It is exactly this support role that is revealed by the conceptual SA practices within my taxonomy, particularly those within the SA practice category of *Administer IS,* which is where just over half of the IS manager's SA praxis take place.

My taxonomy concurs with the literature in term of relationship building with key executives (Ross and Feeny 2000, Karlsen, Gottschalk et al. 2002, Enns, Huff et al. 2003), insofar that by building relationships with members of the management team, the IS manager can influence their attitude towards IS. In addition, my taxonomy extends our knowledge of such relationship building to include the impact the IS manager can have on the IS offerings of the shared services providers, via his relationships with his institute's EMT.

The study conducted by Peppard, Edwards et al. (2011) is interesting in that it found five salient roles carried out by the highest ranking IS executive and concludes that while the five roles are distinct, there exists significant ambiguity as to the most appropriate role at

any given time. The role carried out by the *utility IT Director* is operationally focused with the primary function of providing IS services at lowest cost, which mirrors the majority of conceptual SA practices within my taxonomy. The four other roles contain IS manager praxis that were to a far lesser extent found within my study, probably because the study carried out by Peppard, Edwards et al. (2011) was in the private sector. While a conclusion arrived at by Peppard, Edwards et al. (2011) is that some roles are more appropriate than others depending on the organisation's requirements at a given time, my taxonomy differs in that it illustrates the reasons are due to the operational and advisory role carried out by the IS manager in IIT.

Within the literature attention has also focused on the position of the highest ranking IS executive within an organisation's structure. However, we simply do not have sufficient empirical evidence to help identify the most appropriate reporting structure and are therefore not apprised to utilise the reporting structure as a measurement to help establish the strategic role of IS in the organisation (Banker, Hu et al. 2011). While the position of the highest ranking IS executive in the organisation is of concern, of far greater concern is whether he takes an active part in TMT debates concerning the strategy of the organisation (Rockart, Earl et al. 1996, Ross and Feeny 2000, Chowa 2010). The conceptual SA practices within my taxonomy reveal that the IS manager does not take an active part in such debates, but does have his voice heard by engaging in conceptual SA practices contained within the *Advocate* and *Innovate* categories, at the meso and macro levels. This engagement is not analogous to what Smaltz, Sambamurthy et al. (2006) and Carter, Grover et al. (2011) found, in that the highest ranking IS executive who reports directly to the CEO and who has developed trusting relationships with other executives, is regarded as a credible business strategist. It is far more akin to what Peppard, Edwards et al. (2011) found and supported by Carter, Grover et al. (2011), in that the highest ranking IS executive who typically reports to the CFO, is operationally focused with the primary aim of providing an efficient IS service at lowest cost.

Chun and Mooney (2009) and Hunter (2010) found the role of the highest ranking IS executive has evolved in two directions. The first is that of a strategist and the second is that of a manager whose primary objective is to manage and maintain the organisation's IS infrastructure with a view to obtaining efficiencies. It is the second of these two roles that accurately depicts the role of the IS manager within Case X and Case Y. The same finding is echoed in the relatively small number of studies carried out into the role of the highest

ranking IS executive within PSOs, most notably those carried out by Lawry, Waddell et al. (2007) and Hooper and Bunker (2013).

7.6.5 Conclusion to taxonomy relative to literature.

By comparing a broad range of literature with my taxonomy, I reiterate what is already known and I enlarge the current body of knowledge. The comparison unambiguously confirms that the answer to the research question could not have been obtained from the literature alone.

My taxonomy presents a perspective on SA praxis undertaken by the IS manager in IIT. It is a perspective not to be found within the literature to date. The taxonomy depicts the IS manager within IIT as a functional manager in receipt of a sector wide IS strategy, whose main concern is to obtain optimum efficiencies from IS at lowest possible cost. Being excluded from dealing directly with the shared services provider and having to implement a predefined IS strategy, the IS manager very much depends on successfully applying both his personable attributes (social dimension) and intellectual knowledge, at all three levels of macro, meso and micro, in his efforts to align business and IS strategies. These findings are an addition to the current body of knowledge contained within the literature.

7.7 Digital transformation - emerging new roles for the IS function.

Digital transformation involves taking advantage of and integrating digital technologies, for the benefit of the organisation. The term "transformation" as opposed to "change", highlights the all-embracing actions that need to be undertaken (Singh and Hess 2017, Runcinman 2018). Digital transformation impacts on many or all parts of the organisation and this impact can in many instances extend beyond the organisation itself to include products, processes and supply chains (Matt, Hess et al. 2015, Horlacher and Hess 2016). With its focus on the transformation of products, processes and the structural aspects that go along with the integration of technologies, digital transformation can reshape or even replace entire business models (Hess, Matt et al. 2016, Delmond, Coelho et al. 2017, Reddy and Reinartz 2017). This is a major departure from traditional IS that are primarily aimed at automating and optimising processes (Bharadwaj, El Sawy et al. 2013, Downes and Nunes 2013). With such seismic changes, a digital transformation strategy is required in order to deploy and exploit digital technologies for organisation's future success. Such a strategy requires to be aligned with corporate and functional strategies, and to this end, much can be learned from SA research as to how this alignment can be accomplished in

practice. In essence, digital transformation strategy reflects a new dimension to business strategy, whereby the boundaries between business and IS strategies become blurred (Drnevich and Croson 2013, Oestreicher-Singer and Zalmanson 2013, Kahre, Hoffmann et al. 2017).

Increasingly, organisations are establishing an additional position at EMT level, namely; Chief Transformation Officer (CTrO) or Chief Digital Officer (CDO) and task them with making digital transformation a strategic priority in the organisation. The principal role of the CDO/CTrO is to drive transformation so that the organisation can take advantage of the opportunities provided by digital technologies. The role of the CDO/CTrO includes working with the CEO to ensure the business drives the digital agenda, rather than the IS function driving the business's digital agenda. Not to be confused with the CIO who undertakes the role of the strategic IS specialist, the CDO/CTrO is the organisation's digital transformation specialist, and because of this the organisation should ensure the person has sufficient experience with transformational projects. The CDO/CTrO complements the CIO, by focusing on end customers through integrating existing and new digital initiatives (Matt, Hess et al. 2015, Singh and Hess 2017, Tumbas, Berente et al. 2017). In addition, it is important that the CDO/CTrO receives top management support to harness and capitalise on the changes that can be brought about by digital transformation (Dery, Sebastian et al. 2017, Ross, Sebastian et al. 2017). For reasons of clarity I will refer to the person who has person responsibility for executing the organisation's digital transformation strategy as the CDO.

There are a number of attributes the CDO must possess and tasks of both a strategic and operational nature he/she must carry out, to ensure successful implementation of a digital transformation strategy. Principal among these is the ability to strategise, communicate with stakeholders and implement change management skills (Bharadwaj, El Sawy et al. 2013, Horlacher and Hess 2016). In the course of digital transformation, the CDO must constantly monitor emerging technological trends and innovations, and evaluate how they can contribute to the organisation's digital transformation efforts. One way to do this is to implement a number of pilots, which will not only inform as to what the technology can do but will also ensure people experience change. Once value is demonstrated by showing how proof-of-concepts can be useful, the case for additional resources is bolstered and many people will want to be part of a successful endeavour (Rousselet 2014, Horlacher and Hess 2016, Singh and Hess 2017). In order to exploit the rapidly evolving digital

technologies for an organisation's future success, the CDO requires an entrepreneurial flair. In this context is a culture of trial-and-error, which is necessary in order to try out a number of initiatives and learn from the experience. This includes building digital capabilities for intense experimentation, including the ability to engage the organisation in data analytics so as to gain insights into both internal and external data sources (Rousselet 2014, Dery, Sebastian et al. 2017, Tumbas, Berente et al. 2017). The CDO requires strong communication skills in order to transmit information organisation-wide so as to help convince organisation decision makers and employees of the need to digitally transform. To do this the CDO must act as a leader by conducting training and workshops so as to motivate colleagues to enable digital transformation, and by attending staff meetings at the employee and management level at which he/she speaks about current and planned digital initiatives. In addition, the CDO attends conferences and networking events to exchange experiences and ideas (Horlacher and Hess 2016, Dery, Sebastian et al. 2017).

In considering the above digital transformation roles carried out by the CDO, it is meaningful to reflect on how such roles could reinforce the findings of my study in relation to the operational and strategic roles of the IS manager. The primary objective of the IS managers within Case X and Case Y is to manage and maintain the organisation's IS infrastructure with a view to obtaining efficiencies in support of strategic goals, rather than enabling the attainment of strategic goals. However, by reflecting on the digital transformation roles carried out by the CDO, it is clear that the IS managers in Case X and Case Y could indeed contribute far more by also working in collaboration as a consultant, enabler and innovator with their CDO. Initially, this would necessitate the EMT within each case to view IS and its associated digital technologies as an enabler of strategic goals and therefore embrace the concept of digital transformation. In this scenario, the IS manager would complement the work of the CDO by helping him/her focus on end customers through integrating existing and new digital initiatives.

Assuming the EMT of both Case X and Case Y appoint a CDO to drive transformation so that the institutions can take advantage of the opportunities provided by digital technologies, this will provide the IS mangers with the potential to play a greater strategic role than the currently do and will also expand their current operational role. The CDO will be responsible for developing the digital transformation strategy and executing digital transformation across the institution. The IS manager will be responsible for the implementation of the corresponding IS and the evolution of the IS infrastructure, thus

making sure all technical requirements are in place. Therefore, the relationship between the CDO and the IS manager will be symbiotic and interdependent, but with a clear distinction between responsibilities.

From a strategic perspective, the IS manager will need to work closely with the CDO, and together they will take advantage of digital technologies so as to drive transformation within the institutions. Principal among this work will be the opportunity for the IS manager to contribute in a meaningful way to IS strategising. With the appointment of a CDO and the establishment of a close working relationship between the CDO and the IS manager, both individuals will have a major contribution to make to IS strategising. This is in stark contrast to the current indirect efforts the IS manager has to make in order to make an impact at a strategic level. This will not require a change to the role of An Chéim, but it will necessitate that the CDO meets regularly with An Chéim to be appraised of their plans and to influence their future direction. A practical example that could derive from this relationship is that the IS manager will be given the freedom and resources to develop a reporting module, albeit under the guidance of the CDO, which will certainly transform how the institutions report to the HEA. Another example is whereby the CDO will have a deep appreciation for the need to constantly monitor emerging technological trends and innovations, and evaluate how they can contribute to the institution's digital transformation efforts. This will allow the IS manager to implement a great deal more pilots than he/she does at present. Once value is demonstrated, the case for additional resources can be made at EMT level by the CDO. As evidenced by the incremental development of the on-line learning module within both Case X and Case Y that turned out to be of great strategic importance, it is inevitable that some pilots undertaken by the IS manager will develop in a similar vein, thus contributing to the institution's digital transformation efforts.

From an operational perspective, the IS manager will take his/her lead from working closely with the CDO and embark on a number of initiatives underpinned by technology, that will contribute to digital transformation within the institution. Currently, not all end users have their voices heard in relation to how their work could be enhanced through the application of digital technologies. Should the CDO attend staff meetings at the employee and management level at which he/she listens to end user concerns and speaks about digital initiatives, then all end users will have their voices heard. Based on feedback from the CDO, the IS manager can then plan and carry out his/her operational tasks that will contribute to digital transformation within the institution. In the past the IS manager has

carried out operational tasks so as to manage and maintain the organisation's IS infrastructure, and in some cases carried out upgrades to IS to cater for student needs such as on-line access to library records and institute wide printing facilities. However, less work has been carried out by the IS manager to upgrade IS that are specific to certain employees, simply because they have not have their voices heard. By taking account of the feedback from the CDO, not only will the IS manager be able to plan operational work that will contribute to digital transformation within the institution, but he/she will also source and provide training for his technicians that meets the additional operational needs of the institution. These additional operational needs relate to digital capabilities and expertise.

If the above strategic and operational roles in relation to digital transformation are to be undertaken by the IS manager, then the IS manager needs to increase his/her business relevance beyond that of managing and maintaining the organisation's IS infrastructure (McCormack 2013, Rousselet 2014). Such relevance can be enhanced through working closely with the CDO and in turn, this will help future proof the IS function. Failing to increase his/her business relevance beyond that of running the IS function, the IS manager will be pushed further to the back end, to become the custodian of IT infrastructure and risk being side-lined from the organisation's digital transformation strategy (Hansen and Siew Kien 2015). This of course is assuming that the EMT of both Case X and Case Y appoint a CDO to drive digital transformation, so that the organisation can take advantage of the opportunities provided by digital technologies. On his/her own, it would be next to impossible for the IS manager to navigate the institute's digital transformation.

7.8 Novelty and contribution of study.

In answering the research question, my taxonomy fits the substantive area under study and offers an understanding as to how the alignment of business and IS strategies is practiced by IS managers in IIT (Mueller and Urbach 2013). While the taxonomy is not specific to time intervals such as weeks, months or years, it is best applied to the lifetime of a strategic plan so as to gain a rich understanding as to how the alignment of business and IS strategies is practiced by IS managers in IIT. Therefore researchers should find the taxonomy a useful instrument to further explore this as of yet, poorly understood phenomenon, while managers within IIT who play a part in aligning business and IS strategies, can avail of the taxonomy as a planning and diagnostic tool. The study and its findings make four key contributions to the body of knowledge that should be of interest to

both academia and practice. The four key contributions are theoretical, practical, methodological and empirical, each of which is now concisely presented.

7.8.1 Theoretical.

In carrying out a systematic review of the SA literature in a qualitative manner, by means of a framework I developed from combining a SaP lens as proposed by Jarzabkowski and Spee (2009) and a classification scheme developed by employing the constructivist grounded theory coding method advocated by Charmaz (2014), I provided an alternative critique of the SA literature. My review revealed that studies into the alignment of business and IS strategies in organisations occur predominately at the meso level within the private sector, with a concentration on activities undertaken by aggregate practitioners (groups) rather than individual practitioners, within the organisation. My review also revealed that little is known about what practitioners actually do on a daily basis, to help align business and IS strategies. These findings resulted in a research agenda of 16 research avenues for further enquiry. Each of the 16 avenues can be researched at the three levels of macro, meso and micro, and focus on praxis carried out by the four the types of practitioners i.e. individual and aggregate practitioner within organisations, and individual and aggregate practitioner external to organisations.

By focusing on conceptual SA practices undertaken by IS managers in two IoTs as they align business and IS strategies and on the inter-level relationships between them at three levels of macro, meso and micro, my taxonomy provides a novel theoretical contribution by addressing a current gap in SA research. This conceptualisation may encourage other researchers to undertake further studies as to how IS managers practice the alignment of business and IS strategies in PSOs. This would contribute to the expansion of SA research away from its predominant focus on antecedents, enablers and inhibitors to aligning business and IS strategies, to concentrating on how aligning business and IS strategies is actually done, by IS managers in PSOs. Such an approach will help increase our knowledge as to how alignment between business and IS strategies actually happens, rather than increasing our knowledge of outcomes made up of abstract phases and stages (Karpovsky and Galliers 2015). Therefore, by bringing together the SA and SaP research domains, my taxonomy answers recent calls for SA research to go beyond the current limited research trajectory, to include the SaP perspective (Gast and Zanini 2012, Hiekkanen, Helenius et al. 2013, Wilson, Baptista et al. 2013, Henfridsson and Lind 2014, Karpovsky and Galliers 2015, Marabelli and Galliers 2017). This mirrors the SaP

perspective that is now firmly established within the strategic management domain (Jarzabkowski 2004, Chia and MacKay 2007, Paroutis, Loizos et al. 2016).

While contributing to our understanding as to how the alignment of business and IS strategies is practiced by IS managers in IIT, my taxonomy also provides an instrument that can be applied by other researchers to empirically validate and elaborate on the constructs contained within, thus enhancing our understanding as to how IS managers practice the alignment of business and IS strategies in IIT (Rousseau 1985, Orlikowski 1993, Shalley 2012, Hassan and Lowry 2015).

7.8.2 Practical.

The taxonomy, developed from the data gathered and analysed from two IoTs, provides an insightful practical contribution insofar that it affords an understanding as to how the alignment of business and IS strategies is enacted in practice, at the three levels of macro, meso and micro, by the IS managers of these two IoTs. These IS managers perform the role of a functional manager and primarily concentrate their efforts at aligning business and IS strategies, by assisting end users obtain benefits from their institute's IS products and services. They are employed in a support role to reduce cost and gain efficiencies. The taxonomy does not reflect an IS manager whose role extends to include development and implementation of business strategy and nor does it reflect an IS manager who plays a role in the development of IS strategy. Therefore, as currently constituted, the taxonomy reflects conceptual SA practices undertaken by an IS manager in an organisation that does not involve him/her in a joint approach to the development and implementation of strategy. Hence, the taxonomy can be availed of as an instrument by senior executives in IIT whose IS manager is tasked with undertaking a functional manager role, to help decide on the role and praxis their IS manager could engage in, to facilitate the alignment of business and IS strategies.

Although the taxonomy does not reflect a set of conceptual practices attributable to an IS manager who has a formal role in business and/or IS strategy development, it does indicate that the IS manager's views and opinions are considered when IS strategy is being developed and implemented. From a practical perspective, this does beg the question as to the greater potential contribution the IS manager could make in aligning business and IS strategies, if he was to take a direct and active part in EMT debates concerning strategy. An answer to this question could be obtained if EMT members were to examine the

constructs within the taxonomy, with the aim to further progress the alignment of business and IS strategies, by allowing the IS manager have a formal role in business and IS strategy development and implementation. By doing so, it is quite feasible that the IS manager could greatly improve on how IS and business strategies are aligned, therefore leading to an increase in organisation performance.

Through the inter-level relationship praxis that occur between the micro, meso and macro levels, the taxonomy shines a light on the necessity for trust and working rapport among the various practitioners at all levels, if alignment between business and IS strategies is to be achieved. Practitioners can learn from this and thereby concentrate on developing the inter-level relationships praxis revealed by the taxonomy, that strengthen the alignment between business and IS strategies.

7.8.3 Methodological.

While Whittington's (2006b) integrative framework for SaP served as a suitable instrument to guide data collection and analysis, it does not lend itself as a suitable framework to present, in conceptual form, the SA praxis and their inter-level relationships discovered during my study (Whetten 1989, Gregor 2006). Consequently, I developed a taxonomy that represents the core logic discovered during my study, by applying a practice-based research methodology which is founded on a qualitative approach to research within the interpretive paradigm, and increases the robust nature of case design and execution. The methodology is distinctive in that it comprises the integrative framework for SaP developed by Whittington (2006b) to guide data collection and analysis, the constructivist grounded theory coding method as espoused by Charmaz (2014) to help execute data analysis, and is bounded within a case study research design.

The methodology can be applied to new research avenues as a means to build further on my mid-range theory, thus providing an increased understanding as to how practitioners practice the alignment of business and IS strategies. This approach will further contribute to the notable increase in interpretive case research of IS issues and make a valuable contribution to both IS theory and practice.

7.8.4 Empirical.

By exploring how the alignment of business and IS strategies is practiced by IS managers in two IoTs, my research answers the calls of Ciborra (1997), Renaud and Walsh (2010),

Schlosser (2012), Hiekkanen, Helenius et al. (2013) for work with strong links to practice, rooted in our everyday experiences that include both the formal and informal role of practitioners. Such work provides us with a valid, empirical and conceptual based understanding as to how practitioners practice SA (Teubner and Pellengahr 2013, Karpovsky and Galliers 2015). My research has achieved this by developing a taxonomy based on empirical evidence gathered and analysed from two IoTs, consisting of 9 possible combinations of conceptual SA practices undertaken by IS managers, that connects micro level analysis with micro, meso and macro level considerations (Rousseau 1985, Regnér 2008, Vaara and Whittington 2012).

By providing a novel body of empirical evidence from a defined public service setting and by expounding a SaP-based view as to how IS managers practice the alignment of business and IS strategies in IIT, the nascent mid-range theory depicted by my taxonomy builds on the reservoir of SA empirical research and adds to the little research there is on SA within PSOs. While a small number of the conceptual practices within my taxonomy (i.e. *share knowledge, collaborate and communicate*) have been somewhat abstemiously presented in the SA literature to date (Khandelwal 2001, Kearns and Lederer 2003, Campbell 2005, Campbell and Peppard 2009, Fedorowicz, Gelinas jr. et al. 2009, Preston and Karahanna 2009b, Johnson and Lederer 2010), they have not been presented as undertaken by IS managers within a multilevel taxonomy, be it in private organisations, non-profit organisations or IoTs. Furthermore, through the inter-level relationships, the taxonomy illustrates the influence praxis at one level can have on the praxis at another level and that such influences are in a constant dynamic state.

