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How CIOs interact with External Peer Networks.

An Application of Grounded Theory

in

an Irish Private Sector Context

A Thesis Submitted to

The University of Dublin
TRINITY COLLEGE

For the degree of Doctor of Philosophy

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2010

DECLARATION

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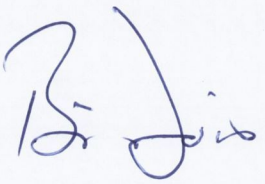

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ABSTRACT

Interactions with peers have been identified, in the IS management literature, as being the most influential source of external contact for the Chief Information Officer (CIO), supporting them in their role as the most senior Information Systems (IS) executive in the organisation. Today, due to the strategic importance of IS to the operations and competitive position of many organisations, the CIO often operates as a key member of the top management team. At the centre of this role, the literature suggests, is the ability of the CIO to identify relevant strategic IS knowledge in the external technological environment, via their external boundary spanning activities, that can impact on the organisation's strategic positioning and overall success. However, whilst the IS management literature identifies interactions with peers as being the most influential source of external contact available to CIOs, it fails to identify why they are such an important support to the CIO, or for that matter, how CIOs actually interact with such external peers. Similarly, a review of the wider management literature, whilst confirming the reasons why top management executives, such as the CIO, favour interactions with peers, it again fails to clarify how such executives, in fact, actually interact with peers, via contacts in external networks. Consequently, this leads to a clear gap in our knowledge and understanding relating to one of the key activities of the modern day CIO. For that reason, this research study will explore "how CIOs interact with external peer networks".

As no previous theory existed, the methodology of Grounded Theory was adopted, within an interpretivist perspective, to develop new theory. The research setting chosen was the Irish Private Sector, with a specific focus on organisations in the finance, hi-tech, telecoms and airline industries. Following the collection and analysis of data from the field, six distinct roles were identified relating to how CIOs interact with external peer networks, namely the *Seeker,* the *Schmoozer,* the *Builder,* the *Prophet,* the *Coach* and the *Regulator.* These roles represent an ideal set of activities that CIOs adopt as they interact with external peer networks. The resultant theory now serves to deepen, extend and challenge existing theoretical descriptions of the role of the CIO, whilst also presenting a "gestalt" or holistic perspective on the interactions of CIOs, within these external peer networks. In addition, it also provides potentially significant support to other extant theories within the wider management literature.

DEDICATION

To my wife Maura and my children Nicola, Julie and Greg who have believed in me and encouraged me throughout this endeavour, and continue to provide me with their love and support in all that I do. Also to my parents who instilled in me the value of learning and personal development.

ACKNOWLEDGEMENTS

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ABBREVIATIONS

ACIS	-	Australasian Conference on IS
ACM	-	Association for Computing Machinery
AIMI	-	Association of Information Managers of Ireland
CASE	-	Computer Aided Software Engineering
CIO	-	Chief Information Officer
CSO	-	Central Statistics Office
DP	-	Data Processing
ECIS	-	European Conference on IS
EDP	-	Electronic Data Processing
EPN	-	External Peer Networks
ES	-	Enterprise Systems
GDP	-	Gross Domestic Product
ISD	-	Information Systems Development
ICIS	-	International Conference on IS
IFIP	-	International Federation of Information Processing
IS	-	Information Systems
IT	-	Information Technology
MIS	-	Management Information Systems
NCC	-	National Computing Centre
PACIS	-	Pan Pacific Conference on IS
PDI	-	Power Distance Indicator
TMT	-	Top Management Team

Chapter 1 Introduction

> *"We know more about the motives, habits, and most intimate arcana of the primitive peoples of New Guinea or elsewhere, than we do of the denizens of the executive suites in Unilever House."*
>
> (Lewis et al. 1958, cited in Mintzberg 1973, p. 7)

1.1 Introduction

Interactions with peers have been identified, in the IS management literature, as being the most influential source of external contact for the Chief Information Officer (CIO), supporting them in their role as the most senior Information Systems (IS) executive in the organisation. Today, due to the strategic importance of IS to the operations and competitive position of many organisations, the CIO often operates within the top management team, where he/she plays a key role in the decision making processes of the organisation. At the centre of this role, the literature suggests, is the ability of the CIO to identify relevant strategic IS knowledge in the external technological environment, via their external boundary spanning activities, that can impact on the organisation's strategic positioning and overall success.

However, whilst the IS management literature identifies interactions with peers as being the most influential source of external contact available to CIOs, it fails to identify why they are such an important support to the CIO, or for that matter, how CIOs actually interact with such external peers. In addition, whilst a review of the wider body of literature, relating to top management boundary spanning activities and interactions

with peers in external networks, does indeed confirm the reasons why top management executives, such as the CIO, favour interactions with peers in support of their external boundary spanning roles, it again fails to clarify how such executives, in fact, actually interact with peers, via contacts in external networks. Consequently, this leads to a clear gap in our knowledge and understanding relating to one of the key activities of the modern day CIO. For that reason, this research study will explore "how CIOs interact with external peer networks".

The purpose of this chapter is to act as an introduction to this research study. The chapter is organised as follows. Section 1.2 will describe the background and outline the justification for the study; Section 1.3 will then address the issue of the methodology chosen for the study; with Section 1.4 outlining the organisation of the thesis. Finally, Section 1.5 will act as a conclusion to the chapter and point the reader towards the first of the two literature review chapters, Chapter 2.

1.2 Background and Justification for Research

The focus of this inquiry is on how CIOs interact with external peer networks, as part of their now expanded boundary spanning roles. The research setting chosen for this inquiry is the Irish Private Sector, and specifically the focus is on CIOs in the financial services, hi-tech, telecommunications and airline industries. The role of the CIO has emerged, over the last thirty years or so, to become the highest-ranking IS executive in many organisations (Preston et al. 2008; Smaltz et al. 2006). This new role was created, in the early 1980's, at a time when organisations had just begun to recognise the critical importance of IS for both their operational effectiveness and competitive positioning

(Ferreira et al. 1979; Ives et al. 1984; McFarlan 1984; Porter et al. 1985). Prior to that, the most senior role in IS had been that of the IS Manager, a functional or line departmental manager role with only limited involvement with top management (Ives et al. 1981; Stephens 1991). However, this new role of CIO, as well as acting as the most senior IS executive in the organisation, was also expected to operate within the top management team in a boundary spanning capacity, to "bridge the gap" (Synnott et al. 1981, p. vii) between the IS function and the wider business, in order to ensure the ongoing successful exploitation of IS across the organisation (Synnott et al. 1981).

A review of the IS management literature, since the role was first envisaged, suggests that whilst still the most senior IS executive in many organisations, the focus of the role of the CIO has now widened to cover the requirement to be able to also "bridge the gap" between the organisation itself and its external technological environment (Earl et al. 2000; Galliers 2007; Preston et al. 2008; Smaltz et al. 2006). This widening of the role of the CIO has been due to the increasing role IS now plays in many organisations today and the growing expectation of top management regarding the strategic impact of IS on their marketplace and their own competitive position (Sambamurthy et al. 2003; Venkatraman 2000). Indeed, the CIO, in many organisations today, is expected to be "visionary" in regard to developments in the IS technological environment, and also to be in a position to educate the other members of the top management team in relation to any IS developments that could have a strategic impact on their organisation and strategic decision making processes (Earl et al. 2000; Preston et al. 2006; Smaltz et al. 2006).

To do this, the CIO must now act as an external boundary spanner and interact with the external IS technological environment in order to remain up-to-date with strategic IS developments that may be relevant to their organisations (Gottschalk 2002; Smaltz et al. 2006). However, it is impossible for the CIO to focus on all sources of relevant information or engage equally with all interested parties within the external IS technological environment. Indeed, whilst many potential sources such as hardware and software vendors, competitors, customers, and trade and industry bodies have been mentioned, the IS management literature suggests that interactions with external peer professionals are by far the most important and influential in this regard (Maier et al. 1997; Mitchell 2006; Watson 1990).

However, the IS management literature fails to elaborate on why such external peer contacts, in particular, are so important to CIOs, or indeed on how CIOs actually interact with external peers. A review of the wider literature relating to executive boundary spanning and interactions with peers in external networks, suggests that, for top management executives, such as the CIO, external interactions with peers are indeed by far the most important due to a number of key factors such as: the often equivocal or ambiguous nature of many of the strategic issues facing top management (Daft et al. 1987; Geletkanycz et al. 1997; Hambrick et al. 1984) and therefore the need to create a shared understanding with other peers regarding the problems and issues facing them (Carlile 2004; Daft et al. 1987; Krauss et al. 1990; Malhotra et al. 2004; Wenger 1998b); the dangers of delegating such sensitive inquiries to subordinates (Daft et al. 1987); and the perceived value of face-to-face and ongoing interactions with peers in external network situations (Mintzberg 1973). In addition, this literature also suggests that such external peer networks can often act as a support mechanism, sounding board

and a barometer for gauging success (Cross et al. 2001; Ibarra et al. 2007; Wenger et al. 2000). However, again this body of literature fails to clarify exactly how top management executives, such as CIOs, actually interact with peers via contacts in external networks.

This growing recognition of the importance of external boundary spanning activities, and specifically interactions with external peers to the success of the role of the CIO, is also borne out by the personal experience of the researcher. Prior to undertaking this research study, the researcher had had nearly thirty years experience in IS management, with the last eight as the CIO of a major Irish multinational organisation. During that period, he did indeed perceive a change in attitude amongst CIOs in relation to the importance of external boundary spanning activities and the need to engage with external peer networks in support of their role as a member of top management.

Historically, many CIOs had focused their efforts primarily on internal interactions between the IS function, themselves and top management (Stephens 1991). Indeed, many CIOs had often regarded external interactions with the likes of peers as being "a distraction" and therefore had "not yet placed high enough priority on environmental scanning responsibilities (Grover et al. 1993, p. 120). However, the advent of the Web Era and the more dynamic nature of the technology marketplace (El Sawy et al. 1999), led to a growing sense of dissatisfaction regarding the focus and effectiveness of the role of the CIO (Currie et al. 1999). For many, the role of the CIO was seen to be "not working", in terms of delivering what was now required by top management (Maruca 2000; Rothfeder 2004).

This dissatisfaction with the role of the CIO was rooted, on the one hand, in the perceived belief that many CIOs lacked the strategic insights and business flexibility to address the changing nature of the external IS environment and its impact on their organisation (Karahanna et al. 2006) and, on the other, by the fact that many CIOs found themselves operating within the top management team without getting the necessary support and encouragement needed to "step up" to such a role (Schein 1996). However, today, in the view of the researcher, there is now a clear recognition amongst many CIOs of both the impact of such external peer contacts on their ability to fulfil their expected role as "knowledge broker" for the organisation (Galliers 2007, p. 10) and on the real value of the wider support and encouragement provided by other peer CIOs.

Therefore, how CIOs interact with external peer networks is an important and underdeveloped theme within the IS management literature. Indeed, little research, to date, has been carried out into the activities of CIOs within such external peer networks. Consequently, clear gaps exist in our knowledge and understanding. Therefore, this proposed research, which is exploratory in nature, will set out to increase our knowledge and understanding in a number of key ways:

- From a *theoretical perspective*, the research aims to develop a new grounded theory relating to how CIOs interact with external peer networks. To date, little theoretical development has been undertaken regarding this important aspect of the role of the modern CIO, despite calls from within the IS management literature (Maier et al. 1997; Pawlowski et al. 2004).

- From a *practitioner perspective*, the research aims to expose the processes by which Irish CIOs interact with external peer networks. Greater knowledge and understanding of how CIOs actually interact with such external peer networks should prove to be of enormous practical value to CIOs, as such interactions have been identified, within the IS management literature, as being critical to supporting their role as the most senior IS executive, operating within the top management team of the organisation.

- From an *empirical perspective*, the research will further widen the base of empirical data relating to the activities of CIOs. In this study, the research will focus on data relating to CIOs operating in Ireland. Heretofore, the majority of empirical studies, relating to CIOs, have been based on U.S. data.

- From a *methodological perspective*, it is proposed to adopt the methodology of Grounded Theory[1]. This approach should further add to the base of research studies which have already been successfully undertaken in the field of IS research to develop new and emerging theories.

[1] The term "Grounded Theory" has been used throughout this thesis to refer to the methodology and associated methods and procedures, as originally devised by Glaser & Strauss (1967). Other terms such as Grounded Theory Methodology, Grounded Theory Method, GTM and GT have been used by different authors within the literature. However, the term "Grounded Theory" is the original term used by Glaser and Strauss (1967) to describe this methodological approach and has therefore been adopted for this thesis.

1.3 Methodology Adopted

As stated above, this research study sets out to explore how CIOs interact with external peer networks. Such external peer networks, by their very nature, tend to be based on a series of complex social interactions between the parties (Brown et al. 1991; Ibarra et al. 2007; Wenger 1998b). Therefore, the researcher has decided to adopt an interpretivist research paradigm to underlie the conduct of this research study. Interpretivism seeks to make sense of such interactions and relationships, by fitting them into a "purposeful set of individual aims and a social structure of meanings" (Chua 1986, p. 614). In addition, an interpretivist research paradigm is a more suitable approach to take in cases where the aim of the study is the inductive development of new theory, rather than the testing of existing theories or hypotheses (Sarantakos 2005; Saunders et al. 2003).

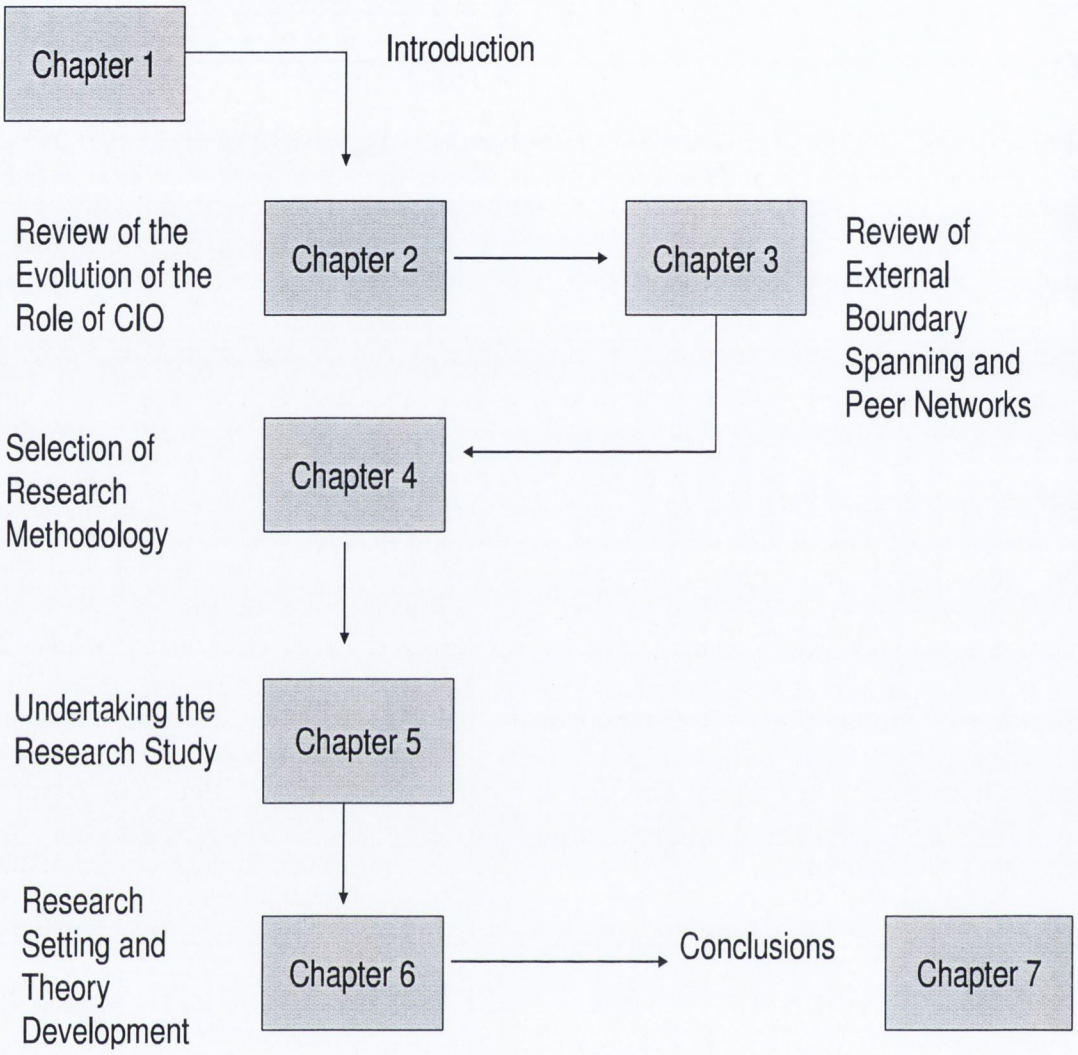
The methodology of Grounded Theory has been chosen, in support of this interpretivist research paradigm, for a number of reasons. These include the nature of the research inquiry, which would suggest the use of a research methodology associated with symbolic interactionism, such as Grounded Theory, and the fact that Grounded Theory is often seen as being an appropriate approach to adopt in areas of research that have been relatively ignored in the literature, to date, or have only received superficial attention (Goulding 2002; Orlikowski et al. 1991).

1.4 Thesis Structure

This thesis has been divided into seven chapters, as outlined in Figure 1. Chapter 1 acts as an introduction to the research study and sets out both to introduce the topic of the research and to allow the reader to understand the structure of the thesis as a whole.

Following on from the Introduction, Chapter 2 presents the first half of the literature review. As this study is focused on the role of the CIO, this chapter reviews, in the first instance, the wider field of IS research, so as to locate the role of the CIO within the "thematic area" (Avgerou 2000, p. 569) of IS management. It will then review the literature relating to the evolution of the role of the CIO, so as to show how this role has evolved since first envisaged back in the early 1980's. This review will show that the boundary spanning nature of the role of the CIO has now been expanded to cover the link between the organisation and the external IS technology environment. However, it will suggest that little can be ascertained from the IS management literature regarding this aspect of the role, except that it has been suggested that interactions with external peers are seen as being critical to CIOs in the conduct of their external boundary spanning activities. In addition, the literature fails to shed much light on why such a focus on external peers is so important or how, for that matter, they actually interact with such peer networks.

Figure 1: Structure of Thesis



Chapter 3 acts as the second half of the literature review. This chapter seeks to understand from the wider body of top management literature why contacts with external peers are seen to be so important to top management executives, such as the CIO. Consequently, a review of the top management boundary spanning literature and the literature relating to interactions with peers in external networks is undertaken. This chapter outlines the factors behind why interactions with peers, via contacts within external peer networks, are critical to top management executives operating within the

top team environment of organisations. However, the literature again fails to clarify how top executives, such as the CIO, actually interact with such external peer networks.

Chapter 4 outlines the methodological direction taken by the researcher. It identifies the ontological and epistemological stance adopted by the researcher and discusses the research methodology choices afforded by such a stance. If describes the choice of Grounded Theory as the methodology chosen, describes its characteristics and its uses to date within IS research. It then goes on to describe an overview of the methodology of Grounded Theory in action.

Chapter 5 outlines how the methodology was applied within the current study. This chapter will firstly identify the rationale for the investigation and then describe, in detail, how the investigation was carried out. Such a description will cover the collection and analysis of the data from the field, and the generation of the resultant theory relating to "how CIOs interact with external peer networks".

Chapter 6 outlines initially the research setting for this investigation, describing the choice and rationale behind the selection of the Irish Private Sector, and then goes on to describe in detail each of the six roles, or patterns of CIO activity, that have emerged from the current study of "how CIOs interact with external peer networks". These six roles have been defined as: the *Seeker,* the *Schmoozer,* the *Builder,* the *Prophet,* the *Coach,* and the *Regulator.* It will then discuss their implications for both theory and practice.

Finally, Chapter 7 brings the thesis to a close by presenting the conclusions from this Grounded Theory based research study, as well as outlining the limitations of the current study and potential avenues for further research work.

1.5 Conclusion

This opening chapter briefly describes the background to and the justification for undertaking the study, as well as outlining the contributions that it will make from a theoretical, practical, empirical and methodological perspective. Grounded Theory has been chosen for this study as the study sets out to explore and develop new theory regarding "how CIOs interact with external peer networks". This chapter then goes on to give a brief outline of the structure and content of each of the following chapters in the thesis, leading to the presentation of the overall conclusions in Chapter 7.

Now, this thesis will move on to start the literature review in Chapter 2 with a review of the evolution of the role of the CIO, within the context of the IS management literature.

Chapter 2 CIO – An Evolutionary Role

> *"A new management role emerged in the 1980's, the Chief Information Officer. Journalistic profiles, prescriptive literature, and largely undocumented surveys have described this new executive role."*
>
> (Stephens 1991, p. iv)

2.1 Introduction

The role of the CIO has emerged, over the last thirty years, to become the highest-ranking IS executive in many organisations (Preston et al. 2008; Smaltz et al. 2006). This new role was first created, in the early 1980's, at a time when organisations had just begun to recognise the critical importance of IS for both their operational effectiveness and competitive positioning (Ferreira et al. 1979; Ives et al. 1984; McFarlan 1984; Porter et al. 1985). Prior to that, the most senior role in IS had been that of the IS Manager, a functional or line departmental manager role with only limited involvement with top management (Ives et al. 1981; Stephens 1991).

This new role of CIO, as well as acting as the most senior IS executive in the organisation, was also expected to operate within the top management team[2] in a boundary spanning capacity (Tushman et al. 1981), to "bridge the gap" (Synnott et al.

[2] It has been suggested that the conceptualisation of "who constitutes the top management team?" (Carpenter et al. 2004, p. 753) has been open to some debate among researchers. Carpenter et al. in their analysis of a number of Upper Echelons Theory research studies, carried out between 1996 and 2003, suggest that the "top team construct and team membership are often identified using the measurement heuristic of senior hierarchical level, as indicated by title or position, since individuals at higher levels are expected to have greater influence on decisions that are strategic in nature" (2004, p. 753).

1981, p. vii) between the IS function and the wider business, in order to ensure the ongoing successful exploitation of IS across the organisation (Synnott et al. 1981). Boundary spanning roles are seen to perform two key functions, namely: first, to process information received from sources external to their organisational unit, and second, to represent the interests of their unit within the wider organisational environment (Aldrich et al. 1977; Tushman et al. 1981). However, today, it has now been suggested that, whilst still the most senior IS executive in many organisations, the focus of the role of the CIO has widened to cover the critical need to be able to "bridge the gap", not only between the IS function and top management, but also between the organisation itself and its external IS technological environment[3] (Earl 2000; Galliers 2007; Preston et al. 2008; Smaltz et al. 2006).

The purpose, therefore, of this chapter is to review the IS management literature, relating to the role of the CIO, that has developed over the last thirty years, in order to gain a greater understanding of the evolution of this role, so as to assist the researcher in addressing the specific question posed for this research inquiry of "how do CIOs interact with external peer networks". The chapter is structured in the following way: Section 2.2 will first locate the role of the CIO within the "thematic area" (Avgerou 2000, p. 568) of IS management. This will act to position or "anchor" the literature, in relation to the role of the CIO, firmly within the field of IS research. Next, Section 2.3 will introduce the concept of a "managerial role" as developed by Mintzberg, as it is this particular perspective that has been most widely used within the literature relating

[3] Daft et al. (1988) suggest that an organisation's external environment can be divided into six environmental sectors: customer sector, competition sector, regulatory sector, economic sector, socio-cultural sector and technological sector. The technological sector of the external environment relates to that sector that "includes the development of new production techniques and methods, innovation in materials and products, and general trends in research and science relevant to the respondent's firm" (1988, p. 137). Of specific interest here are the IS aspects of this technological environment.

to the role of the CIO (Gottschalk 2002; Grover et al. 1993; Ives et al. 1981; Smaltz et al. 2006; Stephens 1991).

Section 2.4 will then trace the evolution of the role of the CIO, over the past thirty years, through the three Technology Eras of the *Mainframe Era,* the *Distributed Era* and the *Web Era,* as identified by Ross and Feeny (2000). This review of the literature, using this "Technology Eras" lens, will help to provide a context and a greater understanding of the evolution of the role of the CIO and, in particular, the widening focus of the boundary spanning activities of this role. Section 2.5 will then draw the previous section to a close by highlighting shortcomings in the existing IS management literature in relation to the role of the CIO, and identifying the specific direction of inquiry for the current study. Finally, Section 2.6 will conclude this chapter and provide a link into Chapter 3, which will focus on the more general top management literature relating to executive boundary spanning activities and interactions with peers in external networks.

2.2 The Field of IS Research

2.2.1 Introduction

The purpose of this section is to locate the current research study within the academic field of IS research. Within this field of IS research, it is also necessary to identify the relevant "thematic area" (Avgerou 2000, p. 568) or specific body of literature relating to the role of the CIO. In the case of this research study, as it is focused on "how CIOs interact with external peer networks", it is the body of literature relating to IS management that is most relevant. Prior to that, it is necessary to briefly identify and clarify the key terms surrounding IS that are relevant to this study. At a basic level, an

information system (IS) can be viewed as a collection of interrelated components that work together to "collect (or retrieve), process, store, and distribute information to support decision making and control in an organisation" (Lauden et al. 2004, p. 8). Information is seen as data that has been processed or manipulated, in order to make it meaningful and useful to some person or organisation (Oz 2004). The word data, comes from the plural of the Latin word *datum,* and literally means a given or fact, which can take the form of a number, a statement or a picture (Crotty 2003). To become useful, however, these data must be manipulated or processed through some mechanism or "system". In addition, there is also the concept of Information Technology (IT), which is often confused with IS. Bocij et al (2006) have suggested that, whilst the two terms are often used interchangeably, they are quite different. IT specifically refers to the range of computer based technologies, such as hardware, software and telecommunications, that underlie such information systems (Ward et al. 2002). To put these differences in context, it can be suggested that information systems, based on manual processes and communications, existed long before the advent of IT (Ward et al. 2002).

In addition, Land has suggested that the study of IS needs to consider such information systems "not just as artifacts but from the perspective of the people who may wish to use those artifacts to support their activities and decisions in a more informed manner" (Land 1992, p. 6). Therefore, the field of IS focuses on the application and implication of IT based information systems within organisations and is seen to be part of the much wider domain of human language, communication, knowledge sharing and social behaviour (Galliers 2003; Khazanchi et al. 2000; Land 1992; Mingers 2001). This view of the field of IS, as being essentially socio-technical in nature (Emery et al. 1960),

suggests that IS needs to be managed in a way that reflects both the ongoing development and sophistication of the underlying technology, and also the impacts such socio-technical systems can have on humans and society in general (Avgerou 2000; Galliers 2003; Ward et al. 2002).

2.2.2 IS – a developing field of academic research

In originally introducing the term IT to the business literature, Leavitt and Whisler, in their 1958 Harvard Review article titled *"Management in the 1980's"* (Leavitt et al. 1958), contended that "over the last decade a new technology has begun to take hold in American business, one so new that its significance is still difficult to evaluate" (1958, p. 41). They suggested that this new IT would form the basis of the IS employed by organisations going forward. Equally, they recognised the likely socio-technical nature of such new IT based systems, as they suggested that the implementation of IS could suffer from potential difficulties and resistance, especially from middle managers, who might look upon them as attempts to change their operating conditions or even replace their roles in organisations (Leavitt et al. 1958). This recognition of the potential wider social implications of the use of IT within organisations, and the reluctance of existing researchers within the field of computer science to address these "softer" human issues, led to the emergence of the academic field of IS (Adam et al. 2000; Avgerou 2000).

The attention of this new field of "IS" was to be on the use of IT within organisations, with a clear focus on the human, organisational and social aspects (Avgerou 2000; Ward et al. 2002). The first textbooks relating to this new academic field of IS started to appear, in the U.S., from the mid 1960's (Dearden et al. 1966), whilst the first university courses relating to IS, can be traced back to the early 1970's and the publication by the

Association for Computing Machinery (ACM) of its new curriculum for a two-year Master's degree on computing in a business context. This was soon followed by a similar curriculum from the International Federation of Information Processing (IFIP) (Avgerou 2000). In addition, this growing academic interest in IS was further developed by the publication of two major journals, specifically focused on IS issues – *MIS Quarterly* in 1977 and *IS Research* in 1987, and by the launching of the International Conference on IS (ICIS) in 1980.

However, in the early days of this new academic field, the North American universities dominated developments in IS research and it was not until the early 1990's that European interest in IS research began in earnest, with the setting up of the European Conference on IS (ECIS) in 1993. This was then followed by the launching of a number of European journals dedicated to the field of IS academic research, such as the *Scandinavian Journal of IS,* the *European Journal of IS* and the *Journal of IS* (Avgerou 2000). Similarly, at around the same time, a strong academic IS community also began to emerge in Australia and South East Asia, with the setting up of key regional conferences relating to IS research, such as the Australasian Conference on IS (ACIS) and the Pan Pacific Conference on IS (PACIS), and the launching of key journals such as the *Australian Journal of IS* (Galliers et al. 2002) .

2.2.3 Multi-disciplinary nature of the field

This new emerging field of IS started to attracted researchers from a number of different fields of existing academic research. These "reference disciplines" (Banville et al. 1989, p. 48) were seen to underlie the developing research and provide theories and methods which could act as "standards by which the quality and maturity of the field of IS could

be measured" (Baskerville et al. 2002, p. 1). Key amongst these reference disciplines were the fields of computer science, management science and organisational science (Adam et al. 2000; Hirschheim et al. 2003). Equally, other academic fields such as psychology, sociology, statistics, political science, behavioural science, economics, philosophy and mathematics also provided support for this new emerging academic field of IS (Adam et al. 2000; Baskerville et al. 2002; Khazanchi et al. 2000).

Nevertheless, this emerging field of IS has often been criticised by academics for suffering from ongoing problems of identity, legitimacy and recognition (Adam et al. 2000; Agarwal et al. 2005; Avgerou 2000; Banville et al. 1989; Benbasat et al. 2003; Hirschheim et al. 2003; Khazanchi et al. 2000; Markus 1999). For instance, in terms of identity, some researchers have raised concerns that, rather than just drawing on its more mature reference disciplines, what is needed is a definable or separate field of IS research (Benbasat et al. 2003; Keen 1980). This viewpoint suggests that, for IS research to be seen as a distinct field of research in its own right, the field needs to clearly define and communicate its core concepts and ideas (Benbasat et al. 2003; King et al. 2006; Larsen et al. 2005; Orlikowski et al. 2001; Sidorova et al. 2008).

However, it has also been suggested that such a perspective on the field of IS research is based simply on an internalist view of research (Westin et al. 1994). An internalist view of research, suggests that there needs to be a clear and dominant paradigm to underlie a distinct field of research (Kuhn 1970; Westin et al. 1994). On the other hand, other researchers take a more externalist view (Larsen et al. 2005) on IS research. Such a view looks upon a research discipline as "a complex network of interacting researchers whose ideas may stem from a number of disciplines who therefore form an intellectual

community" (Vessey et al. 2002, p. 132). Banville & Landry (1989) have characterised this multi-disciplinary perspective on IS research, as being a "fragmented adhocracy" (1989, p. 56), one that is more appropriate to the social sciences where a more pluralistic approach to research is more common (Banville et al. 1989). Equally, Ives et al. have suggested that the field of IS research should be viewed as a "colonial system" tied together with the glue which is a shared interest in the evolution of IT and its implications for organisations (2004). Such an "externalist" view of IS research, as a field that employs theories and methods from related disciplines, has been identified by many authors as being one of its core strengths (Agarwal et al. 2005; Avgerou 2000; Galliers 2003; Mingers 2001; Robey 1996).

In terms of "legitimacy" or the "scientific merit" of the evolving field of IS, some authors have called for more rigorous efforts to consolidate its theoretical foundations (Banville et al. 1989; Benbasat et al. 2003). For instance, it has been suggested that the lack of a "cumulative tradition" (Banville et al. 1989, p. 48) of research within the IS field, where it has been seen that "researchers virtually never rely on existing frameworks developed by other researchers" (Adam et al. 2000, p. 4), has held up acknowledgement of the field as a unique field of academic research (Adam et al. 2000; Keen 1980). This lack of "cumulative tradition" has often led to researchers ending up with "an abundance of mutually exclusive findings and points of view" (Adam et al. 2000, p. 5), which has led to difficulties in attempting to contribute to IS practice and answer specific questions raised by managers (Adam et al. 2000). However, it is more widely felt that "the variety of research topics and approaches, the interdisciplinary sources of theory used, and the methodological pluralism found in the field are

necessary to cope with the complex nature of the phenomena studied" (Avgerou 2000, p. 568).