7.8.5 Concluding comments on novelty and contribution of study.

My taxonomy provides a point of departure in helping us to understand how the alignment of business and IS strategies is practiced by IS managers in IIT. This practice approach mirrors what is taking place within the field of strategic management (Jarzabkowski, Balogun et al. 2007, Feldman and Orlikowski 2011, Nicolini 2012, Paroutis, Loizos et al. 2016) and will hopefully inspire other researchers to carry out practice-based research to increase our understanding as to how the alignment of business and IS strategies is practiced (Whittington 2014, Karpovsky and Galliers 2015).

My taxonomy fits the substantive area under study and offers a theoretical understanding as to how the alignment of business and IS strategies is practiced by IS managers in IIT. In

doing so, it addresses a current gap in SA research in that it considers SA praxis undertaken by the IS manager (individual) within IIT. It is empirically valid because its analysis and development, which was carried out using a methodology that increases the robust nature of case design and execution, is closely tied to the data gathered.

The taxonomy has important implications for senior managers in IIT. It shows the IS manager as a functional manager who is tasked with reducing costs and gaining efficiencies, while being excluded from direct involvement in the development of IS strategy and prevented from liaising directly with the organisation's IS shared services provider. Unfortunately this can result in the IS manager playing a limited role in SA. Therefore, opportunities to align business and IS strategies are significantly reduced, with a probable reduction in organisation performance that could be otherwise achieved.

7.9 Conclusion.

Theory seeks to explain how and why things happen (Sutton and Staw 1995). From my review of the SA literature, I did not find a single study aimed at exploring how the alignment of IS and business strategies is practiced by IS managers in IIT. Therefore my research represents an initial incursion into this terrain.

This chapter commenced with a recap on the research question and research approach. This was followed by a recap on the process of transitioning from case data to the mid-range theory. The mid-range theory was presented in the form of a taxonomy, with support drawn from the case data, thus answering the research question as posed. Each construct within the taxonomy, including the inter-level relationships between them at the three different levels of macro, meso and micro was operationalised and discussed in detail. The taxonomy was compared with a broad range of literature, thereby providing confidence in its findings. With the advent of digital transformation, emerging new roles for the IS function were discussed. Attention was then drawn to the novelty of the study and its four key contributions to the body of knowledge.

The development of the taxonomy relative to the research question posed, is a major contribution of my work. In addition, I have made a number of findings which I now present in the following chapter in the form of major and minor.

Chapter 8 - Conclusion.

8.1 Introduction.

This chapter draws the study to a close. In section 8.2, I provide a synopsis of novel aspects of my literature review and position of the research question. Section 8.3 recaps on my research question, my methodological choices and the application of the method in practice. In section 8.4, I provide a summary of my taxonomy, paying particular attention to the new knowledge it unearths. Section 8.5 presents the findings from the study, with the contributions identified as major and minor. The limitations of the study are presented in section 8.6, and avenues for further enquiry are discussed in section 8.7. The chapter draws to a conclusion in section 8.8.

8.2 Synopsis of novel aspects of literature review and position of research question.

I undertook my review of the SA literature in a unique manner. First, my approach facilitated a systematic review of the SA literature in a qualitative manner, second, it provided the basis that enabled me to review the SA literature through a SaP lens (a framework comprising three pillars), and third, it identified research gaps and opportunities for further enquiry (Okoli and Schabram 2010, Rowe 2012, Schryen 2013). By achieving these three objectives, both individually and collectively, I developed a rich perspective on the SA literature by means of a distinctive approach to reviewing the SA literature.

My review and analysis identified gaps in current research that have not to date been clearly articulated within the literature, resulting in the identification of 16 research avenues for further enquiry into SA. My study concentrates on the first avenue identified, which includes the need to enquire into the praxis of individual actors within IIT. Consequently, I pursued an answer to the following research question:

How is the alignment of business and IS strategies practiced by IS managers in IIT?

8.3 Recap on research question, methodological choices and application of method.

In overview, the reasons why this research question is important are: First, SA is one of three core themes within the IS literature (Galliers, Merali et al. 1994, Teubner 2013) and has been the focus of attention within research and practice alike due to its potential to enhance organisation performance (Chan and Huff 1992, IBM 2009, Chen, Mocker et al.

2010, Computer Sciences Corporation 2011). Second, the main focus of attention has been on the intellectual dimension of SA and within this focus a strong emphasis has been placed on measuring organisation level SA, in pursuit of increased organisation performance (Sabherwal and Kirs 1994, Croteau, Solomon et al. 2001, Velcu 2010), whereas the social dimension (which is the focus on my research question) has in comparison, been somewhat neglected (Campbell, Kay et al. 2005, Ghosh and Scott 2009, Enns and McDonagh 2012). Third, within the literature arguments are put forward that suggest SA results more from relationships between people than from any methodological analysis or business strategy (Reich and Benbasat 1996, Hartung, Reich et al. 2000, Ravishankar, Pan et al. 2011), and that we need practice-based studies at all levels (macro, meso and micro) rooted in our everyday experiences, to aid our understanding as to how practitioners such as IS managers, help/hinder the achievement of SA (Ciborra 1997, Smaczny 2001, Chen, Mocker et al. 2010, Hiekkanen, Helenius et al. 2013, Holohan and McDonagh 2014b). Fourth, there is a dearth in our knowledge as to how the alignment of business and IS strategies is practiced in PSOs.

Whittington's (2006b) integrative framework for SaP draws attention to praxis engaged in by practitioners and includes the ability to connect micro level analysis with micro, meso and macro level considerations. With its theoretical concepts representing a close fit to empirical reality, I chose Whittington's (2006b) integrative framework for SaP to guide my data gathering and analysis (Eisenhardt 1989, Walsham 1995b, Yin 2014). I chose the constructivist grounded theory coding method to overcome the lack of a formalised and codified set of research techniques within SaP. This coding method complements the Whittington (2006b) integrative framework for SaP as a data analysis tool. My choice of research design was case study, a design that has made valuable contributions to the field of IS theory and practice (Myers and Liu 2009, Holohan and McDonagh 2014a). The case study design is very suitable to my research which is focused on real-life phenomena where little, if any, theoretical knowledge exists and where the phenomena cannot be studied outside the context in which it occurs (Cavaye 1996, Dubé and Paré 2003). Although case study is an appropriate research design, it lacks guidance for data analysis, giving rise to practical limitations in terms of rigor and effectiveness (Eisenhardt 1989, Yin 2014). However, by availing of Whittington's (2006b) integrative framework for SaP to guide my data analysis and the constructivist grounded theory coding method to help execute my data analysis, the full benefits of applying case study as a research design were realised. Together, these three pillars comprised my research methodology and design,

which fits very well with my own philosophical and epistemological assumptions, insofar it is based on a qualitative approach to research within the interpretive paradigm.

Based on certain criteria, Case X and Case Y within the public sector were selected as the appropriate setting within which to execute my study. I presented the manner in which I engaged with both cases including how I negotiated access to meetings, documentation and key people for the purpose of interviews. My investigation was structured through the utilisation of a case research framework (CRF) and case study protocol (CSP). A detailed explanation as to how I collected primary and secondary data was presented, as was the organisation of data in a case study database consisting of two parts (i.e. data collected during the study and the case report). My data analysis was buttressed by writing memos on the data I gathered from documentation and from the notes I compiled as a passive observer at meetings. These memos and the interview transcripts were coded, and the data contained in the full set of codes was availed of to write and structure a set of analytical memos. In carrying out my data analysis I made use of NVivo, which significantly reduced the amount of time I would have otherwise spent manually coding the large amounts of qualitative data I gathered. In addition, NVivo created an electronic audit trail, thus enabling the retracing of my analytical steps, making my research transparent and providing explanations to the conclusions I reached (Glaser and Strauss 1967, Hutchison, Johnston et al. 2009, Charmaz 2014). The analytical memos formed the basis for my case narratives which provide a rich and holistic view of the practice of strategising within both cases. In summary, the case narratives provide a background to the macro level environment within which both cases reside and a background to the meso level environment of both cases. The praxis carried out in aligning business and IS strategies for each case were explored and presented in accordance with the categories (3 theoretical codes) and sub-categories (18 focused codes) that emerged from coding the data, and structured in the form of macro, meso and micro levels where applicable. The findings for each case were then compared for similarities and differences. This resulted in a compelling book of evidence that enabled me to develop, a mid-range theory in the form of a taxonomy and provide an answer to my research question.

8.4 Summary of taxonomy.

The subset of analytical memos referring to the praxis of the IS manager brought about the principal outcome from my research, which is mid-range theory in the form of a taxonomy. The taxonomy provides a point of departure in that it addresses a current gap in SA

research by helping us to understand how the alignment of business and IS strategies is practiced by IS managers in IIT, as opposed to the predominant emphasis within the literature which is a focus on increasing our knowledge of outcomes made up of abstract phases and stages (Karpovsky and Galliers 2015).

My taxonomy is constructed based on empirical evidence gathered and analysed from two IoTs. By providing a novel body of empirical evidence from a defined public service setting and by expounding a SaP-based view as to how IS managers practice the alignment of business and IS strategies in IIT, the nascent mid-range theory depicted by my taxonomy builds on the reservoir of SA empirical research and adds to the little research there is on SA within PSOs. Furthermore, through the inter-level relationships, the taxonomy illustrates the influence praxis at one level can have on the praxis at another level and that such influences are in a constant dynamic state.

The taxonomy depicts the IS manager within IIT as a functional manager in receipt of a sector wide IS strategy, whose main concern is to obtain optimum efficiencies from IS at lowest possible cost. Being excluded from dealing directly with the principal shared services provider and having to implement a predefined IS strategy, the IS manager very much depends on successfully applying both his/her personable attributes (social dimension) and intellectual knowledge, at all three levels of macro, meso and micro, in his/her efforts to align business and IS strategies.

The ability of the IS manager to successfully convince others as to the best course of action to achieve SA, is reflected by the conceptual SA practices the macro level. Without strong business and technical knowledge, and without credence among the institute's EMT, it is highly unlikely the IS manager's points of view would be seriously considered. While the data demonstrates that the IS manager's opinions are considered in earnest and in many cases acted upon, the fact remains that he is not invited to partake directly, or formally, in IS strategising. By far, the majority of the IS manager's praxis are reflected in the conceptual SA practices at the meso level. It is at this level the IS manager has his largest impact on SA. This impact is directed by the strong and intimate functional knowledge the IS manager has about his own institute's business and its IS, underpinned by his solid technical knowledge and ability to work with others. At the micro level, the IS manager's praxis are reflected in conceptual SA practices of an obliging character. The IS manager's praxis at this level conform to the IS policies and standards of the institute.

From my analysis of the inter-level relationships between the conceptual SA practices within the taxonomy, it is evident that because the IS manager is not a member of the EMT and because he is prohibited from dealing directly with the principal shared services provider, this does not equate to having a minor role in the alignment of business and IS strategies. On the contrary, the IS manager has a major role in such alignment, built primarily through his/her relationships with end users at all three levels. However, it is important to note that the approach he takes to executing and integrating his/her praxis at each of the three levels, is governed by the IS policies developed at the macro level.

The taxonomy has important implications for senior managers in IIT. It shows the IS manager as a functional manager who is tasked with reducing costs and gaining efficiencies, while being excluded from direct involvement in the development of IS strategy. Unfortunately this can result in the IS manager lacking ownership of the business strategy and hence not having the required information to help align his/her actions with it. Therefore, opportunities to align business and IS strategies are significantly reduced, with a probable reduction in organisation performance that could be otherwise achieved.

Although the taxonomy does not reflect a set of conceptual SA practices attributable to an IS manager who has a formal role in business and/or IS strategy development, it does indicate that the IS manager's views and opinions are considered when IS strategy is being developed and implemented. From a practical perspective, this does beg the question as to the greater potential contribution the IS manager could make to the alignment of business and IS strategies, if he was to take a direct and active part in EMT debates concerning strategy. An answer to this question could be obtained if EMT members were to examine the constructs within the taxonomy, with the aim to further progress the alignment of business and IS strategies by allowing the IS manager have a formal role in business and IS strategy development and implementation. By doing so, it is quite feasible that the IS manager could greatly improve on how IS and business strategies are aligned, therefore leading to an increase in organisation performance.

While contributing to our understanding as to how the alignment of business and IS strategies is practiced by IS managers in IIT, my taxonomy also provides an instrument that can be applied by other researchers to empirically validate and elaborate on the constructs contained within, thus enhancing our understanding as to how IS managers

practice the alignment of business and IS strategies in IIT (Rousseau 1985, Orlikowski 1993, Shalley 2012, Hassan and Lowry 2015).

Therefore researchers should find the taxonomy a useful instrument to further explore this as of yet, poorly understood phenomenon, while managers within IIT who play a part in aligning business and IS strategies, can avail of the taxonomy as a planning and diagnostic tool.

8.5 Findings from the study.

While the development of the taxonomy relative to the research question posed, is a major contribution of my work, in this section I present my findings in the form of major and minor. Therefore, the purpose of this section is to enable the reader recognise and appreciate the findings from the study. This is achieved by first providing an overview of the findings, broken into major and minor (refer table 8.1). The major findings are those based on the central focus of the research, which is how the alignment of business and IS strategies is practiced by IS managers in IIT. These findings are fully presented in section 8.5.1 in relation to their SA value creating and SA value destroying features. To do so, I avail of the value chain, value network and corporate parenting literature, all of which were introduced in chapter 2. The minor findings are not based on the central focus of the research, but are those that emerged while undertaking the study. These findings are fully presented in section 8.5.2.

Table 8.1 Major and minor findings from the study

FINDINGS	
MAJOR	Level of success IS manager has in aligning business and IS strategies, is contingent on him/her forming alliances with a range of practitioners. Such alliances are best achieved through building relationships.
	IS manager is prohibited by his/her institute's President from formally partaking in development of IS strategy. However, through indirect methods the IS manager does contribute to the development of IS strategy.
	The primary role of the IS manager is to implement IS strategy that has been developed by the parent (via IoTI), within his/her institution.
	IS manager assists end users to deploy and utilise IS that are supplied by the main services providers.
	In conjunction with end users, the IS manager chooses and implements IS that are not provided by the main services providers, and avails of the business strategy to support such choices.
	Through managing end user training, the IS manager has a major influence on how well IS are integrated into the business.
MINOR	The IS manager is not a member of the organisation's EMT and hence, does not play a strategic role in the business.
	98% of studies in relation to SA concentrate at the meso level, with only 1% of these focused on the praxis of an individual practitioner, such as the IS manager.
	Within PSOs, the role carried out by professionals such as the IS manager, is operational and advisory.
	Similar to other organisations' highest ranking IS executive who report to the CFO, the IS manager is operationally focussed.
	Neither Case X nor Case Y are seizing opportunities afforded by digital transformation.

8.5.1 Major findings.

Value chain.

While the value chain has its roots in manufacturing firms, it also applies to service organisations such as IIT. However, for service organisations such as IIT, the original model needs to be adapted to their characteristics. The corresponding series of primary activities for such organisations are depicted in figure 8.1 and consist of problem recognition, project management, solutions delivery, relationship management and postdelivery support. The secondary activities resemble those of manufacturing firms (Stabell and Fjeldstad 1998, Papazoglou and Ribbers 2006, Tiwana 2017). By mapping major findings from Case X and Case Y on to the value chain, it becomes clear where the IS manager, through his/her SA praxis, adds value (internally) to the institute.

IS manager SA Praxis: Adding Value Internally

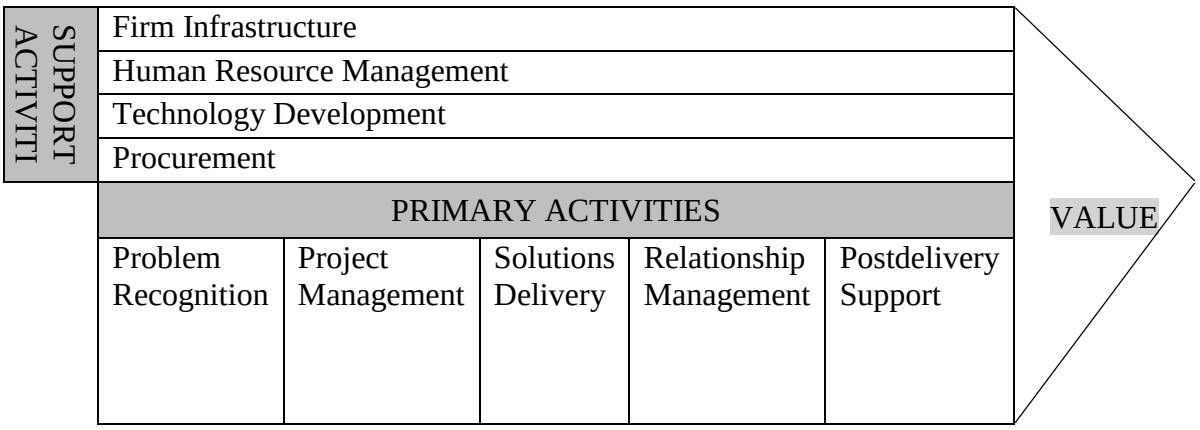


Figure 8.1 Value Chain: Value added by SA praxis of IS Manager.

Primary activities.

When the IS manager identifies a problem, be it with a current IS or where a new IS could help solve the problem, he/she can undertake a number of steps to help towards rectifying the problem. If there is a shortcoming with a current IS supplied by a main services provider, the IS manager can influence the potential solution through indirect methods by making his/her voice heard through various fora and individuals who do have a formal involvement in IS strategising. One such example was the information provided by the IS manager in Case Y to his Secretary/Financial Controller about shortcomings with the student registration module. Subsequently, the Secretary/Financial Controller had discussions with An Chéim, who then establishing a project to rectify the problem with the student registration module. By regularly meeting with end users, the IS manager gains an in-depth understanding of their problems and can assess if alternative IS to those supplied by the main services providers can help. An example was the IS manager's involvement in identifying, evaluating and recommending a particular CAD for use within a specific department.

The IS manager plays a pivotal role in project managing the implementation of IS supplied by main services providers and others. Key to this role is building relationships with end user management and staff, so that these people trust and have confidence in, the IS manager's knowledge and expertise. When Case X merged with another institute, it was the IS manager who project managed the integration of IS supplied by the main services provider, and the integration of both institutes networks, phone and email systems. When a hotel administration IS purchased by the Head of School did not perform as expected, it

was the IS manager who developed a project plan and worked in conjunction with the supplier to facilitate implementation of the IS in a manner that was compatible with the current IT infrastructure.

Delivering solutions to business problems through the implementation of IS, is core to the role undertaken by the IS manager. Solutions include the implementation of IS provided by the main services providers and the implementation of IS provided by alternative IS providers. A substantial amount of the IS manager's praxis are devoted to implementing IS provided by the main services providers. In doing so, the IS manager is implementing the IS strategy developed by the parent (IoTI). Examples include implementing latest versions of core applications and updating the internal network in accordance with the standards set out by HEAnet. In the absence of suitable IS from main services providers, the IS manager helps source alternative IS that best meet business needs and avails of the pertinent elements within the strategic plan and endorsement from the end users, to support his/her proposals. Examples include the new paint technology sourced by the IS manager of Case X that has greatly improved acoustics within large lecture theatres and the development of the IT centre that was primarily driven by the IS manager in Case Y.

Relationship management is an activity that the IS manager is constantly engaged in. Relationships are formed with people from all parts of the institute. Indeed, the level of success or otherwise that the IS manager has in aligning business and IS strategies is contingent on such praxis. By fostering a good relationship with the President and Secretary/Financial Controller, the IS manager has his/her voice heard by the people who deal directly with An Chéim on behalf of the institute, and this can add substantial value in terms of sourcing the most appropriate IS and an acceptable cost. An example of this was when the IS managers of both Case X and Case Y provided their Presidents and Secretary/Financial Controllers with their views on a national on-line registration module. The outcome was an IS that met the business need at a fraction of the cost compared to the solution proposed by An Chéim. Another example is the close working relationship the IS managers of both institutes have with the Heads of Schools and Departments. In many instances these people call on the IS manager to help with the provision of management information. By working closely with the Heads of Schools and Departments, and by providing them with the information they require, the relationship between the IS managers and the Heads of Schools and Departments develops in a positive manner. The

result is that the IS managers views and opinions on how best to utilise IS for business needs are taken seriously, and higher levels of SA ensue.

Postdelivery support is in the main provided via the helpdesk and end user training. In addition, by having IS technicians located in the end user environment, the end user has an immediate and first line of support available on a full time basis. Should the IS technician not be able to solve the problem immediately, the call is logged with the help desk. The call is prioritised based on its impact to business needs, thus contributing to effective SA. The IS manager works closely with his/her ETO and library colleagues in the provision of training facilities. By providing training in a uniform manner across the institutes, the IS managers ensure the level of knowledge amongst end users is sufficient to enable them utilise IS for business needs.

Support activities.

The institutes' infrastructure in relation to IS, serves the entire institutes. It contains the institute-wide backbone consisting of the network, servers, and applications, thus providing a scaffolding for all IS used by the various functions. It provides a foundation for the institutes to adopt new IS rapidly, therefore it requires to be managed in a coherent and professional manner. The role of the IS managers is to manage the infrastructure in accordance with the institutes' standards and to ensure any IS that are sourced independent of the parent, conform with such standards. By managing the infrastructure in this way, the IS manager guarantees consistency among IS, which in turn greatly facilitates SA. The alternative is to allow each function design and build its own IS infrastructure, which would result in IS that would not integrate at the meso level, resulting in an extremely low level of SA within each institute.

In terms of human resource management the IS technicians within Case X are task-managed by the Head of School while they are career-managed by the IS manager. This ensures each IS technician is provided with a clear career path in line with the needs of the business. Within Case Y, some schools have their own IS technicians (i.e. employed by the school and not by IS services). In this case, the IS manager has a very good and close working relationship with the Heads of School. This close relationship helps to identify the schools' business needs and how best they can be served by IS. From this information, the IS manager devises IS technicians' training and development plans, thus helping to ensure the best interests of the school are served, while at the same time developing career

paths for the IS technicians in line with their schools' business needs. With both IS managers reporting to their institute's Secretary/Financial Controller, it is the Secretary/Financial Controller who manages their professional development. Their training is informed by the IS plans of their institutes, thus ensuring a close alignment between their training and the skills and knowledge they require to carry out their work.

Technology development is primarily decided upon by the parent. However, when IS are required that fall outside the core offering of the main services providers, it is the IS manager who takes the lead, but always within the standards and policies set by IoTI. Examples include when the IS manager of Case X took it upon himself to source a solution for the poor acoustics in the large lecture theatres and when the IS manager of Case Y was tasked by his President to develop an IT centre. In implementing these solutions, the IS managers aligned IS with business needs specific to their institutes.

The IS manager of Case X achieves savings when purchasing IS that are not available from main services providers. This is particularly evident when he procures standard desktops for end users, in collaboration with the consortia made up of three HEIs in the region. When upgrading the computer laboratories belonging to the building department within Case X, the IS manager specified, purchased and oversaw the implementation of the reconfigured network, new hardware and software. He did so in accordance with the building department's business needs, thus ensuring alignment between what he purchased and what the department required. When seeking approval to procure an IS for a school or department not available from a shared services provider, the IS manager within Case Y will always seek support from the strategic plan and a member(s) of the EMT. Obtaining such approval contributes to the alignment of the IS with the institute's business needs. An example of this was the development of a website to promote the development of a TU comprising Case Y and two other HEIs. By co-ordinating the development of the website on behalf of the three partner IoTs, the IS manager helped align business and IS strategies while contributing to the marketing initiative of all three partner IoTs aimed at helping attainment of TU status.

Value network and corporate parenting.

As Case X and Case Y do not undertake in-house all of the value activities in relation to SA, such work is undertaken by the parent organisations of the HEA, IoTI, An Chéim, and HEAnet. By mapping major findings from Case X and Case Y on to the value network,

the SA value created and the SA value destroyed by the praxis of the institutes' parent organisations is identified. This identification is reinforced by what I found in the corporate parenting literature. The value network in relation to SA for Case X and Case Y is depicted in figure 8.2. The customers of Case X and Case Y consist of full-time students, part-time students and students of flexible learning.

Case X and Case Y Strategic SA Value Network

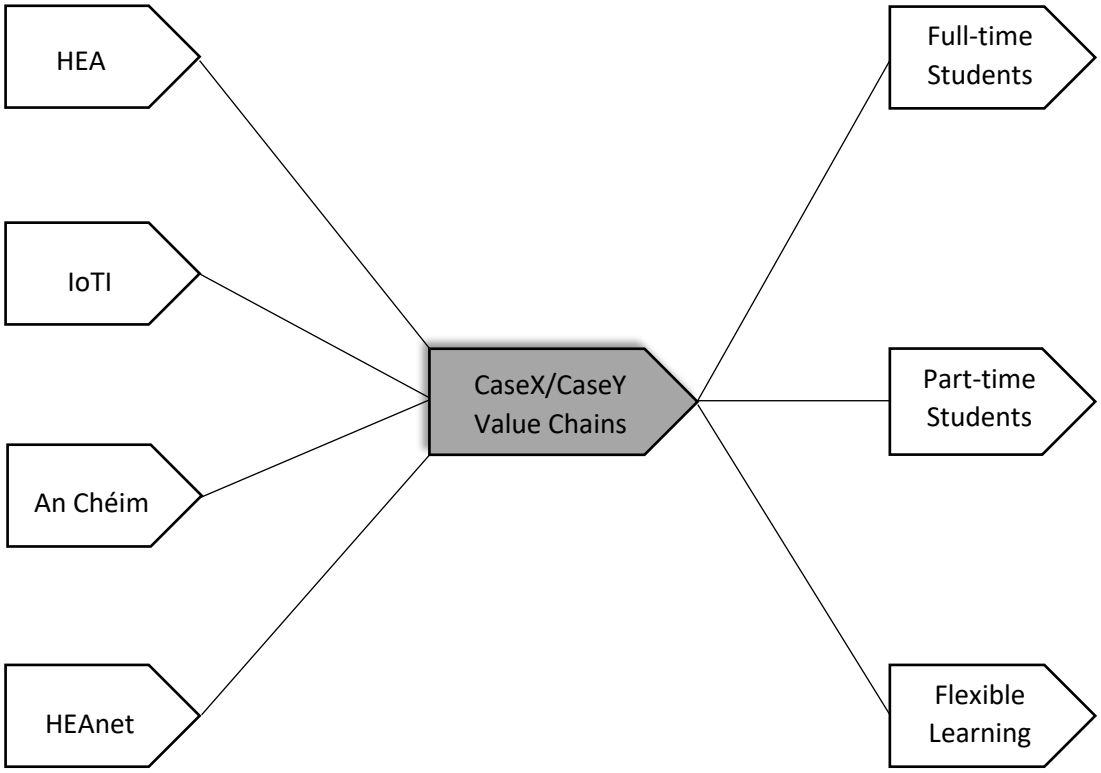


Figure 8.2 SA Value Network: Value added and destroyed by SA praxis of parent organisations.

The value provided by the HEA is funding, of which 10% is contingent on the performance of each institute relevant to what it has committed to doing (Boland 2015). The funding allocated by the HEA to Case X and Case Y includes the amount charged for the services provided by An Chéim and HEAnet. Neither Case X or Case Y ever receive this funding directly, as it is "top sliced" by the HEA whether Case X or Case Y avail or not of the services supplied by An Chéim and HEAnet. Therefore, the overall parenting value provided by the HEA in terms of SA, is the funding necessary to purchase core IS and network infrastructure required of each institute. In addition, the amount each institute is charged, is spread across the thirteen IoTs thus considerably reducing the cost if each institute was to purchase its own IS and network infrastructure. On the other hand from a

SA value destroying perspective, should Case X or Case Y not avail of a module within the core IS such as the national on-line registration module, the cost for such a module is still "top sliced" from the funding provided to the institute.

At national level, the thirteen IoTs are represented by IoTI. The IoTI comprises the thirteen Presidents of IIT. Among its parent value adding roles is the coordination of the work of the IoT sector, including work relating to IS strategy and hence SA. It does so through the formulation of a sector wide IS strategy that is adopted by each IoT, with its implementation overseen by its IS manager. In formulating this strategy, it is the IoTI that brings together the main providers (i.e. An Cheim and HEAnet), and helps motivate them to maximise IoT sector-wide performance, through commitment to a common IS strategy. The IoTI also plays a valuable parenting role in considering the views of the IS managers from Case X and Case Y. This is achieved by the IS manager having discussions with the President of his/her institute on IS strategy related matters. Being a member of IoTI, the President can have these views discussed, some of which find their way into IS strategy and hence contribute to SA within Case X and Case Y. Another method by which this is achieved, is when the IoTI invites the IS manager to participate in formulating national IS policy such as the development of an IS security policy. In doing so, the IoTI facilitates the development of the IS manager's SA capabilities as the IS manager is well informed when partaking in the development of his own institute's IS security policy. However, the IS managers are of the belief that it is they, through their in-depth IS and business knowledge can best represent their institutes SA interests. Whether this is the case or not, the fact that they are prohibited from taking part directly in the development of IS strategy, is a SA value destroying activity by the IoTI.

An Chéim, was established to cater for the acquisition, support and future development of core IS for IIT. Its BOD includes a selection of Presidents, Secretary/Financial Controllers and Registrars from IIT. An Chéim's principal parent SA value creation activity for Case X and Case Y is the provision and support of core IS at a fraction of the cost were each institution to source its own core IS. An Chéim does consider the views of the IS managers from Case X and Case Y in relation to SA, but only through discussions with the President, Secretary/Financial Controller and Registrar of each institute. Therefore, if such representative do not wish to discuss the SA views of the IS manager, then these views will not be heard, thus contributing to parental SA value destroying activity. This additional layer of communication typically slows down responses to issues and leads to

compromises between IIT, such as the current absence of a sector-wide management reporting module. Another method by which parent SA value creation is achieved, is when An Chéim invites the IS manager to participate in working committees that provide user input for the enhancement and/or development of certain modules. In playing such a parenting role, An Chéim ensures the IS manager is well informed when it comes to providing local support for SA.

HEAnet is Ireland's national education and research network and provides internet, associated ICT and e-infrastructure services to Case X and Case Y. This provides each institute with a network infrastructure, expertise and service, that would be impossible for each institute to purchase from its own financial resources. In doing so, HEAnet plays a key SA value creating parent role by providing each institute with the ability to align its electronic communication needs with its business strategy, thus supporting SA. HEAnet does not provide for what is inside the buildings of each institute, as this falls within the remit of each IS manager. By inviting the IS managers of Case X and Case Y to partake in evaluating the services provided by HEAnet in relation to on-line storage service, HEAnet was able to improve its parent offerings to each institute, thus helping with the attainment of SA. To assist with the integration of Case X and the institute with which it merged, HEAnet coached the IS manager to ensure a seamless amalgamation of the network infrastructure, thus contributing to SA within the new larger institute.

Overall, there is a significant lesson to be learned for both the IS managers and the members of their EMT teams when it comes to SA. From the perspective of the IS manager, he/she must realise that IS alone cannot guarantee successful SA and when seeking to acquire EMT support for particular IS, there is always the need to fully consider the business risk. From the perspective of the EMT member, it is important to consider the wealth of business knowledge and IS knowledge the IS manager has, and to harness this knowledge at a strategic as well as an operational level. By insisting the IS manager fundamentally plays an operational role, the opportunity for achieving a high level of SA is missed, as is the opportunity to provide a better level of service to the institute's students.

8.5.2 Minor findings.

Within the SA literature there is a dearth of studies within the context of PSOs. Of all the studies carried out, 98% are at the meso level and of these only 1% are similar to my study insofar that they focus on the praxis of an individual.

Evidence from my study clearly demonstrates that the IS manager does not participate in business planning and nor does he/she play a strategic role in the institute, primarily because he/she is not a member of the EMT and is tasked with implementing an IS strategy developed at the corporate level. The literature on the highest ranking IS executive (Chun and Mooney 2009, Peppard, Edwards et al. 2011, Dahlberg, Hokkanen et al. 2016) reports that in organisations where IS does not have a strategic orientation, the IS manager is employed in an operational role with a view to reducing costs and gaining efficiencies. My study found that the IS managers of Case X and Case Y undertake exactly this role.

Echoing the findings within the public service strategy literature (Nutt and Backoff 1993a, Andrews, Boyne et al. 2008, Nielsen and Moynihan 2017), professionals such as IS managers play an operational and advisory role, and the influence they have on functional strategy (e.g. IS strategy) is clearly reliant on their regulatory regimes. My study also found that the stronger the relationship the IS manager has with his superiors that form part of the regulatory regime, the stronger his/her influence is on IS strategy.

In my study, the IS manager reports to the Secretary/Financial Controller. Similar to what I found within the literature on the highest ranking IS executive (Carter, Grover et al. 2011, Peppard, Edwards et al. 2011, Dahlberg, Hokkanen et al. 2016), this reporting structure reflects an IS manager who is operationally focussed with the primary aim of providing an efficient service at lowest cost. The same finding is endorsed in studies carried out into the role of the highest ranking IS executive in PSOs (Lawry, Waddell et al. 2007, Hooper and Bunker 2013).

Having considered digital transformation and the emerging new roles for the IS function, digital transformation has the potential to reshape entire business models, thus reflecting a new dimension whereby the boundaries between business and IS strategies becomes blurred (Drnevich and Croson 2013). In response, many organisations have established an additional position at EMT level (Matt, Hess et al. 2015, Ross, Sebastian et al. 2017) to take advantage of digital opportunities. My study reflects that no such initiative is even close to taking place within IIT and is unlikely to do so unless a person is appointed to drive through digital transformation. Such a person must act as and be seen as a leader within the institute, therefore requiring to be a fully-fledged member of the EMT.

8.6 Limitations of the study.

The main limitation of my literature review is that the majority of articles reviewed pertaining to the public sector, focus on the USA and UK. This could imply that the findings reported in the literature may not necessarily be applicable to the Irish IoT context. However, because the Irish government (through the DPER, DoES and HEA) is driving reform that requires IoTs to implement strategic plans linked to budgets and other performance measurements, indicates the implication is unlikely. This is because similar reforms that require PSOs to implement strategic plans linked to budgets and other performance measurements (Stewart 2004, Nieto Morales, Wittek et al. 2013), have also been implemented in the USA through the USA Government Performance and Results Act in 1993 and in the UK through UK government New Public Management (NPM) reforms.

The research methodology and design I applied were robust and very suitable for theory building research of an exploratory nature. Because the code syntax I constructed was novel, there was no prior work from which I could draw upon to help construct my initial codes, based on Whittington's (2006b) integrative framework for SaP. The code syntax I developed focused on direct praxis (gerunds) more than it did on indirect praxis. However, to help overcome this limitation I revisited my analytical memos, which in turn helped me to further explore and refine my conceptual ideas (Klag and Langley 2013).

The data gathered during the study was obtained from archival records, documentation, semi-structured interviews and passive observer status at selected meetings. Bearing in mind the timeframe within which I undertook the study, and the time required of me to carry out interviews and attend as a passive observer at meetings, the number of semi-structured interviews and the number of meetings to attend as a passive observer had to be carefully selected. Semi-structured interviews were limited to the members of each institutes' EMT, the IS managers and one consultant. All interviewees, apart from the IS managers, were selected due to their senior position within the organisation, their role in strategising and in the case of some, their role in IS strategising. The IS managers were selected as it is their praxis, about which they are highly knowledgeable, that constitute my unit of analysis. Carrying out twenty five interviews among this group, who were able to view the phenomenon from various perspectives, helped avoid informant bias (Eisenhardt and Graebner 2007). In addition, the interview questionnaires were prepared in advance of the interviews taking place, hence the transcripts recorded may not be as rich had the interviews been conducted in an entirely open-ended manner. However, by carrying out

twenty five semi-structured interviews, I was not unduly influenced by one or two informants as I obtained alternative perspectives on how the alignment of business and IS strategies is practiced by IS managers in IIT. Passive observer status at meetings was limited to one meeting in each institute and one national meeting. Data from previous agenda and minutes of meetings for the timeframe of the study were also availed of. Triangulation of the evidence gathered during the study took place so as to limit bias. Having analysed the data in great depth, I am satisfied that theoretical saturation was reached without the need to gather further data. Time permitting, the only data gathering technique I would extend, is that of passive observer status. Of course, such action could then move the research towards an ethnographic study, which is well suited to IS research as it can provide rich insights into the human, social and organisational aspects of IS (Sanday 1979, Harvey and Myers 1995, Schultze 2000, Saunders, Lewis et al. 2015).

The taxonomy was developed based on empirical evidence from two Irish IoTs. As mid-range theory, the taxonomy does add to the body of knowledge and is a valuable and inaugural contribution to the phenomenon being studied. Being unique to two Irish IoTs, the taxonomy is not generalisable to other public sector settings, including other Irish IoTs and other higher education institutions. However, if in the future, empirical studies that concentrate on how the alignment of business and IS strategies is practiced by IS managers in IIT are undertaken in a larger number of cases across the IoT sector, the generalisability of the taxonomy will be increased. Such work will cultivate, validate and enrich the constructs within the taxonomy, thus providing a deeper understanding about the phenomenon. The studies will enable cross-case comparison leading to an expansion of the mid-range theory, a deeper understanding of the phenomenon, and will also verify whether the findings from one case are specific to that case or not.

Overall, my thesis is clear in its theoretical origins and consistent in their use to gather, structure and analyse the data, as well as construct my mid-range theory. However, due to the nature of case work, the findings may present a partial view as to how the alignment of business and IS strategies is practiced by IS managers in IIT.

8.7 Avenues for further enquiry.

The current study has uncovered two ranges of avenues for possible further enquiry. One range concerns building on the taxonomy, while the other range concerns additional themes uncovered from the case study. Research into such avenues will contribute to

academic knowledge and may also assist government policy makers when designing public reforms to include distinctive attributes to help achieve SA within PSOs (Boyne and Walker 2004).

8.7.1 Further enquiry that builds on the taxonomy.

The taxonomy provides a foundation to further develop our understanding as to how the alignment of business and IS strategies is practiced by IS managers and other managers, in IIT. Such development will increase our understanding of SA practices, which could then be utilised to help shape government policy on the alignment of business and IS strategies.

The taxonomy can be further developed by incorporating an outcome variable, or variables, which will enable the exploration of possible practice-outcome relationships. The outcome variable(s) will have to reflect some form of performance indicator(s) such as KPI(s), so that organisation performance can be measured.

My taxonomy is limited to two cases within the IoT sector. Similar studies within other public service sectors could be undertaken and comparisons made between them. Comparisons could include the differences and similarities in conceptual SA practices of the highest ranking IS executive that performs a CIO role to the highest ranking IS executive that performs an IS manager role. The differences and similarities revealed could provide support for deciding on the most appropriate role required of the highest ranking IS executive, in a given PSO. This would increase our knowledge of the phenomenon and provide a more generalisable theory that could be availed of to inform government IS policy.

The focus on the IS manager as a practitioner at the meso level could be substituted with alternative practitioners who reside at each of the macro, meso and micro levels. A taxonomy could be developed that depicts conceptual SA practices of the government CIO and the inter-level relationships between them, in his/her efforts to align government IS policy and the IS strategy of a group of PSOs, such as the Irish IoTs. Another taxonomy could be developed that displays the conceptual SA practices of the EMT members within individual PSOs and the inter-level relationships between them. Finally, a taxonomy could be developed that represents the conceptual SA practices of functional managers within PSOs and the inter-level relationships between them. These taxonomies could then be

availed of to help shape government policy on the alignment of business and IS strategies, within PSOs.

My research expounds a SaP-based view as to how IS managers practice the alignment of business and IS strategies in two IoTs. The SaP-based view includes connecting micro level analysis with micro, meso and macro level considerations (Regnér 2008, Vaara and Whittington 2012, Marabelli and Galliers 2017), a connection I have explicated through the inter-level relationships in my taxonomy. Further research, albeit not congruent with the SaP-based view, could focus on the inter-linkage across levels. The results from this research would help us understand the impact practices carried out within one category of SA practices has on the other categories of SA practices, at the same level (Karpovsky and Galliers 2015).

8.7.2 Additional themes uncovered from the case study.

My review of the SA literature revealed that studies into SA have taken place primarily in private organisations and have occurred predominately at the meso level, with a concentration on praxis undertaken by groups of practitioners from within the organisation (Holohan and McDonagh 2014a). I therefore proposed two new SA research avenues. The first is to identify SA praxis carried out by individual practitioners and groups of practitioners, both internal and external to the organisation, at all three levels of praxis (i.e. micro, meso and macro). The second is to carry out such studies in the context of PSOs. Based on these gaps, I proposed 16 research avenues for future research into SA (refer table 3.2). Fulfilling this program of research will contribute towards enlightening our understanding as to what practitioners actually do, in their day-to-day activity to achieve SA.