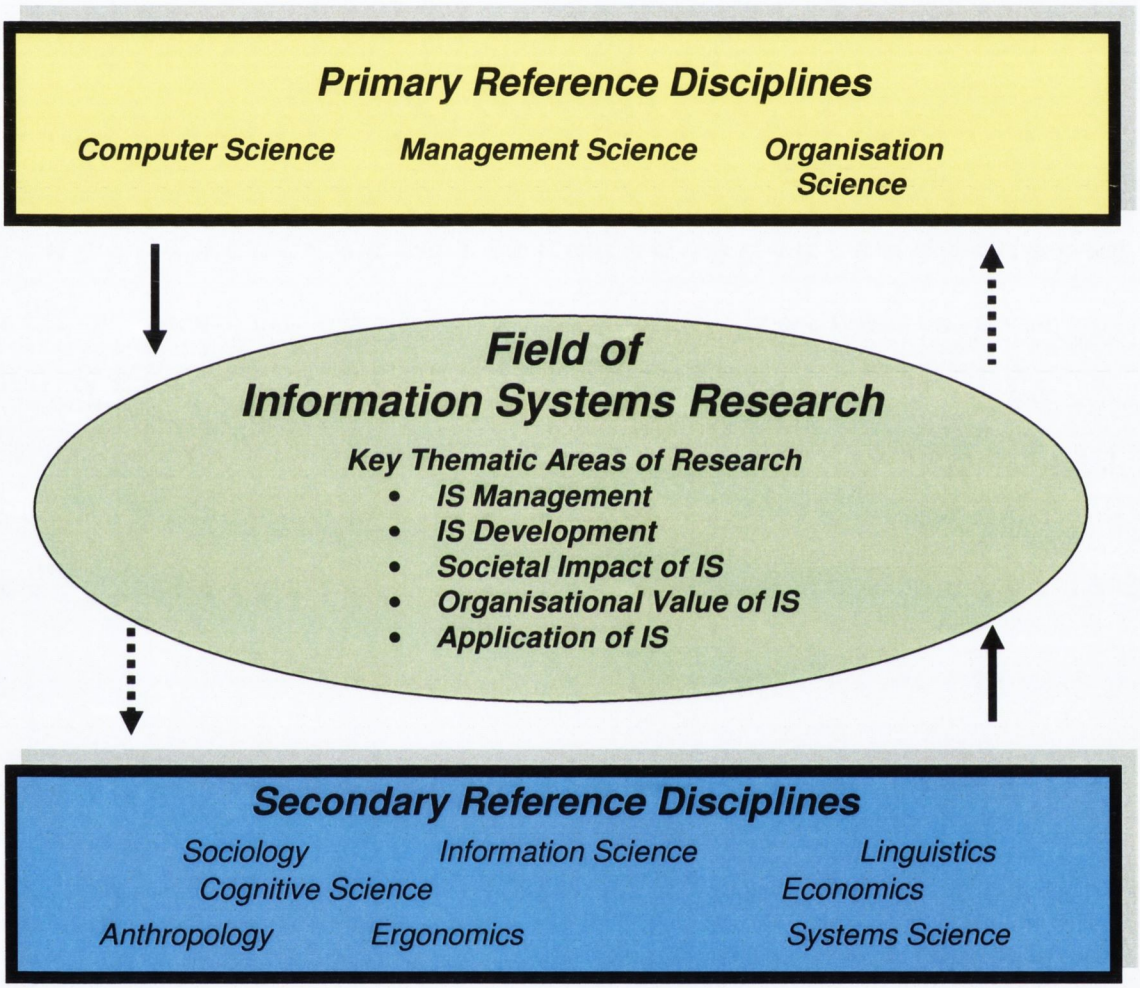
Similarly, in terms of recognition of the field of IS (Banville et al. 1989), it has been suggested that "the IS field has not attained a particularly prominent position within academia yet, even in regions where it is widely studied" (Avgerou 2000, p. 568). It has been suggested that as IS research attempts to address questions of organisational action and social change, in conjunction with issues of a technical nature, it does not fit easily within the boundaries of conventional scientific research. Such a lack of a concentration on a clear "IT artifact" (Benbasat et al. 2003, p. 186) can, it has been suggested, "send out an ambiguous signal regarding the identity of the IS discipline" (Sidorova et al. 2008, p. 468) and therefore impact on its recognition as a separate field of academic research.

Overall, however, in the view of the researcher, the key question regarding whether or not IS can be seen as a discipline in itself is whether there is a "systematic body of organised knowledge based upon investigation of discernable phenomena that are studied using diverse but rigorous scientific methods akin to other scientific disciplines" (Khazanchi et al. 2000, p. 38). For many today, IS research has indeed evolved into such a separate field of its own, with its own body of knowledge and recognised boundaries (George et al. 2005; Grover et al. 2006; Sidorova et al. 2008). Indeed, many researchers, whilst accepting the multi-disciplinary and pluralistic nature of IS research, have attempted to develop a framework that will clarify the boundaries and scope of the field of IS research, in terms of identifying its core body of knowledge or "intellectual core" (Sidorova et al. 2008, p. 467) and its relationships with its underlying reference

disciplines (Agarwal et al. 2005; Alter 2003; Avgerou 2000; Bacon et al. 2001; Banker et al. 2004; Baskerville et al. 2002; Davis 2000; Khazanchi et al. 2000; Sidorova et al. 2008).

Indeed arguments put forward in support of such a framework approach, suggest that "without such a framework or underlying theory, the field may be driven by technology or the events of the day" (Weber 1987, cited in Bacon et al. 2001, p. 50). Equally, it has been suggested that whilst differences may exist between these various frameworks and that "some sub-headings might arguably be included under a different sub-heading" (Bacon et al. 2001, p. 52) these frameworks do allow some measure of flexibility in how they are adopted (Bacon et al. 2001). One such framework, describing the field of IS research and its core thematic areas, based on the work of Avgerou (2000) and a number of other authors, is presented in Figure 2.

Figure 2: Framework for the Field of IS Research with its related Reference Disciplines (adapted from Avgerou, 2000; Baskerville et al. 2002; Davis, 2000; Khazanchi et al. 2000).



2.2.4 Thematic areas of IS Research

Within this evolving field of IS research, Avgerou, as shown above, has distinguished five main "thematic areas" of research (2000, p. 568), which are core to the developing body of knowledge. These are namely: IS Management, IS Development, Societal Impact of IS, Organisational Value of IS and Application of IS (Avgerou 2000, p. 569-571).

- **IS Management**

Avgerou (2000) suggests that growing management appreciation of the potential benefits and risks associated with IS investment shaped the research agenda of the IS management theme in a way that reflects the more complex business concerns relating to the evolving nature of IS. The IS management thematic area is concerned with issues such as the formation of strategy regarding IS; the aligning of IS developments with business objectives; using IS to achieve desirable organisational change; and using IS to manage multinational corporations in the emerging global economy. Research in IS management has also often been cross-fertilised with other areas of business research, such as strategic management and operations management (Avgerou 2000).

- **IS Development**

Avgerou believes that much work has been done to develop the methodological practices for developing reliable and effective IS systems in a cost-efficient manner. This effort began with the introduction of systems analysis into computing curricula in the 1960's. In the 1970's, the life cycle model was established as a way to organise the development of IT based IS. By the mid-1980's system development methodologies had started to recognise the "soft" social and human aspects of IS. Such a perspective

requires recognition of the importance of understanding the social dynamics that accompany the building or adopting of technical systems. However, Avgerou (2000) suggests that reconciling the existing engineering practices for building robust technical systems with the slowly emerging recognition of the importance of the social and organisational aspects of such implementations has proved particularly difficult.

- **Societal Impact of IS**

From an early stage, Avgerou (2000) points out, IS researchers showed an interest in studying the impact of new technologies on wealth creation, working life, and on wider society. It was believed that the costs, risks and benefits of such systems reached beyond the boundaries of the organisation and therefore had social implications on such areas as national socio-economic development, work, privacy, identity and democracy.

- **Organisational Value of IS**

This stream of research focuses on questions about the value organisations can and do get from investment in IS. Avgerou (2000) suggests that a great deal of research has been devoted, to date, to the evaluation of IS, in terms of criteria (what effects should be measured), methods (how to assess potential or perceived effects), as well as the very nature of the evaluation process adopted. However, she contends, that as IS began to have a greater impact on the wider organisation and its competitive position (Ives et al. 1984; McFarlan 1984; Porter et al. 1985) more sophisticated and wide ranging mechanisms and approaches to the evaluation of the value of IS were required (Avgerou 2000).

- **Application of IS**

Within IS, Avgerou (2000) contends, there has been a great deal of research carried out devoted to understanding the domains of applications and to developing models that provide the basic logic for combining sophisticated technical components in order to form useful and workable applications in the business environment. As examples, she notes that the development of systems to support managers has drawn extensively on a range of theories such as decision theory, psychology, organisational theory and operations research in order to understand how managers work effectively and therefore, to be able to support them in their often complex and decision based roles.

2.2.5 Locating the current Research Study

Whilst it can be seen that the evolving field of IS research is indeed multi-disciplinary in nature and that it continues to rely heavily on its underlying "reference disciplines", such as computer science, management science and organisational science, as well as on other significant disciplines such as economics, psychology, and behavioural science, it can also be seen that it has now evolved into a field of research in its own right, with its own "intellectual core" (Sidorova et al. 2008, p. 467) and academic research community. Indeed, the development of clearly defined underlying "thematic areas of IS research" (Avgerou 2000, p. 568) has assisted in both structuring the field of IS and also in clarifying its boundaries. This, in turn, has provided a greater feeling of "internal cohesiveness" (Avgerou 2000, p. 575) and also helped to reduce the sense of "identity crisis" surrounding the field of IS (Adam et al. 2000, p. 3), thus contributing to the core body of knowledge and scientific merit of the field (Khazanchi et al. 2000).

The provision of such clarity regarding the field of IS research can help to fix or "locate" the proposed research study within one of these defined thematic areas (Avgerou 2000), and therefore firmly anchor it within the evolving field of IS research. This study, which proposes to address the question of "how CIOs interact with external peer networks" is clearly positioned within the thematic area of "IS management", as it relates specifically to the role of the CIO who is now the most senior IS executive in many organisations (Preston et al. 2008; Smaltz et al. 2006). Therefore, the literature relating to the IS management thematic area will form the basis for the review of the evolution of the role of the CIO, to be carried out later in this chapter.

2.3 The Concept of Managerial Roles

2.3.1 Managerial Roles

The concept of managerial roles, as identified by Mintzberg (1973), has been central to the development of theories, within the IS management literature, relating to the how top IS managers, such as the CIO, function in organisational settings (Gottschalk 2002; Grover et al. 1993; Ives et al. 1981; Smaltz et al. 2006; Stephens 1991). Therefore, as part of the review of the evolution of the role of the CIO, as outlined later in the chapter, a significant focus will be placed on how specific aspects of these managerial roles (Mintzberg 1973) have changed with the evolution of the role of the CIO, through the three Technology Eras (Ross et al. 2000). Consequently, an understanding of Mintzberg's (1973) managerial roles concept is important prior to undertaking this review.

There has been a considerable body of research, built up over the years, focusing on the nature of managerial roles (Burns 1957; Carlson 1951; Heiss 1990; Kotter 1982; Mintzberg 1973; Stewart 1967; Stewart 1976). In fact, the concept of a "role" has been "one of the most popular ideas developed in the social sciences" (Biddle 1986, p. 67). However, no single agreed definition of the concept of "role" exists due, in the main, to the differing perspectives taken by many authors over the years (Biddle 1986; Fondas et al. 1994; Hales 1986). Nevertheless, Biddle (1986) argues that the perspective of *Organisational Role Theory* is the most relevant one to adopt when looking at formal roles within organisational structures, such as that associated with the role of the CIO. *Organisational Role Theory*, Biddle (1986, p. 73) suggests, is focused on social systems within organisations that "are pre-planned, task-orientated, and hierarchical" in nature. Key among the proponents of the *Organisational Role Theory* perspective are Katz and Kahn (1966) who have suggested that a position or "office" in an organisation is often associated with a specific set of activities or expected behaviours. These activities or behaviours constitute the "role" to be performed by the person who occupies that office. Each office in an organisation's structure is directly related to certain other roles and also less directly related to others. Such connections of role holders to others are referred to by Katz and Kahn (1966) as a role set.

The expectations of a role, held by other members of the role set, will be based on those peoples' perception of that office and its requirements, and will be modified by their impression of the abilities and personality of the officeholder. Role expectations are by no means restricted to the formal "job description", but can consist of the preferences, in respect of specific acts, that a person should do or not do, the personal characteristics or style they should have, or how, in fact, the person holding the role should be, think or

believe (Katz et al. 1966). These expectations are communicated or "sent" by the role set, not simply for informational purposes, but also in an attempt to influence or ensure conformity by the role holder, in terms of their own perceptions and needs. The enactment of a role, within the limits of tolerance set by the role set, is therefore a condition for holding on to that office or role (Katz et al. 1966).

2.3.2 What managers do

Fayol (1916) first proposed that managers undertook four key functions in the conduct of their roles, namely to plan, organise, coordinate and control. For many years afterwards, this description was to dominate the vocabulary of management theory (Mintzberg 1973). However, in 1973, Mintzberg argued that "these four words do not describe the actual work of managers at all. They describe certain vague objectives of managerial work" (1973, p. 10) . Mintzberg, believed that no serious attempt had been made to work out what a manager actually did as part of his job.

He suggested that "other approaches to the study of managerial work have been developed, one dealing with managerial decision-making and policy-making processes, another with the manager's interpersonal activities. And some empirical researchers, using the diary method, have studied what might be called managerial media – by what means, with whom, how long, and where managers spend their time. But in no part of the literature is the actual content of managerial work systematically and meaningfully described" (Mintzberg 1989, p. 574).

Therefore, Mintzberg set out to describe accurately what managers did in their work roles. To this end, he used the term "role" as it had evolved down from acting and the

theatre, via behavioural sciences, to management theory. Within this context, similar to Katz and Kahn (1966), Sarbin and Allen had defined the term "role" to be "an organised set of behaviours belonging to an identifiable office or position" (Sarbin et al. 1968, cited in Mintzberg, 1973, p. 54). Mintzberg believed that without a proper understanding of what managers did in their roles "how can we teach management?, how can we design planning or information systems for managers?, how can we improve the practice of management at all?" (1975, p. 49).

The methodology adopted by Mintzberg for his study of the role of managers, was structured observation[4]. In his study he observed the chief executive officers of five companies (a consulting firm, a school, a technology firm, a consumer goods firm and a hospital), each for a one week period, in their places of work. From this study Mintzberg concluded that a manager's work could best be described in terms of ten underlying managerial roles. These ten roles consisted of three interpersonal roles (figurehead, leader, and liaison), three informational roles (monitor, disseminator, and spokesman), and four decisional roles (entrepreneur, disturbance handler, resource allocator, and negotiator). He believed that these ten roles were common to all managerial jobs, irrespective of function or hierarchy level. However, he did suggest that the priority given by individual managers to specific managerial roles could vary from situation to situation (Mintzberg 1973). Table 1, describes each of the managerial roles defined by Mintzberg (1973, p. 58-90) :

[4] Structured Observation or "complete observation" is an approach where the observer accompanies the subject "almost constantly" (Ives et al., 1981, p. 51) over a period of time, recording as they go all the activities undertaken by the subject (Ives et al., 1981).

Table 1: Mintzberg's Ten Managerial Roles (1973)

Role Type	Role	Description
Interpersonal	Figurehead	Because of his authority, the manager is a symbol, obliged to perform a number of duties. All involve interpersonal activity, but none involves significant information processing or decision making (Mintzberg 1973, p. 58).
	Leader	The organisation looks to its formal head for guidance and motivation. In this role the manager defines the atmosphere in which the organisation will work. Leadership involves interpersonal relationships between leader and the led (Mintzberg 1973, p. 60).
	Liaison	The liaison role deals with the significant web of relationships that the manager maintains with numerous individuals and groups outside the organisation he leads (Mintzberg 1973, p. 63).
Informational Roles	Monitor	In the role of monitor the manager is continually seeking and being bombarded with information that enables him to understand what is taking place in his organisation and its environment (Mintzberg 1973, p. 67).
	Disseminator	His special access to information allows the manager to play the important role of disseminator, sending external information into his organisation and internal information from one subordinate to another (Mintzberg 1973, p. 71).
	Spokesman	As formal authority, the manager is called upon to speak on behalf of his organisation; as nerve centre, he has the information to do that effectively (Mintzberg 1973, p. 75).
Decisional	Entrepreneur	In the entrepreneur role the manager acts as initiator and designer of much of the controlled change in his organisation. Entrepreneurial work begins with scanning activity. (Mintzberg 1973, p. 78).

	Disturbance Handler	The disturbance handler role deals with involuntary situations and change that is partially beyond the manager's control. The manager acts because he must, because the pressures brought to bear on his organisation are too great to ignore. When a disturbance occurs, a correction is necessary (Mintzberg 1973, p. 82).
	Resource Allocator	As formal authority, the manager must oversee the system by which organisational resources are allocated (Mintzberg 1973, p. 85).
	Negotiator	The manager must participate in negotiation activity when, from time to time, the organisation finds itself in major, non-routine negotiations with other organisations or individuals (Mintzberg 1973, p. 90).

2.4 The Evolution of the Role of the CIO

2.4.1 Technology Era Model

A number of models have been put forward in an attempt to help describe how the management of IS in organisations has evolved with the growing sophistication in the use of IS (Earl 1989; Hirschheim et al. 1988; Ross et al. 2000; Somogyi et al. 1987; Somogyi et al. 2003; Ward et al. 2002). For the purpose of this review of the IS management literature, the researcher has chosen to adapt the model originally developed by Ross and Feeny (2000), as this model was specifically developed to address the evolution in the role of the CIO. This model is described in terms of three distinct Technology Eras: the *Mainframe Era,* the *Distributed Era* and the *Web Era,* which have evolved over the last thirty years. Each of these Technology Eras has seen a fundamental shift in the range and type of opportunities available to organisations for the implementation of IS, based on the changes in the capabilities of the underlying IT technologies.

Whilst the researcher fully acknowledges the socio-technical nature of the field of IS research, and specifically that of the thematic area of IS management, such a technology based model is seen, by the researcher, as being an appropriate lens to use for this review of the IS management literature relating to the role of the CIO. The issues explored within the thematic area of IS management "partly reflect the evolution of IT and partly the learning process organisations have undergone regarding the management of IS and their information resources" (Avgerou 2000, p. 569-570). Consequently, such a lens enables the evolution of the role of the CIO to be reviewed both:

- in the context of the fundamental changes in the underlying IT technology across these Eras; and
- in terms of the growing role expectations of the CIO's role set (i.e. top management) (Katz et al. 1966) regarding the potential opportunities for the use of IS in organisations, across these distinct Technology Eras.

A summary of the evolving nature of the role of the CIO across these three Technology Eras is shown in Table 2:

Table 2: The Evolving Nature of the Role of the CIO over the Three Technology Eras (adapted from Ross et al. 2000)

	Mainframe Era	**Distributed Era**	**Web Era**
Years	**1960's – late 1970's**	**Late 1970's – mid 1990's**	**Mid 1990's to Today**
IS Background	IS technologies first introduced into many organisations (Somogyi et al. 1987). Access to IS restricted to technical experts based in off site locations (Ward et al. 2002). Focus of IS developments on cost saving and transaction efficiency (Ross et al. 2000).	Access to computing systems becomes more prevalent across the whole organisation (Benjamin 1982). Switch in focus for IS developments to MIS, decision support type systems based on database technologies (Henry 1979).	Integration of IT and telecommunications (Ross et al. 2000). Development of "Open Standards" based Internet (Weill et al. 2002). Extension of IS systems beyond boundaries of organisation to include direct connections to customers and business partners (Benamati et al. 2001).
Top Management attitude to IS	Top Management unaware, for the most part, of the strategic potential of IS (Rockart 1988). IS seen as a cost that needed to be managed (Strassmann 1976).	Realisation IS can now impact on the competitive positioning of the organisation (Porter et al. 1985). Recognition of need to align IS plans with business plans (Lederer et al. 1988).	Realisation that IS could now define and create completely new market models and strategies (Venkatraman 2000).
Expectations of IS Manager/CIO	IS Manager expected to have a strong technical background with good project management skills (Dearden et al.	Creation of new role of CIO to "bridge the gap" between IS function and Top Management (Synnott et al. 1981).	CIO expected to be "Visionary" regarding developments in IS marketplace (Smaltz et al. 2006).

	1973). However, as era progressed, IS Manager increasingly expected to have more general line management skills (Getz 1977).	CIO role seen as a general management role as part of Top Management (Rockart et al. 1982). CIO expected to have skills and understanding of wider business (Applegate et al. 1992).	CIO expected to educate Top Management and help to create shared understanding regarding capabilities of IS (Preston 2004).
Activities of IS Manager/CIO	Studies suggest that the focus of the role of IS manager was on aspects of internal functional IS management (Ives et al. 1981).	Studies suggest that the new role of CIO was functioning as a general manager operating in a boundary spanning role between the IS function and the business where the emphasis was on the "Resource Allocator" and "Monitor" roles (Stephens 1991).	Studies suggest the CIO is now operating as an executive in a boundary spanning role at the edge of the organisation with a growing focus on "Entrepreneurial" type activities (Gottschalk 2002).

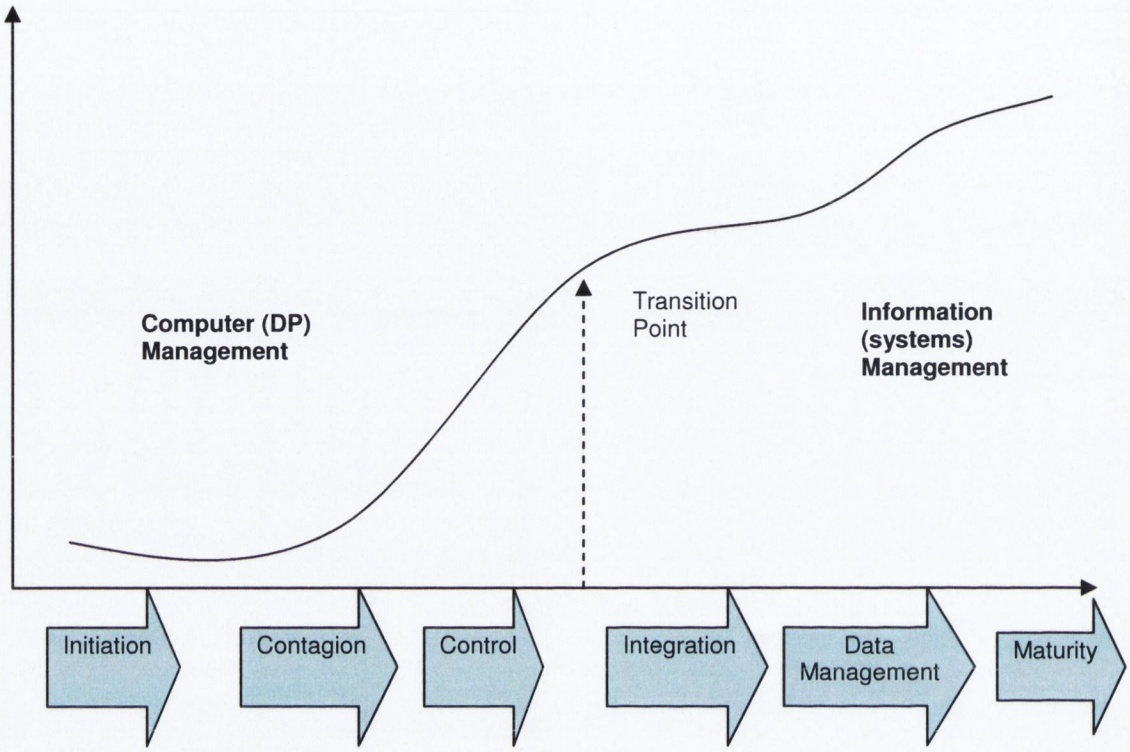
2.4.2 *Mainframe Era* (1960 to late 1970's)

2.4.2.1 IS Background

Large scale use of IT based IS began in the 1960's with the introduction of multi-purpose mainframe computers (Dean 1968; Diebold 1965; Lee 1964; Somogyi et al. 1987; Ward et al. 2002). These IS tended to be based on computers located in large centralised batch data processing facilities, which were mostly found in purpose built environments, separated from the wider business community (Lauden et al. 2004; Somogyi et al. 1987). Here for the first time, access to cost effective technologies such as magnetic disks and tapes, and the development of programming languages such as COBOL and PL/1, allowed businesses to set about the automation of their back office processes, such as accounts, stock control and payroll (Ward et al. 2002).

The focus of most IS development efforts during this period was primarily on transaction processing, automation efficiency and cost control (Dearden et al. 1973; Somogyi et al. 1987; Ward et al. 2002). The overall evolution in the usage and management of IS during this *Mainframe Era* has been described by Gibson and Nolan in their *Stage Model for EDP Growth (Gibson et al. 1974; Nolan 1973a; Nolan 1975; Nolan 1979).* Here the authors set out in their model to describe how organisational usage and management attitudes to IS would evolve through six predictable stages of growth, from Stage 1 "Initiation" to Stage 6 "Maturity" (Nolan 1979). This model is shown in Figure 3:

Figure 3: Model for EDP Growth (Nolan 1979)



Whilst some authors, at the time, expressed doubts about the suitability of this model, suggesting that it is overly simplistic, weak in empirical support and lacking in consideration of the specific contexts of individual organisations (Benbasat et al. 1984; Galliers et al. 1991; King et al. 1984), it did, however, attempt to describe how organisational usage of IS evolved through these six predictable stages of growth (Nolan 1979). The first three stages of Gibson & Nolan's evolutionary model were referred to as the "Computer Era" and were characterised by the initial installation of IS facilities, through to its rapid proliferation and use by organisations, and finally to management's first real attempts to contain the growing costs of IS services. These first stages were reflective of how far many organisations had evolved to by the early 1970's. The latter three stages of the model are then marked by the transition to a more

integrated use of IS and a growing recognition by management of the importance of IS to the business success of the wider organisation (Ferreira et al. 1979; Nolan 1976).

2.4.2.2 Top Management Attitude to IS

For the most part during this era, top management regarded IS as an accounting tool used mainly as a mechanism for displacing manual costs and increasing throughput (Ross et al. 2000; Somogyi et al. 1987; Ward et al. 2002). IS managers often had little or no direct contact with the CEO and other top management on an ongoing basis (Nolan 1976). Equally, according to Rockart (1988), most top management remained ignorant of the strategic implications or opportunities available via IS for most of this era, and, in general, it was suggested that IS investments were assessed on an individual short-term financial "return on investment basis", rather than being seen as part of a larger more strategic investment programme (Ross et al. 2000; Strassmann 1976).

However, as the era progressed, many authors noted a growing awareness by top management of the organisational value of IS (Davis et al. 1979; Ferreira et al. 1979; Gibson et al. 1973; McFarlan 1971; Miller 1980; Nolan 1973b; Nolan 1976), as well as a growing need to control the ever increasing cost of maintaining and running these systems (Gibson et al. 1973; Hallam 1975; McFarlan 1973; Strassmann 1976; Withington 1980). In addition, there was growing dissatisfaction amongst end users regarding the "ivory tower" approach exhibited by most large IS functions (Bostrom et al. 1977; Danziger 1977; Getz 1977; Senn 1978; Somogyi et al. 1987) and specifically the sense that such centralised IS functions were becoming more and more "lethargic and unresponsive" to the needs of the business (Burnett et al. 1975, p. 148). This developing interest in IS across the organisation was set against the backdrop of a

continued lack of agreement and clarity, amongst top management, regarding how best to assess the performance and impact of IS managers on their organisation (Nolan 1976).

2.4.2.3 Expectations of the IS manager

Literature, at the time, suggested that top management tended to look for an IS manager who had a strong technical background, was project management oriented, and could respond effectively to their operational needs (Dearden et al. 1973; Senn 1978; Taggart et al. 1979). The primary efforts of the IS manager, during the *Mainframe Era*, were directed towards the day to day management of the software development and operations of the centralised computing facilities (Davis 1974; Hirschheim et al. 1988; Ives et al. 1981; Nolan 1973b; Nolan 1976). In the majority of cases, the IS manager reported into the finance function, as this was typically the location for most of the IS effort at that time (Baum et al. 1969; Dean 1968; Nolan 1973b; Withington 1974). In addition, Ross et al. have noted that, during the *Mainframe Era*, the technology marketplace was dominated mainly by IBM and a small number of other key suppliers (2000). For this reason they suggest that IS managers tended to adopt a conservative approach to IS purchases and often waited for these suppliers to introduce "industrial strength" solutions into the marketplace before committing their organisations (Ross et al. 2000). Therefore, Ross et al. (2000, p. 389) believe that IS managers, during the *Mainframe Era*, "rarely engaged in appraising technological innovations from new entrants".

However, as the era progressed, these previously technical and operations orientated IS managers began to encounter a wide range of organisational type problems (Bostrom et

al. 1977; Cheney et al. 1980; Couger et al. 1979; Danziger 1977; Getz 1977; Gibson et al. 1973; Nolan 1973b; Nolan 1976). Nolan (1973b, p.147) , for instance, suggested that the IS manager must now start to act as a change agent within the organisation by being "responsible for effecting organisational change, through providing computer services to assist the operations and decision-making activities of the company". In addition, Gibson et al. and Nolan both noted the fact that the IS manager would now need to be able to manage an increasingly complex IS technological environment and increasingly skilled workforce (Gibson et al. 1973; Nolan 1976). Similarly, Cheney and Lyons (1980, p. 35) stated that there was a growing likelihood of greater involvement by non-technical users in IS development and that this could ultimately enable the user "to be his own systems analyst and programmer".

Other authors suggested, at the time, that the IS manager would need a broad range of general management skills, such as negotiation skills, to allow him/her to deal with the growing array of user requests for systems (Danziger 1977) and also to function increasingly as an integrated member of the organisation's management team (Couger et al. 1979; Getz 1977; Gibson et al. 1973; Nolan 1976). However, these growing expectations and pressures caused significant problems for many IS managers as they, by nature, tended to be more focused on the technology aspects of their role and also tended to be more comfortable in dealing with other IS professionals, than with the wider business community they served (Getz 1977; Niederman et al. 1993; Schein 1996; Wetherbe et al. 1977).

2.4.2.4 Activities of the IS Manager

Although numerous prescriptions had been put forward in the IS management literature regarding the role of the IS manager (August 1976; Ferreira et al. 1979; Nolan 1976), in reality, "little empirical research had been conducted" (Ives et al. 1981, p. 50), prior to 1981. In that year, Ives & Olson (1981) carried out an empirical study, which made use of the structured observation approach (Martinko et al. 1985), in a similar way to that used by Mintzberg (1973) in his own studies of chief executives. Here Ives and Olson attempted to establish the makeup of the activities of the IS manager by observing the daily activities of six IS managers in the field, and also to address the question of "how has the role of the IS manager evolved with the changing needs of business organisations for data processing" (Ives et al. 1981, p. 49).

The outcome of their empirical study suggested that indeed, "today's IS manager is clearly more of a manager in the classical sense than a technician" (Ives et al. 1981, p.61). However, they also concluded that this role was one of a departmental or functional manager, rather than a top management executive, as the majority of the time and activity of these IS managers, as recorded in their study, was still focused on internal IS function matters (Ives et al. 1981). Indeed, they observed that very little of the activity of the IS manager during the *Mainframe Era* (only 4% of oral contacts undertaken by the IS manager), related in any way to strategic issues (Ives et al. 1981, p. 55), and therefore observed that contact with user and top management was seen to be "noticeably absent" (Ives et al. 1981, p.61).

2.4.3 *Distributed Era* (late 1970's to mid 1990's)

2.4.3.1 IS Background

The IS management literature suggests that the late 1970's brought the arrival of the mini-computer, database technology and distributed computing (Burnett et al. 1975; Davis et al. 1979; Somogyi et al. 1987; Withington 1980). These technologies now enabled direct access by non-technical staff, such as departmental managers and business analysts, to computing facilities from within their own office environments (Benjamin 1982; Henry 1979; McKenney et al. 1982). IS development activities during this era began to shift away from the previous focus on the development of systems to support back office automation to a focus on supporting the decision making activities of mid and top level management, by way of the development of Management IS ("MIS") (Bostrom et al. 1977; Davis et al. 1979; Ginzberg 1978). These newer MIS systems, which often made use of database technology, were designed to improve the effectiveness of management decision making by providing concise and timely information, often extracted directly from the existing operational IS systems located on the larger central mainframes (Lauden et al. 2004; Ross et al. 2000; Ward et al. 2002).

As the *Distributed Era* progressed, the literature suggests that we continued to see the advancement in IT, with the introduction of Personal Computers ("PC's") and development of client-server network technologies (Lauden et al. 2004; Somogyi et al. 1987; Ward et al. 2002). Equally, the *Distributed era* saw the decline of IBM as the single dominant supplier to the marketplace, and the growth of new technology companies such as Microsoft and Intel to support the distributed environment (Ross et al. 2000). In addition, this era also saw a significant growth in the range and diversity of consulting and outsourcing providers (Earl 1996b; Nolan et al. 1995). These changes

led to the situation where the CIO could now no longer rely solely on one dominant technology player in the marketplace for advice and services, and therefore was forced to start dealing with a much wider range of external organisations, products and technologies to support the growing needs of his/her business (Ross et al. 2000).

2.4.3.2 Top Management Attitude to IS

As IS became more widely available across the organisation, due to the availability of mini-computers, top management began to acknowledge the potential role of IS as a corporate resource which could be used to support the development of the organisation's wider business objectives (Alter 1976; Ferreira 1979; Rockart 1979). Such a "resource" based view of IS (Barney 1991; Peteraf 1993) required management to focus more closely on information as a key corporate asset, and on its capacity to impact on the operations of the organisation as a whole (Synnott et al. 1981).

Equally, it was recognised that IS could now act as a potential source of competitive advantage in the marketplace, as well as a key mechanism for implementing large scale change throughout the organisation (Clemons 1986; Henderson et al. 1993; Ives et al. 1984; McFarlan 1984; Porter 1985; Porter et al. 1985; Rackoff et al. 1985). For instance, Porter and Millar (1985, p. 150) noted that as we moved into the *Distributed Era*, "IT is changing the way companies operate. It is affecting the entire process by which companies create their products. Furthermore, it is reshaping the product itself: the entire package of physical goods, services, and information companies provide to create value for their buyers".

In addition, top management started to recognise the need to integrate the IS plans and strategies with the organisation's own business strategies and plans, at the highest levels (King 1988; Lederer et al. 1987; Lederer et al. 1989; McFarlan 1984; Zmud 1984). According to Lederer and Mendelow (1987, p. 390) "recent work on competitive advantage not only emphasises the need for this (integrating the IS plans with the business plans) linkage, but also suggests that the IS plan be part of the organisation's strategic plan". Similarly, King (1988) suggested that it would be through involving top management directly in the planning of IS that alignment between the needs of the business and the evolving capabilities of IS would occur.

As we moved towards the end of the *Distributed Era*, the increasing pervasiveness of IS across the organisation was recognised through the growth in the development and implementation of Enterprise Systems (ES). These systems, for the first time, enabled the integration of previously disparate "islands of computing" (McKenney et al. 1982, p. 109) into one coordinated and comprehensive system that would seamlessly integrate business processes and information flows across the whole organisation, thus increasing both the efficiency and the effectiveness of the organisations operations (Davenport 1998; 2000; Fui-Hoon Nah et al. 2003). In addition, the outsourcing of IS support and application development services also became an attractive and popular option for top management. Many organisations took the view that, whilst IS was important to their business, there were often other organisations such as specialist software houses and management consultancies that were seen to be better qualified and better placed to offer these services (Earl 1996b; McFarlan et al. 1995; Nolan et al. 1995).

2.4.3.3 Expectations of the new role of CIO

In 1981, Synnott and Gruber noted that the growing needs of organisations for IS "would be so strong that it would be difficult to control consumption" and that controlling the management of IS would be "similar to drinking out of a fire hydrant" (1981, p. 12). They characterised this evolving role for the usage of IS by businesses as a clear shift from a focus on "data processing management" to a focus on "information management". To manage this change in approach to IS, Synnott and Gruber (1981, p. 66) recommended the setting up of a new senior executive role of Chief Information Officer ("CIO"), within the top management team. This new role would be different from that of the existing role of IS manager, which had evolved, in the period from the 1960's to the early 1980's, from that of IT technician, managing a relatively unimportant service function, into that of an operational manager whose department could substantially impact on the health and future growth of the organisation (Ives & Olson, 1981).

The new role of CIO, as well as being accountable for all IS efforts within the organisation (Jones et al. 1994), would also be required to work within the company's top management team to "bridge the gap" (Synnott et al. 1981, p. vii) between the IS function and the wider business, to ensure the successful exploitation of IS across the organisation (Synnott et al. 1981). Such a new role was seen therefore to be essentially "boundary spanning" in nature. Boundary spanning roles are seen to perform two key functions, namely: first, to process information received from sources external into their organisational unit, and second, to represent the interests of their unit within the wider organisational environment (Aldrich et al. 1977; Tushman et al. 1981). They also suggested that in order for them to be successful in integrating IS into the wider

organisation, any new CIOs would need to be a business person first, manager second and technologist third (Synnott 1985).

At the centre of this new role of CIO were seen to be three core activities: proactive change agent, coalescence planner, and integrator (Synnott et al. 1981). As a proactive change agent they saw the CIO shifting from the traditional reactive stance of the IS manager in "supporting" the development needs of the business, to proactively working with top management, through the planning process, to identify opportunities for significant change and development in the capacity of the organisation. In the role of coalescence planner they suggested that the new CIO would be the person who "identifies, coordinates, and coalesces information resources throughout the corporation, managing information as an integrated corporate resource" (Synnott et al. 1981, p. 56). In such a role they believed, the CIO must be viewed as the information architect of the organisation, one who could bring together the diverse information resources of the company in a co-ordinated and structured manner.

Finally, as an integrator, they saw the CIO as the person who "closes the communications gap with top management" (1981, p. 60). To do this, the new CIOs would need to be both business-orientated and technically-orientated. They felt that while the growing integration and usage of IS across the organisation would require the CIO to be able to provide an "overall viewpoint of the corporation in terms of the technological impact and/or systems integration benefits of separate, but related, systems" (Synnott et al. 1981, p. 61), top management would also want "to deal with someone who can speak business English" (Synnott et al. 1981, p. 61). Equally, on the technology side, in the role of integrator, the CIO would be expected to provide a

common corporate level IT platform that would allow for the movement of "information around the firm and make it accessible to the appropriate people" (Synnott et al. 1981, p. 61).

Similarly, other researchers at around this time (Baroudi 1985; Bartol et al. 1982; Benbasat et al. 1980; Benjamin et al. 1985; Gupta 1991; Jarvenpaa et al. 1991; Lee et al. 1995; Leitheiser 1992; Rockart et al. 1982) suggested that, in order to be able to operate as part of the top management team, CIOs would require a broad range of business, change management and inter-personal skills. For example, Benbasat et al. (1980, p. 22) suggested that there was a "more pronounced need for performance, people and organisational skills". Similarly, Leitheiser (1992, p. 80) felt that "writing, speaking, persuading, working with others, and understanding others' emotions" were skills that specifically needed to be developed in IS professionals, such as newly appointed CIOs. Equally, it was suggested by the literature that CIOs would require specific business skills and knowledge, such as a greater understanding of the underlying business processes within their organisations if they were to be successful (Rockart et al. 1982; Zmud et al. 1979).

Nevertheless, throughout the 1980's there continued to be much discussion in the literature regarding the success or otherwise of this new IS executive level role of CIO (Bock et al. 1986; Carlyle 1988; Connolly 1989; Emery 1991; Fitch 1987; Rothfeder 1990). Much of this debate surrounded the acceptance or otherwise of this new role of CIO by other top management executives (Bock et al. 1986); the apparent alarming turnover rate in CIOs compared with other top level executives (Rothfeder 1990); and the use or otherwise of the term "CIO" by IS executives (Benjamin et al. 1985; Synnott

1987). However, by the early 1990's the importance of this new role of CIO had become generally recognised in the IS management literature (Dixon et al. 1989; Earl 1996a; Stephens 1994; Synnott 1987; Welter 1987). For instance, Stephens (1994), in a detailed survey of Fortune 100 service and industrial organisations showed that the role of CIO had indeed taken hold in industry. In fact, her research suggested that 80% of CIOs were now placed within two levels of the CEO and that, even though the title of "CIO" was not widely in use, this new executive role had evolved into the key IS leadership position in most larger organisations.

In addition, greater clarity began to appear regarding the expectations of the role of CIOs. O'Riordan, for example, suggested that it was expected that the CIO would (1987):

- Have a good understanding and experience of the business;
- Have the ability to maintain an overall company wide view of needs;
- Have the ability to cross traditional departmental boundaries;
- Have an understanding of technology from a business perspective;
- Be an innovative thinker; and
- Have flexibility and communications ability.

2.4.3.4 Activities of the CIO

In terms of the actual activities adopted by the CIO, it was not until the late 1980's that any serious attempts were undertaken to investigate the actual activities of this new role of CIO, firstly by LaRosa (1985) and then by Brumm (1988). LaRosa's approach was to interview eleven CIOs, using unstructured interviews, whilst Brumm's approach was

based on a survey of selected CIOs from the "50 top-ranked Fortune 500 Service organisations" in the US (1988, p. 20). The outcome of LaRosa's (1985) study suggested that CIOs did, indeed, now perform the functions of general managers, rather than those of technical managers, whilst Brumm (Brumm 1988) concluded that the CIO would :

- Be the highest ranking IS executive in the organisation;
- Report no more than two levels from the CEO;
- Be responsible for strategic planning of information resources; and
- Have overall responsibility for IS, computer operations, telecommunications, office automation, and end user computing/information centre.

However, it was not until 1991, that the IS management literature saw the use of structured observation in empirical research, in a similar manner to that used by Mintzberg (1973) and Ives & Olson (1981), to analyse the actual activities of CIOs in the workplace. In her research, Stephens studied the work activities of five industry CIOs in the field (1991). In her study, she set out to revisit Ives & Olson's question of "how has the role of the IS manager evolved with the changing needs of business organisations?" (Ives et al. 1981, p. 49) and to also address her own specific concern of "does a new executive function, called the CIO, actually exist, or is this simply, a new name for the manager of MIS, previously known as the manager of data processing?" (Stephens et al. 1992, p. 449).

Research prior to Stephens' had suggested that the number of activities, as well as the duration of individual activities varied with each level of managerial seniority (Ives et al. 1981; Mintzberg 1973). Stephens' research concurred with this assertion, in that "MIS managers did engage in more activities per day than CIOs and CEOs and these activities were of shorter duration" (Stephens et al. 1992, p. 456). Similarly, the location of activities was also seen to vary depending on the seniority of management (Stewart 1976), as did the amount of time the individual manager spent outside his/her office (McCall et al. 1978). These observations suggested to Stephens that "the CIO, like the CEO, and unlike the MIS manager, was functioning as a general manager rather than a functional manager or staff specialist" (Stephens 1991, p. 366). These patterns of interaction, recorded by Stephens, also suggested that CIOs were spending "more than half their verbal contact time outside the IT group" (Stephens 1991, p. 366), and that the CIO was seen as being a "vital communications link" throughout the organisation (Stephens 1991, p. 350).

In addition, Stephens found, when applying Mintzberg's (1973) managerial roles construct to the activities of these CIOs, that it suggested that CIOs spent 60% of their contact activity on decisional roles and 36% of their time on informational roles, with the remaining 4% spent on interpersonal roles. Individually, within these role categories, the results suggested that the largest single focus was on Resource Allocator at 37% and Monitor at 20% (Stephens 1991, p. 308). Mintzberg had defined the role of Resource Allocation to be "at the heart of the organisation's strategy-making system. For it is in making the choices involving significant organisational resources that strategies are determined" (Mintzberg 1973, p. 85) and that of Monitor as "continually seeking, and being bombarded with, information that enables him to understand what is

taking place in order to detect changes, to identify problems and opportunities, to build up knowledge about his milieu, to be informed when information must be disseminated and decisions made" (Mintzberg 1973, p. 67). Therefore overall, Stephens concluded that the "empirical evidence does suggest, then, that the CIO acts as a bridge, linking business strategy and IT" and that "CIOs were involved in longer term considerations, including environmental scanning" (Stephens 1991, p. 372).

Finally, in terms of further research, Stephens (1991, p. 387-388) identified at the conclusion of her thesis a number of avenues for further empirical research which, she believed would assist in better understanding the evolving role of the CIO. These included a full replication of Mintzberg's CEO study, brought up to date for the 1990's (it had originally been carried out by Mintzberg as part of his Ph.D. work in Harvard, back in 1968) and a detailed analysis of the boundary spanning activities of CIOs. In addition, whilst Stephens' (1991) study had been groundbreaking, it had only looked at the activities of a small number of CIOs and she was fully aware of this potential shortcoming. Indeed, she suggested that, as in the case of the Ives & Olson (1981) study, such a "small, self-selected sample of managers may not be representative of the broader population" (Ives et al.(1981), cited in Stephens et al. 1992, p. 464).

At around the same time, Applegate and Elam (1992) undertook a study of a larger group of sixty-four senior IS executives to see if there were differences in work focus and activities between CIOs who were newly appointed, and those who had been in place for some period of time. Specifically, this study compared the backgrounds, responsibilities, reporting relationships and power of newly appointed IS executives (those who had only been in their position for less than two years) with established IS

executives (i.e. those with longer tenures) (Applegate et al. 1992). This study found that nearly half of the newly appointed CIOs were external hires and two-thirds of all new CIOs also had more than five years experience managing non-IS functions prior to their appointment. The activities receiving the most attention from these new CIOs were IS strategic planning and control, IS architecture management and standards development, as well as human resource management (Applegate et al. 1992). The ideal CIO candidate, suggested by Applegate and Elam (1992, p. 470), was "an individual who has a combination of business, technology, and leadership skills" . These results were much in line with Synott and Gruber's (1981) prescription of the CIO as "bridging the gap" with top management and undertaking the three core activities of: proactive change agent, coalescence planner, and integrator (Synnott et al. 1981).

Later in 1993, further research by Grover et al (1993), returned to focus on Mintzberg's managerial roles and the CIO. To do this they chose a random selection of 500 companies from the 1991 listing of *Fortune* 1000 companies, and using the McCall and Segrist (1980) instrument, which had been designed to operationalise the Mintzberg managerial roles, they undertook a survey which asked CIOs to rate the importance of each item identified in the survey, based on a seven-point Likert scale, as it related to their job. The rationale for choosing their survey candidates from the *Fortune* 1000 list was that they believed that these larger and more progressive firms would tend to have IS executives with job attributes consistent with their understanding and previous definitions of the role of CIO (Grover et al, 1993).

Their research findings suggested that the role of the CIO differed from that of manufacturing and sales executives in the relative importance placed on specific

managerial roles. However, such differences did not appear to exist between CIOs and finance executives or more interestingly, between CIOs and IS middle managers. This latter outcome appeared to contradict the findings of Stephens (1991), who had suggested that the role mix of CIOs differed from that of existing IS managers. However, in the view of the researcher, this difference in outcome may be due to the differences in the research approach taken. Whilst Stephens used the structured observation methodology, the Grover et al. (1993) study had relied on the self-completion of the questionnaire by the individual respondents.

Indeed, Stephens (1991), in defence of her use of structured observation, had stated that Mintzberg (1973) believed that with instruments such as the diary method or survey questionnaires, the manager's perception of his/her role, rather than the actual role may often be measured, and that this could lead to inaccurate results. In terms of the findings relating to the apparent similarity between the importance of managerial roles exhibited by the CIOs and those exhibited by finance executives, Grover et al (1993), suggested that this similarity may be due to the relative importance of Mintzberg's Informational roles to each of these job types. This finding may go some way to support Rockart et al.'s (1982, p. 5) assertion that "the CIO will become not simply the 'custodian' of the data, but more importantly, the corporate officer who truly understands the interconnection between the information flow and the business".

When looking at the individual roles within the grouping of Informational roles, the Monitor role was still only ranked in fifth place. Grover et al. suggested that they suspected that CIOs "have not yet placed high enough priority on environmental scanning responsibilities" (Grover et al. 1993, p. 120). Equally, they identified two key

factors which they proposed could influence the nature and focus of the CIOs role: the levels and maturity of IS usage and the degree of IS centralisation. IS maturity they suggested, leads to more formalised forms of IS management, as well as closer links with overall organisational planning (Grover et al. 1993). Here they found that rather than seeing an expected strong relationship with the Entrepreneur and Monitor roles their results suggested a significant link to the other roles of Liaison and Spokesman.

Since the Liaison and Spokesman roles are more associated with communications "out-flowing" from the organisation and Entrepreneur and Monitor roles are related to "in-flowing" communications (Mintzberg 1973), they suggested that "an imbalance in communication flow may result in the CIOs inability to act fully on the derived information and ideas from these intra and inter-organisational contacts" (Grover et al. 1993, p. 121). On the other hand, they saw a significant relationship between the Monitor role and the degree of IS centralisation. This they put down to the fact that "as IS resources are centralised, the CIO's accountability for effectively utilizing IS resources increases, thus emphasising the need for environmental scanning to achieve technological improvement" (Grover et al. 1993, p. 122).

2.4.4 *Web Era* (mid 1990's to today)

2.4.4.1 IS Background

The *Web Era* started out, in the mid 1990's, with a move towards the convergence of IT and telecommunications technologies, supported by the commercial introduction of the public Internet (El Sawy et al. 1999; Moore 2000; Ross et al. 2000; Sambamurthy et al. 2000). This convergence saw a clear shift from a reliance on in-house, centrally organised IT infrastructures, based on proprietary technologies, to IT infrastructures based on public Internet protocols, such as TCP/IP (Curtis et al. 2002; Hagel III et al. 2001; Weill et al. 2002). This resultant standardisation on non-proprietary IT infrastructure technologies led to an explosion in the possibilities and opportunities for direct connection to customers and business partners all along the value chain (Benamati et al. 2001; Chatterjee et al. 2001; Sambamurthy et al. 2003; Venkatraman 2000), as well as the potential to develop virtual organisational structures in the wider marketplace (Bodily et al. 2004; Curtis et al. 2002; El Sawy et al. 1999; Venkatraman et al. 1998).

Vankatraman(2000, p. 15), for instance, characterised this fundamental shift, caused by the convergence of technologies, by suggesting that "the Internet changes everything" and that the real revolution "is happening in business-to-business value chains as companies restructure their operations with trading partners". Similarly, El Sawy et al. (1999, p. 307) suggested that companies operating in the *Web Era* "compete in an IT-intensive, time-compressed, discontinuous, knowledge-intensive environment in which they are inextricably linked to the value creation processes of their customers and suppliers".

This shift in the *Web Era* to a reliance on the public Internet infrastructures has also led to an increase in the complexity and potential dangers of exposure and loss, that can be suffered by organisations trading in the marketplace (Bocij et al. 2006; Lauden et al. 2004). This has, in turn, resulted in mounting pressures on organisations to ensure the ongoing security, privacy and integrity of their information and systems (Bocij et al. 2006; Cavusoglu et al. 2004; Loch et al. 1992; Smith et al. 1996). For instance, Cavusoglu et al. (2004, p. 69) have suggested that security breaches can have a significant negative impact on "the market value of the announcing firm".

In addition, the *Web Era* has been characterised by a move, by many organisations, beyond a continuing focus on large scale Enterprise System developments (Davenport 1998), which for many companies have now become somewhat inflexible and "legacy systems" in their own right (Galliers 2007, p. 4), to an emphasis on customer facing applications such as the development of corporate web sites and business-to-business extranets (Rifkin et al. 2002; Venkatraman 2000). These applications, which, again in the main, are also built on non-proprietary information technologies such as web services (Hagel III et al. 2001), tend to have both much shorter development timescales and to be subject to frequent change, in order to support the more dynamic and innovative nature of today's business environment (Chatterjee et al. 2001; Sambamurthy et al. 2003; Venkatraman et al. 1998).

2.4.4.2 Top Management attitude to IS

For many companies, with the advent of the *Web Era*, IS could now no longer be seen just as a key corporate resource (Hagel III et al. 2001; Mata et al. 1995), to be used in

support of their business and its strategic objectives (Maruca 2000; Van Der Heijden 2001). Now IS was seen as having the potential both to alter the underlying structure, products and services of an industry's business model (Chatterjee et al. 2001; Curtis et al. 2002; Porter 2001; Sambamurthy et al. 2003; Venkatraman et al. 1998) and to drive access to and globalisation of whole markets (Karimi et al. 1996b; Marwaha et al. 2005; Sambamurthy et al. 2003). Therefore, IS in the *Web Era* was now seen by top management to be an increasingly important source of competitive disruption and market innovation, that might even "precede corporate strategy" (Watts et al. 2006, p. 125).

This convergence of IS, brought about by the advent of the *Web Era*, has now offered firms significant opportunities for developing their "strategic agility" so as to enable them to respond to the ever changing nature of the marketplace (Galliers 2007; Sambamurthy et al. 2003). Such strategic agility is based on a firm's ability to "detect opportunities for innovation and seize those competitive market opportunities by assembling requisite assets, knowledge and relationships with speed and surprise" (Sambamurthy et al. 2003, p. 245). Such a focus on strategic agility now places a much greater requirement on organisations to explore market options (Galliers 2007; March 1991; Sambamurthy et al. 2003), to attain the requisite IS strategic knowledge (Armstrong et al. 1999; Preston et al. 2006; Smaltz et al. 2006) and to develop and maintain key relationships within the marketplace (Chatterjee et al. 2001; Mitchell 2006; Pawlowski et al. 2004).

These changes in the *Web Era* were happening against the backdrop of an ever increasing focus by top management on the costs and real value of their IS investments

(Carr 2003; Grover et al. 1998), a significant push by organisational management to outsource IS delivery functions (Earl 1996b; King et al. 2008; Levina et al. 2003; Nolan et al. 1995), and a renewed emphasis on government and market deregulation (Cross et al. 1997; Karimi et al. 1996b; Nesbit 2000; Sutton et al. 2005). This has resulted in top management, in turn, expecting greater flexibility, response and return from their IS resources (Earl 2000; Galliers 2007; Venkatraman 2000).

2.4.4.3 CIO Expectations

As a member of the top management team today (Preston et al. 2008; Prewitt 2006; Prewitt et al. 2002; Smaltz et al. 2006), one of the key measures of CIO success, considering the relentless pace of technological change brought on by the advent of the *Web Era* and its potential impacts on the organisation's markets and business models, is the ability of the CIO to develop a shared understanding (Berger et al. 1967) amongst the top management team regarding the specific opportunities and impact IS could have on their organisation (Armstrong et al. 1999; Chan et al. 2006; Cooprider et al. 1993; Earl et al. 1994; Enns et al. 1997; Nelson et al. 1996; Preston et al. 2004; Reich et al. 2000). Such a shared understanding of the potential role and opportunities for IS in the organisation can enable the firm to increase its ability to adapt successfully to continuing changes in their marketplace brought about by the ongoing convergence of IS, in a flexible, dynamic and agile manner (Johnson et al. 2003; Karimi et al. 1996a; Nelson et al. 1996).

Such a shared understanding of IS enables the combination of existing IS knowledge and perspectives, held internally within the organisation (Cross et al. 2000), with new external IS strategic knowledge, which together can be "combined and reformulated to

produce new insights and solutions" (Mitchell 2006, p. 924). At the core of this concept of shared understanding of IS, is the expectation that the CIO would be "visionary" in their knowledge regarding the strategic direction of their external IS technological environment (Chun et al. 2009; Earl 2000; Karahanna et al. 2006; Karimi et al. 2001; Smaltz et al. 2006) and would be able to educate the top management team in relation to strategic IS opportunities available to them (Chatterjee et al. 2001; Mitchell 2006; Preston et al. 2006; Smaltz et al. 2006), so that they can "bridge the gap in understanding" (Preston et al. 2006, p. 191) between themselves and top management.

During the *Distributed Era* the importance of having CIOs with a strong "business perspective" (Feeny et al. 1992, p. 444) had been highlighted by a number of authors (Benbasat et al. 1980; Rockart et al. 1982; Stephens et al. 1992). In fact, empirical research had shown that during the *Distributed Era* there had indeed been a noticeable shift towards a preference for hiring business executives as CIOs in many companies because of the desire to have CIOs who had high levels of business knowledge (Applegate et al. 1992). However, with the growing complexities of IT infrastructures and the pace of change in the IS marketplace in general now evident in the *Web Era*, organisations have again begun to place a priority on their CIOs also possessing high levels of IS strategic knowledge (Preston et al. 2006, p. 192).

IS strategic knowledge is seen to cover "an awareness and understanding about current and emerging information technologies" (Smaltz et al. 2006, p. 211), an ability to assess their relevance and suitability to meet the information systems requirements of the firm (Armstrong et al. 1999; Chatterjee et al. 2001), and also the capability to provide top management with insights related to investment timing and the acquisition of such

information technologies (Armstrong et al. 1999; Smaltz et al. 2006). Such strategic IS knowledge is now seen to be key to creating a shared understanding regarding IS that can assist the strategic decision making processes of top management (Mitchell 2006; Preston et al. 2008; Sambamurthy et al. 2003). To do this the CIO is now required to act as an external boundary spanner or "knowledge broker" for the organisation (Galliers 2007, p. 10) in order to be able to "keep abreast of the advances, changes and trends in the external IS environment" (Maier et al. 1997, p. 178).

Indeed, it has been stated that top management executives, such as the CIO, occupying external boundary spanning roles, by virtue of their position within the top management teams of organisations, would be exposed to large amounts of information, which they would need to be able to decode, filter and translate back into their organisations (Aldrich et al. 1977; Carlile 2004; Tushman et al. 1981). However, it has also been suggested that it would be impossible for CIOs to monitor all sources of relevant information or engage equally with all interested parties within the external IS technological environment (Maier et al. 1997; Mitchell 2006; Watson 1990).

In fact, whilst many potential sources of external IS strategic knowledge may exist, such as hardware and software vendors, competitors, customers, trade and industry bodies (Mitchell 2006; Watson 1990), the IS management literature suggests that CIOs can often be "influenced by the social status of the sender" (Watson 1990, p. 220) and that "CIO member organisations", such as external peer networks, present an important opportunity for CIOs "to network with peers and share best practices" (Mitchell 2006, p. 924). Indeed, such interactions with external peer networks are often seen as being a

critical source of IS strategic knowledge (Maier et al. 1997; Mitchell 2006; Newell et al. 2000; Pawlowski et al. 2004; Watson 1990).

However, the IS management literature remains relatively silent in regard to the actual processes of interaction that CIOs undertake within these external peer networks. Indeed, Maier et al. (1997, p. 178) have suggested that the "literature provides little insight into the process by which an organisation becomes aware of advances and changes in the external IS environment". In addition, Pawlowski et al. have also stated that, in terms of the integration of knowledge within organisations, "literature is relatively silent on the description of roles and practices that contribute to effective knowledge transfer" (Pawlowski et al. 2004, p. 647).

2.4.4.4 Activities of the CIO

No further studies of the activities of the CIO using structured observation methods have been carried out in the *Web Era,* to the knowledge of the researcher, that would allow a direct comparison to be made between CIOs today and those in the *Distributed Era* (Stephens 1991) or the *Mainframe Era* (Ives et al. 1981). However, Gottschalk (2002) did undertake research looking at the role of Norwegian CIOs using Mintzberg's managerial roles concept. Here Gottschalk (2002) suggested that a number of factors could influence the nature and priority of the individual managerial roles undertaken by CIOs in any situation. These factors again included the levels and maturity of IS usage by the business and the level of IS management centralisation within the specific organisation (Gottschalk 2002). This time around, however, the levels and maturity of IS usage had the greatest impact, not on the Liaison and Spokesman roles as Grover et al. (1993) had observed, but on the Entrepreneur role. Equally, the degree of IS

centralisation mechanisms in organisations also has its greatest impact on the relative importance of the Entrepreneur role.

This outcome, considering the fact that the study was carried out nearly ten years after the Grover et al. (1993) research, at a time more clearly associated with the dynamic conditions prevalent in the *Web Era*, may, in the view of the researcher, be down to the fact that as organisational usage of IS, and its underlying management mechanisms mature, the focus of IS attention and efforts switches from previous efficiency and effectiveness agendas, most prevalent in the *Mainframe* and *Distributed Era*s, to direct interaction and involvement in organisational change, innovation and strategy making efforts. Indeed, Grover et al. (1993) had suggested that it would be through entrepreneurial activity that the CIO could play the greatest role in influencing the overall strategy and planning of the organisation, as well as helping to translate organisational strategies and plans into definitive IS actions.

More recently, Smaltz et al. (2006), when looking at the antecedents of CIO role effectiveness, have identified six key roles central to the success of the CIO today. These roles are defined as: *Strategist, Relationship Architect, Integrator, IT Educator, Utility Provider and Information Steward* (Smaltz et al. 2006, p. 214). The first of these, *Strategist*, it has been suggested (Smaltz et al. 2006), appears to align with Mintzberg's Entrepreneur role and reflects the organisation's desire for the CIO to be an effective partner with top management in order to help the organisation leverage valuable opportunities for IS-based innovation (Smaltz et al. 2006). Equally, the second key role identified by Smaltz et al. is that of *Relationship Architect*, and this again appears, in the view of the authors, to line up with Mintzberg's original role concept of Liaison (2006).

In Smaltz et al.'s study this key role reflects the growing importance, placed by organisations in the *Web Era*, on the need for the CIO to develop and build relationships, not only internally within the enterprise, but also critically outside the organisational boundaries with a greater range of parties (Earl et al. 1994; Feeny et al. 1998; Galliers 2007).

2.5 Need for Further Inquiry

This review of the IS management literature, in relation to the CIO, has indeed suggested that the role of the CIO has evolved over the three Technology Eras. Such an evolution in the role has been driven, for the most part, by the continued development of the underlying IT technologies (El Sawy et al. 1999; Ross et al. 2000; Sambamurthy et al. 2003) and also by the changing attitudes and expectations of top management regarding the potential impact of IS (Earl 2000; Karahanna et al. 2006; Preston et al. 2008). Overall, therefore, the position of the CIO has clearly changed from that of a technical or functional mid-level manager to that of a senior executive, who in many cases, today now plays an integral and visionary role in the top management team of their organisation (Chun et al. 2009; Earl 2000; Preston et al. 2008; Smaltz et al. 2006).

In addition, as a result of this evolution, the literature would also suggest that, whilst still the most senior IS executive in many organisations (Preston et al. 2008; Prewitt 2006), the boundary spanning nature of the role, as originally envisaged by Synnott and Gruber (1981), has now been expanded to cover the critical requirement for the CIO to be able to also "bridge the gap" (Preston et al. 2006; Synnott et al. 1981) between the organisation itself and its external IS technological environment (Gottschalk 2002;

Preston et al. 2006; Smaltz et al. 2006). A summary of the key aspects of this evolution in the role of the CIO and the focus on boundary spanning activities, through the three Technology Eras, have been captured in Table 3:

Table 3*: Key aspects of the Evolution of the Role of the CIO through the three Technology Eras*[5].

	Mainframe Era	*Distributed Era*	*Web Era*
Primary IS Focus	Automate existing processes	Streamline existing processes	Create new processes
Top Management Attitude to IS	Efficiency/Cost Control	Effectiveness/ Strategy Support	Innovation/ Business Renewal
Expectations of CIO	Technical understanding	Business understanding	Visionary/ Educator
CIO Activity	Operational	Managerial	Executive
Key Managerial Role (Mintzberg 1973)	Resource Allocator	Monitor	Entrepreneur
Boundary Spanning Focus	----	Internal	Internal and External

[5] Adapted from original model developed by Ross et al. (2000)

Whilst this review of the IS management literature, supports the proposition that the role of the CIO has indeed evolved over the three Technology Eras, and that consequently, the focus of the boundary spanning activities of the CIO have widened, some key observations regarding this literature must still be made:

- In general, the IS management literature, in relation to the CIO, lacks empirical depth (Armstrong et al. 1999; Ives et al. 1981; Preston et al. 2008; Smaltz et al. 2006; Stephens 1991), with much of it being prescriptive in nature. Indeed Stephens (1991) identified this as a key shortcoming in the literature when she suggested that "a new management role emerged in the 1980's, the Chief Information Officer. Journalistic profiles, prescriptive literature, and largely undocumented surveys have described this new executive role." (Stephens 1991, p. iv). More recently, the same criticism has again been made by Preston et al (2008, p. 606) where they suggested that "the majority of the extant CIO studies are merely anecdotal and descriptive in nature".

- That said, there are still a small number of empirical studies (Gottschalk 2002; Grover et al. 1993; Ives et al. 1981; Smaltz et al. 2006; Stephens 1991) which have attempted to build a "cumulative tradition" (Adam et al. 2000, p. 4), based on Mintzberg's managerial roles concept (1973), to help gain a greater understanding of the evolution of the role of the CIO. However, this base of empirical studies has not been significantly built upon (Seddon et al. 2008), despite calls for further cumulative empirical inquiry (Ross et al. 2000; Stephens 1991).

- Such empirical studies, whilst they are small in both number and size, do shed some light on the individual managerial role activities of the CIO. These studies suggest that the level of adoption of specific individual managerial roles, such as the "Monitor", the "Liaison" and the "Entrepreneur", which are most associated with external boundary spanning activities, tends to be influenced by the levels and maturity of organisational usage of IS and the degree of IS centralisation mechanisms within any individual organisation (Gottschalk 2002; Smaltz et al. 2006). This would, therefore, suggest that the levels of external boundary spanning activities undertaken by any particular CIO may, indeed, be influenced by the relative importance of IS to the individual organisation or industry (Armstrong et al. 1999; Chatterjee et al. 2001; Preston et al. 2006; Smaltz et al. 2006).