The condition within the Hunt report (Hunt 2011) that two or more IoTs must merge in order to establish a Technological University, is now being implemented. Research could be undertaken to establish if such mergers reflect what is reported in the literature insofar that while software and hardware are easily integrated, it is not so easy to integrate organisation procedures including that of SA. Such integration is only attempted late on in the post-merger process, so as to allow time for socialisation among staff to take place (Wijnhoven, Spil et al. 2006, Mehta and Hirschheim 2007).

Maintenance and enhancements to core IS within the IoT sector is outsourced, as is the hosting of these IS. While a considerable literature set exists on outsourcing IS and SA, research into the impact of outsourcing IS on SA within IIT, would enrich our understanding in both domains and could be used to inform future government IS policy.

My review of the literature pertaining to the strategic management domain revealed that an inter-institutional collaborative approach to formulating and implementing strategic plans is becoming increasingly common among organisations (Bragge, Merisalo-Rantanen et al. 2007, Clarke and Fuller 2010) and that within the context of public services delivery, the approach places a particular emphasis on bringing together a wide range of PSOs, based on regulation and contracts, to pool resources, co-ordinate decision making and share services (Currie, Grubnic et al. 2011, Saz-Carranza and Ospina 2011, Cristofoli, Markovic et al. 2014). Research avenues could be pursued to help us understand how the public sector network within which the two cases reside, performs in terms of cross inter-institutional collaborative strategy making. The first of these avenues comprises researching how the network as a whole is now governed (following the introduction in 2013 of a relationship between funding and the mission and performance of all IoTs). This would contribute to the much needed empirically grounded research (Saz-Carranza and Ospina 2011) and enable an understanding as to how the network is managed as a whole. The results of this research will help advance a basis upon which to build theory and enrich practice. A second avenue is to research the shared services model within the IoT sector, to help establish the extent the model meets the IS needs of each IoT and the IoT sector as a whole. This research could include the examination of alternative mechanisms that enable and allow, end users obtain specific information from the IS supplied by An Chéim. This examination could include, but not be limited to, exploring the possibility of a sector wide MIS unit and a sector wide end user computing unit.

A further avenue could be to research the role of the CIO. While the government CIO can establish IS governance policy and procedures, he/she cannot select/develop and implement IS within each IoT. Currently this role is shared between IoTI, An Chéim and each individual IoT. Perhaps now is the time to consider a CIO for the IoT sector. Research into similar roles, both within the public and private sectors could help determine if such a position would be beneficial.

8.8 Conclusion.

This chapter has drawn the study to a close. It recapped on the novel aspects of my literature review and the positioning of the research question. It recapped on the research question, my methodological choices, the application of the method in practice and my taxonomy with a focus on the new knowledge it unearths. The findings from my study were presented as major and minor. This was followed by a discussion of the study's limitations. Finally, two ranges of proposed avenues for further enquiry were offered, with one range presenting proposals to build on the taxonomy and the other presenting proposals to build on additional themes uncovered from the case study.

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Appendix 1 - General background material for Case X and Case Y

Document
Regional Technical Colleges Act 1992. (HC).
Regional Technical Colleges Amendment Act 1994. (HC).
Regional Technical Colleges Amendment Act 1999.
Institute of Technologies Act 2006.
Prospectus Management Consultant Report 2007
Prospectus Management Consultant Report 2007 - Summary
Minutes of National IS Managers Meetings, 2009 to 2014. - 1st October 2009 - 11th February 2010 - 6th October 2010 - 9th February 2011 - 24th May 2011 - 24th October 2011 - 18th October 2012 - 5th February 2013 - 23rd May 2013 (plus my field note as a passive observer) - 17th October 2013 - 1st May 2014
Hunt Report, National Strategy for Higher Education o 2030, January 2011.
HEA Consultation on Implementation of the National Strategy for Higher Education to 2030, 2011.
Code of Governance Report of Institute of Technologies of Ireland, September 2011. (Part that refers to KPIs on page 3 of Deloitte report 2011, and page 38 2.14.1 and 2.14.2, and page 41 3.1.1.12)
HEA Report – Towards a Future Higher Education Landscape, February 2012.
Proposed Reconfiguration of the Irish System of Higher Education, Prepared for the HEA by an International Expert Panel, August 2012.
Institutional Responses to HEA Landscape Document, September 2012.
ESRI - A Study of Future Demand for Higher Education in Ireland, November 2012.
HEA Briefing Note on Higher Education Reconfiguration Process, November 2012.
Speech by Minister for Education and Skills on Higher Education Reform in Ireland, November 2012.
HEA Completing the Landscape Process for Irish Higher Education, January 2013.
HEA Report to Minister for Education and Skills on Reconfiguration in Irish Higher Education, April 2013.
Letter from CEO of HEA to Presidents of Higher Institutes of Education regarding System Reconfiguration in Irish Higher Education, May 2013.
Letter from Minister of Education and Skills to Chair of HEA regarding System Reconfiguration in Irish Higher Education, May 2013.
Press Release from Minister of Education and Skills regarding System Reconfiguration in Irish Higher Education, May 2013.

Appendix 2 - Case X background material

Document
IS Manager Job Specification.
Strategic Plan 2006 – 2010.
Memo from Executive in Strategic Change to Governing Body Regarding Review of Strategic Plan 2006 – 2010, May 2008.
Martin Duffy (Management Consultant) Report, 2007.
Documentation on Key Performance Indicators (KPIs), September 2008.
Self-Evaluation of Strategic Plan 2006 – 2010, October 2008.
Review of the Role of Executive in Strategic Change, November 2008).
Interim Review of Strategic Plan 2006 – 2010, February 2009.
Institutional Review, Self-Evaluation Report, April 2010.
Case X Charter, Approved by GB, March 2009.
Executive Management and Central Service Managers documentation, various dates in 2005 and 2006. - Action List, 19th October 2005. - Action List, 28th November 2005 - Action Points, 22nd November 2005 - Action Points, 5th December 2005 - Minutes, 22nd November 2005 - Agenda, 20th December 2005 - Action Points, 13th June 2006 - Appendix A, 13th June 2006 - Draft Minutes, 13th June 2006
Information Systems Strategy Group, various documentation from 2006 to 2014. - TOR, October 2011 - 23 sets of minutes - 8 agenda - My field note of 7th May 2013 as a passive observer
Minutes of Strategy Internal Advisory Group, 2010 to 2011. - 18th October 2010 - 23rd November 2010 - 15th December 2010 - 20th January 2011 - 25th January 2011
Deloitte KPI report, February 2011.
Shattock and Pritchard Consultant Report, May 2011.
Government Body Sub-Committee Strategy Group Minutes, 2011.
Case X Vision and Strategy to 2020, March 2011.
Case X Vision & Strategy to 2020, template short cycles.
Holy Duglan (External Consultant) brief, April 2012.
Holy Duglan (External Consultant) Report on Strategic Planning Function, September 2012.
MTU Proposal, March 2012.
Faculty of Applied Science, Engineering and Technology Strategic Plan 2014 – 2016.
Realigning Organisational Structures Documents, 2012, 2013 and 2014. - Case X Structure for the future, October 2012. - Case X Structure for the future, November 2012. - GB Alignment Document, March 2013. - Case X Realignment PP Slides, February 2013.

- Notes with Case X Realignment PP Slides, February 2013. - Case X Academic Structures Realignment Report 2013. - Case X Academic Structures Realignment Report 2014. - Management Response to Realignment Report of June 2014.
Planned Institutional Profile, May 2013.
Case X response to HEA report "Towards a Future Higher Education Landscape" document, July 2012
Governing Body Presentation on Higher Education Landscape, June 2013.
Case X Campus Masterplan 2030, September 2012.
Planned Institutional Profile 2016, September 2013.
Case X Finalised Mission-Based Performance Compact, February 2014.
MOU, Case Y and Case X Alliance, May 2014.
MOU, Regional Consortium – A Framework for Enhanced Collaboration, May 2014.
Regional Consortium Press Release, May 2014.
Interim Strategy Review, October 2014.

Appendix 3 - Case X list of interviewees

Interviewee	**Date of interview**	**Duration of interview**
IS Manager	17th July 2012	1 hour and 2 minutes
Vice President - Strategy and External Affairs	23rd July 2012	1 hour and 6 minutes
Vice President - Research Development and Enterprise	23rd July 2012	1 hour and 23 minutes
Vice President - Corporate Services and Capital Development	20th August 2012	1 hour and 20 minutes
Vice President - Academic Affairs and Registrar	24th August 2012	1 hour and 23 minutes
Management Consultant	20th September 2012	29 minutes
Head of School - Business and Humanities	3rd December 2012	50 minutes
Head of School – Campus W	4th December 2012	45 minutes
Head of School - Built Environment	11th December 2012	40 minutes
Head of School – Science, Engineering and Information Technology	9th January 2013	1 hour and 12 minutes
Head of School – Art and Design	18th January 2013	1 hour and 6 minutes
President	11th April 2013	58 minutes

Appendix 4 - Case X meetings

Meeting	**Date**	**Location**
Information Systems Strategy Group	7th May 2013	Case X Board Room
National IS Managers' Group	23rd May 2013	IoTI Boardroom

Appendix 5 - Letter to Case X interviewees prior to interview

Department of Information Technology,
Limerick Institute of Technology,
Moylish Park,
Limerick.

Dr/Mr/Mrs X,
Position,
Case X,
Address Line 1,
Address Line 2,
Address Line 3.

dd Month 20XX.

Dear Dr/Sir/Madam,

Thank you for agreeing to an interview for the purposes of data collection for my Ph.D. studies. As agreed, the interview is scheduled to take place in your office at 2.00 pm on Thursday 11th Month 20XX.

The interview will take the form of a guided conversation rather than that of structured queries. Although I will be pursuing a consistent line of enquiry directed by the questionnaire, I expect the questions to be fluid rather than rigid.

If you are in agreement, I would like to avail of an audiotape recording as it will provide a more accurate rendition of the interview than my note taking. I will furnish a copy of the transcript to you.

Ultimately, by means of this case study approach, I aim to develop a taxonomy that explains how the alignment of business and IS strategies is practiced by IS managers in Ireland's Institues of Technology (IIT). When developed, the taxonomy can be applied as an instrument to help IoTs like Case X, align their business and IS strategies. Research has demonstrated that such alignment can result in major cost savings and efficiencies.

I wish to assure you that our conversation will remain confidential and your anonymity is guaranteed.

I look forward to our meeting.

Yours sincerely,

Jim Holohan

Appendix 6 - Case Y background material

Document
Case Y Charter Approved by GB, February 2008.
Strategic Plan 2004 - 2009
Strategic Development Plan 2010 – 2015 (Your Place – Your Future)
Strategic Plan 2010 – 2015: Post Consultation Update, Executive Board, 4th December 2009.
Strategic Plan Revision 2013 - 2016
Library Strategic Plan 2006 - 2011
Library Strategic Plan 2013 - 2016
Institutional self-evaluation review 2010
Case Y Mission, Vision and & History
Case Y Compact Document 2014 – 2016, February 2014
Mazars Report – Management Structure & Decision Making Process 2006.
Case Y Organisation Structure Review, Deloitte Report, July 2010
Organisation structure – Have FOUR charts – 2010, 2011, 2013 & 2014. For the years I haven't org. charts, the various annual reports (7 altogether) give all senior staff in section 2.2
Case Y response to HEA "Towards a Future Higher Education Landscape" document, July 2012
Case Y response to HEA, Glossary & Appendices "Towards a Future Higher Education Landscape" document, July 2012
Erratum (appendix 12) to Case Y response to HEA "Towards a Future Higher Education Landscape" document, July 2012
Academic Council Functions and Procedures, May 2012
Annual Report 2004 - 2005
Annual Report 2005 - 2006
Annual Report 2006 - 2007
Annual Report 2007 - 2008
Annual Report 2008 - 2009
Annual Report 2009 - 2010
Annual Report 2010 - 2011
Case Y Today 2009
Case Y Today 2010
Case Y Today 2012
Scéim Teanga 2005-2008
Scéim Teanga 2013-2016
Case Y Marine Institute Alliance, February 2011
Case Y NUIG Alliance, May 2011
Connacht Ulster Strategic Alliance Agreement, July 2012
Connacht Ulster Strategic Alliance Feasibility & Implementation Plan, September 2013 V1
Connacht Ulster Strategic Alliance Implementation Plan, 2014 -2016 V2
MOU, Case Y Case X Alliance, May 2014
IS Manager Job Description, 2014.
MIS Manager Job Description, March 2014

Appendix 7 - Case Y list of interviewees

Interviewee	**Date of interview**	**Duration of interview**
Secretary/Financial Controller	23rd January 2015	42 minutes
Former IS Manager	26th January 2015	1 hour and 33 minutes
Former IS Manager – Supplementary Interview	22nd May 2015	19 minutes
IS Manager	26th January 2015	48 minutes
IS Manager – Supplementary Interview	22nd May 2015	5 minutes
Head of School of Science	4th February 2015	1 hour 7 minutes
Head of School of Business	4th February 2015	41 minutes
Registrar	11th February 2015	1 hour and 2 minutes
Member of Executive	13th February 2015	30 minutes
President	11th March 2015	44 minutes
Head of School of Engineering	11th March 2015	37 minutes
Head of College of Tourism & Arts	18th March 2015	36 minutes
Head of Campus Z	25th March 2015	1 hour 10 minutes

Appendix 8 - Case Y meetings

Meeting	**Date**	**Location**
National IS Managers' Group	23rd May 2013	IoTI Boardroom
Management Group	22nd May 2015	Case Y Board Room

Appendix 9 - Letter to Case Y interviewees prior to interview

Department of Information Technology,
Limerick Institute of Technology,
Moylish Park,
Limerick.

Dr/Mr/Mrs X,
Position,
Case Y,
Address Line 1,
Address Line 2,
Address Line 3.

dd Month 20XX.

Dear Dr/Sir/Madam,

Thank you for agreeing to an interview for the purposes of data collection for my Ph.D. studies. As agreed, the interview is scheduled to take place in your office at 2.00 pm on Thursday 11th Month 20XX.

The interview will take the form of a guided conversation rather than that of structured queries. Although I will be pursuing a consistent line of enquiry directed by the questionnaire, I expect the questions to be fluid rather than rigid.

If you are in agreement, I would like to avail of an audiotape recording as it will provide a more accurate rendition of the interview than my note taking. I will furnish a copy of the transcript to you.

Ultimately, by means of this case study approach, I aim to develop a taxonomy that explains how the alignment of business and IS strategies is practiced by IS managers in Ireland's Institutes of Technology (IIT). When developed, the taxonomy can be applied as an instrument to help IoTs like Case Y, align their business and IS strategies. Research has demonstrated that such alignment can result in major cost savings and efficiencies.

I wish to assure you that our conversation will remain confidential and your anonymity is guaranteed.

I look forward to our meeting.

Yours sincerely,

Jim Holohan

Appendix 10 - Interview guide for Case X interviews

My research question is;
How is the alignment of business and IS strategies practiced by IS managers in Ireland's Institutes of Technology (IIT)?

The questions below are aimed at gathering data pertaining to Case X for the period 2006 to date, by obtaining the views of the interviewee.

****

Question 1.
Can you provide an overview of your roles in case X from 2006 to date?

Question 2.
Does the IS Manager play a strategic role in case X?

Question 3.
The following quotation from Prospectus report October 2007 raises a core issue,
"Insufficient management capacity aligned to the strategic intent of the institution." P 5.
This is mainly due to the high level of operational commitment by all managers.

The introduction to case X Strategy 2006 – 2010 states that the goals and objectives of the plan will be implemented via the strategic implementation plans of each school and central services department.

In his memo dated 28th May 2008 to the Governing Body, the EiSC says that one of the main challenges in academic organisations in relation to implementing a strategic plan is "aligning individual department plans to overall strategy and making them complementary to each other."

How, in your view, did case X go about meeting the challenge of aligning IS strategy to:
(i) Its overall strategy for the period 2006 to 2010 and what role did the IS manager play in this?

Question 4.
Clearly, the main method of measurement (KPIs) is of great significance.
"*under the new code of governance of Irish Institutes of Technology there is a requirement to measure the aims and achievements of the strategic plan through KPIs*" Page 3, Deloitte KPI Review, February 2011.

How is the IS Manager supporting this new measurement mechanism with regard to the 20 "proposed and possible" Super KPIs that were developed for case X strategic plan 2011 to 2020?

Question 5.
Is it fair to say that within case X formulation of strategic plans is not a major challenge, but that the implementation and monitoring of strategic plans is?

Question 6.
I get a strong sense that case X's academic IS facilities have improved significantly since 2006 but administrative systems (especially Banner) remain a challenge.

It appears that IS within case X can be broken into three main areas;

i. Infrastructure,
ii. Academic & Learner support,
iii. Admin/MIS (i.e. Banner, Millennium, Core, Agresso and Syllabus+)

How has the IS Manager engaged in aligning each of these areas with case X's overall strategy since 2006?

Question 7.
Case X strategic plan 2011 to 2020 contains 13 strategic goals.

How is the IS Manager helping to align IS strategy with these goals?

Question 8.
I have five sets of minutes for meetings of the Internal Advisory Group that were held between 18/10/'10 and 25/01/'11.

What was the role of this group and did they see any role for Information Systems in helping to deliver on case X strategic plan 2011 to 2020?

Question 9.
Meetings took place (2005 and 2006) between Executive Management and Central Service Managers (including IS manager). What purpose did these meetings serve and why did these meetings cease?

Question 10.
Have any reviews taken place on case X strategic plan 2011 to 2020 yet for any of the Vice President areas or Schools (using or not using the evaluation template for the one to two year rolling basis and incorporating the 20 KPIs)?

Question 11.
Is there anything else you think I should know to help me better understand how the IS Manager engages with the process of aligning business and IS strategies in case X?

Question 12.
Is there anything you would like to ask of me?

Appendix 11 - Interview guide for Case Y interviews

My research question is;
How is the alignment of business and IS strategies practiced by IS managers in Ireland's Institutes of Technology (IIT)?

The questions below are aimed at gathering data pertaining to Case Y for the period 2004 to date, by obtaining the views of the interviewee.

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Question 1.
Can you provide an overview of your role in case Y since 2004?

Question 2.
Can you provide a brief history of IS Services in case Y?

Question 3.
Case Y Strategic Plan 2004-2009 states case Y "*will align this strategic plan with its budgetary process … and the Institute's resources will be aligned with this plan and its organisational capacity and structures reconfigured to ensure successful implementation.*"

How, in your view, were IS resources aligned with the plan's 4 major strategic goals - student, regional, staff and research strategies, and what role did the IS manager play in this alignment (e.g. helping to provide figures for measuring progress at annual review time).

Question 4.
Case Y Strategic Plan 2004-2009:

Were different modes of delivery for education used, including online resources, ICT and multimedia?

If so, what role did the IS manager play in this?

Question 5.
Case Y Strategic Development Plan 2010-2015 has 5 major strategic goals/pillars i.e. Learning & Teaching, Student Environment, Research & Innovation, Community Engagement, and Internationalisation & Collaboration.

Have IS resources been aligned with each of these goals and if so, what role did the IS manager play in this?

e.g. helping with the provision of data for KPIs for each goal.

e.g. Promote open access to learning, support and information resources using new technologies.

Question 6.
Case Y Strategic Revision 2013-2016 picks up on the major changes within the Irish Higher Education sector that impact the case Y Strategic Development Plan 2010-2015, in particular the need to align with the new Institutional compact agreement of 2013 with the HEA. This gives rise to a 6th strategic goal – Collaboration & Alliances. This results in a revision of the previous 5 strategic goals/pillars (removing the student environment pillar as a stand-alone pillar) to a revised set of 5 strategic goals/pillars which are; Learning & Teaching, Collaboration & Alliances, Research, Development & Innovation, Student-Community Engagement, and Internationalisation.

Have IS resources been aligned with each of these revised goals and if so, what role has the IS manager played in this?

e.g. helping with the provision of data for the revised KPIs for each goal.

e.g. use technology effectively for engaging students.

Question 7.
Case Y Library Strategic Plan 2006-2011 - did the IS manager have any role in the provision of IS services for the library during 2006-2011?

Case Y Library Strategic Plan 2013-2016 has as its main objective *"to provide state of the art learning facilities and information resources ... and this will be achieved by leveraging the advancements in technology .. coupled with the library staff".*

Do you know if advancements in leveraging technology were achieved and if so, did the IS manager have a role in this?

Question 8.
Case Y Institutional Review 2010 – Self Evaluation Report: Following questions to aid discussion.

Did the IS manager play a role in the provision of data for annual KPIs for the lead executives of each of the five pillars/goals of the strategic development plan 2010-2015?

Did the IS manager play a role in supporting teaching and learning methodologies?

Was a PMDS developed and if so, what impact did this have on the IS manager's role in aligning IS strategy with the Strategic Development Plan 2010-2015?

Did the IS manager play a role in the establishment of the two innovation in business centres that opened in late 2005 and mid 2006?

Did the IS manager play a role in two of the main achievements of the 2004-2009 strategic plan? i.e. development of the learning resource centre and improved research facilities for postgrad students.

Did the IS manager play a role in stakeholder engagement that was used to inform the Strategic Development Plan 2010-2015?

Regarding improvements required to case Y management information system (MIS), was a pilot dashboard (Qlikview) developed? If so, did the IS manager play a role in this (and other MIS) within case Y?

What are your views about the Self Evaluation and Quality Review that was undertaken of the IS Department in November 2009?

What is the IS manager's role in Education Technology & Services?

What were the key recommendations from the internal audit review carried out on the IoT IS review?

Question 9.
Did the IS manager input to the IS Learning Centre that was opened in 2003?

Question 10.
The MIS Manager job spec clearly shows the role is solely focused on report generation, obtaining data from various systems to do so.

Does the IS manager have a role in supporting the MIS Manager? (IS Services Manager Job Spec has as one of its duties *"Be responsible for the provision and support of management information and decision support systems"*).

Question 11.
IS Services Manager Job Specification:

How does the IS manager *"assist senior management in the strategic development of IT/IS services"*?

Question 12.
What internal and/or external committees/groups does the IS manage sit on and what is his role within each of them?

Question 13.
Implementation plans for the alliance with two other IoTs of September 2013 and September 2014.

September 2013:

Does the IS manager sit on either the steering or operational committee?

Has the IS manager any involvement in consolidating services and/or in the development of a plan to align IS practices and procedures and related support services?

Has the IS manager had any involvement in development of a single portal for student communications?

September 2014:

What role, if any, has the IS manager played in developing capacity to analyse data to support management reports associated with HEA performance metrics and TU status?

What role, if any, has the IS manager played in the pilot online QA student survey across the TU alliance?

Question 14.
Did the IS manager have any input to the submission made to the HEA in July 2012?

Compact Agreement 2014?

Does the IS manager play a role in the provision of both qualitative and quantitative indicators to the HEA against which case Y performance is measured and funding allocated?

Question 15.
Scéim Tenaga 2005 -2008.
Did the IS manager have a role in the website development?

Did the IS manager have a role in making IS systems *"fully bilingual compatible"*?

Scéim Tenaga 2013-2016.
Did the IS manager have a role in the website development?

Are all new IS compatible with the Irish language and were any current systems updated?

If so, what was the IS manager's role?

Question 16.
Case Y – Alliances of 2011, 2012 and 2014

Has the IS manager played a role in any the above alliances?

e.g. Sharing of IS services, standards and practices.

Consolidation of on-line provision and MIS.

Question 17.
Is there anything else you think I should know to help me better understand how the IS manager practices the alignment of business and IS strategies in case Y?

Question 18.
Is there anything you would like to ask of me?

Appendix 12 - Thank you letter to interviewee for partaking in interview

Department of Information Technology,
Limerick Institute of Technology,
Moylish Park,
Limerick.

Dr/Mr/Mrs X,
Position,
Case X/Case Y,
Address Line 1,
Address Line 2,
Address Line 3.

dd Month 20XX.

Dear Dr/Sir/Madam,

I wish to sincerely thank you for the time and effort you put into the interview on dd/mm/yy.

Attached is my transcription of the interview. In some cases, for explanatory purposes only, I have placed italics in brackets e.g. the words (*for the process of registration*) in the fourth line of the last paragraph on page 8.

When you have the time, can you please take a look at the transcription from the point of view of an accurate rendition of our discussion and if you have any issues that you would like to raise, please let me know.

Yours sincerely,

Jim Holohan

Appendix 13 - Thank you letter to chair of meetings

Department of Information Technology,
Limerick Institute of Technology,
Moylish Park,
Limerick.

Dr/Mr/Mrs X,
Chair Group A,
Address Line 1,
Address Line 2,
Address Line 3.

dd Month 20XX.

Dear Chairman,

Thank you for allowing me to sit in on today's Group A meeting as a passive observer. I have obtained some nuggets of information that will act as input to my theory generation.

Yours sincerely,

Jim Holohan

Appendix 14 - Case Research Framework

STAGE	ACTIVITY	REASON
1. Initiation.	Literature review. Definition of research question.	Provides grounding.
2. Selection of cases	Selected based on suitability to answer research question.	Retains theoretical flexibility and sharpens external validity.
3. Crafting instruments and protocols.	Multiple qualitative data collection methods.	Strengthens theory by triangulation of evidence.
4. Entering the field.	Iterative data collection and analysis, including flexible/opportunistic data collection.	Speeds analysis and facilitates emergent themes.
5. Analysing the data	Within case and across case analysis.	Gains familiarity with data and preliminary theory generation. Aids in looking beyond initial impressions.
6. Shaping a theoretical framework.	Gather evidence for each construct. Replication logic (expect literal) across both cases.	Sharpens construct definition and validity. Confirms, extends and sharpens theory.
7. Enfolding the literature.	Compare theory with strategic alignment literature and literature sets availed of to inform my research.	Raises theoretical level and sharpens construct definition. Sharpens generalisability, improves construct definition and raises theoretical level.
8. Reach closure.	Theoretical saturation.	Ends the process when marginal improvement becomes small.

Adapted from Eisenhardt (1989) and Maimbo and Pervan (2005).

Appendix 15 - Case study protocol

Role of the case study protocol (CSP).

The CSP was employed as a standard agenda to guide my line of enquiry and analysis, in a consistent manner across both Case X and Case Y. It was also employed to inform people engaged in the study, as to the purpose of the study itself.

Overview of the case study.

1. Purpose of the case study.

   The purpose of the study is to explore how the alignment of business and IS strategies is practiced by IS managers in IIT. A principal contribution from the study will be mid-range theory that both researchers and practitioners can avail of, to further explore this as of yet, poorly understood phenomenon.

2. Selection of cases.

   As all IoTs are constituted under the same legislation and implemented strategic plans driven by public sector reform agenda, with a deliberate attempt to align business and IS strategies, we can expect all cases to contain rich data, with little if any significant difference between the business and IS strategies of each IoT. This therefore, points towards literal replication. Two to three cases is sufficient for literal replication. Therefore two cases within reasonable travelling distance, practicable for a sole researcher, were deemed appropriate from thirteen IoTs, thus offering the potential to gain theoretical insight into a phenomenon about which little is currently known. The two IoTs of Case X and Case Y were chosen. They have more similarities between them than any other pair of cases within the thirteen IoTs and since repeat visits are required to both sites for the purposes of data collection, time considerations and geographic proximity were also taken into consideration. Both cases are pursuing a deliberate attempt to align business and IS strategies. Both are similar in size and compete with a university in their own region. Both are seen as leaders in their field, evidenced by their attainment of the Sunday Times IoT of the year, each on two occasions in recent years. Both have clustered with other higher education institutes in their own regions, which in due course will merge into one cluster. From an IS perspective, both avail of the same core administration systems (student registration, library, human resources and finance), hosted by a third party. Finally, the position of the highest ranking IS executive (IS manager) in both cases, is one level below the organisation's EMT. For these reasons, Case X and Case Y have been chosen as the

two most suitable cases for literal replication, thus helping to aid our understanding as to how the alignment of business and IS strategies is practiced by IS managers in IIT.

3. Anonymity and confidentiality.

   As my research involves the participation of people about whom I collected data, ethical behaviour on my part, is paramount (Bygstad and Munkvold 2011, Crowe, Cresswell et al. 2011). Anonymity was requested by the Presidents of both Case X and Case Y, for their institutions and interviewees. Therefore, the two cases will at all times be referred to as Case X and Case Y, while interviewees will at all times be referred to by job title. In the letter of introduction to each interviewee (refer appendices 5 and 9), the interviewee was guaranteed anonymity and assured that all data obtained from interviews will remain confidential.

4. Negotiating access.

   I met with the President of Case X to explain the purpose of the study and its expected outcome. I requested and received, access to documentation, access to people for interviews and permission to sit as a passive observer in selected meetings.
   The President of Case X introduced me to the President of Case Y. When I met with the President of Case Y, I explained the purpose of the study and its expected outcome. I requested and received, access to documentation, access to people for interviews and permission to sit as a passive observer in selected meetings.

5. Key readings.

   SA literature, to understand what is already known about the alignment of business and IS strategies in organisations. Strategic management literature, to gain an understanding of strategy within the strategic management domain. Public service strategy literature, to understand how strategising is carried out in PSOs. Literature on role of the highest ranking IS executive, to understand the various roles undertaken by the individual. Background to higher education in Ireland, with a particular focus on the Institute of Technology (IoT) sector. SaP literature, to understand the meaning of SaP and the various SaP theories that can be utilised to guide data gathering and analysis. Literature on grounded theory, to understand grounded theory methodology and the methods within. Case study literature, to understand how to execute case study research.

Data collection procedures.

I reviewed documentation to obtain an overview of the Irish Higher Education sector and the IoT sector (appendix 1). I reviewed various documentation relating to Case X (appendix 2). Output from my review of this documentation enabled me to compile the interview guide for Case X (appendix 10), the list of people in Case X I would like to interview (appendix 3), and the list of the meetings I would like to attend as a passive observer (appendix 4).

I reviewed various documentation relating to Case Y (appendix 6). Output from my review of this documentation enabled me to compile the interview guide for Case Y (appendix 11), the list of people in Case Y I would like to interview (appendix 7), and the list of the meetings I would like to attend as a passive observer (appendix 8).

Along with the letters to interviewees thanking them for agreeing to an interview (appendices 5 and 9), I attached a copy of the interview guides (appendices 10 and 11). Within two weeks of each interview taking place, the tape recording was transcribed and a copy was forwarded to the interviewee along with a thank you letter to each interviewee (appendix 12).

I made contact with the chair of each meeting I wanted to attend as a passive observer, and obtained their permission to sit in on a meeting. On the day after each meeting took place, I wrote to the chair thanking him for allowing me to attend (appendix 13).

At all times during data collection, I availed of Whittington's (2006b) integrative framework for SaP to guide data collection.

Guide for the case study report.

My reporting format will be that of a multiple-case study, whereby I will first present the macro level environment within which both cases reside. This will be accomplished by providing a brief overview of public service modernisation and reform in Irish higher education, with a specific focus on the IoT sector from 2004 to mid-2015, which mirrors the combined timeline of the two cases under study. I will then present a background to the meso level environment by providing an overview of both Case X and Case Y. This will be followed by an account of the praxis carried out by practitioners in aligning

business and IS strategies, resulting in a rich set of findings for each case. The findings for each case will then be compared for similarities and differences.

Strategy for data analysis.

Once of the least developed aspects in carrying out case studies is analysing case study evidence. There is no cookbook approach, with much depending on the researcher's style and how the evidence is presented (Yin 2014). Five analytical techniques are advocated by Yin (2014) - pattern matching, time-series analysis, logic models, explanation building and cross-case synthesis. Pattern matching involves comparing findings with predictions made prior to undertaking the study and is therefore not suitable for my exploratory study. Time-series analysis concentrates on the relationship of events over time, which is not what I am doing. Logic models are applied to examine a theory of change or to assess an intervention, neither of which I am doing. Explanation building involves building an explanation about the case, which I will do by writing case narratives. My data analysis will be carried out guided by the theoretical constructs within Whittington's (2006b) integrative framework for SaP, and executed via constructivist grounded theory coding. Because I am undertaking an analysis of two cases, I will compare both cases for similarities and differences.

Appendix 16 - Code Book

Name	Description	Sources	Refs
T1 - Advocate	How strategy is developed, implemented and measured.	84	526
1.1 - Develop and implement strategic plan	Development and implementation of strategic plans	34	134
Macro Level		11	14
Align Business Strategy-macro-EiSC-prx-ext	Aligning and measuring strategic plans	1	2
Development & Implementation of Strategic Plan-macro-exec-prct-int	How the institute develops strategic plan	9	11
Development & Implementation of Strategic Plan-macro-pres-prct-ext	Requirement for President to develop and implement a strategic plan	1	1
Meso Level		26	116
Achieving strategic plans-meso-ISMgr-prx-int	IS Manager's contribution towards strategic plan implementation	3	4
Align Business Strategy-meso-consultant-prct-int	Consultant (deloitte) recommendation re: aligning business strategy	1	1
Align Business Strategy-meso-EiSC-prx-int	How the EiSC helps align business strategy	1	1
Align Business Strategy-meso-exec-prx-int	Aligning business strategy at the meso level	3	3
Development & Implementation of Strategic Plan-meso-consultant-prx-int	Consultant advice re strategic plan	2	3
Development & Implementation of Strategic Plan-meso-EiSC-prx-int	Role EiSC has in supporting implementation and monitoring of strategic plan	3	5
Development & Implementation of Strategic Plan-meso-exec-prct-int	How the institute goes about developing and implementing a strategic plan	14	27
Development & Implementation of Strategic Plan-meso-gvbody-prct-int	Governing Body role in the development and implementation of strategic plans.	1	2
Development & Implementation of Strategic Plan-meso-ISMgr-prx-int	Role of IS Mgr in development and implementation of Strategic Plan	5	11
Development & Implementation of Strategic Plan-meso-secfinctr-prx-int	Responsibility of Sec/Financial Controller in relation to strategy for 2006-2010	1	1
Development & Implementation of Strategic Plan-meso-staff-prx-int	Staff's role in the development and implementation of strategic plans	2	2
Micro Level		2	4
Development & Implementation of Strategic Plan-micro-HOS-prct-int	HOS role in strategy development and implementation within the school	1	2
Development & Implementation of Strategic Plan-micro-staff-prx-int	Strategic plan development and implementation at micro level	1	2
1.2 - Develop and implement IS strategy	Developing and implementing IS strategy	20	44
Macro Level		3	5
IS Strategy Development & implementation-macro-exec-prx-ext	How institute goes about developing IS strategy and the influence of the national IS strategy on it	3	5
Meso Level		18	39
Best Practice-meso-ISMgr-prct-int	How IS Mgr goes about implementing IS Strategy	1	4
IS Strategy Development & implementation-meso-staff-prx-int	Development of an IS Strategy	11	19
IS Strategy Development & Implementation-meso-exec-prx-int	Role of Executive in IS Strategy and Implementation	4	4
IS Strategy Development & Implementation-meso-ISMgr-prx-int	How the IS Mgr helps develop and implement IS strategy	7	8

User Expectations-meso-ISMgr-prx-int	User expectations that IS Mgr tries to deliver on.	3	4
1.3 - Source funds	Funding mechanisms to help run institutes	14	31
Macro Level		7	17
Friend Raising-macro-HDevel-prx-ext	Role of Head of Development in Friend Raising	1	1
Fund Raising-macro-HDevel-prx-ext	Fund raising role undertaken by Head of Development	1	2
Funding of An Chéim-macro-HEA-prct-ext	How An Chéim is funded	2	3
Funding of IS-macro-DES-prx-ext	DES role in funding IS	2	3
Funding of IS-macro-gvt-prx-ext	Role of government in funding IS	1	2
IS Budget Allocation-macro-AnChéim-prct-ext	How An Chéim get money to do what they do	1	1
Shared services funding-macro-HEA-prct-ext	How shared services are funded	2	5
Meso Level		9	12
Financial control-meso-finmgr-prct-int	Financial control of institute	1	1
Investment in IS-meso-exec-prx-int	Executive's role in IS investment	1	1
Investment in IS-meso-HDevel-prx-int	What Head of Development has to do to get investment in IT	1	1
IS Budget Allocation-meso-ISMgr-prct-int	How the IS Manager gets money to do what he needs to do.	7	9
Micro Level		2	2
IS Budget Allocation-micro-ISMgr-prct-int	How IS Manager facilitates purchases at a micro level outside the norm	1	1
IS Budget Allocation-micro-ITTech-prx-int	Role non IS IT Technicians have in IS budget allocation	1	1
1.4 - Configure organisation structures	Structures of the various organisations	50	198
Macro Level		36	61
An Chéim Org Struture-macro-pres-prct-ext	Organisation Structure of An Chéim	5	6
Cluster development-macro-exec-prx-ext	Executive's role in cluster development	11	11
EduCampus setup-macro-pres-prx-ext	Setting up of EduCampus	3	5
Membership An Chéim-macro-exec-prct-ext	Membership of An Chéim Board	2	2
Merger with TI-macro-consultant-prx-ext	Consultant advice re: merger with TI	2	3
Merger with TI-macro-EiSC-prx-ext	Merger between the institute and TI	1	1
Reporting to HEA-macro-exec-prx-ext	How Institute reports to HEA	20	27
Represent IoTs-macro-pres-prx-ext	Representative body for IoTs and its role	1	1
Strategic Alliance Development-macro-exec-prx-ext	Strategic alliance entered into	1	2
TU Development-macro-exec-prx-ext	Development of a Technological University	3	3
Meso Level		26	116
Align IS DeptStructure-meso-ISMgr-prx-int	Aligning department structure to improve efficiencies	1	2

Develop Central Reporting-meso-consultant-prx-int	Mazars recommendation to develop central reporting unit	1	1
Development Org Structure-meso-consultant-prx-int	Mazars recommendation re: Organisation Structure	3	4
Development Org Structure-meso-exec-prx-int	What gives rise to developing new structures	9	12
Direct reports-meso-HOS-prct-int	People who report to HOS	4	4
Direct reports-meso-ISMgr-prct-int	People who report to IS Mgr	1	1
Direct reports-meso-pres-prct-int	People who report to the president	1	2
Direct reports-meso-secfinctr-prct-int	Areas reporting into Sec/Fin Ctlr	3	3
Improve efficiencies-meso-ISMgr-prx-int	Improve efficiencies within IT Dept	1	1
Management team change-meso-secfinctr-prx-int	Change to management team in 2004	1	2
Membership ISSG-meso-staff-prct-int	Membership of ISSG	5	12
Perception of IS in organisation-meso-exec-prx-int	How IS viewed within the organisation	3	5
Reporting Line-meso-ISMgr-prct-int	Reporting line of IS Manager over time	12	17
Reporting to Governing Body-meso-exec-prct-int	Reporting to governing body - various schools and central departments	11	27
Structure IT Dept-meso-ISMgr-prx-int	Build Department of IT	3	8
TOR for Exec and Mgt-meso-exec-prx-int	Consultant (Deloitte) recommendations re:TOR for executive and management group	2	2
TOR for ISSG-meso-exec-prx-int	TOR for ISSG	8	13
Micro Level		11	21
Management team change-micro-HOSSEIT-prx-int	Management team changes brought about in SEIT	1	1
Reporting line-micro-ITTech-prct-int	Reporting line of IT Technicians that do not belong to IT Services	10	20
1.5 - Establish KPIs	How KPIs are established and the various people involved in doing so	25	57
Macro Level		2	2
KPI establishment-macro-cua-prx-ext	Establishment of KPIs for CUA	2	2
Meso Level		23	52
KPI establishment-meso-ISMgr-prx-int	Role of IS Mgr in establishing KPIs	7	10
KPI establishment-meso-consultant1-prx-ext	Consultant1 (Deloitte) establishes KPIs	7	12
KPI establishment-meso-EiSC-prx-int	Role of EiSC in establishing KPIs	3	4
KPI establishment-meso-exec-prx-int	How the institutes members go about establishing KPIs	13	22
KPI establishment-meso-HOCA&T-prx-int	How Head of College of Arts & Tourism establishes KPIs	1	3
KPI establishment-meso-secfinct-prx-int	What the Secretary/Financial Controller sees as the important KPIs	1	1
Micro Level		2	3
KPI establishment-micro-HOS-prx-int	Self Evaluation undertaken at department level	1	1
KPI establishment-micro-staff-prx-int	Establishment of KPIs done by staff	1	2