- In identifying the growing need for the CIO to engage in external boundary spanning activity, in support of the decision making processes of top management, the literature suggests that interactions with external peer networks are now a critical source of IS strategic knowledge. However, it fails to address the question of "how" CIOs actually go about their interactions with such external peer networks (Maier et al. 1997; Pawlowski et al. 2004). Indeed, it has been suggested that in the case of senior IS executives, such as the CIO, "literature is relatively silent on the description of roles and practices that contribute to effective knowledge transfer" (Pawlowski et al. 2004, p. 647).

- In addition, whilst recognising the tacit nature of much of this IS strategic knowledge (Pawlowski et al. 2004), the literature does offer some clue as to the rationale for CIOs choosing to interact with external peers, when it suggests that

CIOs can often be "influenced by the social status of the sender" (Watson 1990, p. 220). However, again the literature fails to clarify exactly "why" such external peer professional sources are so important.

Such observations would suggest that, whilst the activity of external boundary spanning has indeed become more critical and central to the role of the modern day CIO, a clear gap still exists within the IS management literature, in terms of our knowledge and understanding of the processes involved in such activity. Therefore, as the field of IS research relies heavily on its "reference disciplines" (Baskerville et al. 2002; Benbasat et al. 1996), such as management science and organisations science, a broader review of the top management literature relating to executive boundary spanning activities and the processes of interactions with peers in external networks is required. This is needed in order to ascertain, in the first place, "why" external peers are so important to top executives, such as the CIO, in their boundary spanning activities, and secondly, "how" they go about this process of interaction. With this in mind, Chapter 3 will now review the general management literature in relation to top management boundary spanning activities and the process of interactions with peers in external networks.

2.6 Conclusion

The objective of this chapter was to review the IS literature, and specifically the literature relating to the role of CIO. The chapter started by positioning this inquiry within the field of IS research. It then undertook to trace the evolution of the role of the CIO through the three Technology Eras of the *Mainframe Era,* the *Distributed Era* and lastly the *Web Era*. This review has shown how the role of the CIO, whilst still the most

senior IS executive, has, during the *Web Era,* now widened its original boundary spanning focus to cover the critical need to be able to "bridge the gap", not only just between the IS function and top management, but also between the organisation itself and its external IS technological environment (Gottschalk 2002; Preston et al. 2006; Smaltz et al. 2006). Such an evolution in the role has been driven by the continued development of the underlying IT technologies (El Sawy et al. 1999; Ross et al. 2000; Sambamurthy et al. 2003) and also by the changing attitudes and expectations of top management regarding the potential impact of IS (Earl 2000; Karahanna et al. 2006; Preston et al. 2008).

In addition, in many organisations today the CIO is now a formal member of the top management team (Preston et al. 2008; Prewitt 2006; Prewitt et al. 2002; Smaltz et al. 2006) and consequently, is seen to play a key role in strategic decision making. Therefore, one of the key measures of CIO success today is his/her ability to work effectively within the top management team, as part of the strategic decision making process, to develop a shared understanding regarding the specific opportunities and impact IS could have on their organisation (Armstrong et al. 1999; Chan et al. 2006; Cooprider et al. 1993; Earl et al. 1994; Nelson et al. 1996; Preston et al. 2004; Reich et al. 2000) , acting as a technology visionary or "knowledge broker" (Galliers 2007, p. 10), so as to able to advise and educate the top management team in terms of the developments and future directions for IS (Chatterjee et al. 2001; Preston et al. 2006). At the core of this role, is seen, by many authors, to be the ability to be able to "keep abreast of the advances, changes and trends in the external IS environment" (Maier et al. 1997, p. 178) via their external boundary spanning activities (Earl et al. 2000; Karahanna et al. 2006; Preston et al. 2006; Smaltz et al. 2006).

However, in reality, little is actually known about "how" CIOs undertake their external boundary spanning activities, so as to "keep abreast" with such changes in the IS technological environment. Indeed, to date, as has been shown in this chapter, research in this area has been very limited within the body of IS management literature, a fact remarked upon by some authors (Maier et al. 1997; Pawlowski et al. 2004; Watson 1990). In addition, whilst it is impossible for the CIO to "keep abreast" or focus on all sources of relevant information, or engage equally with all interested parties, within the external IS technological environment, the IS management literature does suggest that interaction with external peers are the most important and influential source in this regard (Maier et al. 1997; Pawlowski et al. 2004; Watson 1990). However, it fails to clarify either "why" such contacts with external peers are so important or for that matter, "how" they go about this process of interaction. Therefore, Chapter 3 will now review the general top management literature in relation to executive boundary spanning activities and interactions with peers in external networks.

Chapter 3 Boundary Spanning and External Peer Networks

"To what extent are organisations shaped by their environments, by the network of individuals, groups, agencies, and organizations with whom they interact?"

(Miles, Snow and Pfeffer, 1974, p. 244).

3.1 Introduction

Chapter 2 reviewed the IS management literature in relation to the role of the CIO and concluded that the role of the CIO has evolved since first introduced some thirty years ago. This review of the literature has shown how the role of the CIO, whilst becoming the most senior IS executive in many organisations and consequently involved at the highest level with the top management team, has widened its original boundary spanning focus to cover the critical need to be able to "bridge the gap", not only just between the IS function and top management, but also between the organisation itself and its external IS technological environment (Gottschalk 2002; Preston et al. 2006; Smaltz et al. 2006).

However, whilst the IS literature has identified the importance of CIOs interacting with external peers, as part of their external boundary spanning activities, it fails to identify how they interact with external peers or, for that matter, why external peers are so important to CIOs in this activity. Consequently, the purpose of this chapter will be to

review the general management literature in relation to top management boundary spanning activities and also in relation to their interactions with peers in external networks, in order to gain a better understanding of "how" and "why" top management executives, such as the CIO, undertake their external boundary spanning activities.

The chapter is structured in the following way: Section 3.2, will review the strategic decision making process, which acts as the context for the boundary spanning activities of top management. Within this section, Hambrick and Mason's (1984) Upper Echelons Theory will be used to describe how top management team members work together as part of the strategic management process. Upper Echelons Theory, is seen as being particularly relevant to this review as it has provided theoretical support to a number of key CIO related studies, including Jarvenpaa et al. (1991); Feeny et al. (1992); Armstrong et al. (1999); Enns et al. (2003); Smaltz et al. (2006) and Preston et al (2008).

Section 3.3, will then discuss the issue of the external boundary role of top management team members, outlining the importance of external peer networks in this regard. Next, Section 3.4 will look at external peer networks as "communities of practice". External peer networks, such as those engaged in by CIOs, have been described by Snyder and Wenger (2003, p. 1) , as communities of practice that "cross formal boundaries to bring together practitioners who are facing a common challenge – to learn from each other, to develop new solutions to problems, to find synergies across organisations and to coordinate efforts". Section 3.5, will then take a broader, *Social Network Perspective*, to look at the social context in which interactions occur within such external peer networks. This section will review Social Network Theory, Social Referent Theory and

Social Capital Theory. Finally, Section 3.6 will conclude by suggesting that, whilst the general management literature does indeed help to explain "why" external peer networks are so important to top management in their boundary spanning activities, gaps still exists in our knowledge in relation to the "how" question. This "how" question is at the centre of the focus of this research study and therefore further inquiry is indeed warranted into the actual process of interaction of CIOs within such external peer networks.

3.2 Top Management and Strategic Decision Making

The making of strategic decisions is seen to be one of the key functions of top management in any organisation (Child 1972; Hambrick et al. 1984). Strategic decisions are seen to be "those which are 'important' to the organisation – either through the scope of their impact and/or through their long-term implications" (Hambrick et al. 1977, p. 109). According to Miles, Snow and Pfeffer (1974), strategic decisions can be classified into three main categories: first, those that relate to the choice of a particular product/service market domain; second, those that are concerned with the creation of the necessary technology required for serving that domain; and third, those decisions that are focused on the establishment of an organisation structure and processes to coordinate and control the operations of the organisation. Each of these three sets of variables, it has been suggested, must be constantly aligned and re-aligned as the organisation evolves (Hambrick et al. 1977).

Although strategic decisions are often seen to be taken by top management as a result of a formal planning process, they can also result from on-going opportunism and boundary spanning activities in the organisation's marketplace (Aguilar 1967; Cyert et al. 1963; Watson 1990). Strategic decision making, or "strategic choice" as termed by Child (1972), tends to be characterised by conditions of significant ambiguity and uncertainty. In the view of theorists from the Carnegie School (Cyert et al. 1963; March et al. 1958), such complex decisions tend to be surrounded by "multiple and conflicting goals, myriad options and varying aspiration levels" amongst top managers, that all serve "to limit the extent to which complex decisions can be made on a techno-economic basis" (Hambrick et al. 1984, p. 194).

This view of the complexity of such decisions has been supported by the research of Mintzberg et al. (1976). Here they have suggested that due to the often overwhelming volume and diversity of conflicting informational cues surrounding such strategic decisions, standard rational decision making processes are often unsuitable. Instead, theories such as Upper Echelons Theory, which is based on the concept of "bounded rationality" (Cyert et al. 1963), suggest that "informationally complex, uncertain situations are not objectively 'knowable' but, rather, are merely interpreted" (Mischel 1977, cited in Hambrick, 2007, p. 334) and therefore "executives act on the basis of their personalised interpretations of the strategic situation they face and these personalised construals are a function of the executives' experiences, values and personalities" (Hambrick 2007, p. 334).

Upper Echelons Theory also suggests that, in the interest of cognitive economy, individual decision makers prefer information sources that are familiar and convenient

to them and therefore tend to rely on personal or peer contacts, pre-existing bodies of knowledge and past experiences in their search for solutions to strategic decisions (Geletkanycz 1994). March and Simon (1958), for instance, suggest that each decision maker brings his or her own set of 'givens' to each decision situation. These "givens" are seen to reflect the decision maker's "cognitive base". These are defined as (Hambrick et al. 1984, p. 195):

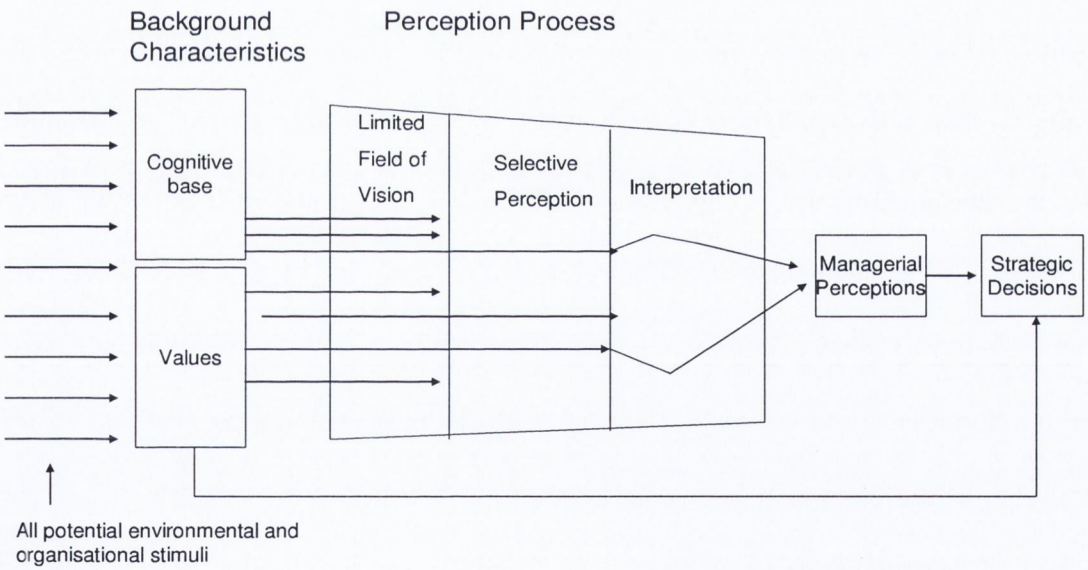
- Their knowledge or assumptions about future events
- Their knowledge of alternatives
- Their knowledge of consequences attached to alternatives.

However, such strategic decisions are seldom made in organisations by the chief executive alone. They are more normally based on the "collective cognitions, capabilities and interactions" (Hambrick 2007, p. 334) amongst the top management members, and specifically a "dominant coalition"[6] of the most influential members within the top management team (Hambrick 2007; Hambrick et al. 1984). Therefore, Upper Echelons Theory (Hambrick et al. 1984) suggests that the strategic decisions taken by an organisation are often a reflection of the background characteristics of the individuals who make up that "dominant coalition" in the organisation. These background characteristics act as perceptual filters for the information received by top management, as well as helping to define and shape the "simplified model of reality" adopted by top management.

[6] The composition of the actual "dominant coalition", at any point in time, may vary depending on the internal structures, power and the specific focus or elements of the strategy being pursued (Carpenter et al. 2004; Eisenhardt et al. 1988; Miles et al. 1974).

Such a "simplified model of reality" helps to assist them in handling the wide array of ambiguous cues calling for their attention (Finkelstein et al. 1990; Geletkanycz 1994, p. 15). Specifically, Upper Echelons Theory suggests that it is the personal values and cognitive bases of the executives that impact on the perception of the individual top managers and create a 'lens' or 'screen' between the decision environment and his/her perception of it (Hambrick et al. 1984). This perceptual environmental scanning process, outlined in Figure 4 below, can be conceptualised as a sequential process (Hambrick et al. 1977).

Figure 4: Upper Echelons Theory – Process of Strategic Decision Making (adapted from Hambrick et al. 1984)



Here, in the first instance, the top management cannot be expected to scan every opportunity, information source and aspect of the organisation and its environment. Therefore, their "field of vision" is restricted to those sources deemed most relevant, thus placing a sharp limitation on potential perceptions (Hambrick et al. 1984).

Secondly, these perceptions are further limited as each individual only selectively perceives some of the phenomena available in his/her field of vision. Lastly, even those pieces of information, selectively chosen or perceived, are not objectively given, but are further processed or interpreted by a filter "woven by one's cognitive base and values" (Hambrick et al. 1984, p. 195)

Since it was introduced in 1984 by Hambrick and Mason, Upper Echelons Theory has been further developed, within the general management literature, in a number of significant ways, by a growing body of academic researchers (Carpenter et al. 2004; Hambrick 2007). For instance, further advances in the development of Upper Echelons Theory have suggested that, as well as the cognitive bases and values of the individual executives, the social context and processes that develop within the top management team, by virtue of their ongoing interactions, can also impact on the perceptions of the top management team and therefore on the strategic decisions taken by them (Carpenter 2002; Eisenhardt et al. 1988; Geletkanycz et al. 1997; Knight et al. 1999; Pfeffer 1987; Smith et al. 1994; Wiersema et al. 1992).

Much of this work is based on the concept of the 'social construction of reality' (Berger et al. 1967), whereby individuals working together within a social context, such as the top management team, will "tend to arrive at shared definitions of their relevant, yet inherently complex world" (Geletkanycz 1994, p. 19). Indeed, Hambrick (2007, p. 335), in referencing the work of the likes of Smith et al. (1994) and developments in Upper Echelons Theory, has described this as "examining the social processes that mediate between executives' demography on the one hand and their behaviours on the other".

More recently, the Upper Echelons Theory has been further extended by authors such as Geletkanycz and Hambrick (1997) and Clark and Smith (2002) to suggest that, in addition to issues such as executive characteristics and the social processes adopted, another significant factor can impact on the perceptions of the top management team members, and consequently on the strategic decision making processes of top management teams. These authors have suggested that as a significant amount of top management's attention is directed towards interaction with outside contacts (Bernard 1938; Kotter 1982; Mintzberg 1973), top management executives therefore function within a social context that is much wider than just their own top management team (Clark et al. 2002; Geletkanycz et al. 1997; McDonald et al. 2003).

Indeed, in 1974, Miles, Snow and Pfeffer (1974, p. 244), in the opening to their article "*Organization-Environment: Concepts and Issues*", had recognised this issue and posed the question "to what extent are organizations shaped by their environments, by the network of individuals, groups, agencies, and organizations with whom they interact?". These extensions to Upper Echelons Theory attempt to recognise the importance and impact of social interactions, both within the top management team, and also between individual members of the top management team and networks of external contacts, on the strategic decisions taken by top management (Carpenter et al. 2004; Clark et al. 2002; Collins et al. 2003; Geletkanycz et al. 1997; McDonald et al. 2003).

3.3 Top Management and External Boundary Spanning

It has been suggested that the external boundary spanning activities of top management play a central role in the strategic decision making process of top management (Aldrich et al. 1977; Carpenter et al. 2004; Geletkanycz et al. 1997; Hambrick 1981; Jemison 1984; Leifer et al. 1978; Tushman et al. 1981). Whilst boundary spanning roles can and do exist internally within organisations, often operating between different units or specialist areas, it is the role of the externally focused boundary spanner that has become key to the strategic success of organisations coping with their uncertain environments (Grant 1996; Hambrick 1981; Kotter 1982; Levina et al. 2005; Nonaka 1994; Thompson 1967).

Numerous researchers have put forward suggestions regarding specific activities which such boundary spanners should undertake (Adams 1976; Aiken et al. 1972; Aldrich et al. 1977; Katz et al. 1966; Leifer et al. 1978; Tushman 1977; Tushman et al. 1981). For instance, Katz and Kahn (1966) talked about three specific activities that, in their view, should be undertaken by external boundary spanners, namely: 1) procuring resources and disposing of outputs; 2) relating the organisation to its larger community and environment; and 3) assisting the organisation in adapting to the future, by gathering information about trends in the marketplace. Leifer and Delbecq (1978) saw the key activities of external boundary spanners to be the protection of the organisation from environmental stress and to act as regulators of the flow of information and materials between the organisation and its environment. Tushman (1977, p. 591) described people undertaking the role of external boundary spanners as "gatekeepers" who act to "mediate the transfer of information from external information areas into the organisation's internal communication network" and thus buffer the organisation from

external uncertainty. In addition, Aldrich et al. (1977) suggested that external boundary spanners undertake two key activities, namely, the processing of information between the organisation and its environment, and the representation of the organisation with external parties.

External boundary spanners are therefore, by the nature of their position, operating at the edge of the organisation's boundaries, "exposed to large amounts of potentially relevant information" (Aldrich et al. 1977, p. 218). This information they will filter, interpret and translate before introducing within the boundaries of the organisation so that, where relevant, it can be input into the process of strategic decision making (Hambrick et al. 1984; March et al. 1958). However, to be successful in this role of external boundary spanning, top management need to possess the requisite skills and competencies to allow them to "communicate effectively with external ties" (Tushman et al. 1981, p. 293).

To do this requires that external boundary spanners have the necessary work-related expertise and can understand the languages, norms and conceptual frameworks of the groups and individuals operating outside their organisation (Carlile 2004; Tushman et al. 1981). Indeed, Aiken et al. (1972, cited in Aldrich et al. 1977, p. 223) concurred with this view of external boundary spanning and suggested that top managers needed to "engage in a great deal of boundary spanning contact because of the need to maintain contact with a professional reference group and keep abreast of changing technology in the field".

At the core of the role of external boundary spanning is seen to be the activity of *environmental scanning* (Hambrick 1981). Based on the original definition from Aguilar (1967), the activity of environmental scanning has been described by Auster and Choo (1994, p. 607) to be "the acquisition and use of information about events and trends in an organisation's external environment, the knowledge of which would assist management in planning the organisation's future courses of action". Environmental scanning is seen as the "first step in the ongoing chain of perceptions and actions leading to an organisation's adaptation to its environment" (Hambrick 1981, p. 299) and is therefore seen to drive the top management strategic decision making process in organisations (Auster et al. 1994).

Such a process of environmental scanning amongst top management, whilst often conducted on an *ad hoc* basis, is viewed as being essential to the efforts of the organisation in dealing with uncertainty in its environment (Aguilar 1967; Choo 2001; Fahey et al. 1977). Daft et al. (1988, p. 137-138) have suggested that the external environment of an organisation can be divided into six environmental sectors, namely:

- *Customer Sector* – this refers to those companies or individuals that purchase the products made by the respondent's firm, and can include companies that acquire the products for resale, as well as final customers;
- *Competition Sector* – this includes the companies, products, and competitive tactics: companies that make substitute products; products that compete with the respondent firm's products; and competitive actions between the respondent's firm and other companies in the same industry;

- *Technological Sector* – this includes the development of new production techniques and methods, innovation in materials and products, and general trends in research and science relevant to the respondent's firm;
- *Regulatory Sector* – this includes international and national legislation and regulations, city or community policies, and political developments at all levels of government;
- *Economic Sector* – this includes economic factors such as stock markets, rate of inflation, foreign trade balances, national budgets, interest rates, unemployment, and economic growth rates; and
- *Socio-cultural Sector* – this includes social values in the general population, the work ethic, and demographic trends.

However, whilst all of these areas can impact on the business environment of the organisation, research suggests that top management tend to specialise and focus their individual environmental scanning efforts "according to their hierarchical levels and functional areas" (Hambrick 1981, p. 300). Therefore, in terms of the CIO, it is the external IS technological environment that is of most importance to them in their environmental scanning activities (Armstrong et al. 1999).

Such environmental scanning activities can be potentially costly to individual top management executives, especially in terms of the time and effort involved (Aguilar 1967; Carlile 2004; Daft et al. 1988; Hambrick 1981; Kefalas et al. 1973; Mintzberg 1973). As a case in point, Mintzberg suggested that top management executives, via their *Liaison* and *Monitor* roles, spend "44% of their contact time with people outside their organisations" (Mintzberg 1975, p. 55). This emphasis on the importance of the

external focus of scanning activities, by top management, is also supported by Ghoshal (1985, p. 183), as shown in Table 4:

Table 4: Use of Internal and External sources by Top Management for Environmental Scanning (Ghoshal 1985, p. 183)

Study	**(Aguilar 1967)**	**(Collins 1968)**	**(Keegan 1967)**	**(Ghoshal 1985)**
Industry	**U.S. Chemical Industry**	**U.S. Financial Services**	**U.S. Multinationals**	**Korean Organisations**
% Internal Sources	*45*	*26*	*34*	*43*
% External Sources	*55*	*74*	*66*	*57*

In terms of the approach to scanning adopted, Aguilar (1967) has suggested that environmental scanning can essentially happen in two differing modes: the activity of *searching,* which as the name suggests, relates to the activity of looking for information regarding a specific issue or problem; and *viewing* which is described as the activity of being exposed to information without a particular information need in mind. In addition,

Watson (1990) has suggested that environmental scanning activity can be described in terms of "rational" information seeking and the alternative approach of the "garbage can model of organisation choice" (Cohen et al. 1972, p. 1).

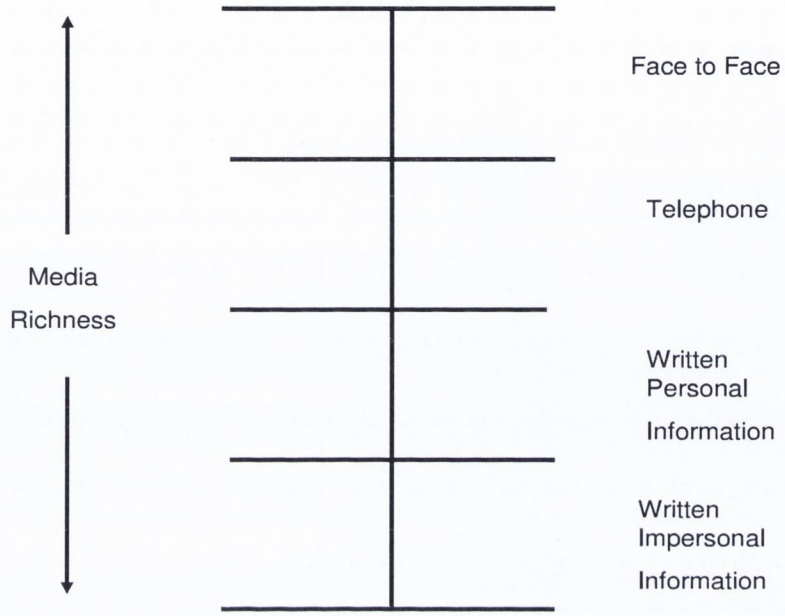
Furthermore, it has been suggested that the differences in the mode of environmental scanning adopted by top management, at any particular point in time, may, indeed, be driven by differences in motivation. On the one hand *searching,* or the rational approach to environmental scanning, can be seen as an attempt to link specific internal problems or decision requirements with specific external conditions or solutions. On the other hand, the motivation for adopting *viewing* or the "garbage can" (Cohen et al. 1972) approach to environmental scanning can be driven more by political reasons within the top management team. This is suggested because as the "more solutions that are advanced, the greater the probability that one of these will collide with a particular problem in the organisational mix of issues and thus lead to increased resources allocated" to the specific functional area of the individual executive (Watson 1990, p. 219).

As well as there being different modes or ways of undertaking environmental scanning, the nature of the type of information scanned can also have an impact on the particular sources preferred by those undertaking the scanning activity (Daft et al. 1987). Traditionally, researchers have conceptualised environmental scanning in terms of "uncertainty", with "uncertainty" being described in terms of "the absence of information" (Daft et al. 1987, p. 357); where "uncertainty" is described as "the difference between the amount of information required to perform a task and the amount of information already possessed by the organisation" (Galbraith 1973, cited in

Daft et al. 1987, p. 357). However, strategic decision making, and consequently the focus of top management external boundary spanning efforts, often faces a shortage of information that is more equivocal, ambiguous (Daft et al. 1987; Hambrick et al. 1984; Weick 1979) or novel in nature (Carlile 2004, p. 557). Such equivocality suggests that the information needed by top management to support strategic decision making tends to be based on the "existence of multiple and conflicting interpretations about an organisational situation" (Daft et al. 1987, p. 357). Therefore, they are often unsure of exactly what questions need to be asked and of whom, and need to build on their own experience and judgement (Daft et al. 1987). In such cases, top management often have to start on their own, from a position of confusion, disagreement and lack of general or shared understanding of the problem (Nonaka 1994).

In addition, Daft et al. (1987) suggest that the "richness" of different sources of information vary in their ability to facilitate the building of shared understanding of issues of an equivocal nature. Therefore, the source for information chosen by top management will often be dictated by the level of equivocality surrounding the issues under consideration. In the case of such strategic issues facing top management, it is suggested that sources high in media "richness" will hold the most interest for top management. The sources of information available to top management, and their relative media "richness" can be described, based on the hierarchy outlined in Figure 5: (Daft et al. 1987, p. 358)

Figure 5: Hierarchy of Media Richness (adapted from Daft et al. 1987, p. 358)



The richness of each source of medium is, they suggest, based on four factors (Daft et al. 1987, p. 358):

- *Feedback* – here the instant nature of the feedback allows for further questions to be asked and corrections made.
- *Multiple Cues* – an array of different cues may be an integral part of the information transmitted. These can include physical presence, voice inflection, body gestures, and the actual words used.
- *Language variety* – this relates to the range of meaning that the chosen symbols can convey. More natural or day-to-day language can be used to convey a broader understanding of difficult concepts and ideas.
- *Personal focus* – information can be conveyed more fully and clearly when personal feelings and emotions infuse the communication. Information can

therefore be tailored to the frame of reference, needs and current situation of the receiver.

This view of the preference for information sources exhibiting high media "richness" as a primary source of information and assistance to top management, due to the often equivocal nature of their information needs, is indeed supported by empirical research from other authors (Auster et al. 1994; Brown et al. 1997; El Sawy 1985; McDonald et al. 2003; Mintzberg 1973; Nonaka 1994). For example, Mintzberg's (1973) studies have shown that 82% of the time devoted to external contacts is spent with clients, suppliers, associates and peers in other organisations. Of this time the research further suggests, contacts with external peers account for 36% of the face-to-face interactions and 43% of the on-going communications.

Equally, Eisenhardt et al. (1992, p. 22) have suggested that whilst top management may indeed seek information from "many sources" they are only "focused on a few". Of these, Auster and Choo (1994) have noted in their own research, that the most often used by them are peer connections. In addition, often the information available from such sources tends to be "soft" in nature and based often on "gossip, hearsay and speculation" (Mintzberg 1975, p. 52). Therefore, due to the danger of "uncertainty absorption", which can occur when "inferences rather than actual hard facts or evidence are communicated" (El Sawy 1985, p. 56), and the need to circumvent the additional danger of intra-organisational biases (Geletkanycz et al. 1997), top management are also often "reluctant to delegate tasks" of environmental scanning to others (Mintzberg 1975, p. 52).

In essence therefore, the key difference between top management and others acting as external boundary spanners for the organisation is that whilst "uncertainty" can often be addressed simply by the acquisition of the requisite data and can sometimes be delegated to others, the nature of strategic decision making, which involves high levels of "equivocality", can best be addressed only by their own personal interactions with knowledgeable other parties, such as external peers, where there is first an opportunity to define a common understanding surrounding the problem (Carlile 2004; Daft et al. 1987; Krauss et al. 1990; Malhotra et al. 2004; Wenger 1998b).

3.4 External Peer Networks as Communities of Practice

Common or shared understanding of a problem, developed following interactions with external peers, can be seen to lead to social agreement amongst the parties regarding the available options and the most suitable response (Daft et al. 1987; Krauss et al. 1990). Shared understanding has been described as "the set of norms, behaviours and understandings team (or group) members have about the assumptions, task, work processes and contexts necessary for effective and successful collaboration" (Krauss et al. 1990, cited in Malhotra et al. (2004), p. 77). Such a definition suggests the centrality of social processes and interpretation, within some form of network or set of relationships, as a vehicle for knowledge creation and learning (Cross et al. 2001; Granovetter 1973; Nelson et al. 1996; Nonaka 1994).

Researchers in the fields of "situated learning" and "communities of practice" (Brown et al. 1991; Lave et al. 1991; Wenger 1998a; Wenger et al. 2000) have suggested that the activities of external networks can significantly affect how individuals, such as top

managers, come to create, locate, assimilate and store the knowledge necessary to do their work. Consequently, such social contexts or "communities of practice" can help to develop a socially constructed (Berger et al. 1967) worldview, local to that particular community, which reflects its shared knowledge, values, meanings, assumptions, beliefs and practices (Brown et al. 1991). Indeed, communities of practice are seen to be different from the concept of a "team", in that they are self-organising in nature and are defined by knowledge, rather than by the task itself (Wenger 1998b). Wenger has suggested that communities of practice can be defined along three key dimensions (Wenger 1998b, p. 2):

- What it is about – a sense of joint enterprise as understood and continually renegotiated by its members;
- How it functions – the relationships of mutual engagement that bind members together; and
- What capability it has produced – the shared repertoire of resources (routines, sensibilities, artifacts, vocabulary, styles) that members have developed over time.

In addition, it has been suggested by Mitchell and Trickett (1980, cited in Rose 1985, p. 534), that such networks or communities of practice, should fulfil five basic functions:

- Socialise the participants by communicating expectations concerning the norms, protocols, ethics and ideals of the group;
- Through the development of friendships, support the individual and increase the social solidarity of the group;

- Provide opportunities for peer evaluation, to help establish an individual's reputation and to promote his/her visibility within the marketplace or field;
- Provide members with contacts, informal recommendations and information about job opportunities; and
- Supply new and diverse information concerning current developments in their field or marketplace.

Therefore, such communities of practice, as external peer networks, can act for their members as a form of support mechanism and sounding board, as well as a barometer for gauging success (Cross et al. 2001; Ibarra et al. 2007; Wenger et al. 2000).

In addition, communities of practice are seen to develop around things that matter to people and their practices are seen to revolve around their members' knowledge and understanding of what is important to them. Knowledge, in its own right, is often seen to be both "tacit" (Nonaka 1994; Polanyi 1966) and "sticky" (Szulanski 1996) in nature and, therefore, "embedded partly in individual skills and partly in collaborative social arrangements" (Szulanski 1996, p. 28). Similarly, Brown and Duguid (1991, p. 47) suggest that knowledge within communities is constructed "out of a wide range of materials that include ambient social and physical circumstances and the histories and social relations of the people involved". Consequently, in the context of communities of practice, knowledge is seen to be made up of both "know what" and "know how" (Brown et al. 2001, p. 199), with "know how" being the particular ability to put "know what" into practice, and it is this "know how" that is embedded within the practices of the particular community (Brown et al. 1998, cited in Orlikowski, 2002, p. 250). Practice, in itself, has been described by Orlikowski (2002, p. 256) as being "recurrent,

materially bounded and situated social action engaged in by members of a community". In addition, other authors have suggested that such "practices" are not undertaken in a vacuum, but are undertaken in the "context of prior actions and relationships and in pursuit of a common interest" (Levina et al. 2005, p. 337) that occur "situated" within a "social context" (Borgatti et al. 2003a; Lave et al. 1991; Newell et al. 2006).