1.6 - Measure organisation performance	How performance of the organisation can be measured	20	39
Macro Level		3	3
Measure Organisation Performance-macro-exec-prx-ext	Metrics for measuring organisation performance	3	3
Meso Level		19	34
Measure performance-meso-consult1-prx-int	Consultant1 helping to measure performance	1	2
Measure performance-meso-exec-prx-int	Organisation needs to measure in some way	18	27
Measure Research Performance-meso-HDevel-prx-int	How Head of Development measures research performance	1	3
Review plans-meso-exec-prx-int	Executives involved in reviewing various plans	1	2
Micro Level		2	2
Measure performance-micro-staff-prx-int	Ways staff measure performance	2	2
1.7 - Comply with regulations	Compliance with regulatory requirements	16	17
Macro Level		16	17
Audit-macro-C&AG-prct-ext	Audit undertaken by C&AG on MIS within the IoT Sector, 2007	2	2
Code of Governance-macro-exec-prct-int	IoT Code of Governance	3	4
Legislation-macro-exec-prct-ext	Legislation the executive must follow	4	4
Regulatory, Executive & Advisory Role-macro-HEA-prx-ext	Regulatory & advisory role of HEA	7	7
1.8 - Develop international student base	Developing the internationalisation focus	4	6
Meso Level		2	2
Internationalisation Development-meso-exec-prx-int	Institute's mission	1	1
Internationalisation Development-meso-HDevel-prx-int	Role of Head of Development in Internationalisation	1	1
Micro Level		2	4
Internationalisation Development-micro-HOCA&T-prx-int	Internationalisation within College of Arts & Tourism	1	2
Internationalisation Development-micro-HOSSEIT-prx-int	Role of HOSSEIT in internationalisation	1	2
T2 - Administer IS	How IS contrbutes to the running of the business	35	572
2.1 - Develop and implement IS policy	How IS Policy is developed and implemented	13	37
Macro Level		9	12
IS Policy Development & Implementation-macro-ISMgr-prx-ext	Role of IS Mgrs in IS Policy formation at a macro level	1	3
IS Policy Development-macro-staff-prct-ext	National development of IS policies	4	4
IS Policy Framework Development-macro-consultant1-prct-ext	Consultant1 helping in the development of policy frameworks	5	5
Meso Level		10	25
IS Policy Development & Implementation-meso-HOSBus-prx-int	Role of Head of School of Business in IS policy	1	4
IS Policy Development & Implementation-meso-HOSScience-prx-int	Role of HOS Science in IS policy development	1	1

IS Policy Development & Implementation-meso-ISMgr-prx-int	Role of IS Mgr in IS Policy development and implementation	1	2
IS Policy Development & Implementation-meso-staff-prx-int	Development and Implementation of IS policies	10	18
2.2 - Maintain IS	How IS perform for their end users	7	17
Meso Level		6	9
Performance of MIS-meso-exec-prx-int	How MIS does/doesn't help exec measure what's happening	1	1
Performance of MIS-meso-staff-prx-int	MIS performance within the organisation	3	6
Performance of Systems-meso-ISMgr-prx-int	Performance of Systems outside control of IS Mgr	2	2
Micro Level		4	8
Performance of MIS-micro-exec-prx-int	How MIS perform for Schools	3	4
Performance of MIS-micro-staff-prx-int	Staff involvement due to lack of MIS performance	2	4
2.3 - Manage shared services	How Shared Services are Provided	24	86
Macro Level		22	69
Centralise IS-macro-DES-prct-ext	DES role in centralised IS	1	1
Integrate MIS-macro-AnChéim-prx-ext	An Chéim's role in integrating MIS	8	9
IS Services Provision-macro-AnChéim-prx-ent	An Chéim as a provider of IS Services	4	4
Limitations-macro-AnChéim-prx-ext	Limitations of An Chéim to all IoTs	5	7
Member of Shared Services Group-macro-ISMgr-prx-ext	How being a member of an external group, the IS Mgr becomes aware of what shared services has to offer.	1	1
Network provision-macro-HEAnet-prct-ext	Network infrastructure provided by HEAnet	3	5
Project Management-macro-staff-prct-ext	Project management by external groups	2	2
Relationship with An Chéim-macro-crm-prx-ext	An Chéim Customer Relationship Manager	2	2
Relationship with An Chéim-macro-exec-prx-ext	Relationship executive has with An Chéim	4	6
Relationship with An Chéim-macro-ISMgr-prx-ext	Relationship of ISMgr/ISServices with An Chéim	4	10
Relationship with An Chéim-macro-reg-prx-ext	Relationship registrar has with An Chéim	2	3
Relationship with An Chéim-macro-secfinctr-prx-ext	Relationship between secretary/financial controller and An Cheim	2	2
Shared services provision-macro-AnChéim-prct-ext	Shared services provided by An Chéim	4	5
Shared services provision-macro-EduCampus-prct-ext	Shared services provided to the sector by EduCampus	1	1
Shared services provision-macro-HEAnet-prct-ext	Shared services provided by HEAnet	2	3
Utilisation of Shared Services-macro-ISMgr-prx-ext	How the IS Mgr engages with shared services providers.	5	8
Meso Level		7	15
Implement Shared Service-meso-ISMgr-prx-ext	How the IS Mgr goes about implementing a shared service	2	2
Limitations-meso-An Chéim-prct-ext	Limiting influence of An Chéim to the institute	6	13
Micro Level		2	2

Shared services provision-micro-staff-prx-ext	Shared services at a micro level	2	2
2.4 - Provide IS	How the various IS, of all types are provided	30	242
Macro Level		19	61
Centralise IS-macro-consultant-prx-ext	Mazars recommendation to centralise institute wide IS	2	2
Control SW Versions-macro-AnChéim-prct-ext	An Chéim's role in software version control	8	14
Control SW Versions-macro-ISMgr-prct-int	How IS Mgr implements new versions of sw received from outside	2	2
Developing & enhancing MIS-macro-ISMgr-prx-ext	How IS Mgr is involved in developing and enhancing MIS at a macro level	5	13
Developing & enhancing MIS-macro-staff-prx-ext	Institute staff role in developing and enhancing national MIS	6	14
Infrastructure development-macro-ISMgr-prx-ext	IS Mgrs influence in choosing/developing infrastructure	6	8
Integrate IS-macro-ISMgr-prx-ext	Role of IS Mgr in integrating IS with external organisations	2	2
Procurement-macro-ISMgr-prct-ext	IS Mgr and his staff role in procuring hw and sw	1	1
Server provision-macro-HP-prct-ext	Server provision by HP to all IOTs	1	1
System Development & Support-macro-ISMgr-prx-ext	How IS Mgr and his team get involved in IS development and support	2	3
VLE-macro-ISMgr-prx-ext	IS Mgrs involvement in VLE at a macro level	1	1
Meso Level		27	164
Developing & enhancing MIS-meso-ISMgr-prx-int	Role of IS Mgr in developing and enhancing MIS	7	11
Developing & enhancing MIS-meso-ISServices-prx-int	Role of IS in developing and enhancing MIS	9	15
Developing & enhancing MIS-meso-staff-prx-int	How various institute staff involved in developing and enhancing MIS	6	19
Document management-meso-ISMgr-prx-int	IS Manager's role in helping to set up document management system	1	1
Document management-meso-staff-prx-int	Staff management of documents	2	4
Infrastructure development & operation-meso-ISMgr-prx-int	Infrastructure development/choosing by IS Mgr	9	13
Integrate IS-meso-ISMgr-prx-int	IS Mgrs role in integration of IS	6	10
Integrate IS-meso-staff-prx-int	Issues around integration of IS	4	9
IS implementation-meso-ISMgr-prx-int	Implementation role of IS Manager	2	5
IS Implementation-meso-staff-prct-int	Role of users in IS implementation	2	2
IS Maintenance-meso-ISMgr-prct-int	IS Maintenance by IS Mgr	2	2
IS Maintenance-meso-staff-prx-int	People and groups(e.g.Banner Group) involved in the maintenance of IS	1	1
IS Services Provision-meso-exec-prx-int	How the executive helps with the provision of IS Services	1	1
IS Services Provision-meso-ISMgr-prct-int	How the IS Mgr provides to the end user	14	28
Learning modes-meso-exec-prx-int	Learning modes offered to students	1	1
System Development & Support-meso-ISMgr-prct-int	How IS Manager and his team help with systems development	8	23
VLE meso-ISMgr-prx-int	IS mgrs role in VLE	7	10

VLE-meso-staff-prx-int	VLE provision at organisational level	5	9
Micro Level		8	17
Developing & enhancing MIS-micro-staff-prx-int	Attempts at developing MIS at school level	1	2
IS Services Provision-micro-ISMgr-prct-int	Provision of IS to end users in Schools/Depts	4	6
VLE-micro-ISMgr-prx-int	Role of IS Mgr in VLE at a micro level	3	5
VLE-micro-staff-prx-int	Provision of VLE at School/dept level	4	4
2.5 - Support end users	Support for IS provided to end users	23	170
Macro Level		0	0
Meso Level		22	106
End User Support-meso-ISMgr-prct-int	Support provided by IS Mgr and his direct reports to end users	10	37
End User Support-meso-staff-prct-int	To whom end users go for IS support	9	12
Enterprise Development-meso-ISMgr-prx-ext	Role of IS Mgr in supporting incubation centre	1	1
Expertise MIS-meso-staff-prx-int	People with MIS expertise at meso level	6	8
Influence IS Services-meso-ISMgr-prx-int	Role IS Services plays under stewardship of IS Manager	10	29
Influence on Executive-meso-ISMgr-prx-int	Influence IS Manager can bring to bear on the executive	3	7
Influence Super User-meso-staff-prcx-int	Role of Super Users	1	1
Knowledge-meso-ISMgr-prx-int	Knowledge IS Manager has that directs his work	1	2
Training for end users-meso-ISMgr-prx-int	Role IS Mgr plays in the provision of end user training	7	8
Utilisation of labs-meso-staff-prx-int	Utilisation of labs	1	1
Micro Level		15	64
End User Support-micro-ISMgr-prct-int	End User Support provided by IS Mgr and his direct reports, to schools/departments	14	36
End User Support-micro-staff-prct-int	Where end users go for support at a micro level	6	18
Influence IS Services-micro-ISMgr-prx-int	Role IS Services plays at a micro level under stewardship of IS Mgr	4	4
IS Support-micro-HOSBus&Hum-prx-int	Where the Head of School of Business and Humanities goes for IS support	1	1
Training for end users-micro-ISMgr-prx-int	Training provided by IS Mgr and team for schools/depts	3	5
2.6 - Produce data	How practitioners produce data from the various systems	10	20
Meso Level		10	16
Data Production for Governing Body-meso-ISMgr-prx-int	IS Mgrs role in provision of data to Governing Body	2	2
Data Production for KPIs-meso-HOSMayo-prx-int	How the HOS Mayo goes about collecting data for KPIs	1	1
Data Production-meso-ISMgr-prct-int	Hoe IS Mgr helps with new ways of reporting data	2	2
Data Production-meso-ISMgr-prx-int	How IS Manager helps produce data for statistical purposes.	4	6
Data Production-meso-staff-prx-int	Data produced by staff for statistical purposes at meso level	4	5

Micro Level		2	4
Data Production-micro-ISMgr-prx-int	How IS Mgr helps produce data for statistical purposes	1	2
Data Production-micro-staff-prx-int	How admin staff produce data for statistical purposes	2	2
T3 - Innovate	How practitioners promote new ways of doing business	37	281
3.1 - Assign responsibilities	Responsibilities of various practitioners	29	94
Macro Level		5	5
Influence-macro-ISMgr-prx-ext	Influence IS Mgr has at macro level	1	1
Overall responsibilities-macro-HOS-prct-ext	Special responsibilities of HOS in relation to the macro level	3	3
Research Development-macro-HDevel-prx-ext	Role of Head of Development in research	1	1
Meso Level		29	85
Academic operations-meso-reg-pct-int	Academic operations for which registrar is responsible	1	1
HRmgt-meso-exec-prx-int	HR issues around IS that the executive have to deal with	2	2
HRmgt-meso-ISMgr-prct-int	HR Management undertaken by IS Mgr	10	18
Impact of Experience-meso-ISMgr-prx-int	How experience of IS Mgr impacts on the job he does	1	1
Influence-meso-ISMgr-prct-int	Influence of IS Manager	6	12
Leadership-meso-exec-prx-int	Leadership within the organisation	4	5
Managing IT Governance-meso-exec-prx-int	How do the Executive manage IT governance	1	1
Operational Role-meso-ISMgr-prct-int	Operational role of IS Manager	8	12
Overall responsibilities-meso-HOS-prct-int	Overall responsibilities of Heads of School	10	18
Overall responsibilities-meso-pres-prct-int	Overall responsibilities of President	2	6
Overall responsibilities-meso-secfinctr-prct-int	Overall responsibilities of Sec/Fin Ctlr	2	2
Project Management-meso-staff-prct-int	People who project manage	1	1
Technical support-meso-ISMgr-prx-int	Technical role undertaken by IS Manager	3	4
Undervalued-meso-ISMgr-prx-int	IS Mgr could do more for the business	2	2
Micro Level		3	4
Identity-micro-HOSSEIT-prx-int	HOS SEIT role in creating an identity for the School	1	2
Underutilised-micro-ITTech-prx-int	Underutilised IT Technicians not belonging to IS Services	2	2
3.2 - Choose IS	How the various IS are chosen and by whom	19	80
Macro Level		11	32
Awareness of IS alternatives-macro-HDevel-prx-int	Awareness of alternative IS by Head of Development	1	2
Choosing Finance Applications-macro-exec-prct-ext	Core is chosen based on what's used elsewhere in the public service	1	1
Choosing IS-macro-exec-prx-ext	Institute's influence in choice of IS from An Chéim	3	6

Choosing IS-macro-ISMgr-prx-int	How the IS Mgr helps choose IS	3	5
Choosing MIS-macro-groups-prx-ext	Different people involved in choosing MIS e.g. An Chéim	8	18
Meso Level		13	40
Choosing IS for campus development-meso-ISMgr-prx-int	IS Mgrs roles in choice of IS for campus development	2	5
Choosing IS-meso-exec-prct-int	Choice of IS by the executive at a meso level	2	4
Choosing IS-meso-HOCA&T-prx-int	Views of the Head of College of Tourism & Arts in the choice of IS	1	1
Choosing IS-meso-HOSBus&Hum-prx-int	Choice of IS helped by HOSBus&Hum	1	5
Choosing IS-meso-ISMgr-prx-int	How the IS Mgr helps in choosing IS	7	12
Choosing IS-meso-reg-prx-int	Role of registrar in choosing IS	1	1
Choosing IS-meso-scfinctr-prx-ext	Role of Sec/Fin Ctrl in choosing IS for finance	1	2
Choosing IS-meso-staff-prx-int	Staff involved in choosing IS	2	2
Choosing MIS-meso-staff-prx-int	Different people involved in choosing MIS	4	7
Choosing Research Application-meso-staff-prx-int	Choice of application for Research Office	1	1
Micro Level		5	8
Choosing Finance Applications-micro-staff-prct-int	Those in Finance choose Finance Systems	1	1
Choosing IS-micro-ISMgr-prx-int	Role of IS Mgr in helping to choose IS	1	1
Choosing IS-micro-reg-prx-ext	Registrar's role in choosing IS for his office	1	1
Choosing IS-micro-staff-prx-ext	Staff involvement in choice of IS for Registrar's office.	1	1
Choosing MIS-micro-staff-prx-int	Choosing MIS for individual departments	2	3
Portal-micro-HOSBus&Hum-prx-int	Use of portal for School of Bus&Hum	1	1
3.3 - Communicate	Communication channels - formal & informal	24	86
Macro Level		15	32
Communicate externally-macro-ISmgr-prx-ext	IS Mgr role re: communication with external environment	4	6
Communicate externally-macro-staff-prct-int	Various communication between internal groups with external bodies	2	2
Interaction external groups-macro-HOS-prx-ext	External groups HOS interacts with	2	2
Interaction external groups-macro-ISMgr-prct-ext	Interaction IS Manager has with external groups	7	12
Interaction external groups-macro-ISMgr-prx-ext	Informal interaction IS Mgr has with external groups	5	5
Interaction external groups-macro-Pres-prct-ext	Groups on which the president represents the institute	1	1
Marketing-macro-exec-prct-ext	Marketing undertaken by institute	2	3
PR Activity-macro-HDevel-prx-int	Role of Head of Development in PR activity	1	1
Meso Level		18	53
Communication Deficit with Exec-meso-ISMgr-prx-int	Communication deficit between Executive and IS Mgr	3	5

End User Engagement-meso-ISMgr-prct-int	How users engage with the IS Mgr	3	9
Expectation setting-meso-ISMgr-prx-int	IS Mgrs role in setting user expectations	1	2
Interaction internal groups-meso-ISMgr-prct-int	Internal groups IS Mgr sits on and interacts with	15	32
Interaction with students-meso-staff--prx-ext	How the institute interacts with students	1	3
Interpersonal skills-meso-ISMgr-prx-int	Interpersonal skills and knowledge IS Mgr brings to bear	1	1
Postgrad development-meso-exec-prx-int	Postgrad development	1	1
Micro Level		1	1
Interaction internal groups-micro-ISMgr-prx-int	Interaction IS Manager has with internal groups at a micro level	1	1
3.4 - Generate Ideas	How new ideas can come about	11	21
Macro Level		7	10
Influences on ISMgr-macro-groups-prx-ext	Influences on IS Mgr from external sources	2	4
Initiatives-macro-gvt-prx-ext	Various government initiatives	5	6
Meso Level		6	11
Influences on ISMgr-meso-staff-prx-int	Influences on IS Mgr from internal sources	2	2
Innovation-meso-ISMgr-prx-ext	How the IS manager obtains ideas from outside that he implements inside.	3	7
Task drivers-meso-ISMgr-prx-int	What gives rise to the tasks carried out by the IS Manager	1	2

Appendix 17 - Sample Memo1

30/06/2015 13:01

An Chéim, was established as a subsidiary of Dublin Institute of Technology (DIT), to cater for support of the systems, future development and on-going implementation. Its board of directors was made up of representatives from the IoTs, DIT and the DES.

An Chéim carried out their role up to April 2015 at which stage a new company by the name of EduCampus Service Limited was established as a subsidiary of HEAnet and took over from An Chéim (Hinfelaar 2015).

HEAnet is Ireland's National Education and Research Network, providing Internet, associated ICT and e-Infrastructure services to Ireland's HEIs, research organisations, and all primary and post-primary schools (HEAnet 2015).

HEAnet provides all IoTs with their e-infrastructure (including Internet), except for what is inside the buildings of each IoT.

Each IoT is responsible for its own internal e-infrastructure.

Each IoT is also responsible for the provision of IS services to staff and students, apart from those provided by EduCampus and HEAnet.

Appendix 18 - Sample Memo2

01/07/2015 12:52

For the first two years of the 'Strategic Plan 2006-2010' (Case X 2006), a Management Information Systems Steering Group dealt with operational issues in relation to the IS provided by An Chéim (Case X 2006-2008).

In April 2008 the group's title was changed to Information Systems Strategy Group (ISSG) to reflect that all IS in Case X came under its remit and not only those supplied by An Chéim (Case X 2008-2014).

The terms of reference for the ISSG was distributed on 17th October 2011. Among its main terms was that the ISSG will *"facilitate the development and implementation of a cohesive information systems strategy"* Case X ISSG (1:2011). As at mid-2014, a documented IS strategy does not exist.

The ISSG meets bi-annually now and sub groups (e.g. Banner group) have been set up to deal with operational matters.

No evidence found to show that the ISSG deals with strategic matters.

Appendix 19 - Sample Memo3

02/07/2015 13:01

In June 2010 a review took place during a time when new challenges and opportunities were arising due in particular to changes in the macroeconomic and social environments, publication of Case Y 'Strategic Development Plan 2010-2015' (Case Y 2010a) and the imminent publication of the 'National Strategy for Higher Education to 2030' (Hunt 2011).

The process was used to evaluate perception of the previous strategy and to gather opinion on the five pillars for the new strategic development plan launched in the previous month.

It is very interesting to note that staff responses indicated a lack of awareness for operational planning for the previous strategic plan, even though an annual plan of work was agreed by the executive board.

It is also very interesting to note a proposed "*development of an overall strategic planning framework for the institute where school and functional area plans will be aligned with the implementation plans of the key objectives set out in the strategic development plan 2010-2015"* Case Y (2010b:17), so that KPIs for each of the five pillars can be assigned and monitored. I couldn't find any evidence to show that this took place.

However, it was felt changes were now required so as to align the management structure and capacity, in support of the 'Strategic Development Plan 2010-2015' (Case Y 2010a).

Appendix 20 - Sample Analytical Memo1

Memo 1.1 Strategic Plan Development & Implementation MACRO

29/10/'15 15:10

Case X
President – When parameters received from HEA we can bring the compact and our strategic plan together, and then yes we will need the information systems to support that whole exercise.

EiSC - The overriding concern in terms of strategy and its measurement is particularly national targets that are set by the HEA as they ultimately they affect funding. There isn't the same emphasis on the HR department or the Estates department or indeed the IS department.

Registrar - The KPI methodology is now part of the infrastructure. For example, the strategic plan came in as part of one of the drivers of higher education and now as part of the IoT Act 2006 the institutes are required to have a strategic plan, are required to have approval of their governing body and are required to submit this to the minister on a cyclical basis. So, MANDATED.

Quotation - Registrar.
"*it's not as if the Institute decided, oh we should have a strategic plan, we're required to have it.*"

HOS (PM) – We are working with consultants on a new campus development plan being put in place.

Case Y
Sec/Fin Ctrl - That revision undertaken for 2013-2016 was developed to align the strategic plan with the Compact and now we're aligned with what came from what is the HEA Compact.

Cross Case
The MACRO influences.

HEA Consultation with HEIs - The document sets out a system for strategic dialogue between all HEIs and the HEA, which includes the need for clear policy direction from the HEA in terms of what's required of the higher education sector, scope for HEIs to develop and propose their own targets, and systems to allocate funding based on performance. Compacts agreed and now metrics are known.

IoT Act 2006 - Institutes of Technology Act (2006) whereby in Section 21 (C1) it states, *"A governing body shall … require the director to prepare … a strategic development plan that shall set out the aims of the governing body for the operation and development of the college and its strategy for achieving those aims."*. MANDATED

Minister DPER memo - While such public service wide initiatives provide direction at a macro level for the HEA and the IoTs, both the HEA and the IoTs are responsible for developing and implementing their own strategic plans in accordance with the direction

provided by government (Howlin 2012) and that direction includes shared services e.g. An Chéim.

Hunt 2011 - Many IoTs are now implementing their second strategic plans, and with this experience, the quality of such plans has according to the Higher Education Authority (2014b), significantly improved and fits within the coherent national framework set out in the 'National Strategy for Higher Education to 2030' (Hunt 2011). LEARNING

Memo 1.1 Strategic Plan Development & Implementation MESO

30/10/'15 10:30

Case X
President - Input from the full EMT was obtained to develop our strategic plan and all have a crucial role in its implementation.

Student retention and completion is very important, it's one of the cornerstones of how we measure our success.

The IS manager is important in supporting the executive management, Heads of School, Heads of Department, all the academic management to keep an eye on, to monitor those data, and to actually ensure that we don't let things drift.

The IS mgr hasn't any role yet in monitoring the implementation of strategy because that area is firmly within the EiSC role which is a new area and measurement of KPIs is in the process of being put in place.

We are certainly, we are implementing our strategic plan. I would certainly stand over that statement which isn't to say that the IS strategy for supporting the plan is completely developed, some of the reasons I outlined. But we are definitely moving ahead with implementing the strategic goals that are in the plan.

We developed our second strategic plan knowing that that we were going to be integrating with TI. My internal stakeholder group was a mix of Tipperary and Limerick in every way, as in students, staff, etc. So I'd say that the development of that strategic plan was one of the tools, if you like, to help create the new organisation. The IS Mgr wasn't a member of the group therefore indicating he wasn't core and neither was IS.

This group, set up and chaired by the President, brought together to present ideas coming from Executive Strategy meetings and to obtain input to Strategic Plan 2011-2020 from a selection of staff including members of TUI, SIPTU, IMPACT, UNITE, Students Union and Academic Council. TUI and Academic Council did not take up their positions. President only member of executive on this group – consultation?

HOD - I suppose the organisation is learning the strategic planning process. Between 2006 and 2010 was the first ever attempt at doing a half decent strategic plan. There was a real attempt to engage with schools and departments on learning how to do strategy.

Most strategy is divergent and is a response to major changes in your environment, particularly in the context of public service organisations that are very influenced by

politics. We never planned to incorporate Tipperary Institute into LIT. That was a phone call and all of a sudden.

Sec/Fin Ctrl – IS Mgr's role in supporting overall strategy is central. Everybody has a role to play in terms of being cognisant of what the institute's strategy is and finding a way as their executive manager of translating that institutional strategy into something that becomes meaningful from implementation plans. Things like active learning, Niall every two years will typically go to an international conference which begins to look at technology supporting teaching and learning – in terms of the infrastructure behind it. So, every summer for the last three years we have implemented some new additions as part of that in order to make it more pervasive.

IS Mgr - Strategy belongs at an executive level certainly in terms of trying to implement and develop.

I would say that I do manage to do an awful lot around strategy and implementing strategy, I'd get away without doing it. For example Moodle and the 150 seater set up. The IS Mgr introduced Moodle into the place and pushed it ever since and now it has taken off, but it took time. The IS Mgr got the idea about better acoustics for the 150 seater from attending a conference. Both of these initiatives meet two particular strategic goals contained in both strategic plans, which are active learning and academic support. They are things the IS Mgr took on himself, he pushes.

HOS (CMcL) - Part of the role that Niall will have to do is to pull out those objectives from the strategic plan and determine how he can make a contribution to their attainment.

HOS (MD) - Deeply involved in the formulation and implementation of the strategy 2006-2010 and the one that's current now, LIT 2020.

HOS (PM) - What I'm finding now is that a huge amount of my energy and time is in strategic planning and strategic decision making. Decision making isn't done alone HOS likes to offer different alternatives and would have his own views as to what would work.

PM: The strategic plan of 2006 was the first actual really thought through and consulted widely strategic plan. That plan did was it gave us terms of reference. So, when a decision was being made about whether we should do something or not, we had a term of reference that you could look at and say is this consistent with the strategy? The IS Mgr hadn't a role in this.

In terms of implementing the strategic Plan, IS Mgr is a cog in the system in the same way as the HR department was or the Finance department was. So you're there trying to get things done at an operational level.

Consultant (MRC) - The internal audit plan, the President has steered it to assist her implement some of the strategies in the direction that LIT is going. So she's got enormous value out of some of the work that we've done and that's very interesting. We also did a review recently about retention - very important from a strategy perspective. They are type of things we've being doing and they all support strategy.

Minutes Governing Body Strategy Group 2011 - This group was made up of a selection of Governing Body Members. Three meetings were held, one in January 2011, one in February 2011 and one in March 2011. Consultation.

Review of EiSC 2008 - Concluded the EiSC provides the institutes leadership with a central hub for coordination and communication to support the alignment, implementation and evaluation of all strategic initiatives.

Strategic Plan 2011-2020 -
The development of this plan took place against a backdrop of difficult challenges for the state, the region in which the institute operates, and the higher education sector. In particular, the institute committed to being proactive in its response to the 'National Strategy for Higher Education to 2030' (Hunt 2011) by agreeing to measure performance against efficiency and effectiveness benchmarks (Case X 2011a).

Each of the thirteen strategic goals was broken down into a number of objectives, and where possible, quantifiable KPIs were developed to measure on-going progress.

Consultant Report by Shattock & Pritchard on TI Merger 2011 - Most critical of all was a recommendation to revise the 'Strategic Plan 2011-2020' (Case X 2011a) due to its lack of any clear strategy in terms of academic structure, programmes and profile.

While the consultant acknowledged the 'Strategic Plan 2011-2020' (Case X 2011a) was indeed a respectable vision statement, it was by no means a strategic plan because it was devoid of a plan as to how Case X would develop into the future (Case X 2011c).

Case Y
President - The strategic Plan 2010-2015, was reviewed because of what was happening on the national scene in terms of preparing for the Higher Education Strategy.

While each function such as IS may not have a written plan that supports the strategic plan, their work does support the strategic plan.

Sec/Fin Ctrl -The IS Manager was very involved in the development of the Strategic Plan 2004-2009.
In 2008 a financial crisis struck, concentration went out the door, all these detailed plans went out the door and suddenly we were slashing and burning budgets and we've been literally cutting budgets since 2008 for six successive years and 2015 is the first time we won't be putting in a budget cut since 2008. It has been a fire-fight, that strategic plan never envisaged what was coming at us in 2008.

Member of Executive (LE) - we started off this conversation by Strategy as Practice. But I mean, if you go back to the agenda items, what you'll find is very little strategic items appeared on the agenda items. They tend, the whole group, that's the Executive and the Management Group to be operational. Reactive, firefighting, day-to-day stuff and one of the findings from my Ph.D. was, I don't think if there wasn't a legislative environment (IoT Act 2006) we actually would prepare strategic plans at all. It's a requirement to produce an SDP. And then what happens is we produce a lovely glossy document that has all the platitudinal stuff you've got in there, it reads wonderfully well, it goes into abeyance for four years and three months and then nine months before the next date, get the bloody plan out there.

Quotation - Member of Executive.
"*Strategic plans are like grandmother's china, limited use for day-to-day purposes but wonderful if you've got visitors for the day.*"

IS Mgr (MG) - That particular strategic plan 2004-2009, has beautiful language. IS were well involved in its development. But, in terms of once the plan was put in place, was there any formalised structure underneath it – no. It was a kind of an aspirational – as is often the case with strategic plans, an aspirational statement of whatever.

HOS (DG) - This year we looked at the strategic plan and the risk register, they weren't aligned. So you had the risk register, and they're all running separately, whereas really the risk register needs to be aligned with the strategic plan and, therefore, reporting needs to feed into that. Evidence again that strategic plan serves statutory purpose (and funding) only.

HOS (DF) - Now, I suppose from an Institute point of view, what we've been trying to do over the last year, when you think of it – strategic plan, academic plan, compact now, risk register, control document, quality improvement plan, institutional review – that's six things off the top of my head that are more or less saying the same thing. So at least now, or should say the same thing, if you identify something as a risk and it's not in your strategic plan and it's not in your quality improvement plan, you know, there's something odd here. So we've made a fairly substantial effort now, certainly the compact pillar is the same as the strategic plan, pretty much. Again evidence that strategic plan serves statutory requirement and funding only.

HOS (SD) - I suppose one criticism I've had of the Strategic Plan 2010-2015 is that it's big on words and ambition and aspiration and I have yet to see any proper KPIs. It is an issue that we're big on plans and we're not so good at measurement and follow up.

Quotation – HOS
"*I would say it's more of a strategic hope than it is a plan.*"

I sincerely doubt if the IS Mgr had any input into the development of the Strategic Plan 2010-2015.

Consultation for next Strategic Plan 2010-2015 - By December 2009, consultation with all Case Y staff on the first stage of the next strategic plan had reached a conclusion. This consultation included seven focus group sessions involving fifty staff in total.

Consultation for Strategic Plan 2004-2009 - Following a wide-ranging consultation process with both internal and external stakeholders, Case Y developed its 'Strategic Plan 2004-2009' (Case Y 2004). Implementation of the plan was contingent on the institute's resources being aligned with the plan and its organisational capacity and structures reconfigured to ensure successful implementation. No evidence that this took place.

Revision of Strategic Plan 2013-2016 - Since publication of 'National Strategy for Higher Education to 2030' (Hunt 2011) significant developments within the higher education sector took place. Consequently, the executive of Case Y undertook a mid-term review of 'Strategic Development Plan 2010-2015' (Case Y 2010a) to cover the period 2013-2016 Case Y (2013b).

Their review found that overall, the pillars in the 'Strategic Development Plan 2010-2015' (Case Y 2010a) provide a good framework, with an additional year so as to align with the performance compact with the HEA. As part of the process Case Y and the HEA agreed the KPIs to be applied. Again evidence as to why strategic plans are developed.

Cross Case
Both Cases display plenty of evidence that they adhere to the requirement in the IoT Act 2006 to develop a Strategic Plan. Both case display plenty of evidence that they focus on KPIs when it's a case that such measurements effect funding. Both cases are clearly learning and while strategic plans have been developed, their implementation and measurement leaves a lot to be desired.

Both cases also display plenty of evidence that the strategic plan don't filter down to operational plans that tie in via measurements and that while consultation takes place it's not that meaningful in terms of implementation and measurement.

Both cases display evidence that hey amend their strategic plans when major events take place in their environments e.g National Strategy for Higher Education and merger with TI for Case X.

Apart from the first strategic plan in Case Y, the IS Mgr is not involved in strategic plan development and has a minor role in its implementation in terms of supporting others with data. The role of the IS Mgr is more a role of pushing and presenting ideas that he feels may be of benefit to the institute.

President of Case X availed of the internal audit plan and other consultant reports to help implement projects supportive of the strategic plans.

Memo 1.1 Strategic Plan Development & Implementation MICRO

29/10/'15 15:00

Case X
HOS (MK) - HOS are solely responsible for the strategic planning of their school and they have joint responsibility for strategic direction of the IoT as members of the executive.

Case Y
HOS (DF) - We did a Plan, it would have been 2009, so it wouldn't have been, was it 2009? The last programmatic review we did a School Strategic Plan for that.

Cross Case
Strategic planning takes place at School level, with HOS being responsible for the plan and its implementation. Each HOS also has a joint responsibility for the IoTs strategic plan and implementation, as a member of the executive.

Appendix 21 - Sample Analytical Memo2

Administer IS - (37 practices)

Macro (11).
Interaction between the IS manager and the main IS provider (An Chéim) is via the Institute's president and the National IS Manager's Group. There is no direct link from the IS manager to An Chéim. COMMUNICATION DEFICIT.

The IS manager is the Institute's representative on a local shared services group for IS procurement outside of those IS services provided by An Chéim and HEAnet. PURCHASE OF NON-CORE IS.

IS manager is member of National IS Manager's Group and partakes in information exchange on IS issues with other IS managers. Ideas are shared among this peer group and those that can benefit the institute are implemented if the required funding is made available. SHARE KNOWLEDGE.

When the institute receives new IS from the macro environment (e.g. from Shared Services provider), the IS manager provides the facilities for end user training on the new IS. FACILIATE TRAINING.

While the IS manager does not directly get involved with amending and implementing Shared Services IS, he does tend to get pulled in hen there's a crisis. This happens particularly when the Shared Services provider cannot/will not provide support (possibly due to the institute going outside the common standard design). Because it's IS, users look to the IS manager and the IS manager has a knowledge of the IS because he was involved in the some national IS committees in the early days. The IS manager is not involved in future direction of national IS for the timeframe of this study. CRISIS MANAGEMENT.

While the IS manager has no input to enhancing national IS, he can influence enhancements through discussing issues with people in his institute and then some of this input may be brought to the attention of the Shared Services provider via executive member of the institute staff. INFLUENCE.

The IS manager was centrally involved in designing the IT centre where a standard set of IT services are available to students and is centrally involved in design of all aspects of the internal institute IT infrastructure. He has to schedule the various elements of the work. PARTAKE IN DESIGN AND MANAGE IMPLEMENTATION OF INTERNAL IS INFRASTRUCTURE.

The IS manager works with staff in other IoTs to facilitate IS integration which can support a group of IoTs working together. FACILITATE DATA INTEGRATION.

The IS manager coordinates the development of a TU website and advises on IS developments being considered for the TU. CO-ORDINATE and ADVISE.

The IS manager works with local consortia for procuring hardware and has an input into the spec. PROCUREMENT.

IS manager liaises with external companies who carry out IS related work for the institute, to ensure the required infrastructure is in place and that the external party are complying with institute IS policy. FACILITATE.

Meso (20).
The IS manager provides input to IS policy formation by being a member of the IS Policy group. DEVELOP OF IS POLICY.

The IS manager has a critical role in developing IS policies. DEVELOP IS POLICIES.

The IS manager provides technical support locally for IS provided by the shared services provider. TECHNICAL SUPPORT.

The IS manager provides support to end users for the IS provided by the shared services provider by building data reporting modules outside the core IS (e.g. reporting on KPIs). However, this has died off because the IS manager hasn't the resources to provide the support on an on-going basis. DATA RETRIEVAL/RREPORTING SUPPORT.

The IS manager helps end users set up IS to securely host policy documents, programmatic review documents. FACILITATE SECURE DOCUMENT STORAGE.

The IS manager works with users to help them make best use of IS, via pilots, training, providing platforms such as Moodle, email, Microsoft office products, and website, implementing upgrades/latest versions and maintaining them. SERVICE PROVIDER.

The IS manager provides the internal network infrastructure. INTERNAL NETWORK PROVISION.

The IS manager with user groups, integrated phone systems, email and core IS when a merger took place with another institute. INTEGRATE IS.

The IS manager enables users to integrate their messages on the institute website, by providing the platform but allowing the users manage the content. FACILITATE WEBSITE DEVELOPMENT.

The IS manager will lead the process for specifying the IS needs, and the tendering if the particular IS service is not available from a shared services provider, but only if the funding is available in the budget. SPECIFY AND TENDER.

IS manager helps members of the executive compile data they require to present to the governing body and data required for reporting to other bodies such as HEA and Sunday Times. SUPPORT VIA DATA COMPLILATION.

IS manager provides the end user of IS supplied by shared services provider with DBA type support. He doesn't write reports for them or download the data for input to other IS,

but through his knowledge of the database within the IS he provides the DBA support. He also does this by having a technician full time in the user area. DATABASE ADMINISTRATION SUPPORT.

IS manager provides first line support to users for IS supplied by shared services provider. He then decides if it's a hardware issues, network issue, application issue or whatever and engages the principal support body. FIRST LINE SUPPORT FOR IS PROVIDED BY SHARED SERVICES PROVIDER.

Via help desk, IS manager supports the student and staff population in the use of the standard desktop supplied and facilitates remote access to IS within the institute the to e.g. Moodle, Banner. IS manager provides video conferencing and web conferencing facilities to staff to support on-line meetings and on-line access for distance education. IS manager provides support for printing both on-site and remotely. IS manager supports the hardware and software in the labs, classrooms and IT centre, in terms of upgrades and fixes. ADVICE ON IS CONFIGURATION AND SUPPORT FOR INSTALLED BASE.

The IS manager facilitates the running of training sessions on installed software through the Education Technology Officer. FACILITATE TRAINING.

The IS manager supports the incubation centre by helping with attaining the best deals for hardware and network facilities. SUPPORTING INCUBATION CENTRE.

The IS manager will push IS that he feels can be of benefit to end users, such as on-line leave sheets and Moodle. ENCOURAGE END USERS TO USE CERTAIN IS.

IS manager releases some of his staff to help as members of national working groups on national IS to provide business requirements input. CONSULTANCY.

The IS manager does advise the Executive. The IS manager, when invited, presents ideas such as BI module and website at executive. ADVICE TO EXECUTIVE.

Overall, the IS manager fully supports the two areas *infrastructure* and *academic & learner support* and partly supports *Shared Services IS*. OVERALL END USER SUPPORT.

Micro (6)
IS manager provides advice to departments helping to ensure more efficiency and better coherence in the deployment of their IS. ADVICE.

IS manager helps school and department heads, and estates, to spec out refurbishment and upgrades to labs, lecture theatres and classrooms, in terms of hardware, software and connectivity. This upgrading and refurbishment is for both staff and students within schools and departments. UPGRADE and REFURBISH.

IS manager helps members of schools and departments compile data they require to present to course boards. And also does so by having a technician full time in the user area. SUPPORT VIA DATA COMPLILATION.