When looking at such communities of practice, Cross et al. (2001) have identified five key modes of interactions which individuals undertake as a means to gain access to knowledge and understanding from these networks. These are outlined in Table 5:

Table 5: Knowledge Seeking Interaction Types (adapted from Cross et al. 2001, p. 440)

Interaction Base	Description
Solutions Acquisition	People can turn to other people and get specific information or answers that address questions or problems. Such information tends to be declarative (know what) or procedural (know how) and allows seekers to solve a given problem.
Meta-Knowledge Attainment	People can turn to others to learn about the location of relevant information. Such information might be housed in inanimate sources or held by other people, but learning the location of relevant information increases the efficiency of problem solving.
Problem Reformulation	Often people turn to others for information and engage in interactions that lead them to think differently about their problem. Such interactions help seekers of information to consider important dimensions of a problem or future consequences of a plan.
Perspective Validation	Sometimes people turn to other people and receive no additional information but value the interaction because their own solutions or plans have been validated. Such interactions allow seekers of information to more confidently and effectively introduce their solutions to others.

Solution Legitimisation	The ability to cite a respected source as having reviewed a solution can increase its credibility beyond the objective quality of the information received.

However, such descriptions of the "how", or modes of interaction, of those seeking knowledge within external peer networks, can appear somewhat "uni-dimensional" in nature (Cross et al. 2001, p. 439) as they do not, of themselves, consider the "richness of the social interactions" which occur within these external peer networks (Sykes et al. 2009, p. 372). Therefore, it has been suggested that, in addition, a wider *Social Network Perspective* (Borgatti et al. 2003b) needs to be adopted in order to help "gain insights into the workplace interactions" (Sykes et al. 2009, p. 372) within such external peer networks. Theories such as Social Network Theory, Social Referent Theory and Social Capital Theory attempt to address these issues of the richness of the social interactions that occur within such external peer networks.

3.5 A Social Network Perspective on External Peer Networks

3.5.1 Social Network Theory

Social Network Theory (Barnes 1954; Burt 1992; Granovetter 1973; Tichy et al. 1979), has been developed specifically to study the nature of the relationships or "ties" that exist between individual "actors" within social networks, such as those external peer networks engaged in by top management. This theory suggests that the connections between individual actors or "nodes", can be divided up into two types, namely, "instrumental network relationships" and "expressive network relationships" (Ibarra

1993b, p. 59). Instrumental relationships evolve between parties in a network based on the exchange of job-related resources, such as information, expertise, professional advice, political access and material resources (Fombrun 1982; Kotter 1982; Tichy et al. 1979). Such instrumental relationships are seen to be of critical importance and are often a key rationale behind individuals deciding to continue to interact, beyond their initial contacts with external peer networks (Ibarra 1993b; Kotter 1982). Expressive relationships, on the other hand, involve the exchange of friendship and social support and are often characterised by higher levels of closeness and trust than those associated with instrumental relationships (Ibarra 1993b; Krackhardt et al. 1993).

In reality, both of these relationship types can and do exist within the same external peer network amongst members (Ibarra 1993b). The degree to which external peer networks provide access to instrumental or expressive relationships is dependent on the nature and basis of the individual contacts between the parties involved (Ibarra 1993b). For instance, the nature and scope of opportunities available within a particular network setting can often be based on the similarities or differences between the individuals involved. Here the concept of *homophily* suggests that interpersonal similarity and background increases the ease of communication, improves the predictability of behaviour and therefore fosters stronger relationships based on trust and reciprocity (Ibarra 1993b; Lincoln et al. 1979). In addition, it has also been suggested that, under conditions of uncertainty and ambiguity, individuals are more likely to direct their networking activities towards those who have similar personal attributes, such as business background or industry focus, than to those from a dissimilar background (Galaskiewicz et al. 1981). However, prolonged interaction within such groups can lead, in extreme cases, to "groupthink" (Janus 1972). In such a situation groups of like-

minded individuals can act to sensor information that may appear to be contradictory or challenging to their existing mutually-developed position (Janus 1972). Such situations and the ongoing nature of socialisation processes can lead over time to greater levels of homogeneity amongst the individuals in the group, thus leading to a reduction in openness to innovation and an emphasis on continuing with existing strategies and approaches (Finkelstein et al. 1990).

Another factor that can significantly impact on the nature of the relationship between two parties in a peer network is the strength or otherwise of the tie. *Tie strength* has been defined as "the amount of time, the emotional intensity, the intimacy (mutual confiding), and the reciprocal services that characterise the tie" (Granovetter 1973, p. 1361). Weak ties are seen as being preferable for attaining access to new ideas, different approaches and connections (Granovetter 1973). However, the value of such relationships lies "less in the 'weakness' of the relationship, than in the greater likelihood that they constitute a 'bridge' to parts of the social system that are otherwise disconnected" (Ibarra 1993b, p. 62).

On the other hand, relationships based on strong ties are seen to be more important from an expressive perspective. Influence and persuasion, it has been suggested, are more easily exercised in social situations that are based on close and trusting relationships (Granovetter 1973). However, relationships based on strong ties require greater effort to develop and maintain and thus can put a practical limit on the number of such ties an individual can successfully operate (Ibarra 1993b). In addition, any restriction of network relationships to those of a similar background can also significantly reduce the range of access to information from other relevant sources (Granovetter 1973).

Therefore, it is felt that a range of relationships, based on both strong and weak ties, are important to individuals participating in networks (Granovetter 1973).

3.5.2 Social Referent Theory

Another theory relevant to the activities of social networks, such as those external networks engaged in by top management, is Social Referent Theory (Brass 1984; Krackhardt et al. 1994; Shah 1998). This theory describes those people whom an individual may deal with in a peer network, that is their *social referents*, in terms of "cohesive actors" and "structurally equivalent actors" (Shah 1998). Cohesive actors are described as those individuals with close personal ties or friendships, whilst structurally equivalent actors are those who share a "similar pattern of relationships with others and thus occupy the same position in a network" (Shah 1998, p. 249). In terms of cohesive actors, research suggest that people are influenced more by those with whom they have close interpersonal relationships, as direct and consistent interaction with such individuals results in socially constructed perceptions (Ibarra 1993b). As the underlying basis for influence is seen to be co-operation, individuals use the close nature of the relationship to reduce uncertainty and equivocality.

Specifically, three factors are seen to facilitate direct and detailed information exchange between cohesive actors, namely, proximity, frequency of contact and trust. Individuals in these situations have the opportunity to acquire information direct from cohesive actors, whilst at the same time relying on the security of the underlying relationship to allow them to "expose their knowledge deficiencies" (Shah 1998, p. 252). For instance, relationships with cohesive actors can, it has been suggested, directly influence technology adoption decisions, as one actor can help another actor develop a better

understanding of its merits and can thus trigger his/her own adoption (Rice et al. 1990). Equally, cohesive actors have been seen to influence employment attitudes about organisations, their perceptions of others and even job selection decisions (Krackhardt 1990; Kram et al. 1985). However, as has been suggested in Social Network Theory with "structural ties" (Granovetter 1973), such connections with cohesive actors can also act to restrict information sources and contact with others outside one's immediate group (Shah 1998), as well as intensifying the pressure for conformity within such relationships (Ibarra et al. 1993).

On the other hand, it has been suggested that actors in an external peer network can be influenced by those who are structurally equivalent. Here it has been suggested that those who occupy similar positions in other organisations can, by the nature of this similarity, potentially influence others in the network (Burt 1987). Actors can become structurally equivalent due to their similar backgrounds, experiences and work related roles. One basis for influence, common in relationships involving structurally equivalent actors, is the "inherent rivalry between individuals who occupy the same network position" (Shah 1998, p. 251).

Whilst not as close to cohesive actors, the nature of their similarity can still create common approaches, attitudes and perspectives on industry related issues (Ibarra et al. 1993). Information can be obtained from structurally equivalent actors without the need for close direct contact. Often the underlying rivalry between actors in similar work or experiential positions can lead to more indirect mechanisms for information acquisition. Individuals in structural equivalent positions may "hesitate to ask a structural equivalent for information for fear of appearing incompetent in the presence of a competitor"

(Shah 1998, p. 252). Therefore, "they may rely more on observations and second-hand information gathering techniques to obtain information from structural equivalents" (Shah 1998, p. 252). Overall therefore, the information acquired from structurally equivalent actors may, in the long run, be more varied and potentially valuable than that obtained from cohesive actors.

3.5.3 Social Capital Theory

A third theory, Social Capital Theory, is also relevant to the interactions which take place within external peer networks. Each of the interaction types specified above talks in terms of "seekers" of knowledge (Cross et al. 2001), however the value of the interactions and the knowledge gained and created, can indeed be seen as benefiting both parties to the interaction, as well as the wider social network. Such interactions can, therefore, lead to the creation of new shared knowledge or shared understanding remaining within the boundaries of the peer network (Nahapiet et al. 1998). Shared understanding, which is often based on common understandings of the problem and mutual trust between the individuals, as well as the myriad connections and relationships supporting the peer network, can form the basis of the creation of "social capital" within the network (Field 2008; Nahapiet et al. 1998; Portes 1998).

The term "social capital" initially appeared in community studies, highlighting the central importance of the networks of strong cross-cutting personal relationships, developed over time, that provide the basis for trust, cooperation, and collective action in such communities (Jacobs 1965). However, the concept of "social capital" really only came into its own in the 1980's and 1990's with the separate writings of Bourdieu, Coleman and Putman (Field 2008). Bourdieu (1986) based his understanding of social

capital on the Marxist concern for the unequal access to resources within society and how certain groups maintain their power and privilege. Coleman's (1988; 1990) starting point on social capital was that individuals act rationally and will work together in social networks in pursuit of their own interests. However, it was Putman's (1993; 1995; 2000) underlying concepts of association and civic activity, acting as a basis for social integration and social betterment, that have become the more common basis for social capital research today (Field 2008; Nahapiet et al. 1998; Portes 1998).

The central concept or idea behind "social capital" is that the network of relationships that exist, in situations such as those found in external peer networks, constitute, in and of themselves, a valuable resource for the conduct of social interactions, thus providing their members with 'collectively owned capital' (Bourdieu 1986; Ibarra et al. 2005). Putman (2000, p. 19) describes this concept by suggesting "just as a screwdriver (physical capital) or a college education (human capital) can increase productivity (both individual and collective), so too social contacts affect the productivity of individuals and groups". The cornerstones of the creation and maintenance of social capital within a network are the concepts of 'generalised reciprocity' and 'social trust'. Putman refers to 'generalised reciprocity' in terms of "I'll do this for you now, without expecting anything immediately in return and perhaps without even knowing you, confident that down the road you or someone else will return the favour" (2000, p. 134). Social trust, he describes as "a 'standing decision' to give most people (whom you will meet within a network situation) – even those whom one does not know from direct experience – the benefit of the doubt" (2000, p. 136).

Putman (2000) has defined two types of social capital: 'bonding social capital', which is associated with the norms of reciprocity and trustworthiness that bind people together into closely knit cohesive groups, associations or organisations; and "bridging social capital", which he described as the capital that results from those social networks of relationships that connect people to other separate cohesive groups, associations or organisations. Bonding social capital is seen to be "exclusive" in nature, tending to reinforce similar identities and homogeneous groups and constituting "a kind of sociological superglue". Bonding capital, whilst strong in in-group loyalties, "may also create out-group antagonism" (Putman 2000, p. 23) and "malevolent co-operation" (Field 2008, p. 79). Bridging capital, on the other hand, is described in terms of being "inclusive" in nature, providing better mechanisms to link to external assets and information sources and, in turn, "acting as a type of sociological WD-40" (Putman 2000, p. 23). Both of these forms of social capital are important and, indeed, many networks or groups are seen to "bond" along some social dimensions and "bridge" across others.

Unlike other forms of capital, such as financial capital, physical capital and human capital, social capital is owned jointly by the parties in a relationship, and no one person can have exclusive control over, or rights to, it (Burt 1992). Indeed, it has been suggested that social capital cannot be traded easily as "friendships and obligations do not readily pass from one person to another" (Nahapiet & Ghoshal 1998, p. 244). Nahapiet and Ghoshal (1998) have described social capital in terms of three core "dimensions", namely, structural, relational and cognitive. The "structural" dimension of social capital they suggest refers to "the overall pattern of connections between actors (in a network) – that is, who you reach and how you reach them" (1998, p. 244). Here

they talk in terms of the pattern of linkages between actors in regard to density, connectivity and hierarchy. This concept builds on the underlying concept in Social Network Theory of "tie strength" (Burt 1992; Granovetter 1973).

The "relational" dimension refers to "those assets created and leveraged through relationships" (Nahapiet and Ghoshal 1998, p. 244). They suggest that this describes the kind of personal relationships people have developed with each other through a history of their interactions. Finally, the "cognitive" dimension refers to "those resources providing shared representations, interpretations and systems of meaning among parties" (Nahapiet and Ghoshal 1998, p. 244). Such "cognitive" dimensions of social capital can, in their own way, lead to the development of shared understandings within the social networks, which they suggest can be based on "shared language and codes, and shared narratives" (Nahapiet and Ghoshal 1998, p. 244). In addition, it has been suggested that social capital "makes possible the achievement of ends that would be impossible without it or that would be achieved only at extra cost" (Nahapiet and Ghoshal 1998, p. 244). For instance, it has been suggested that social capital, based on high levels of trust, can diminish the opportunity for, and probability of, opportunistic behaviour amongst individuals interacting together within a network, and that this in turn can reduce the overall transaction costs involved (Putman 1993).

Social Capital Theory does not directly, of its own right, explain how such "high levels of trust" are achieved. However, inherent in such a situation, in the view of the researcher, is the suggestion of the development of trust over time, via a process of interaction within a social network such as an external peer network. Lewicki and Bunker (1996) have suggested that trust can exist at three levels within working

relationships, namely "calculative based trust", "knowledge based trust" and "identification based trust". They suggest that knowledge gained through ongoing contact and commitment to individuals can lead to an increase in the level of trust between individuals over time. Trust itself has been described in terms of "faith in the moral integrity or goodwill of others, which is produced through interpersonal interactions that lead to social-psychological bonds of mutual norms, sentiments and friendships" (Homans 1961, cited in Ring et al. 1994, p. 93).

Lewicki and Bunker (1996) describe "Calculative based trust" as the initial or lowest level of trust between individuals operating in a work type situation, such as those interactions common within external peer networks. "Calculative based trust" suggests the expectation of the behaviour of another, based on some calculation of the likely costs of such interactions. Here it is suggested that the individual parties to the interaction will act rationally, in light of organisational or other norms of behaviour acting as a safeguard against any opportunistic behaviour. In the case of external peer networks, this could refer to the basic social norms of behaviour expected from anyone operating within the network. At this level of trust, individuals will act cautiously and tend to be guarded in their actions and approach to others. They also suggest that repeated interactions between individuals can give them an opportunity to get to know each other better, and thus move on to the next level of trust.

The second level of trust, referred to as "knowledge based trust" is, they suggest, based on an evolving body of knowledge and evidence of another's trustworthiness (Lewicki et al. 1996). Here often following a series of direct one-to-one dealings and interactions with another, an individual can come to develop a level of trust that goes beyond

reliance on the norms of behaviour expected within the network. Finally, they suggest, the highest level of trust available in such cooperative environments is called "identification based trust". Here following repeated interactions between individuals, they can come to "identify" clearly with each other as a group. Such identification is based on a sense of shared views, common needs and goals, and ultimately such "identification" can lead to a sense of moral obligation to each other and the creation of a collaborative spirit amongst the individuals (Lewicki et al. 1996).

3.6 Conclusion

The objective of this chapter was to review the general literature in relation to top management boundary spanning activities and their interactions with peers in external networks. The purpose was to both gain a better understanding of the processes involved (i.e. the "how") and also to assess the importance of top management interactions with external peer networks (i.e. the "why").

This review did indeed help to clarify the "why" question in relation to the importance of external peers, over all other sources, to the boundary spanning activities of top management. External contacts with peers are seen to be the most important due to a number of key factors, such as the often equivocal or ambiguous nature of many of the strategic issues facing top management (Daft et al. 1987; Geletkanycz et al. 1997; Hambrick et al. 1984) and therefore the need to create a shared understanding with other peers regarding the problems and issues facing them (Carlile 2004; Daft et al. 1987; Krauss et al. 1990; Malhotra et al. 2004; Wenger 1998b); the dangers of delegating such sensitive inquiries to subordinates (Daft et al. 1987) and the perceived value of face-to-

face and ongoing interactions with peers in external network situations (Mintzberg 1973). In addition, the importance of external peer interactions to top management has also been recognised in strategic decision making theories, such as Upper Echelons Theory (Geletkanycz et al. 1997).

Nevertheless, in terms of the "how" question, the general management literature does not provide a complete and holistic view of the process of interaction that takes place within these external peer networks. Varying theoretical bases provide, on the one hand, insights into these external peer networks as "communities of practice", or, on the other, consider the nature of some of the knowledge seeking activities occurring in this environment, or, indeed for that matter, help us to understand the underlying social network aspects of such interactions. However, they provide an incomplete picture regarding the process of how top management, such as the CIO, interacts with external peer networks. Therefore, this research study will now proceed, over the coming chapters, to seek to address this specific research question of "how do CIOs interact with external peer networks", in order to develop a comprehensive and holistic theory relating to such interactions.

Chapter 4 Research Methodology

> *"Why should anyone set store by what we are asserting as a result of our investigation?*
>
> (Crotty, 2003, p. 41)

4.1 Introduction

The purpose of this chapter is to describe the selection and justification of an interpretivist research paradigm, and the methodology of Grounded Theory, to support the development of theory related to how CIOs interact with external peer networks. This chapter is laid out in the following way: Section 4.2 will introduce the concept of research design. Section 4.3 then discusses the most common research paradigms that underlie research in the field of IS. It will also identify the reasons for choosing an interpretivist research paradigm for this particular research study, and outline the use of interpretivism, to date, in the field of IS research.

Section 4.4 will then describe the key methodologies associated with an interpretivist research paradigm and outline the reasons for the choice of the methodology of Grounded Theory for this research study. Section 4.5 looks at the background to Grounded Theory, the fundamental constructs of Grounded Theory, the key schools of Grounded Theory and also provides an overview of the use of Grounded Theory in IS research. Section 4.6 then provides an overview of the phases involved in the building of theory, via the use of Grounded Theory, and finally, Section 4.7 revisits the nature of

the proposed inquiry and concludes on the need and the suitability of the proposed approach to such inquiry.

4.2 Research Design

Research has been defined by Saunders et al. as "something that people undertake in order to find out things in a systematic way, thereby increasing their knowledge" (Saunders et al. 2003, p. 3). This definition would suggest that any research study must involve the undertaking of a process of inquiry, in an organised or systematic manner, leading to the attainment of knowledge. Key to the success of such a process of inquiry is the design of the research process (Creswell 2003). A number of authors have suggested processes for selecting the most appropriate research design (Creswell 2003; Crotty 2003; Denzin et al. 1994; Sarantakos 2005). However, whilst there may be some variation in these research design approaches, in terms of the number and exact definition of each of the steps involved, they all set out to address the two key concerns of any research design (Crotty 2003), namely:

- what methodology will be used to undertake the research study, and
- what is the underlying research paradigm chosen by the researcher that informs the selection of this methodology.

A research paradigm has been described as the "philosophical stance" we choose to adopt as researchers (Kuhn 1970; Sarantakos 2005). This research paradigm represents a choice of beliefs that will underlie and guide our research study (Guba 1990). These two issues, which Crotty suggests must be decided upon at the outset of any research

study, will, he believes, "shape the meaning of the research question, the purposiveness of the research methodology and the interpretability of the research findings" (Crotty 2003, p. 17).

4.3 Research Paradigm

4.3.1 Importance of Research Paradigm

The research paradigm adopted defines how we view the nature of reality and therefore how we, as researchers, look at the world, obtain knowledge and make sense of it (Hirschheim et al. 1992). At the core of this choice of research paradigm are the concepts of ontology and epistemology (Guba et al. 1994a). Ontology relates to the nature of reality and "what is assumed to exist", that is, the nature of the basic building blocks that make up the phenomena or objects being investigated (Iivari et al. 1998). Ontology questions whether the "reality" to be investigated exists external to the individual or is a product of the individual's consciousness (Burrell et al. 1979).

These two opposing views of reality have been the subject of ongoing debate within the social science literature (Burrell et al. 1979). Guba and Lincoln (1994a) describe these views in terms of *realism* and *relativism*. Realism (sometimes referred to as naïve realism) suggests that social reality is assumed to exist driven by immutable natural laws and mechanisms. On the other hand, they suggest that "relativism" views social reality as being comprehensible in the form of multiple, intangible mental constructions, socially and experientially based. Such a world is therefore seen to consist of "multiple realities influenced by context" (Mills et al. 2006, p. 2).

Epistemology is concerned with assumptions regarding the grounds for knowledge and about how the researcher might understand the world and communicate this as knowledge to others (Burrell et al. 1979). Epistemology deals with such questions as whether knowledge can be identified objectively with precision and certitude or whether knowledge is fashioned by the human consciousness (Crotty 2003). Crotty identified three common perspectives on epistemology that are used today in social science, *Objectivism, Subjectivism* and *Constructivism.* He describes *Objectivism* as the view that knowledge exists as meaningful entities independently of consciousness and experience, that they have truth and meaning residing in them 'as objects', and that "careful research can attain that objective truth" (Crotty 2003, p. 5). *Subjectivism*, on the other hand, he sees as being at the opposite end of the epistemological perspective, suggesting that knowledge, within the social world, depends solely on a person's subjective awareness of it (Crotty 2003).

The remaining epistemological viewpoint, *Constructivism*, he suggests, is based on the view that knowledge, and therefore meanings within the social world, are constructed by human beings as they engage with the world they are interpreting. Within the constructivist viewpoint social "meaning" cannot be described as being truly objective as would be the case with objectivism, or for that matter, totally subjective, as would be the case under subjectivism. Social knowledge and meaning are seen to be "constructed" or interpreted by individuals based on their frame of reference, that is, their perceptions, experiences and understandings of the social world they occupy (Crotty 2003).

4.3.2 Research Paradigms used in Social Research

Guba and Lincoln (1994a) have highlighted four research paradigms commonly used in social science today, *positivism, post-positivism, constructivism* and *critical theory.* However, other authors have suggested that there are only three major research paradigms, with post-positivism being seen as a variant of positivism and interpretivism being used instead of the term constructivism (Chua 1986; Crotty 2003; Sarantakos 2005). Table 6 lists these common theoretical perspectives and their related ontological and epistemological foundations.

Table 6: Dominant Research Paradigms used in Social Research and their Ontological and Epistemological foundations (adapted from Crotty (2003)).

ONTOLOGY	**EPISTEMOLOGY**	**RESEARCH PARADIGM**
Realism	Objectivism	Positivism
Relativism	Constructivism	Interpretivism
	Subjectivism	Critical Inquiry

However, in terms of research in the field of IS, the reality is that, except for a small but growing number of cases adopting the critical inquiry stance (Hirschheim et al. 1994; Kvasny et al. 2006; Lyytinen et al. 1985; Ngwenyama et al. 1997; Trauth et al. 2007), research in IS has been undertaken mainly within either a positivist or interpretivist research paradigm (Becker et al. 2007; Chen et al. 2004; Evaristo et al. 1997; Khazanchi

et al. 2000; Orlikowski et al. 1991; Richardson et al. 2007; Walsham 1995a). Some authors would even suggest that such a distinction is not always completely clear-cut (Hopper et al. 1985; Myers 1997b; Myers et al. 2002; Weber 2004) as such a hard and fast distinction tends to pigeon-hole and classify research in a binary and often over-simplistic way (Hopper et al. 1985; Mason 2002). However, it does provide a mechanism for discussing the significant differences that exist between these underlying research paradigms and therefore the researcher's viewpoint on the nature of social reality (Hopper et al. 1985).

Equally, many authors talk about the alternative approaches to research at the level of the methods employed, be they quantitative or qualitative in nature (Beynon-Davies 1997; Bryman 2004; Denzin et al. 1994; Flick 2002; Guba et al. 1994a; Smith 1983). Whilst the use of qualitative methods is most frequently associated with an interpretivist research paradigm (Trauth 2001), qualitative research should not be seen simply as another way of describing research undertaken under an interpretive research paradigm (Klein et al. 1999). Qualitative research methods may be equally adopted from both a positivist or interpretive viewpoint (Myers 1997b). What matters fundamentally is the nature of the research paradigm that informs the researcher's worldview on the nature of social reality itself (Crotty 2003; Klein et al. 1999). Many research studies often involve the use of both quantitative and qualitative methods by way of triangulation (Denzin et al. 1994; Kaplan et al. 1988).

4.3.3 Positivism

The term "positivism" is often attributed to the 19th century French philosopher Auguste Comte (Crotty 2003) who set out to look at social interactions as physical science-like

phenomena, in an attempt to find their universally governing rules (Babbie et al. 2001). Positivism suggests that only by adopting the methods developed by the natural sciences will social science be able to explain, predict and control the actions of the human world (Charmaz 2006; Guba et al. 1994b; Lee 1991). Prior to the advent of positivism, religious based taxonomies had often been used in an attempt to explain social phenomena (Kim 2003). This new emphasis on the "positive science" was an attempt to gain knowledge or "*scientia*" (in Latin), by way of the study of the "given" (or in Latin *datum* or *data* in the plural) (Crotty 2003). Positivist research is, therefore, grounded on the basis that something is *"posited"* or objectively observed, rather than arrived at in a subjective or speculative way (Burrell et al. 1979; Crotty 2003). Under positivism, social investigation is seen to be a neutral activity in relation to human and social values, therefore, scientific "fact" needs to be kept separate from any opinions, beliefs, feelings and assumptions that are gained in a non-scientific way (Charmaz 2006; Smith 1983). Positivism also assumes that such objectively given reality can be described by measurable properties which are independent of the researcher and his/her instruments (Smith 1983).

Positivist studies are generally concerned with the hypothetic-deductive testability of theories in an attempt to increase the predictive understanding of such phenomena (Chen et al. 2004; Myers et al. 2002; Saunders et al. 2003). Scientific knowledge gained should allow for verification or falsification in an attempt to seek generalisable theories, where a causal relationship is presented. This approach should therefore allow for the linking of explanation, prediction and control (Charmaz 2006; Chen et al. 2004; Orlikowski et al. 1991). Orlikowiski and Baroudi (1991, p. 5) state that the criteria that one should use for classifying research studies as positivist include evidence of formal

propositions, quantifiable measures of variables, hypothesis testing and the drawing of inferences about a phenomenon from the sample to a stated population. By such approaches, positivism attempts to collect data that are a true reflection of reality (Weber 2004). Positivists suggest that reliability of research results should be possible if the results achieved can be replicated. Lack of reliability is often attributed to such factors as researcher bias, inconsistencies in the research processes, measurement errors or differences in the context under which the research was conducted (Weber 2004).

Whilst positivism has been, by far, the dominant research paradigm adopted by IS researchers (Becker et al. 2007; Chen et al. 2004; Orlikowski et al. 1991), it has been criticised by some social scientists in a number of ways. For instance, for its belief that only through hypothesis testing can science progress (Glaser et al. 1967), or for its over reliance on statistical control to the detriment of background or context in order to produce generalisable and reproducible results (Kaplan et al. 1988; Orlikowski et al. 1991). In addition, there has been an ongoing debate regarding the over-reliance on scientific rigour to the potential detriment of the relevance of much positivistic research to practice (Benbasat et al. 1999; Charmaz 2006; Khazanchi et al. 2000; Trauth et al. 1993). Indeed, it has been suggested that the positivistic approach does not tend to allow the researcher the opportunity to become "exposed to the practical contexts where IT-related usage and management behaviours unfold" (Benbasat et al. 1999, p. 6) and that this can be seen to undermine the practical relevance of much of such research (Benbasat et al. 1999).

4.3.4 Interpretivism

Interpretivism, which is often associated with Max Weber (1864-1920), argues that, in social sciences, the researcher should be concerned with *Verstehen* (understanding). This differs from the approach taken in the natural sciences and positivism, where the researcher is focused on *Erklären* (explanation) or prediction, with the emphasis on causality (Smith 1983). Interpretivists believe that the social world is not conceived of as a fixed constitution of objects, but rather as an "emergent social process – as an extension of human consciousness and subjective experience" (Burrell et al., 1979, p. 253, cited in Orlikowiski et al., 1991, p. 13). The interpretivist approach suggests that social scientists, therefore, should seek to make sense of human actions by fitting them into a "purposeful set of individual aims and a social structure of meanings" (Chua 1986, p. 614). Equally, the researcher cannot be seen to remain independent of the research subject as the researcher must interact with the subjects of inquiry, thus changing the perceptions of both parties (Orlikowski et al. 1991; Walsham 1995b).

At the heart of the assumptions underlying interpretivism is the notion that by placing people in their social contexts there is a greater opportunity to understand the meanings they have for their own actions and the actions of others (Galliers et al. 1987; Hussey et al. 1997). Under interpretivism access to reality can only be attained through social constructions such as language, consciousness and shared meaning (Klein et al. 1999). Therefore, the researcher, while observing, must be aware of linguistic cues and pay great attention to context, detail and action (Chua, 1986). The interpretive research paradigm recognises that since knowledge of reality is a social construction, value-free data cannot be obtained, as the researcher uses his/her perceptions in order to guide the course of inquiry (Walsham 1995a). This research paradigm is focused on the

uniqueness of a situation, which contributes to the pursuit of contextual depth (Myers 1997b). Interpretivists believe that knowledge acquired via their research can indeed be defensible. Such defensibility should be possible via other researchers reviewing their research procedures, the context and background of the research study and the evidence of knowledge accumulated, such that they can conclude that the claims made by the researcher are reasonable (Weber 2004). However, at all times it is important that the researcher recognise and address the nature, extent and potential implications of their own subjectivity on the research process (Weber 2004).

Orlikowiski and Baroudi (1991) note that, in its own way, the interpretivist research paradigm has been open to criticism by some social scientists (Burrell et al. 1979; Fay 1987). Amongst the key criticisms outlined by Orlikowiski and Baroudi (1991, p. 18) are:

- It does not examine the conditions, often external, that give rise to certain meanings and experiences;
- It often omits to explain the unintended consequences of actions, which by definition cannot be explained by reference to the intentions of the parties involved; and
- It cannot account for situations where the participant's accounts of action and intentions are inconsistent with their actual behaviour.

However, interpretivism does maintain that the more traditional positivist approach of the natural sciences is inadequate when attempting to study the complexity of social reality (Lee 1991). Indeed, it has been suggested that because natural reality and social

reality are different kinds of reality, their investigation requires different approaches (Smith 1983).

4.3.4.1 Symbolic Interactionism

Within the interpretivist research paradigm there are a number of key theoretical perspectives or conceptual bases (Creswell 1994; Crotty 2003; Sarantakos 2005), such as *Symbolic Interactionism, Phenomenology* and *Hermeneutics*. Of particular interest to this research study is the theoretical perspective of Symbolic Interactionism, due to its relationship to Grounded Theory (Annells 1996; Charmaz 2006; Glaser et al. 1967; Goulding 2002; Locke 2001). Symbolic Interactionism is "both a theory of human behaviour and an approach to inquiry about human conduct and group behaviour" (Goulding 2002, p. 39). This theoretical perspective suggests that society, reality and self are constructed through interaction amongst humans which relies heavily on language and communication (Charmaz 2006). Humans act on the basis of symbols that have meaning and value for them and that the generation of meaning, within a social context, influences social behaviour (Goulding 2002).

It is this generation and interpretation of meaning that clearly associates Symbolic Interactionism with the interpretivist research paradigm. The roots of Symbolic Interactionism can be traced back to the "American Pragmatism" movement (Charmaz 2006; Locke 2001). This movement, based at the University of Chicago, involved noted philosophers such as George Herbert Mead and Herbert Blumer. The three core tenets of Symbolic Interactionism are (Blumer 1969, p. 2) :

- That human beings act toward things on the basis of the meanings that these things have for them;
- That the meaning of such things is derived from, and arises out of, the social interaction that one has with others; and
- That these meanings are handled in, and modified through, an interpretive process used by the person in dealing with the things he encounters.

These three tenets clearly suggest both the importance of the interpretation of social reality by the actors and the importance of the underlying processes that give rise to such meanings and interpretations. This emphasis on interpretation and process lie at the heart of the methodology of Grounded Theory.

4.3.5 Comparison of common Research Paradigms adopted in IS Research

The following table, Table 7, sets out to compare and contrast the key differences that exist between the two underlying alternative research paradigms most commonly adopted in IS research. Such research paradigms help to frame the researcher's viewpoint on the nature of social reality and drive the choice of the most appropriate research methodology to be adopted by the researcher (Hopper et al. 1985):

Table 7: Comparison of common Research Paradigms adopted in IS Research

	POSITIVISM	**INTERPRETIVISM**
View of reality	Reality exists objectively and independently of human experiences (Burrell et al. 1979).	Reality is subjective and is constructed through human and social interaction (Burrell et al. 1979; Crotty 2003).
Role of the researcher	Researcher must remain independent and separated from the object of research, so as not to influence the process or outcomes (Smith 1983).	The researcher cannot remain independent of the research subject as the researcher interacts with the subjects of inquiry, changing the perceptions of both parties (Orlikowski et al. 1991; Walsham 1995b).
Aim of inquiry	Explanation, prediction, and control (Charmaz 2006; Guba et al. 1994b; Lee 1991).	Systematically search for understanding of the ways people subjectively experience their world (Chua 1986; Van Maanen 1979).
Value	Scientific "fact" must be kept separate from any opinions, belief, feelings and assumptions (Smith 1983).	As knowledge of reality is a social construction, value-free data cannot be obtained (Walsham 1995a).
Theory base	There are a set of theories, principles and rules of inference that can be deductively arrived at to describe social situations (Chen et al. 2004; Saunders et al. 2003).	Interpretivism rejects the view that universal theories or laws can be developed that are equivalent to those found in the natural sciences (Lee 1991; Smith 1983).

4.3.6 Choosing Interpretivism for this research study

The researcher has decided to choose an interpretivist research paradigm to support this research study for the following reasons: First, the aim of this research study is to explore and develop theory regarding how CIOs interact with external peer networks. Such external peer networks, by their very nature, tend to be based on a series of complex social interactions and relationships between the individual parties (Brown et al. 1991; Ibarra 1993b; Ibarra et al. 2007; Wenger 1998b) that tend to lead to a socially constructed worldview (Berger et al. 1967), local to that particular community, which reflects its shared knowledge, values, meanings, assumptions, beliefs and practices (Brown et al. 1991). Therefore, the researcher has chosen an interpretivist perspective (Burrell et al. 1979), which seeks to make sense of such interactions and relationships, by fitting them into a "purposeful set of individual aims and a social structure of meanings" (Chua 1986, p. 614). An interpretivist perspective can be used to research such networks by observing, interpreting and analysing the underlying social constructions, such as language, consciousness and shared meanings of the actors involved (Klein et al. 1999), whilst recognising the existence of multiple viewpoints amongst the participants and the need to integrate these varying viewpoints into the overall interpretation of events and actions (Klein et al. 1999; Trauth 2001).

Second, as has been shown in Chapter 2, the extant literature relating to CIO interactions with external peer networks appears limited. Often an interpretivist research paradigm is a more suitable approach to take in cases where the aim of the study is the inductive development of new theory, rather than the testing of existing theories or hypotheses (Sarantakos 2005; Saunders et al. 2003). Third, it has been suggested that it is not sufficient to study just the objective artifacts available from such external peer

networks (Berger et al. 1967; Reich et al. 2000) (such as membership lists, promotional documentation, research information, conference proceedings, and plans on evolving technologies) if one is to understand what is actually happening in these settings. One should also look to "investigate the contents of players' minds, their beliefs, attitudes and understanding of these artifacts" (Reich et al. 2000, p. 83). Consequently, it has been suggested that an interpretive research paradigm would again enable the better exploration of the underlying meanings, contexts and processes involved in such interactions (Miles et al. 1984). Such an approach will also enable the opportunity to produce a better understanding of the meanings that the CIOs have for their own actions and the actions of others, within the context of these networks (Berger et al. 1967; Brown et al. 1991).

Fourth, whilst it has been argued that the positivist research paradigm may indeed enable a focus on the fact that individuals within a research study have interacted with each other, it often fails to consider the questions of *how* and *why* they may have interacted (Trauth 2001). However, an interpretivist research paradigm, can often better enable the researcher to gain deeper insights into what is actually happening (Chen et al. 2004; Kaplan et al. 1988) and thus "get at the why of the information sharing behaviour and the mechanics of how, within a particular context" (Trauth 2001, p. 7). In turn therefore, this approach should provide for the development of theory that is of greater practical relevance, especially to the individual CIOs involved in this research study (Benbasat et al. 1999).

Finally, it has been suggested that the personal preferences of the researcher can and should be allowed to influence the selection of a research paradigm (Creswell 1994).

The background of the researcher, as a former CIO himself, gives him important insights into the role of the CIO and their interactions within this industry context. This, it has been suggested, can greatly assist with understanding the meanings and actions of the individuals involved by providing a rich source of contextualisation for the interpretation of the data (Klein et al. 1999). However, that being said, the researcher also needs to recognise the responsibility to be fully aware, throughout the research process, of the implications of his own background and be aware of the dangers of potential biases, when undertaking such a research study (Klein et al. 1999; Weber 2004).

4.3.7 Use of Interpretivism in IS Research

In terms of empirical research in the field of IS, positivism has consistently proven to be the most popular theoretical stance adopted (Becker et al. 2007; Chen et al. 2004; Galliers 2008; Goles et al. 2000; Orlikowski et al. 1991). Orlikowiski et al. (1991), for instance suggested, based on their analysis of 155 articles taken from the four leading US based IS research publications[7], that 96.8% of all articles published between 1985 and 1989 were indeed written from a positivistic research standpoint. Subsequent studies in the early 1990's however, suggested that interpretivism had started to gain increasing acceptance (Walsham 1995a). This growing acceptance of interpretivism, it has been suggested, may be due to the fact that as IS research interests developed beyond the analysis of technological issues, to an increased focus on managerial and organisational issues, which are, by nature, more complex and based on social interaction, an interpretive stance was seen to be more appropriate (Avgerou 2000; Khazanchi et al. 2000).

[7] Orlikowiski and Baroudi (1991) only examined mainstream American journals, as they believed that "these represent the largest forums for publishing information systems research, and that these currently inform the work of most information systems researchers" (1991, p. 3).

However, more recent empirical evidence would suggest that positivism, whilst less dominant, is still the most popular theoretical perspective in IS research (Becker et al. 2007; Chen et al. 2004). Chen et al. (2004) in their analysis of 1,893 articles published in eight major IS journals, both US and European, have suggested that positivism still accounts for over 81% of all published articles. Nevertheless, this picture of paradigm imbalance (Becker et al. 2007) can appear somewhat misleading as there exists an underlying difference between the approach adopted by US and European academics (Avgerou et al. 1999). Table 8 below, based on the work of Chen et al. (2004), shows that in the case of European academics, there is a more significant emphasis on interpretive based studies, albeit that they are still in a minority.

Table 8 : Research Paradigms underlying IS Empirical Research 1991 – 2001

(adapted from Chen et al. (2004))

	US Journals	**European Journals**
Positivist	89%	66%
Interpretivist	11%	34%

A number of suggested reasons have been put forward for this continued emphasis on a positivistic approach within IS research. For instance, it has been suggested that pressure on academic researchers to "publish or perish" has tended to encourage the

publication of what are often considered less time consuming and more easily published positivist based studies (Chen et al. 2004). In addition, it has been noted that in the case of key US journals, such as Information Systems Research (ISR) and MIS Quarterly (MISQ), that both the editorial boards and the make up of the published academics have been dominated by North American researchers who have grown up in the positivist tradition (Galliers et al. 2003). This continued emphasis on the positivistic approach to IS research should not of itself impact on the choice of research paradigm. It has been suggested that this choice should come down ultimately to the personal preferences of the researcher (Creswell 1994) and to the nature of the research question posed (Chen et al. 2004; Sarantakos 2005). Therefore, in the view of the researcher, as this research study sets out to develop new theory relating to how CIOs interact with external peer networks, an interpretivist research paradigm is deemed to be the most appropriate.

4.4 Methodological Choice

4.4.1 Introduction

Methodology is the "strategy, plan of action, process or design lying behind the choice and use of particular methods" (Crotty 2003, p. 3). Methodology provides the link between the researcher's chosen research paradigm and the execution of the research study. Therefore, "*what* [author's emphasis] one wants to learn determines *how* [author's emphasis] one should go about learning it" (Trauth 2001, p. 4). As the purpose of this research study is to explore how CIOs interact with external peer networks, where an interpretivist paradigm would suggest that the world is conceived of as a series of emergent social processes which are an extension of human consciousness and subjective experience (Burrell et al. 1979), what is required is a

methodology that focuses on developing understanding of what is unique and specific to the experiences of the individual CIOs, within the context of their relationships with the other CIOs, within these external peer networks. Therefore, what is needed is a methodological approach which is in sympathy with an interpretivist stance and that can enable the inductive development of theory focused on understanding the specific activities of CIOs within these external peer networks.

The four main methodological approaches commonly used in support of an interpretivist research paradigm within the field of IS research are: 1) Action Research; 2) Ethnography; 3) Case Study and; 4) Grounded Theory. However, in reality, no single one of these approaches is appropriate in all research cases (Benbasat et al. 1987). The specific choice of the appropriate methodology to be adopted should be based on the nature of the research question and on the suitability of the specific methodology to address the needs of the researcher. In the case of this research study, the methodology of Grounded Theory has been selected as the most appropriate. However, prior to discussing the methodology of Grounded Theory and outlining the specific reasons for the selection of Grounded Theory, this section will first present an overview of the background to each of the other three options, describing how they are used in IS research, and explaining why the researcher, in this particular instance, did not deem them appropriate.

4.4.2 Action Research

The term "action research" was first introduced by Kurt Lewin in 1946 to describe an interventionist approach to social change (Baskerville et al. 2004; Baskerville et al. 1996; Lau 1999; Susman et al. 1978). Action research has been described by Rapoport

as an attempt to "contribute both to the practical concerns of people in an immediate problematic situation and to the goals of social science" (1970, p. 499). The purpose, therefore, of action research is to conduct research whilst at the same time effecting change within an organisational setting (Susman et al. 1978). In an action research study, the dual goals of client problem-solving and the expansion of scientific knowledge are pursued simultaneously (Hult et al. 1980). It has been suggested that "the purpose of (action) research and discourse is not just to describe, understand and explain the world but also to change it" (Coghlan et al. 2001, cited in Saunders et al. 2003, p. 94).

The action research process operates in a cyclical manner, which starts with the identification of an initial problem requiring intervention. This is then followed by the collection and analysis of data and the implementation of potential solutions, within an organisational setting. Further data collection and analysis are then undertaken to review the success of this original intervention and to identify other actions that may then need to be taken. This cyclical process can then be continued until the satisfaction of the researcher and the organization are reached (Hunter 2004; Saunders et al. 2003; Susman et al. 1978). At the centre of the action research approach is the concept of "collaboration", where the researcher and the client are both intimately involved in the process and are dependent on each other for the interpretation and analysis of the data, the decision on appropriate interventions, and the expansion of scientific knowledge and learning (Hult et al. 1980). Whilst the strength of action research may be in the fact that the researcher has first-hand and intimate knowledge and understanding of the research setting, a perceived weakness of this approach is the potential lack of objectivity

resulting from the researcher's stake in effecting a successful outcome for the client (Benbasat et al. 1987).

Whilst the use of action research in IS related studies has, to date, been limited (Chen et al. 2004; Orlikowski et al. 1991), it has started to gain acceptance with a number of notable researchers (Avison et al. 1999; Baskerville et al. 1999; Baskerville et al. 1996; Lau 1997; Lau 1999; Wood-Harper 1985). An action research approach was not considered appropriate in the case of the current study due to the fact that this research study does not set out to change the situation relating to how CIOs interact with external peer networks (Rapoport 1970); its purpose is to develop theory relevant to the substantive area under consideration (Glaser et al. 1967). Additionally, the researcher will not act as part of the research situation, as would be required within an action research approach (Coghlan et al. 2001).

4.4.3 Ethnography

Ethnography is based on the discipline of social and cultural anthropology and originated in the work of Malinowski (Harvey et al. 1995; Malinowski 2002; Myers 1999). Malinowski had suggested that the cultural practices and norms of a society or a group could only be understood when observed from within the actual context within which they happened (Harvey et al. 1995). Therefore, ethnographic research attempts to find the underlying meaning of the behaviours and thoughts of the subjects as they perceive them within their particular context or world (Werner et al. 1987). To do this, the researcher must immerse him/herself in the lives and culture of the group under investigation (Myers 1999; Schultze 2000) and this involves the collection of detailed observational evidence, often over a long period of time (Yin 1994). Four primary

methods of data collection are commonly used in ethnographic studies, namely; participant observation, interviewing, search for artifacts and researcher introspection (Eisenhart 1988). The main goal of ethnographic research is to provide a thick description of events (Werner et al. 1987).

Researchers have only recently started to recognise the value of the ethnographic approach to IS research (Avison et al. 1995; Crabtree et al. 2000; Dey 2002; Harvey 1997; Harvey et al. 1995; Myers 1997a; Myers 1999; Schultze 2000). For instance, Crabtree et al. have argued that "ethnography, with its emphasis on the in situ observation of interactions within their natural settings, seemed to lend itself to bringing a social perspective to bear on system design" (Crabtree et al. 2000, p. 667). Meanwhile, others have suggested that ethnography is also well suited to the study of social aspects of work practices, such as the use of IS within organisations, the role of IS developers and the evaluation of IS studies (Beynon-Davies 1997; Schultze 2000). However, in the case of this research study, ethnography was not deemed to be the appropriate methodology, due to its primary focus on the development of rich, contextual description, rather than on the development of theory, from the conceptual abstraction of the data, as is the case with Grounded Theory (Charmaz 2006; Glaser et al. 1967; Strauss et al. 1990).

4.4.4 Case Study

Case studies have been described as "an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident" (Yin, 1994, p. 13). Case study is often seen to be suitable, as a methodological approach, when investigating

complex business processes and practices, where the experiences of the participants are important and the background and context are critical (Bonoma 1985). Equally, the case study approach can be seen to be appropriate when the focus of the study is on "understanding the dynamics present" in a particular setting (Eisenhardt 1989, p. 534). The case study approach requires the development of an in-depth understanding of a specific individual, group, process or organisation (Benbasat et al. 1987), without the researcher having explicit control over, or involvement, in the situation (Cavaye 1996). This clearly distinguishes the approach from action research, where the researcher acts as an observer, participant and instigator of change (Benbasat et al. 1987).

The case study approach has been used widely within IS research, both from the positivist (Benbasat et al. 1987; Lee 1989) and interpretivist (Cavaye 1996; Kaplan et al. 1988; Klein et al. 1999; Myers 1994; Walsham 1995b) theoretical perspective. Benbasat has suggested that the case study methodology is particularly suited to the investigation of IS related problems, since the focus of the IS field has now shifted from purely technology issues to questions of process, organisation and context (Benbasat et al. 1987).

In the case of this particular research study, the case study approach was deemed inappropriate due to the fact that the research study would not, in itself, be confined to a small number of specific individuals or sites, as would commonly be the situation with the case study approach. Indeed, whilst the case study approach could provide rich description and deep insight (Glaser 2001), it was felt by the researcher that this would require a considerable amount of active engagement with individual CIOs to build detailed case histories (Minnis 1985), which practically would not be available. In

addition, whilst the current research study is set within a particular research setting, that being CIOs operating within the Irish Private Sector, the context of this research setting (i.e. the nature or specific industries within this case setting), whilst important in terms of their roles as CIOs, was not seen as being of itself central to gaining an understanding of how these CIOs interact with external peer networks. Therefore, the case study approach was not chosen in this instance.

4.5 Methodology of Grounded Theory

4.5.1 Background to Grounded Theory

The concept of Grounded Theory was first presented by Glaser and Strauss in their book *The Discovery of Grounded Theory* (1967), and was based on their extensive work in the fields of sociology and nursing (Goulding 2002). The approach to Grounded Theory was further developed by the authors in a series of subsequent publications (Glaser 1978; Glaser 1992; Glaser 1998; Glaser 2001; Glaser 2002; Glaser 2005; Strauss et al. 1990; Strauss et al. 1998). Grounded Theory has its roots in symbolic interactionism (Charmaz 2006; Goulding 2002; Locke 2001). Symbolic interactionism assumes that individuals engage in a world which requires reflexive and thoughtful interaction, rather than just responses to environmental conditions. Here, people are seen to be purposeful in their actions and will act and react to environmental cues, objects and others, according to the meaning they hold for the individuals concerned (Goulding 2002). The principle underlying symbolic interactionism is that people come to understand collective social definitions through the very process of socialisation (Goulding 2002) and therefore, "with whom, with what and how one interacts becomes a major determinant in how one perceives and defines reality" (Kendall 1999, p. 744).

The methodology of Grounded Theory has been described as a " a general methodology of analysis linked with data collection that uses a systematically applied set of methods to generate an inductive theory about a substantive area" (Glaser 1992, p. 16). The emphasis within the Grounded Theory approach is, therefore, on the systematic collection, recording and analysis of data, with a view to the inductive development of theory relevant to the substantive area under consideration (Charmaz 2000; Douglas 2003).

4.5.2 Key Concepts within Grounded Theory

The focus within Grounded Theory is on a systematic approach to data collection, handling and analysis within the research study (Douglas 2003). This systematic approach is based on a number of key concepts (Glaser et al. 1967):

- The inductive nature of theory development;
- The concept of Theoretical Sensitivity;
- Theoretical Sampling approach;
- The Constant Comparison method of data analysis;
- Theoretical Saturation; and
- Theoretical Memos.

4.5.2.1 The inductive nature of theory development

The basic aim of Grounded Theory is the inductive generation of theory from empirical data, rather than the verification of existing theory (Glaser et al. 1967). This process of theory development, within Grounded Theory, is based on data being systematically

collected in the field from interviews, observation and the inspection of secondary documentation sources (Douglas 2003; Goulding 2002). Strauss and Corbin suggest that the theory that develops should be based on a set of relationships within the data that offer a plausible explanation of the phenomenon under study (Strauss et al. 1994). Such theory, therefore, inductively "emerges" from that data, rather than being based on any *a priori* theory or perspectives (Glaser et al. 1967). This emphasis on theory generation implies that the focus is not just on providing a rich description of the data, as would be the case with Ethnography (Werner et al. 1987), but on theory that has been developed by the conceptualisation and abstraction of theoretical concepts from the empirical data (Glaser 2001). Such theory development is not speculative in nature, but emerges and develops as part of the research process. Indeed, Glaser and Strauss (1967, p. 6) have suggested that "generating a theory from the data means that most hypotheses and concepts not only come from the data, but are systematically worked out in relation to the data during the course of the research". In addition, theories so generated are substantive in nature, in that they relate specifically to the area of research only.

4.5.2.2 The concept of Theoretical Sensitivity

Charmaz (2006, p. 135) has stated that the process of theorising involves "seeing possibilities, establishing connections and asking questions". Theoretical sensitivity refers to the ability of the researcher to think constantly about the data in conceptual terms (Douglas 2003), so that he/she "can conceptualise and formulate a theory as it emerges from the data" (Glaser et al. 1967, p. 46). Glaser suggests that the first step in developing theoretical sensitivity is for the researcher to enter the field with as few predetermined theoretical ideas as possible, especially logically deducted prior hypothesis, which could "contaminate" (Glaser 1992, p. 31) or restrict him to looking

only for concepts identifiable or associated with existing theories (Glaser 1978; Glaser et al. 1967).

4.5.2.3 Theoretical Sampling approach

Under Grounded Theory the evolving process of data collection is controlled not by statistical sampling concerns, but by the requirements of the emerging theory (Glaser et al. 1967). Beyond the initial data collection efforts, which are focused on individuals or groups who it is believed will offer the opportunity to "maximise the possibilities of obtaining data" most relevant to the research (Glaser 1978, p. 45), it is the emerging theory that decides or points to where further data collection efforts should be directed (Glaser et al. 1967). At all times, in line with the concept of constant comparison, the researcher should look to sample data that suggest both similarities and differences to the data already collected. Glaser and Strauss believe that various sources of data, such as interview, observation or documentary sources can give the researcher different views or perspectives on the emerging theory (Glaser et al. 1967).

4.5.2.4 The Constant Comparison method of data analysis

Data collection and analysis are not seen to be separate and distinct stages of theory development within Grounded Theory. This is contrary to the common process seen in logico-deductive type research studies where there is a clear "linear progression from theory to data to analysis to interpretation" (Martin et al. 1986, p. 150). In Grounded Theory the process of data collection, coding and analysis is essentially non-linear in nature (Martin et al. 1986; Pandit 1996). Glaser and Strauss (1967) have suggested that theory development is based on the constant comparison and analysis of newly gathered

data with already emerging theoretical categories[8], so as to constantly build and refine these developing categories. This process of constantly comparing newly gathered data with emerging categories is continued until the core category, the category that accounts for most of the variation in the pattern of behaviour has been identified. The development of this core category is critical to the methodology of Grounded Theory, as this is the category around which the emergent theory will revolve (Glaser et al. 1967).

4.5.2.5 Theoretical Saturation

Glaser and Strauss suggest that the researcher should continue to seek data regarding elements of the emerging theory, looking out for similarities and differences, until they reach theoretical saturation (Glaser et al. 1967). Theoretical saturation is defined as the point at which no new data relating to the underlying categories, or the properties of the emerging theory, can be found by the continued collection of data (Locke 2001). At this point, the individual elements of the emerging theory are seen to be "theoretically saturated", and no further data collection regarding these elements of theory is required (Glaser et al. 1967).

4.5.2.6 Theoretical Memos

The on-going writing of memos during the research process is a central part of the methodology of Grounded Theory (Glaser 1978). Indeed, Glaser has suggested that without using memos to record observations, insights and developing theoretical perspectives, the researcher is, in fact, not doing Grounded Theory (Glaser 1978). The

[8] Locke (2001, p. 39) suggests that when Glaser and Strauss (1967) talk about a "category" they use the term synonymously with the term "concept". Equally, Martin et al. (1986, p. 147) suggest that the term "label" is also often used by Grounded Theory researchers in a similar fashion. Essentially, they suggest that category, concept or label are all terms for theoretical abstractions from the underlying empirical data and can be used interchangeably. As "category" is the original term used by Glaser and Strauss in their own work, this term has been chosen for this research study (Glaser et al., 1967).

process of writing memos, as data is collected and analysed, helps to clarify what is actually happening in the field (Charmaz 2006). They are essentially a way of capturing evolving categories and ideas throughout the research process in an orderly fashion (Goulding 2002). These evolving categories, developed via the process of the on-going writing of memos, can help direct the researcher in their theoretical sampling efforts to further the development of theory (Glaser 1978).

4.5.3 Rationale for choosing Grounded Theory

As already suggested, there are a number of methodological choices available to the researcher, from within the interpretivist research paradigm, however, no one approach is appropriate in all research cases (Benbasat et al. 1987). Therefore, the choice of the appropriate methodology to be adopted for a specific research study should be based on (Urquhart 2001):

- The Nature of the Research Question; and
- The Needs of the Researcher.

4.5.3.1 Nature of the Research Question

As the aim of this research study is to explore and develop theory relating to how CIOs interact with external peer networks, it would seem to suggest the choice of a research methodology associated with symbolic interactionism, such as Grounded Theory, as the goal of the symbolic interactonist perspective is to understand "the complex world of lived in experience from the point of view of those who live it" (Schwandt 1994, p. 118). However, before selecting Grounded Theory as the appropriate research

methodology, a number of specific issues in relation to the nature of the research question, need to be addressed (Orlikowski 1993):

- Theoretical Expectations of the Study;
- Focus on Underlying Processes; and
- Contextual Setting.

4.5.3.1.1 Theoretical Expectations of the Study

The primary aim of this research study is to build a grounded theory relating to the phenomenon of how CIOs interact with external peer networks, rather than to just test or validate existing theories (Charmaz 2006; Glaser et al. 1967; Goulding 2002). Equally, the focus is not on the development of rich descriptions, based on the data, as would be the case for Ethnography, but the analysis and abstraction of substantive theory, related to the specifics of the research situation, where the role of the researcher is central to the interpretation of the data (Charmaz 2006; Glaser et al. 1967; Goulding 2002; Martin et al. 1986; Strauss et al. 1990). Grounded Theory, which is an inductive theory development methodology, will enable the development of new theory, that is "grounded" in the empirical data, to emerge directly from the experiences, accounts and artifacts surrounding the individual CIOs operating within these external peer networks (Glaser et al. 1967; Goulding 2002; Martin et al. 1986). In addition, Grounded Theory is also often seen to be the most appropriate research methodology to adopt in such situations where little extant theory, directly relating to the area under research, already exists (Goulding 2002; Orlikowski 1993).

4.5.3.1.2 Focus on Underlying Processes

At the core of these external peer networks are the operation of a series of complex social interactions, processes and relationships between the individual parties (Ibarra 1993b; Ibarra et al. 2007; Wenger 1998b). Therefore, whatever research methodology is chosen needs to be able to address the processes inherent in such interactions between CIOs. Grounded Theory, as a research methodology, is well suited to "the generation of theories of process, sequence, and change pertaining to organizations, positions and social interaction" (Glaser et al. 1967, p. 114). In addition, Grounded Theory tends to be more suitable to the exploration of micro-level processes and is therefore seen to be more suitable when used "to explore the interpretations and emotions of different individuals and groups living through the same processes" (Langley 1999, p. 700).

Within Grounded Theory, the term "process" refers to the "linking of sequences of actions/interactions as they pertain to the management of, control over or response to, a phenomenon" (Strauss et al. 1990, p. 143). However, it must be emphasised that this research study does not intend to take a temporal process orientated perspective where the emphasis is on the longitudinal nature of the development of such processes (Pettigrew 1990). The focus within this research study is on a cross-sectional view (Saunders et al. 2003) of the processes, as currently adopted by the CIOs operating within these external peer networks. In addition, this research study does not intend to intervene in any way, as would be the case with Action Research (Susman et al. 1978), in the processes adopted by the CIOs whilst interacting with external peer networks.

4.5.3.1.3 Contextual Setting

These external peer networks of CIOs operate within the context of the Irish Information Systems marketplace. It is important therefore, that the wider contextual issues related to this particular social setting are captured in order to gain a full and holistic understanding of the phenomenon (Martin et al. 1986; Orlikowski 1993). Grounded Theory is particularly suited to the study of managerial processes, as it enables the capture of the contextual complexity surrounding such processes. An emergent theory is therefore able to provide both a holistic view of the processes involved and also to be of particular relevance to the practitioner community, as it is contextually based and grounded in the empirical data (Glaser 1992; Locke 2001).

4.5.3.2 Needs of the Researcher

In addition to the above reasons, Grounded Theory is also seen to be particularly relevant to this research study as it has been suggested that it is often well suited to use by a novice researcher (Strauss et al. 1990). The systematic procedures for the collection, analysis and coding of data, as defined within Grounded Theory, can provide great assistance to the novice researcher in coping with the often unstructured and complex nature of social reality (Bryman 1992), such as those inherent in external peer networks (Ibarra et al. 2007; Wenger 1998b). In addition, the methodology also allows for the integration of extant literature, as well as the professional knowledge and experiences of the researcher, in a way that will minimise the likelihood of researcher bias (Fernandez 2004; Glaser 1978; Glaser et al. 1967).

4.5.4 Different Schools of Grounded Theory

A split occurred between the two originating authors of Grounded Theory, following the publication, in 1990, of "*Basics of Qualitative Research: Grounded Theory, Procedures and Techniques*" (Strauss et al. 1990). This book was published, ostensibly with the express purpose of assisting researchers by the provision of an explicit set of "tools that enable them to approach analysis with confidence and to enhance the creativity that is innate, but often underdeveloped, in all of us" (Strauss et al. 1990, p. 14). However, following the publication of this book, Glaser demanded that it be withdrawn and suggested that this book "misconceives our conceptions on Grounded Theory to an extreme degree, even destructive degree" (Glaser 1992, p. 1). At the core of the disagreement between Glaser, on the one hand, and Strauss and Corbin, on the other, were three key differences in terms of the approach to the use of Grounded Theory (Dey 1999; Mills et al. 2006):

- Use of Techniques to support the development of theory;
- Role of Literature in theory development; and
- Type of Theory produced as a result.

4.5.4.1 The Use of Techniques

Strauss and Corbin (1990; 1998) introduced the concepts of "axial coding" and the "conditional matrix", as mechanisms to assist the researcher in theory development. Axial coding, for instance, was seen by Strauss and Corbin as the mechanism to be used by researchers for "relating categories to sub-categories". It was termed "axial" by Strauss and Corbin (1990, p. 123) "because coding occurs around the axis of a category, linking categories at the level of properties and dimensions". Indeed, these techniques

were preferred by Strauss and Corbin, over the continued emphasis on the constant comparative approach, which was advocated in the original version of Grounded Theory (Charmaz 2006; Urquhart 2001). Glaser however, suggested that these new techniques, instead of helping with the emergence of theory, would instead lead to "forcing" the data into a preconceived framework. Such forcing of the data would result "in full conceptual description, which is fine, but it is not grounded theory" (Glaser 1992, p. 3).

4.5.4.2 The Role of Literature

The correct stage to involve the use of extant literature, relevant to the research topic, in the development of Grounded Theory was also "disputed" (Charmaz 2006, p. 165). On the one hand, Glaser, advocated that "there is a need not to review any of the literature in the substantive area under study" prior to engagement in the field (Glaser 1992, p. 31). This was, he suggested, so as not to contaminate, constrain or inhibit the researcher's analysis of the emerging theory, as he suggested that "it is hard enough to generate one's own concepts, without the added burden of contending with 'rich' derailments provided by the related literature" (Glaser 1992, p. 31). On the other hand, Strauss and Corbin recommend that the researcher should indeed engage more proactively with the relevant literature from the beginning of the research process (Strauss et al. 1990).

4.5.4.3 Type of Theory produced

Glaser believed that the more prescriptive approach to Grounded Theory, advocated by Strauss and Corbin, would lead to an emphasis on deduction and verification, rather than induction, which was seen to be the original purpose of Grounded Theory (Glaser

1992). Glaser argued that the role of Grounded Theory was to generate hypotheses, not to test them (Dey 1999). Equally, Glaser suggested that one of the key features of Grounded Theory was its ability to explain "basic social processes" (Glaser 1978, p. 93), which he explained involved the use of the constant comparative technique of data analysis to connect categories to the emerging theory, rather than to just to provide rich description for such categories (Glaser 2001).

This split between the original authors has led to the subsequent development of two separate schools of Grounded Theory implementation approaches, *"Glaserian"* and *"Straussian"* within the research community, each advocating their own separate approach to undertaking Grounded Theory based research studies (Stern 1994). For this reason, Urquhart (2001) has suggested that it is important for the researcher to clearly outline, up front, which version of Grounded Theory they are using. For this particular research study, the Glaserian approach to the use of Grounded Theory procedures has been chosen by this researcher as being the most appropriate version. This decision has been made on the basis of two key factors, namely 1) the aim the research study, and 2) the most appropriate coding and analysis approach.

As the aim of this research study was to inductively develop a new substantive theory, grounded in the empirical data, it was felt, by the researcher, that the approach to "conceptualisation offered by Glaser" was more relevant, than the emphasis on the "full description of Strauss and Corbin" (Fernandez 2004, p. 46). Equally, it was felt by the researcher, who had had some experience of other data analysis techniques, as part of a previous role as a data modelling analyst, that the techniques, such as "axial coding" and the "conditional matrix" advocated by Strauss and Corbin, whilst providing some

measure of structure by using a pre-determined model by which to connect categories and their related properties (Kendall 1999), were, in the end, unnecessarily prescriptive in nature, and could indeed lead to the forcing of preconceived notions onto the data (Glaser 1992). Glaser had suggested that it was more important to let the conceptualisation lead the analysis "where the analysis and interpretation are assured of being grounded in that data", rather than using the axial coding paradigm where there is the danger that the researcher will only see "what will fit into a predetermined conceptual plan" (Kendall 1999, p. 748).

In fact, the researcher did attempt to use axial coding at the start of the coding process, but found it unrewarding, formulaic and somewhat restrictive in nature (Melia 1996). Urquhart, who herself had had difficulty using the axial coding process, has stated that the axial coding approach, as outlined by Strauss and Corbin, "asks the researcher to examine the data for conditions, interactions among the actors, strategies and tactics, and consequences", but, "put simply, I found it difficult to apply the coding paradigm, and the relationships between codes and categories hard to discover" (Urquhart 2001, p. 115). The alternative Glaserian approach, which relies on the constant comparative method as the approach adopted for constantly refining categories and developing relationships between categories, appeared to allow more freedom and flexibility to the researcher in the process of coding and conceptualisation, and therefore, in the ultimate development of theory from the empirical data (Charmaz 2006).

As well as the differences between the two "schools" of Grounded Theory outlined above, there have also been questions raised regarding the appropriate research paradigm supported by Grounded Theory (Annells 1996; Mills et al. 2006). It has been

suggested that even though Grounded Theory has a background in symbolic interactionism, it is inherently located within a positivist or post-positivist research paradigm (Annells 1996; Charmaz 2006). Indeed, the fact that the original authors talk in terms of the "discovery" of theory from the empirical data (Glaser et al. 1967), appears to suggest a more positivist view on the existence of such theory (Annells 1996).