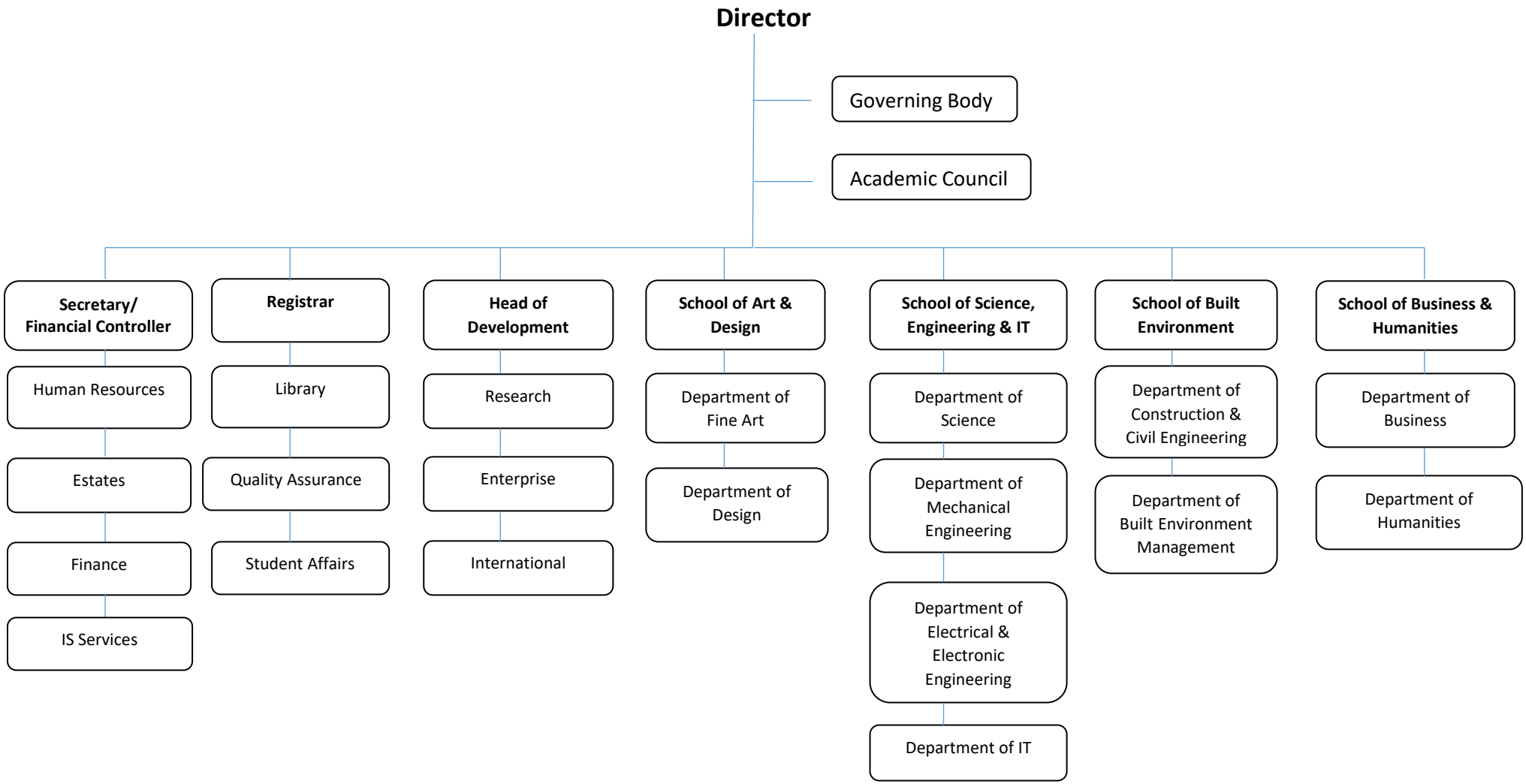
The IS manager facilitates the running of training sessions on installed software for schools. FACILITATE TRAINING.

Via help desk, IS manager supports the student and staff population within schools in the use of the standard desktop supplied and facilitates remote access to IS within the institute the to e.g. Moodle, Banner. IS manager provides video conferencing and web conferencing facilities to staff to support on-line meetings and on-line access for distance education. IS manager provides support for printing both on-site and remotely. IS manager supports the hardware and software in the labs, classrooms and IT centre, in terms of upgrades and fixes. SUPPORT FOR INSTALLED BASE.

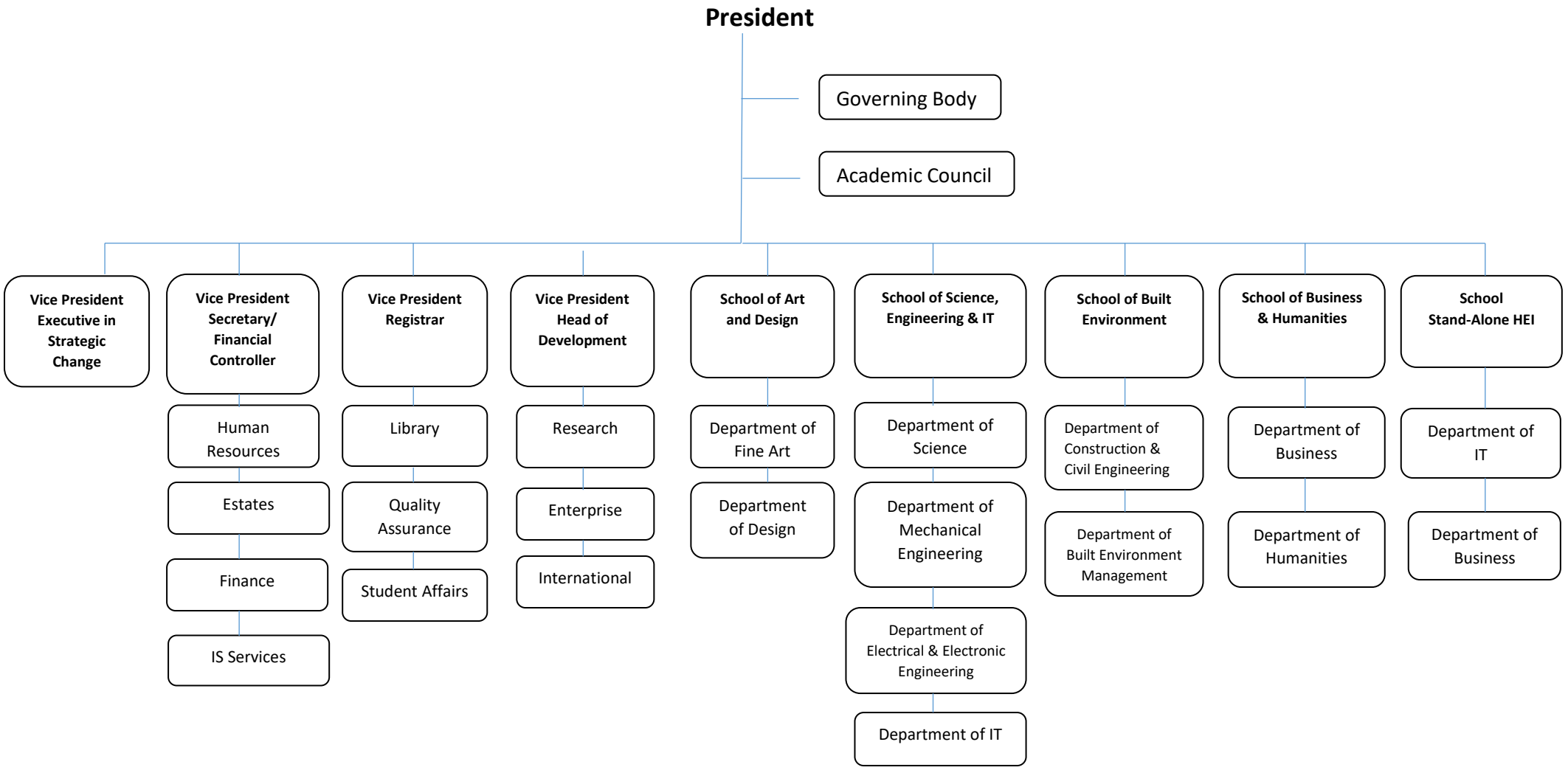
The IS manager provides advice to Schools on the IS requirements for IS outside those provided by the Shared Services Providers, e.g. Moodle, on-line delivery, leave sheets. ADVICE ON IS CONFIGURATION AND SUPPORT FOR INSTALLED BASE.

The IS manager acts as an internal consultant to schools when they are having IS installed by external companies, to ensure IS are installed in accordance with institute's standards and policies, as well as best meeting user needs. INTERNAL CONSULTANT.

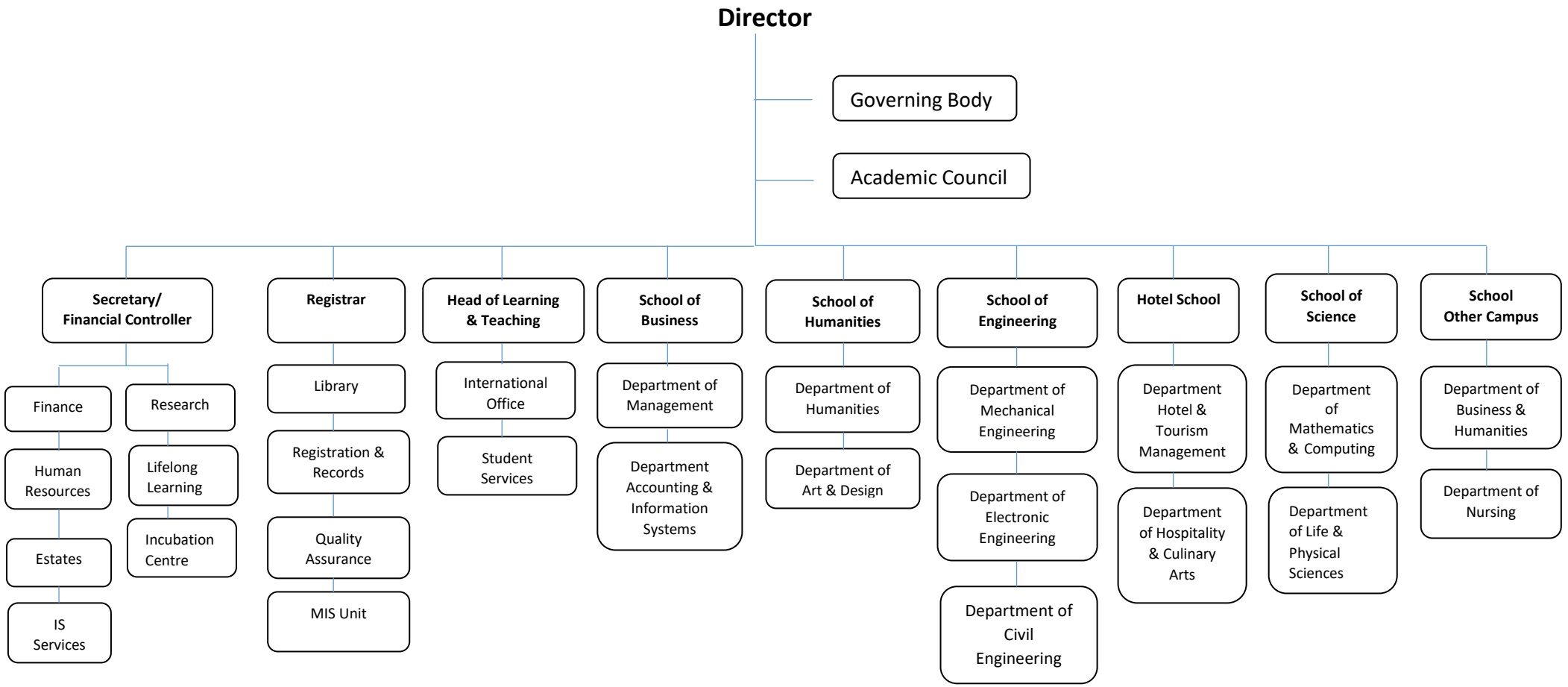
Appendix 22 - Case X Organisation Structure 2006-2010



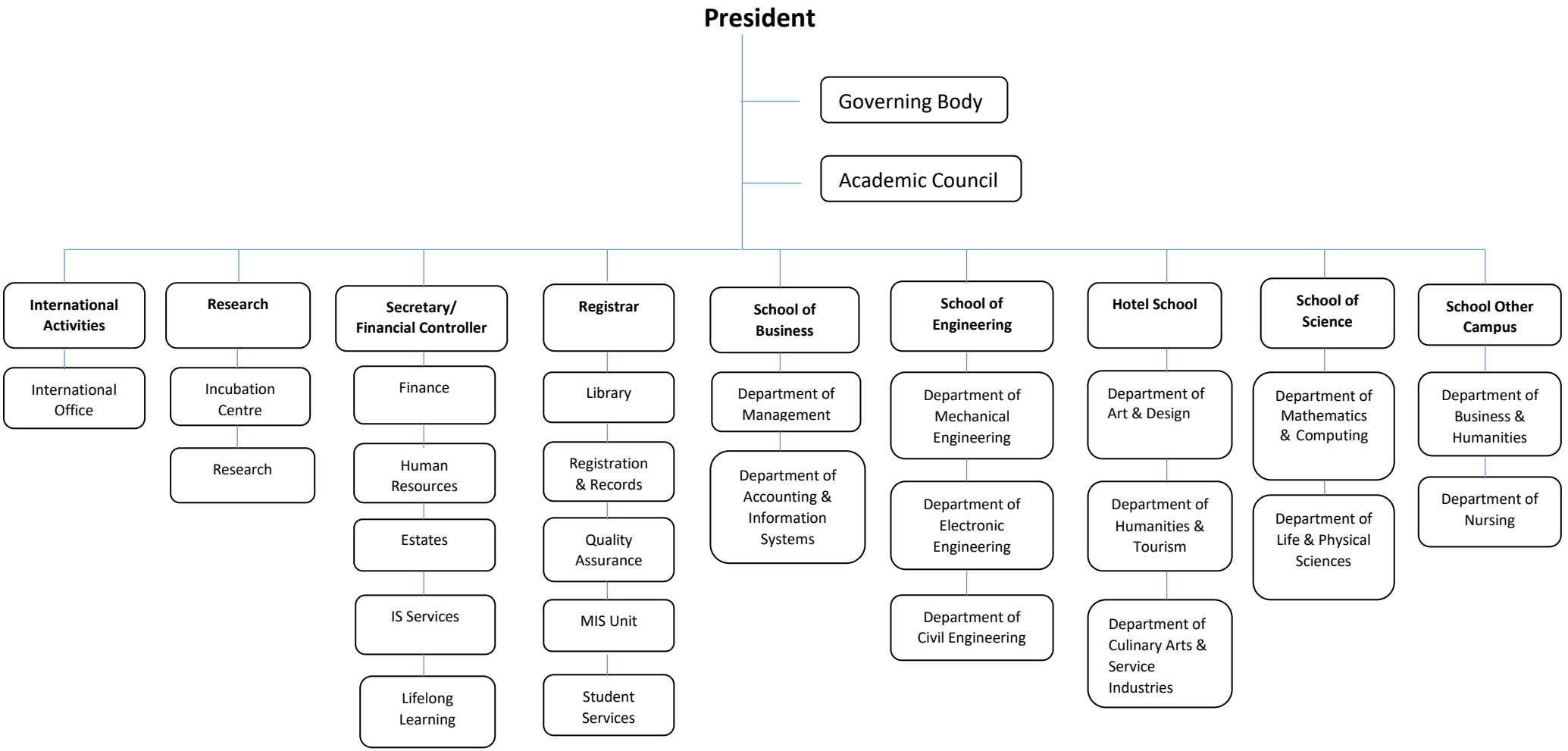
Appendix 23 - Case X Organisation Structure 2011 to mid-2014



Appendix 24 - Case Y Organisation Structure 2004-2009



Appendix 25 - Case Y Organisation Structure 2010 to mid-2015



Appendix 26 - Student enrolment numbers by department for Case X at end strategising period 2006-2010.

Department	**Full-Time**	**Part-Time**	**Total**
Fine Art			
Undergraduate	430	59	489
Postgraduate	8	0	8
Other	0	47	47
Design			
Undergraduate	631	73	704
Postgraduate	4	0	4
Other	0	54	54
Science			
Undergraduate	641	73	714
Postgraduate	14	0	14
Other	0	31	31
Mechanical Eng.			
Undergraduate	332	36	368
Postgraduate	0	0	0
Other	36	54	90
Electrical & Electronic Eng.			
Undergraduate	280	46	326
Postgraduate	0	0	0
Other	20	73	93
IT			
Undergraduate	564	109	673
Postgraduate	4	0	4
Other	0	64	64
Construction & Civil Eng.			
Undergraduate	130	19	149
Postgraduate	2	0	2
Other	0	37	37
Built Environment Mgt.			
Undergraduate	118	15	103
Postgraduate	0	0	0
Other	0	31	31
Business			
Undergraduate	699	246	945
Postgraduate	4	0	4
Other	0	41	41
Humanities			
Undergraduate	661	91	752
Postgraduate	0	0	0
Other	0	80	80
Total	**4,578**	**1,279**	**5,857**

Appendix 27 - Student enrolment numbers by department for Case X at end strategising period 2011 to mid-2014.

Department	Full-Time	Part-Time	Total
Fine Art			
Undergraduate	430	55	485
Postgraduate	6	0	6
Other	0	37	37
Design			
Undergraduate	682	85	767
Postgraduate	5	0	5
Other	0	0	0
Science			
Undergraduate	714	82	796
Postgraduate	15	0	15
Other	0	36	36
Mechanical Eng.			
Undergraduate	366	37	403
Postgraduate	0	0	0
Other	32	45	77
Electrical & Electronic Eng.			
Undergraduate	352	43	395
Postgraduate	0	0	0
Other	22	58	80
IT			
Undergraduate	501	83	584
Postgraduate	2	0	2
Other	0	57	57
Construction & Civil Eng.			
Undergraduate	102	14	116
Postgraduate	0	0	0
Other	0	33	33
Built Environment Mgt.			
Undergraduate	98	11	109
Postgraduate	0	0	0
Other	0	24	24
Business			
Undergraduate	744	278	1,022
Postgraduate	6	0	6
Other	0	53	53
Humanities			
Undergraduate	695	102	797
Postgraduate	0	0	0
Other	0	94	94
IT (Stand-Alone HEI)			
Undergraduate	102	15	117
Postgraduate	0	0	0
Other	0	0	0
Business (Stand-Alone HEI)			
Undergraduate	83	12	95
Postgraduate	0	0	0

Other	0	0	0
Total	**4,957**	**1,254**	**6,211**

Appendix 28 - Student enrolment numbers by department for Case Y at end strategising period 2004-2009.

Department	Full-Time	Part-Time	Total
Management			
Undergraduate	424	41	465
Postgraduate	2	0	2
Other	0	37	37
Accounting & IS			
Undergraduate	547	75	622
Postgraduate	4	0	4
Other	42	53	95
Humanities			
Undergraduate	608	82	690
Postgraduate	5	5	10
Other	0	46	46
Art & Design			
Undergraduate	238	46	284
Postgraduate	0	0	0
Other	47	52	99
Mechanical Eng.			
Undergraduate	452	81	533
Postgraduate	0	0	0
Other	48	56	104
Electronic Eng.			
Undergraduate	385	76	461
Postgraduate	0	0	0
Other	23	27	50
Civil Eng.			
Undergraduate	124	10	134
Postgraduate	0	0	0
Other	12	22	34
Hotel & Tourism Mgt.			
Undergraduate	352	88	440
Postgraduate	0	0	0
Other	91	29	120
Hospitality & Culinary Arts			
Undergraduate	468	122	590
Postgraduate	0	0	0
Other	124	27	151
Mathematics & Computing			
Undergraduate	482	102	584
Postgraduate	3	0	3
Other	91	51	142
Life & Physical Sciences			
Undergraduate	558	110	668
Postgraduate	7	7	14
Other	85	158	243
Business & Humanities			
Undergraduate	48	11	59
Postgraduate	0	0	0

Other	4	6	10
Nursing			
Undergraduate	60	0	60
Postgraduate	0	0	0
Other	0	0	0
Total	**5,334**	**1,420**	**6,754**

Appendix 29 - Student enrolment numbers by department for Case Y at end strategising period 2010 to mid-2015.

Department	Full-Time	Part-Time	Total
Management			
Undergraduate	497	64	561
Postgraduate	3	0	3
Other	0	51	51
Accounting & IS			
Undergraduate	601	84	715
Postgraduate	3	0	3
Other	41	62	103
Mechanical Eng.			
Undergraduate	473	68	541
Postgraduate	0	0	0
Other	41	38	79
Electronic Eng.			
Undergraduate	435	78	513
Postgraduate	0	0	0
Other	41	34	75
Civil Eng.			
Undergraduate	102	6	108
Postgraduate	0	0	0
Other	9	18	27
Art & Design			
Undergraduate	278	42	320
Postgraduate	0	0	0
Other	39	57	96
Humanities & Tourism			
Undergraduate	956	142	1,098
Postgraduate	8	0	8
Other	0	83	83
Culinary Arts & Service Industries			
Undergraduate	614	184	798
Postgraduate	0	0	0
Other	104	43	147
Mathematics & Computing			
Undergraduate	508	97	605
Postgraduate	5	0	5
Other	87	55	142
Life & Physical Sciences			
Undergraduate	624	102	726
Postgraduate	8	8	16
Other	82	146	228
Business & Humanities			
Undergraduate	59	7	66
Postgraduate	0	0	0
Other	3	8	11
Nursing			
Undergraduate	60	0	60
Postgraduate	0	0	0

Other	0	0	0
Total	**5,711**	**1,477**	**7,188**