Consequently, this issue did cause some concern to the researcher when originally reviewing Grounded Theory as the potential methodology of choice, as he had wished to undertake this research study from an interpretivist perspective. However, more recently, other academics with experience in Grounded Theory have suggested that the positivist perspective does not necessarily have to be the case and that Grounded Theory can indeed be adopted in a constructivist and interpretivist manner (Bryant 2002; Bryant 2003; Charmaz 2006; Hughes et al. 2000b). Charmaz (2006), for instance, has suggested that "neither data nor theories are discovered. Rather, we are part of the world we study and the data we collect. We *construct* [author's emphasis] our grounded theories through our past and present involvement and interactions with people, perspectives, and research practices" (Charmaz 2006, p. 10).

Such a constructivist perspective suggests that "any theoretical rendering offers an *interpretive* [author's emphasis] portrayal of the studied world, not an exact picture of it" (Charmaz 2006, p. 10). This constructivist viewpoint on the use of Grounded Theory did appear to support the underlying theoretical perspective of the researcher. So it was decided that this research study could indeed adopt the Glaserian approach to Grounded Theory, whilst at the same time, firmly locating itself within the interpretivist research

paradigm, where any theory developed is recognised as an interpretation or construction of reality (Charmaz 2006). Such an approach therefore enables the use of "basic grounded theory guidelines with twenty-first century methodological assumptions" (Charmaz 2006, p. 9).

4.5.5 Use of Grounded Theory in IS Research

Whilst "the IS field has been a late adopter of the methodology" (Fernandez 2004, p. 43), since the early 1990's, there has been a growing body of IS literature that confirms its appropriateness and applicability (Baskerville et al. 1999; Bryant 2002; Orlikowski 1993). Orlikowski for instance, justified the use of the Grounded Theory, in her research into the adoption and use of CASE software development tools, by suggesting that it "allows a focus on contextual and processual elements as well as the action of the key players associated with organisational change elements that are often omitted in IS studies" (Orlikowski, 1993: p. 310). Table 9 outlines some of the key research that has been carried out, to date, using Grounded Theory in the field of IS research:

Table 9: Use of Grounded Theory in IS Research (adapted from Hughes and Howcroft (2000); Urquhart(2001))

NAME	NATURE OF RESEARCH
(Toraskar 1991)	To evaluate the product of IS design.
(Calloway et al. 1991)	To explore how IS designers perceive the use of design tools.
(Pries-Heje 1992)	An investigation into barriers for the use of computer-based tools in ISD.
(Orlikowski 1993)	Development of a conceptual framework for understanding organizational issues surrounding the adoption of CASE tools.
(Fitzgerald 1997)	A field study of the use of systems development methodologies in practice.
(Urquhart 1997)	A case study of analyst-client communication during early requirements gathering.
(Baskerville et al. 1999)	To study methods and tools in order to improve on problems that exist in software product development.

(Scott 2000)	To determine how information technology facilitates inter-organisational learning.
(Hughes et al. 2000b)	To elicit a local empirical model of the information systems development process to discover what happens in practice.
(Lehmann 2001)	To establish a theoretical framework dealing with the structure of IS and the dynamics of their development and implementation.
(Hansen H. et al. 2005)	To study whether and how system developers use Information Systems Development methodologies in practice.
(Chen et al. 2008)	How management consultants use role negotiation skills to work with both internal managers and ERP consultants.
(Levina et al. 2008)	To investigate how differences in country and organizational contexts give rise to boundaries and associated status differences in offshore application development studies.

When analysing the IS research conducted, to date, using the methodology of Grounded Theory, there appears to have been some variability in the ways in which it has been implemented (Hughes et al. 2003). For instance, whilst a number of authors suggested that they had opted for the *Glaserian* version (Lehmann et al. 2005; Levina et al. 2008) or the *Straussian* version (Chen et al. 2008; Hansen H. et al. 2005; Orlikowski 1993), in reality, "most IS studies using Grounded Theory technique tend not to be 'pure' studies" (Urquhart 2001, p. 106). Indeed, it has been suggested that some studies have adopted Grounded Theory in a "contingent" way (Hughes et al. 2003, p. 3), such as Baskerville and Pries-Heje (1999) who used the Grounded Theory processes and procedures to increase the level of rigour in their theory development efforts, but only as part of their action research based study. Equally, some researchers in IS have commenced their data collection and analysis processes with pre-defined "seed-categories" (Fitzgerald 1997; Hughes et al. 2000b). Overall, therefore, there appears to be much variability and no common or single "correct way of using Grounded Theory" (Hughes et al. 2003, p. 6) which has been adopted uniformly, to date, by IS researchers.

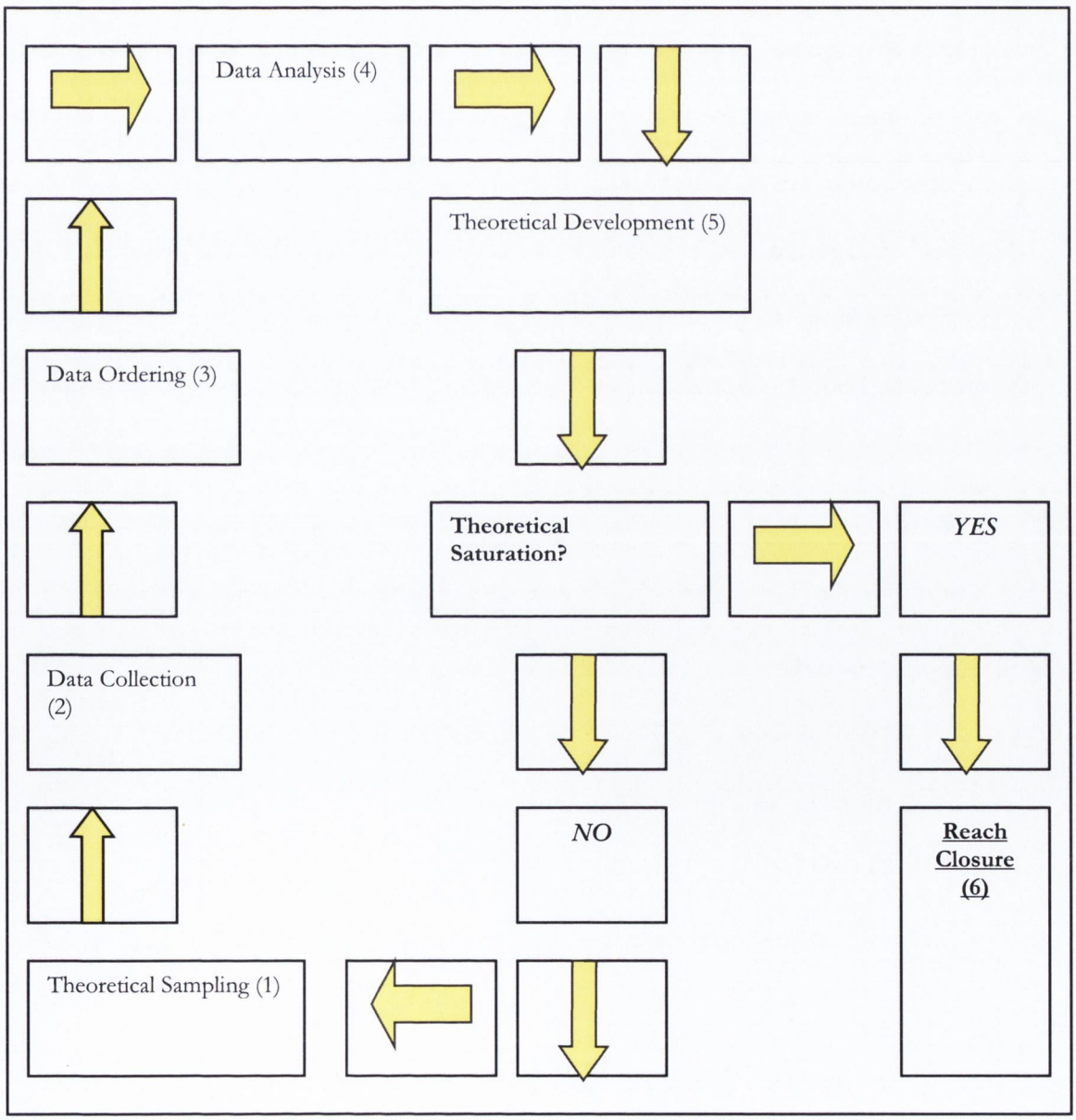
4.6 Overview of Grounded Theory in Action

4.6.1 Background

The focus of the researcher, using Grounded Theory, is on the building of theory from the ground, often in an area that has received little or no attention to date (Goulding 2002). The traditional research process tends to be theory-driven and linear in nature (Flick 2002). However, with Grounded Theory, theories emerge from the data, and the process of data collection, coding and analysis are undertaken in a cyclical and interconnected manner (Glaser et al. 1967). The cyclical nature of the process of

Grounded Theory, especially in relation to data collection, data ordering and data analysis, is seen to be one of the strengths of this approach, "because it forces the researcher to permanently reflect on the whole research process and on particular steps in light of the other steps" (Flick 2002, p. 100). Figure 6 below outlines the iterative nature of these process steps within Grounded Theory:

Figure 6: The Interrelated Processes of Data Collection, Data Ordering, and Data Analysis to build Grounded Theory: Source: Pandit (1996)



Pandit (1996) has identified five phases to the building of theory, via the adoption of Grounded Theory. These phases he has identified as:

- Research Approach;
- Data Collection;
- Data Ordering;
- Data Analysis; and
- Literature Comparison

4.6.2 Research Approach

Goulding has suggested that "nobody starts with a totally blank sheet" (Goulding 2002, p. 55) when identifying an area of interest for research, whilst Flick (2002) contends that the choice of research question is often driven by the professional background and interests of the researcher. However, Glaser (1992) cautions the researcher against spending time undertaking prior reviews of extant literature and theories, as he believes that they can often "contaminate" the disposition of the researcher on entering the field. This view is supported by Goulding, who in turn has suggested that to avoid specific theories providing a "prior disposition, whether conscious of it or not, of testing such existing work rather than developing uncoloured insights specifically pertinent to the area of study" (Goulding 2002, p. 56), the researcher should attempt to enter the field as soon as possible to start the data collection process.

4.6.3 Data Collection

Data collection, is "controlled by the emerging theory" (Glaser et al 1967, p. 45) and the initial decisions on what data to collect are based only on "a general sociological perspective and on a general subject or problem area" (Glaser et al. 1967, p. 45). The basic criteria for further sampling of data are their "theoretical relevance" to the continued development of the emerging theory (Glaser et al. 1967, p. 49). Numerous different data sources are available for collection under Grounded Theory. These can include (Goulding 2002):

- Interviews;
- Observation;
- Life Histories;
- Introspection; and
- Secondary Data Analysis

4.6.3.1 Interviews

In interpretive research, interviews are generally the favoured means of collecting primary data, illustrating findings and supporting the development of theory (Goulding 2002). With the use of interviews, it is important to strike a balance between, on the one hand, using unstructured interviews which can result in confusion and unclear data; and structured interviews, where there is always the danger that they become merely an extension of the researcher's views and expectations (Goulding 1999). For this reason, semi-structured interviews, based on the use of an interview guide, are often the most commonly used interview approach with Grounded Theory (Flick 2002; Goulding 2002).

4.6.3.2 Observation

Observation, as a method of data collection, is often used to supplement interviews in studies adopting Grounded Theory (Goulding 2002). Observation can be carried out in a non-participant or participant manner (Brett Davies 2007). For non-participant observation, the researcher must attempt to isolate himself from the observed, in such a way that the observed is not influenced in their actions or behaviours by the presence of the researcher. However, with participant observation the researcher actually becomes part of the research situation. Therefore, the researcher must remain cognisant of the danger that by the very act of participating in the actions of the observed he/she may have an influence over what is observed (Flick 2002). Overall, the key to successful observation is seen to be the maintenance of this balance of non-intrusiveness of the researcher, such that the presence or otherwise of the researcher does not, in any way, impact on the actual normal behaviour of those being observed (Adler et al. 1994).

This issue of the need to ensure the non-intrusiveness of the researcher precluded the use of observational methods in the current study. Observational methods, such as structured observation (Martinko et al. 1985) had previously been used successfully in a number of the studies of IS managers and CIOs (Ives et al. 1981; Stephens 1991). However, because the researcher had, in the past, held a senior role within the Irish CIO community, it was felt that it would be impossible to get agreement from other local CIOs to allow him to observe them in their day to day activities, in a way that would satisfactorily maintain a high degree of non-intrusiveness.

4.6.3.3 Life Histories

The development of diaries by individuals can help to create insights into a "slice of life" (Goulding 2002, p. 58) of those involved in research situations. Diaries can help the researcher gain valuable understanding regarding the thinking and reasons behind an individual's observed actions and behaviours (Goulding 2002). Such life histories can identify important facts and decision points that can also be critical to the researcher in establishing context and background to the research situation (Flick 2002).

4.6.3.4 Introspection

"Introspection is the examination of one's own mental and emotional processes. During the research conversation, the researcher draws on these pre-understandings to interpret the participant's emerging story" (Goulding 2002, p. 63). This process of introspection allows the researcher to draw on his/her own background and experiences to give insight into the data being collected. The researcher can therefore engage directly with the participant in an effort to analyse and interpret the meaning of actions and behaviours, framed from their own perspective and understanding.

4.6.3.5 Secondary Data Analysis

Secondary data analysis involves the use and analysis of data that may have been collected for a previous research study (Goulding 2002) or may be available via unpublished or published sources, such as e-mails, letters, reports or news sources (Saunders et al. 2003). Such secondary sources of data may be used, especially in the earlier stages of the research study, to help the researcher gain an understanding of the background and context of the substantive area under research (Glaser et al. 1967). Indeed, Glaser and Strauss suggest that such secondary data sources may be "as

potentially valuable for generating theory as our observations and interviews" (Glaser et al. 1967, p. 163).

4.6.4 Data Ordering

Researchers attempt to order their data, by way of "conceptual ordering" (Strauss et al. 1990, p. 19), in an attempt to make more sense out of it, by organising it "according to their properties and dimensions and then using description to elucidate those categories" (Strauss et al. 1990, p. 19). Pandit suggests that a common approach to data ordering is to order the data chronologically so as to facilitate easier analysis and examination of the underlying processes (Pandit 1996).

4.6.5 Data Analysis

Grounded Theory has its own coding techniques to help provide standardisation and structure to this analysis process. The coding techniques used within the *Glaserian* version of Grounded Theory are: *Open Coding,* which is the process of breaking down or fragmenting the data into distinct units of meaning (Glaser 1992); *Selective Coding,* which takes the conceptual categories developed by open coding and through a process of category integration and refinement, develops a central or "core category" (Glaser 1978, p. 61); and *Theoretical Coding* which, with the assistance of "coding families" or theoretical concepts, sets out to "weave the fractured story back together again" (Glaser 1978, p. 72), into a theory that is "grounded" in the data (Glaser et al. 1967). The aim of data coding and analysis is to arrive at systematically derived core category that becomes the focal concept that contributes towards theoretical development (Douglas 2003). This process of coding is undertaken, in conjunction with the literature, in order to ensure that the research remains parsimonious (Goulding 2002).

4.6.6 Literature Comparison

Glaser has cautioned researchers to be careful regarding when to consult the extant literature in the "substantive area under study" (Glaser 1992, p. 31), so that it does not contaminate their thinking and approach, or block their creativity in the early stages of the research study (Glaser 1978; Glaser 1992; Glaser et al. 1967). He has suggested that such a strategy of leaving comparisons with extant literature until later in the research process "maximises the avoidance of pre-empting, preconceived concepts which may easily detract from the full freedom to generate concepts that fit and are relevant when initially coding and analysing the data as it is collected" (Glaser 1992, p. 35). In fact, in his view, the extant literature should only be addressed "when the theory seems sufficiently grounded in the core variable and in the emerging integration of categories and properties, then the researcher may begin to review the literature in the substantive field and relate the literature to his own work" (Glaser 1992, p. 32).

In addition, the overall approach to the literature review, presented in a Grounded Theory thesis, "differs from the traditional model"(Locke 2001, p. 121) in that, on the one hand, the literature is "sometimes integrated into the presentation of the model in what is usually the 'findings' section of the manuscript" (Locke 2001, p. 121) and on the other, the set of literature selected for the literature review is presented "*in relation to your grounded theory* [author's emphasis]" (Charmaz 2006, p. 164), so as to "show where their ideas illuminate your theoretical categories and how your theory extends, transcends or challenges dominant ideas in your field" (Charmaz 2006, p. 165). Therefore, the literature is used, in the Grounded Theory approach, to support the

emerging data and the conceptualisation of theoretical constructs (Goulding 2002; Heath 2006).

4.7 Conclusion

This research study sets out to explore how CIOs interact with external peer networks. Such external peer networks, by their very nature, tend to be based on a series of complex social interactions between the parties (Ibarra 1993b; Ibarra et al. 2007; Wenger 1998b). Therefore, the researcher has decided to adopt an interpretivist research paradigm to underlie the conduct of this research study. Interpretivism seeks to make sense of such interactions and relationships, by fitting them into a "purposeful set of individual aims and a social structure of meanings" (Chua 1986, p. 614). Therefore, the researcher has decided to adopt an interpretivist research paradigm to underlie the conduct of this research study. In addition, an interpretivist research paradigm is a more suitable approach to take in cases where the aim of the study is the inductive development of new theory, rather than the testing of existing theories or hypotheses (Sarantakos 2005; Saunders et al. 2003).

The methodology of Grounded Theory has been chosen, in support of this interpretivist research paradigm, for a number of reasons, including the nature of the research inquiry, which would suggest the use of a research methodology associated with symbolic interactionism, such as Grounded Theory, and the fact that Grounded Theory is often seen as being an appropriate approach to adopt in areas of research that have been relatively ignored in the literature, to date, or have only received superficial attention

(Goulding 2002; Orlikowski 1993). The next chapter will discuss how the actual research study was undertaken using the methodology of Grounded Theory.

Chapter 5 Undertaking a Grounded Theory Study

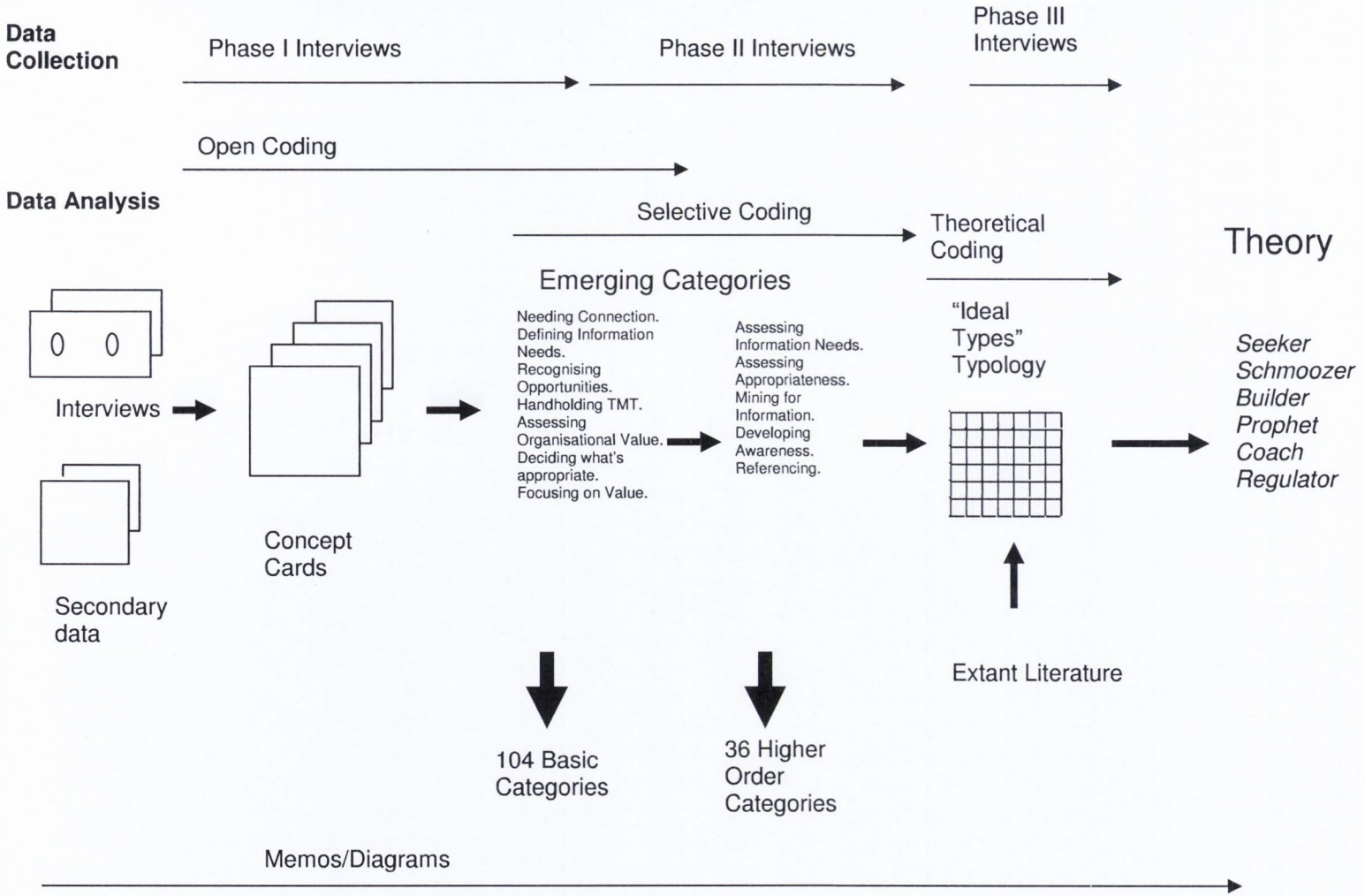
> *"The goal of grounded theory is to generate a theory that accounts for a pattern of behaviour which is relevant and problematic for those involved."*
>
> (Glaser 1978, p. 93)

5.1 Introduction

The previous chapter outlined the methodological choices available to a researcher wishing to undertake a study from an interpretivist perspective. This led to the identification of the methodology of Grounded Theory as the most appropriate approach for the research question posed. Chapter 5 will now describe how the research study was actually undertaken, using the methodology of Grounded Theory. As part of this description, the researcher will not only explain how he undertook the research study, but also outline the rationale for such decisions. This will enable the reader to judge both the quality and comprehensiveness of the research process and also to provide the vital link to the emergent theory described in Chapter 6.

This chapter is organised as follows: Section 5.2 will discuss the approach taken for the investigation; Section 5.3 will describe the data collection process; Section 5.4 will describe how the collected data was analysed and the emergent theory developed; Section 5.5 will then look at ways to evaluate Grounded Theory research; and finally, this chapter will end with Section 5.6 the conclusion. However, prior to starting the chapter in detail, Figure 7 sets out an overview of how the research study was undertaken using the methodology of Grounded Theory.

Figure 7: Overview of the emergence of theory from Grounded Theory Research



5.2 Research Approach

5.2.1 Identifying the Research Question

It has been suggested that research questions do not come out of "nowhere" (Flick 2002), and that their origin is often the result of the researcher's background or personal interests (Goulding 2002). In the case of this research study, the fact that the researcher had previously been the CIO of an Irish multinational organisation had led him to review the extant IS management literature on the role of the CIO. This review identified the growing need for the CIO to act as an external boundary spanner and, in turn, identified the importance of external peer networks in this regard (Maier et al. 1997; Pawlowski et al. 2004; Watson 1990).

However, the extant IS management literature fails to identify how such interactions actually take place (Maier et al. 1997; Pawlowski et al. 2004). Consequently, the researcher set out to frame the general research question for this study as "how do CIOs interact with external peer networks", so as to bring a focus to this specific area of inquiry (Flick 2002). This question was set as "broad as possible" (Fernandez 2004, p. 49), as it was assumed that the issues of central concern to the individual CIOs would, in fact, emerge from the collection of data in the field (Glaser 1978).

5.2.2 Identifying potential CIO candidates

As a first step in identifying potential CIOs for this research study, a list of prospective CIOs was created focusing on specific industries within the Irish Private Sector. The rationale behind the choice of the specific industries from within the Irish Private Sector, as the research setting, is discussed in Chapter 6. This list was developed by the researcher by contacting all the major organisations within these

industries to ascertain the name and contact details for each of these potential CIO candidates. When this list was completed, it was discussed with the researcher's supervisor to ensure its accuracy. This list then became the basis for contact with the CIOs as the study unfolded. However, it must be emphasised that this list did not dictate the order in which the candidate CIOs were contacted. This, as will be described below, was directed by the emerging theory and the principle of theoretical sampling (Glaser et al. 1967). A list of the CIOs interviewed, as part of this process, is shown in Appendix 1.

5.2.3 Structuring the Investigation

Grounded Theory suggests that the researcher, whilst he/she may have formulated an overall research question, should not enter the field with any preconceived theory or hypotheses which could restrict their ability to view the emerging data or "force" the direction of such inquiry (Glaser 1978). However, this does not mean that a researcher, adopting Grounded Theory, should start with a "totally blank sheet" (Goulding 2002, p. 55). The researcher's background assumptions and disciplinary perspectives (Charmaz 2006) can be used to assist in developing a "partial framework of 'local' concepts" (Glaser et al. 1967, p. 45) to give him "a beginning foothold on his research" (Glaser et al. 1967, p. 45). Concepts such as "the role of the CIO", "CIO Context", "CIO Challenges" and "CIO Networking" were used in the design of the Interview Guide described later in this chapter[9]. In addition, it has been suggested that such background assumptions and disciplinary perspectives can help the researcher to become "*theoretically sensitive* [authors' emphasis], so that he/she can conceptualise and formulate a theory as it emerges from the data" (Glaser et al. 1967, p. 46).

[9] These "concepts" were developed from the IS management literature, analysis of secondary documentation and from the researcher's own experience as a CIO.

Overall, the direction of the investigation and the sampling of data, within a Grounded Theory research study, is "*controlled* [authors' emphasis] by the emerging theory" (Glaser et al. 1967, p. 45). At the centre of this process of data sampling is the principle of *Theoretical Sampling* (Glaser et al. 1967). Theoretical sampling is described as the "purposeful selection of a sample according to the developing categories and emerging theory" (Coyle 1997, cited in Goulding (2002), p. 66). However, in terms of starting the Grounded Theory investigation, it has been suggested that the researcher should "go to the most obvious places and the most likely informants in search of information" (Goulding 2002, p. 67), and that such candidates, where possible, should exhibit only minimal differences (Glaser et al. 1967).

With this in mind, the researcher, using his own knowledge as a former CIO, and following a review of the list of potential CIOs, identified nine CIOs for interview, as part of Phase I of the data collection and analysis stage of the research study (see Appendix 1 for details). The purpose of interviewing these CIOs was to start the process of identifying some basic categories and their properties (Goulding 2002). It was known to the researcher that many of these CIOs had had active and long standing involvement in a number of the external peer networks operating in Ireland, and that therefore this might help to reflect minimal differences within the group (Glaser et al. 1967).

In Phase II of the data collection and analysis stage of this research study, once basic categories had begun to emerge, attempts were made to identify CIOs who might have contrasting experiences of interacting with external peer networks in Ireland. Whilst

this group of seven CIOs (see Appendix 1) continued to have "enough features in common" (Glaser et al. 1967, p. 50) with the first group to continue to make them relevant to the study, they also had a number of important differences. Specifically, this group included a number of CIOs, such as IP01, IP15, IP09 and IP13 who had spent significant parts of their careers, to date, outside Ireland and were therefore potentially not as deeply integrated as many of the CIOs interviewed in Phase I, into the existing Irish based external peer networks. In addition, IP15 and IP13 held the role of CIO in conjunction with wider responsibilities for overall organisational operations as "Director of Operations".

The remaining three CIOs in Phase II were chosen based on feedback from other CIOs, who had already been interviewed, which had suggested that they could be "*very interesting*" IP02[10] and worthwhile to interview, and could potentially hold views and perspectives on external peer networks that might be different from others already interviewed. The purpose of Phase II was the theoretical saturation of the emerging categories. Theoretical saturation has been described as the point at which "gathering fresh data no longer sparks new theoretical insights, nor reveals new properties" of the emerging categories (Charmaz 2006, p. 113).

The final stage of the data collection and analysis stage of the research study, Phase III, consisted of review meetings with four of the already interviewed CIOs. This stage was undertaken to ensure that the interpretation of the data made by the researcher had been an honest representation of the participants' accounts (Goulding

[10] IP02 – all direct references to CIO comments are shown in terms of the code assigned to each individual CIO in this study. At no stage are any comments from interviews directly attributed to a named CIO. This is to ensure the confidentiality of all CIOs who agreed to be part of this research study.

1998), that there were no fundamental gaps in the emerging theory, and that the emerging grounded theory did indeed have "grab" for the CIOs as practitioners (Glaser 1978, p. 4). In essence, "grab" means that the emerging theory is seen by the practitioner to be useful, relevant and meaningful to them in their roles (Glaser 1978). Following each of these final interviews, an e-mail was sent thanking the CIO for their time and input, and requesting sign off (see Appendix 2a). In return, the CIOs replied, outlining their key thoughts relating to the emerging theoretical roles and their view on its relevance and value to them as CIOs (see Appendix 2b). Equally, as each of these interviews was also taped, they were reviewed for additional comments and observations relating to the emergent theory, as presented.

5.3 Data Collection

5.3.1 Semi-structured Interviews

Whilst indeed Glaser has suggested that "all is data" (Glaser 2002, cited in Charmaz (2006), p. 16) and numerous different data sources are often available to the researcher for data collection under Grounded Theory, in reality interviews are generally the most favoured means of collecting primary data, illustrating findings and supporting the development of theory (Goulding 2002). An interview can be looked upon as a "directed conversation" (Lofland et al. 1995) which enables both an in-depth exploration of a particular topic and the opportunity for the participant to express his or her own interpretation of their experience (Charmaz 2006). The emphasis, therefore, must be on "how the interviewee frames and understands the issues and events - that is, what the interviewee views as important in explaining and understanding events, patterns, and forms of behaviour" (Bryman 2004, p. 321). With

this in mind, the researcher should attempt, in the interview, to ask open ended, non-judgmental questions that will allow for unanticipated statements and stories to emerge (Charmaz 2006). Equally, the questions used should also reflect "a symbolic interactionist emphasis on learning about participants' views, experienced events and actions" (Charmaz 2006, p. 29).

Within Grounded Theory, the most commonly used interview mechanism adopted is the semi-structured interview (Flick 2002; Goulding 2002). Such interviews tend to be open-ended in nature (Goulding 2002), and have some measure of structure that enables the interviewer to maintain "the general form of an interview schedule" (Bryman 2004, p. 113). This format should allow the interviewer to direct both the questioning onto the areas most relevant to the research and also to help the participant articulate his or her intentions and meanings (Charmaz 2006). At all times during the interview, Glaser has suggested, the Grounded Theory researcher must remember to keep in mind the basic question "what's actually happening here" (Glaser 1978, p. 57). Equally, having a certain amount of basic structure and order around the key topic areas of inquiry, enables the interviewer flexibility to deviate from a pre-set order or format to ask additional questions relevant to the topics being discussed (Bryman 2004).

5.3.2 Practical Issues surrounding Interviewing

Fontana and Fey (Fontana et al. 1994, cited in Goulding (2002), p. 59), suggest that interviewing requires a certain amount of experience and skill and have identified a number of key considerations that should be addressed by the researcher, in relation to interviewing. These include:

- Gaining access to the organisation, group or individual;
- Understanding the culture and language used by the interviewees;
- Deciding on how best to present oneself;
- Locating a key link person or informant;
- Gaining trust and confidence of the prospective interviewees; and
- Establishing a rapport or working relationship with the interviewee.

In the case of this research study, these specific issues were considered to be relevant by the researcher and were included in the development of the interview process as described below. In addition to these issues, Saunders et al. (2003) suggest that careful consideration must be given to the advantages and disadvantages of tape recording the interviews. They suggest that the researcher needs to consider the following issues in particular (2003, p. 264):

Advantages of tape recording interviews

- Allows interviewer to concentrate on questioning and listening;
- Allows questions formulated at an interview to be accurately recorded for use in later interviews where appropriate;
- Can re-listen to the interview;
- Accurate and unbiased record of conversation is provided; and
- Allows direct quotes to be used.

Disadvantages of tape recording interviews

- May adversely affect relationship between interviewee and interviewer;
- May inhibit some interviewee responses and reduce reliability;

- Possibility of a technical problem; and
- Time required transcribing the tape.

On balance, it was decided by the researcher that the taping of the interviews would provide the most accurate and detailed account of the CIOs views and experiences and was therefore chosen. However, as described in the following section, permission was asked of each individual CIO prior to the operation of the tape recording machine.

5.3.3 Interview Guide

In support of the semi-structured approach to interviewing, an "Interview Guide" was developed to provide both clarity and focus for the interview direction, and to reduce the potential of interviewer bias (Bryman 2004; Saunders et al. 2003). This Interview Guide enabled the highlighting of specific areas or "topics" of interest for the researcher to cover with the interviewee (Schreiber 2001). Each topic area for questioning was left open enough to enable the interviewee leeway in how he or she wished to respond (Bryman 2004). The key focus was on enabling the CIO to describe, in his/her own words and at their own pace, their own views, perceptions and experiences, where the focus of the interview was on exploration not interrogation (Charmaz 2006).

An example of this approach was in the topic area of "CIO Context". Here, as well as being able to ask a direct question such as, "describe your role as CIO", it enabled the interviewer to ask further probing questions clarifying particular aspects, that appeared relevant to the context of this individual's particular case (Charmaz 2006). In addition, as the series of interviews progressed, whilst the overall approach, based

on the Interview Guide was maintained, more specific questions were asked of interviewees in order to address particular aspects of the emerging theory.

The process of starting the interview by covering topic areas such as "CIO Context" and "CIO Challenges", before moving on to talk specifically about their networking experiences, enabled the researcher to "create a balance between asking significant questions and forcing responses" (Charmaz 2006, p. 32), as this format enabled the interviewee the opportunity to settle in by asking more general questions to start (Mason 2002). Such an emphasis allowed the interview to flow naturally in a conversational style, without the interviewee appearing that he/she was being "submitted to 20 questions". In addition, the use of the Interview Guide was of great assistance to the researcher in building his confidence in the interview process and thus enabling him to concentrate on what the person was saying, rather than worrying about the completion of a list of pre-set questions (Charmaz 2006). Appendix 3a shows a copy of the Interview Guide developed by the researcher for the Phase I and Phase II interviews. Appendix 3b shows the Interview Guide used for Phase III.

5.3.4 Interviews – approach

Prior to each interview the following steps were taken by the researcher:

1. Based on the list of potential CIO candidates created by the researcher, written contact was made via e-mail, emanating from TCD Business School, outlining the nature and purpose of the proposed interview with the prospective candidate, see Appendix 4.
2. Follow-up contact was then made by the researcher, via telephone, to confirm receipt of the e-mail and to elicit agreement to be interviewed.

3. Prior to each interview, publicly available background data regarding the individual and their specific organisation were collected by the researcher (more details are outlined in the later section on Secondary Data Sources). This data gathering process was undertaken by the researcher so that he was in a position to approach the individual interviewees with as much recent information regarding them and their organisations as possible. Prior knowledge of the organisation helped to both build rapport with the individual CIO, as he/she was able to see that the researcher had done his homework (Bryman 2004), and also to limit the need to stop the interview to confirm names and organisational issues. In each case, a short memo identifying some additional specific issues of relevance to that particular interviewee was created, as can be seen in Appendix 5.

4. Equally, prior to each interview, a review of the interview approach, to date, was undertaken, to ensure both a consistency of approach and to include any additional issues of significance. These included specific issues raised by previous interviewees or aspects of the emerging theory, which might be relevant to the proposed interviewee.

5. The researcher contacted the office of the proposed interviewee the day before to ensure that he was clear about their exact location, timing and contact details, as well as the name and telephone number of the CIO's personal assistant.

6. The researcher assessed the dress code appropriate to the location and organisation of the interviewee.

7. As each of the interviews was recorded by Dictaphone machine, the researcher checked to see that it was fully operational, had sufficient recording space and

that backup batteries were available. Equally, he ensured that he had available to him sufficient writing materials to enable the capture of key notable elements of the conversation and observations as they happened.

8. The researcher ensured that he arrived at the designated interview location, with all his materials and contact details, at least twenty minutes in advance of the agreed time.

5.3.5 Interviews – process

Each of the interviews was carried out within the following framework:

1. At the start of each interview the researcher thanked the interviewee for their time and the opportunity to undertake the interview.
2. He drew attention to the e-mail sent by him, from the TCD Business School, to the interviewee and outlined the confidential nature of the interview content (Mason 2002; Saunders et al. 2003).
3. The researcher then explained his own background. This allowed the interviewee to "place" the researcher in terms of their own experience set and thus build up understanding and rapport (Fontana et al. 1994).
4. The researcher then explained the purpose and proposed format of the interview, explaining the benefits of recording the interview on tape (Saunders et al. 2003).
5. He then requested approval to record the interview. Such approval was provided by all interviewees (Mason 2002).
6. Each interview then started with an opportunity for the interviewee to describe his/her own background context and particular role challenges. This allowed

the interviewee to "start talking" and relax into the interview environment (Mason 2002).

7. The researcher then moved on to cover the main focus of the interview, networking and specifically CIO interactions with external peer networks, using open-ended and probing questions to allow the interviewee the opportunity to express his/her own views, perceptions and experiences (Charmaz 2006).

8. At the end of the interview the researcher firstly thanked the interviewee for the opportunity to undertake the interview, and then asked him/her whether there were any questions they wished to ask regarding the process of the research or further comments they wished to make about any of the issues discussed in the interview. This approach allowed the interview to reach a "clean" closure, to the satisfaction of both the interviewee and researcher (Bryman 2004).

9. Following each interview the researcher reviewed the interview tape and his personal notes taken at the time, to ensure that the interview had, in fact, been satisfactorily captured.

10. The interviewer then formally contacted the interviewee by e-mail to thank him/her again for their time and consideration during the interview, re-iterating again the confidential nature of the interview data. The researcher also provided the CIO again with his contact details to enable the interviewee to contact him subsequently regarding either the content of the interview or any additional information or clarifications he/she wished to provide.

11. Researcher wrote up a memo (Glaser et al. 1967) to capture his initial thoughts regarding the interview, its setting and any issues that he felt might bias or

influence his approach to the interviewee or what they had said. An example is shown in Appendix 6.

5.3.6 Secondary Data Collection

Secondary data refers to data that may have been collected for a previous research study (Goulding 2002) or may be available via unpublished or published sources, such as e-mails, letters, corporate reports or news sources (Saunders et al. 2003). Such sources of data may be used, especially in the earlier stages of the research study to help the researcher gain an understanding of the background and context of the substantive area under research (Glaser et al. 1967). In the case of this research study, the key secondary data sources collected by the researcher were:

- Individual CIOs – information available in the Irish IS related Trade Press
- CIO organisations – corporate websites and annual reports
- External Peer Networks – organisational websites and promotional documentation

This information, along with CIO contact information, was developed into a CIO Database which was updated throughout the period of the research study. A list of the key secondary data sources, used as part of this research study, is shown in Appendix 7.

5.4 Data Analysis

5.4.1 Introduction

Data collection and data analysis are not seen as being separate and distinct stages of theory development, within Grounded Theory. The process of data collection and analysis is viewed as being essentially recurring and non-linear in nature (Martin et al. 1986; Pandit 1996). Lehmann (2001) describes the process of Grounded Theory as a "spiral that starts by collecting 'slices of data' in the substantive area of inquiry, which are then codified and categorised in a continuous process that moves toward saturation and results in the theoretical densification of concepts represented by the substantive theory" (cited in Fernandez 2004, p. 48). Glaser and Strauss (1967) have described these 'slices of data' as "different views or vantage points from which to understand a category and to develop its properties" (Glaser et al. 1967, p. 65). In the case of this research study, it was the series of interviews with the different CIOs and supporting secondary data, as described in earlier sections, which offered the opportunity to garner such 'slices of data'. At the heart of this recurring process is the concept of *constant comparison* (Glaser 1978; Glaser et al. 1967).

The purpose of the constant comparison approach, within Grounded Theory, is constantly to compare newly acquired data with existing data and emerging categories, gradually raising the level of abstraction from descriptive levels to higher order theoretically conceptual categories, with the purpose of developing an all-encompassing supreme or 'core category' (Goulding 2002, p. 88). The core category is described by Glaser as "the 'main theme'....the main concern or problem for the people in the setting, for what sums up in a pattern of behaviour the substance of what is going on in the data" (Glaser 1978, p. 94). Underlying this constant comparison

process, and the development of the 'core category', are the activities of *open coding*, *selective coding*, *theoretical coding and theoretical memoing* (Glaser 1978).

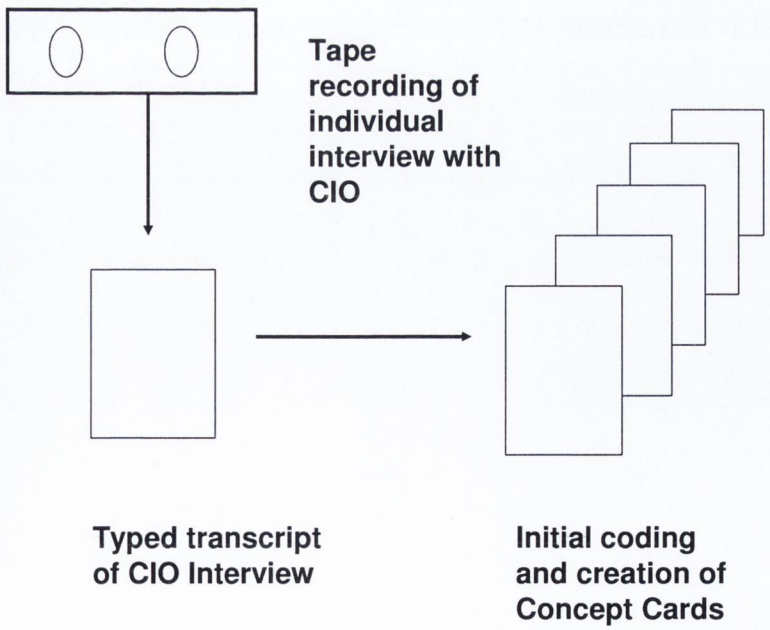
5.4.2 Open Coding

Open coding is the process of breaking down or "fracturing the data" (Glaser 1978, p. 55) into distinct "units of meaning" (Goulding 2002, p. 76) or "incidents" (Glaser 1978; Glaser et al. 1967). Noble describes an incident as "an event, action or participant's statement that was given emphasis by the participant through a change of voice or body language, or conveyed a sense of the participant's attitude, feeling or experience" (2002, p. 376). The first step in this process of open coding is the line-by-line analysis of text looking for "key words or phrases which connect the informant's account to the experience under investigation" (Goulding 2002, p. 76). Charmaz has suggested that through open coding you "*define* [author's emphasis] what is happening in the data and begin to grapple with what it means.....yet it is *our* [author's emphasis] view: we choose the words that constitute our codes. Thus we define what we see as significant in the data and describe what we think is happening" (2006, p. 46-47). Such a process can result in the development of numerous "initial codes" within a piece of text. The names placed on these initial codes can be either "constructed" by the researcher (Charmaz 2006, p. 47), based on the "imagery or meaning they evoke" (Strauss et al. 1998, p. 105), or can be taken directly from the interviewee's own description of the event. Such latter codes are referred to as "in vivo codes" (Glaser et al. 1967).

Shortly after the completion of each CIO interview, the tape recording was transcribed verbatim, by the researcher. Then the researcher undertook the process of open

coding, by analysing the individual transcript for "initial codes". Following this, each "incident", or piece of text, with a distinct meaning, from within the transcript, was then transferred into an initial "Concept Card" and labelled with an overall descriptive title (Martin et al. 1986; Noble 2002; Turner 1981). The use of Concept Cards in the process of the development of conceptual categories, within Grounded Theory, was developed by Turner (1981) and Martin and Turner (1986). In terms of naming these concept cards, Turner (cited in Locke, 2001, p. 71) suggests that their names can be "short, fanciful or fairly long-winded. It is essential, however, that the name provide a good fit for the data incident being scrutinised". Figure 8 below shows this process in diagrammatic form:

Figure 8: Process of developing Initial Codes and Concept Cards from transcript records:



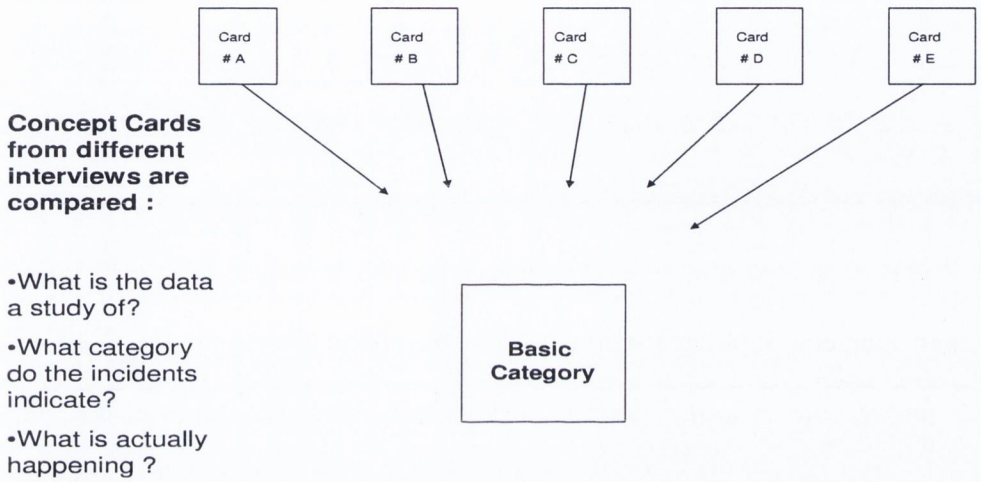
An example of an initial concept card recording an individual incident, called "Trust in Groups", from a transcript is shown in Appendix 8. The "initial codes" highlighted in these concept cards tend, at this stage, to be descriptive in nature. In addition, each concept card is readily identifiable by its own unique code. In the example shown in Appendix 8, for instance, the code assigned is "IP0537". This code enables the researcher to recognise both the specific CIO ("IP05") and the relevant passage from the interview (37). As the coding of each interview transcript was completed, and in line with the principle of the constant comparative method of data analysis (Glaser et al. 1967), the newly developed incidents were compared with other initial codes and incidents, recorded on existing concept cards. This process of constantly comparing the codes and incidents looking for similarities and differences (Glaser 1978; Glaser et al. 1967) led, over time, to the abstraction of a number of potential basic categories and their properties from within the data (Glaser 1978). This process of abstraction (Dey 1999) was aided by asking some fundamental questions of the data. Key amongst these questions were (Glaser 1978, p. 57):

- What is this data a study of?
- What category do the incidents indicate?, and
- What is actually happening?

The creation of these basic categories, from within the data, was supported by the development of a second set of concept cards. Each of these new concept cards was based on the incidents and initial codes associated with the developing basic category (Martin et al. 1986), and represented "some more general phenomenon" (Spiggle 1994, cited in Goulding (2002), p. 76). Such a Concept Card for the

evolving concept of "Developing Personal Trust" is shown in Appendix 9. This process of abstracting the basic categories and their properties is shown below in Figure 9:

Figure 9: Process of abstracting Basic Categories and their Properties.



Such *Open Coding* efforts can be carried out by the researcher either manually or with the assistance of computer software, such as NVivo® or NUD*IST®. Such software packages have become common today amongst many researchers using qualitative data (Bryman 2004; Goulding 1999). However, their use has led to "mixed feelings" (Flick 2002, p. 343) amongst the research community regarding their suitability and advantages over manual processes (Richards et al. 1994; Saunders et al. 2003). Whilst helping to automate and speed up the coding process and providing complex ways of looking at and presenting the data, concerns have been raised around such issues as loosing closeness with the data (Gilbert 2002); de-contextualising the data (Bryman 2004); and the dangers of qualitative data

being analysed quantitatively (Bryman 2004). In addition, Tesch has suggested that "the thinking, judging, deciding, interpreting etc., are still done by the researcher. The computer does not make conceptual decisions, such as which words or themes are important to focus on, or which step to take next. These intellectual tasks are still left entirely to the researcher" (1991, p. 25-26). Ultimately, therefore the researcher needs to be clear regarding the role such software will play in meeting their specific needs, as such software packages can often be seen as being "quite seductive and give the researcher a false impression that they are dealing with neatly packaged variables" (Mason 2002, p. 161).

In the case of this study, the researcher decided to analyse and code manually all the data, making use only of Microsoft Office®[11] for the development and recording of the analysis, for two key reasons. First, he was conscious of Glaser's call for the researcher to "do his own coding" (Glaser 1978, p. 58) no matter how "painstaking and time taking" (Glaser 1978, p. 58) this process was. Second, as a novice researcher, he felt that the best way to really get to know the data would be to do all the coding himself manually, rather than rely on a software package that, whilst potentially helpful, may not allow him to fully get to grips with the process of data analysis.

5.4.3 Selective Coding

Selective coding[12] is the second phase in the coding process. It is the process by which the researcher starts to identify and develop the most significant and/or frequent categories in order to "synthesise and explain larger segments of the data"

[11] Microsoft Office ® products such as Word, Excel and PowerPoint were used by the researcher in this process.
[12] Charmaz (2006) instead uses the term "Focused Coding" to describe this process.

(Charmaz 2006, p. 57). The researcher does this, in the first instance, by identifying the most relevant categories from within the data and attempting to theoretically saturate these categories, and then by delimiting the theory generation and identifying the overall "core category" (Dey 1999). This is the one category that "is the main concern or problem for the people in the setting" (Glaser 1978, p. 94) and is therefore capable of pulling together "all the strands in order to offer an explanation of the behaviour under study" (Goulding 2002, p. 88). In the case of this research study, this meant focusing on those categories that were central to the CIO's interaction with external peer networks. Therefore, as the entire interview data had been coded, some of the initial concept cards, not related to the CIOs interaction with external peer networks, were effectively dropped or "selected out" (Locke 2001, p. 79) at this stage of the process. This approach to selective coding, based on the evolving core category of "CIO Network Activity", led to the emergence of 104 basic categories and the development of 36 higher order categories, from within the data. A list of these categories in outlined in Appendix 10.

5.4.4 Theoretical Coding

Theoretical coding is the third and final stage of the process of analysis within Grounded Theory, and is focused on weaving "the fractured story back together again", by the use of a selection of "coding families" (Glaser 1978, p. 74). These families of theoretical codes are used to conceptualise how the emerging categories may relate to each other as "hypotheses to be integrated into a theory" (Charmaz 2006, p. 63). Thus they are used to develop "possible relationships between the categories" that have developed in the selective coding process, in order that the researcher "can tell an analytic story that has coherence" (Charmaz 2006, p. 63). The

development of the underlying "analytic story" or emerging grounded theory, is supported by the researcher reviewing and comparing the extant literature in an attempt to both assist in the conceptualisation of the developing theory (Goulding 2002) and also to help locate the emerging grounded theory within the existing body of knowledge and therefore to "show its contribution" (Glaser 1992, p. 33).

Glaser (1978) originally identified eighteen "coding families" to help sensitise and assist the researcher in specifying possible relationships that might exist between the categories developed by the selective coding process, and to bring an overall coherence to the emerging theory (Charmaz 2006). In later publications, he added further sets of theoretical codes to this list (Glaser 1998; Glaser 2005). The researcher can choose to use one of these "coding families" or another coding model, such as Weber's "Ideal Types" (Weber 1962) to link the developing categories to the core category in such a way as to develop a theory that both accounts for most of the variation in behaviour and can be described in terms of a parsimonious theory (Glaser 1978, p.61).

In the case of this research study, initial theoretical coding efforts were directed by the researcher towards Glaser's "Process" family of theoretical codes (Glaser 1978, p. 74), in order to describe the underlying basic social process that was being enacted by the CIOs whilst interacting with external peer networks. Such an enactment was described in terms of a three stage model which defined how CIOs increased their levels of engagement with external peer networks, via identifying the underlying contexts, conditions, actions and consequences inherent in each of the stages of interaction.

However, after much time and effort, it was decided by the researcher, on reflection, to abandon this approach as it seemed to focus mainly on providing an explanation or rich description of events based on "linear reasoning" and causality, rather than recognising, as constructivist approaches to theory development attempt to do (Charmaz 2006), the indeterminacy of much of the action of the actors involved. In addition, this approach to the "Process" coding family did not satisfactorily enable the inclusion of the opinions and actions of all sixteen of the individual interviewees and therefore, in the view of the researcher, failed to fully take into account the "multiple realities" (Charmaz 2006, p. 126) and perspectives of the different CIOs involved in these external peer networks, which is essential to the constructivist approach to Grounded Theory (Charmaz 2006).

Therefore, with this in mind, the researcher decided to adopt Weber's concept of "Ideal Types" (Weber 1962) to act as a theoretical coding lens to help with the construction of a typology of distinct patterns of CIO network activity. Indeed, Alasuutari has suggested that constructivist approaches to theory development should provide frames or patterns from which to view the multiple realities that can exist in any situation (1996, cited in Charmaz 2006, p. 128). Ideal types, Weber had suggested, are not so much descriptions of objects that exist in the real world, but are instruments which the social scientist creates, based on their own perspective, for the purpose of investigating the social world (Weber 1949, p. 111, cited in Eidlin, 2006). Blaikie has also suggested that the use of the Ideal Type model enables the "social scientist to construct a hypothetical ideal type of meaning that might account for the action under consideration" (Blaikie 2007, p. 91).

Such an approach is in sympathy with Charmaz's (2006) constructivist approach to Grounded Theory, where she states "we are not passive receptacles into which data are poured" and "how you collect data affects *which* phenomena you will see, *how*, *where* and *when* you will view them, and *what* sense you will make of them [author's emphasis]" (2006, p. 15). The construction of an "Ideal Type" typology is the result of a grouping process, that, based on a number of defined properties, sets out to map the emerging categories to an overall typology of "Ideal Type" roles (Kluge 2000). The process of identifying these properties and the construction of the "Ideal Types" model are described in the following section.

5.4.5 Construction of "Ideal Types" Typology

As the nature of the core category becomes clearer over time, the researcher starts to focus on comparing the other high level emerging categories against it with a view to formulating a theory with "a smaller set of higher level concepts" (Glaser et al. 1967, p. 110). This in turn leads the researcher to "clarifying the logic, taking out non-relevant properties, and integrating elaborating details of properties", so as to give greater parsimony to the definition of the resulting theory and associated properties. In the case of this research study, the outcome of this "reduction" process (Glaser et al. 1967, p. 110) was the definition of five underlying properties that act to distinguish each of the roles, which relate to unique patterns of activity carried out by the CIO, whilst interacting with the external peer network. These five core properties have been defined as:

- *Direction,*
- *Perspective,*

- *Target,*
- *Mechanism,* and
- *Outcome.*

These underlying properties are focused on the central questions of *where, why, who, how* and *what* in relation to the patterns of activities undertaken by the CIO whilst interacting with external peer networks. These questions are seen to be central to gaining an understanding of the sequence of individual and collective actions that are at the core of understanding process (Pettigrew 1997).

- Direction – "where"

  This property refers to the overall direction or focus of the pattern of activity undertaken by the CIO. Each of the patterns of activity has a unique direction or focus, where collectively they provide a holistic view of the activities of the CIO when he/she interacts with an external peer network.

- Perspective – "why"

  This refers to the approach or driving perspective which underlies each of the six patterns of activity. It acts as the mental lens through which the CIO interacts with the external peer network. Charmaz (2006) has suggested that as reality is constructed from the "research participants' implicit meanings and experiential views" (2006, p. 10), an understanding of their perspective is critical.

- Target – "who"

  Target refers to the audience (i.e. the specific group or individual) at whom the specific pattern of activity is directed. Each role or pattern of activity has its own unique target for its activities and this is defined by this property.

- Mechanism – "how"

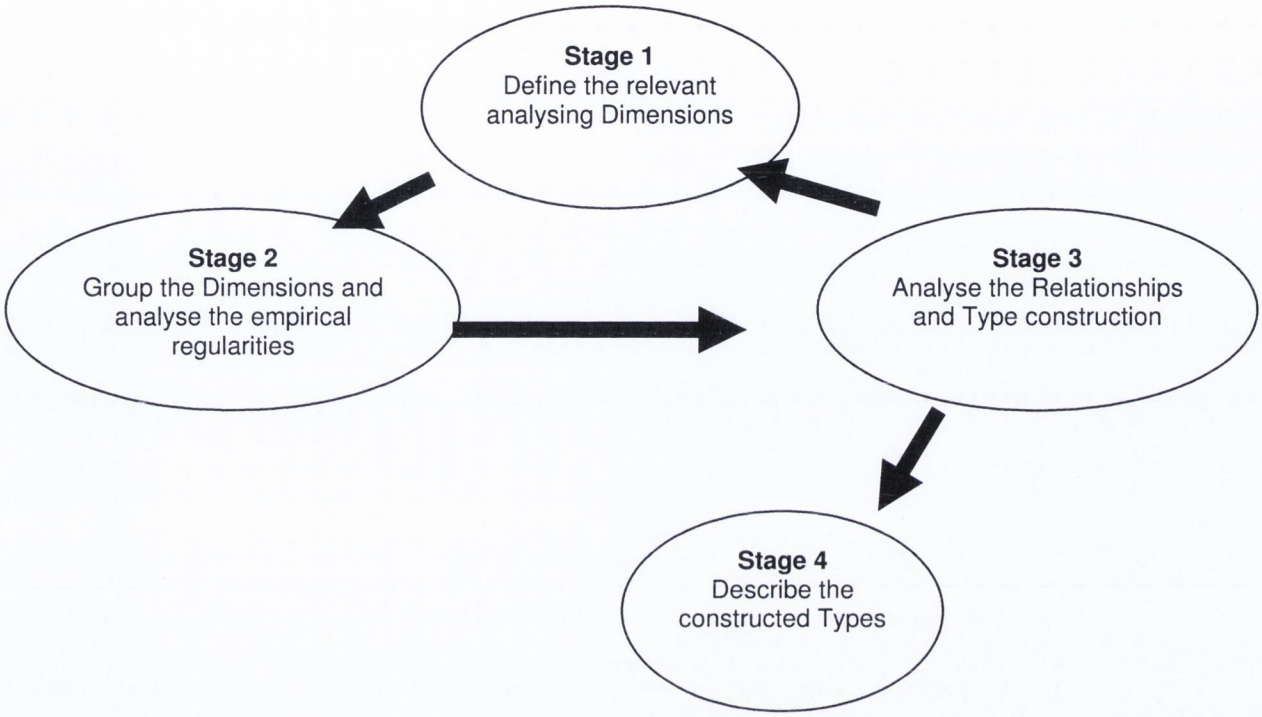
  This refers to the approach or way in which CIOs actually carry out this pattern of activity in practice. In Grounded Theory, it is described in terms of a "gerund" or verb in the "-ing" format (Glaser 1978, p. 97).

- Outcome – "what"

  Each of these patterns of activity, as well as having its own direction, perspective, target audience and way it is carried out, also has its own unique result or outcome.

Based on the development of these five underlying properties from the empirical data, a typology of "Ideal Types" (Weber 1962) was then constructed to represent the roles or patterns of activity carried out by the CIO, whilst interacting with the external peer network. The process of the construction of this typology was based on four stages, as outlined by Kluge (2000, p. 2-6) in Figure 10 below:

Figure 10: Four stages for the construction of an Empirically Grounded Typology (Adapted from (Kluge 2000, p. 3))



- Stage 1 – Define the relevant analysing Dimensions

  Having defined the five core properties which will drive the construction of the "Ideal Types" typology, the individual dimensions of each of these properties, for each of the different "Ideal Types" must be defined.

- Stage 2 – Group the Dimensions and analyse the empirical regularities.

  The specific dimensions for each of these properties, when defined, are grouped together to form individual "Ideal Types". In a typology, each of the dimensions, of a specific "Ideal Type", must be both closely related to each other (internal

homogeneity) dimension and also sufficiently different from the dimensions of all the other "Ideal Types" (external heterogeneity).

- Stage 3 – Analyse the Relationships and Type construction

  The dimensions of these specific properties are related to the underlying Categories that had emerged from within the empirical data. This enables the development of meaningful relationships between the underlying empirical data and the "Ideal Type" construct. Note: Stages 1 to 3 are iterative in nature and are undertaken until a typology is constructed that represents the underlying emerging Categories.

- Stage 4 – Describe the constructed types

  Finally, the constructed "Ideal Types" typology of emergent roles is described in terms of their combinations of properties, dimensions, their meaningful relationships, and their links to extant literature, in order to provide a holistic view of the "Ideal Type" constructs.

This approach to theoretical coding led to the emergence of a typology of six "Ideal Types", representing the roles or patterns of activity undertaken by CIOs, as they interact with external peer networks. These roles have been defined as: The *Seeker,* the *Schmoozer,* the *Builder,* the *Prophet,* the *Coach*, and the *Regulator.* These six roles will be described in detail in Chapter 6. However, as an example, the mapping of one of these "Ideal Types" roles, the *Builder,* showing the link back to the underlying emerging categories, is shown in Figure 11.

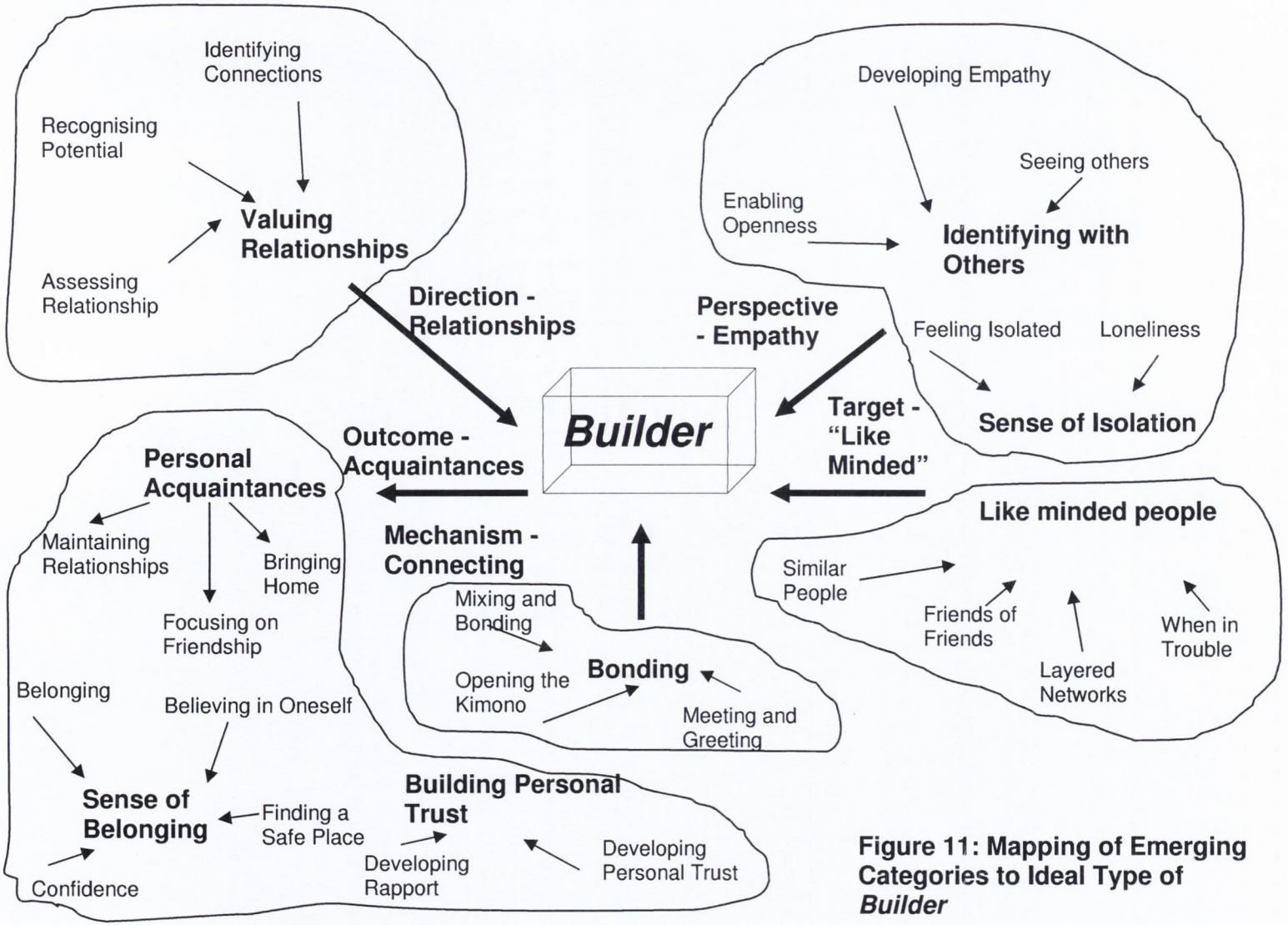


Figure 11: Mapping of Emerging Categories to Ideal Type of *Builder*

5.4.6 Theoretical Memoing

The on-going writing of memos during the research process is a central part of Grounded Theory (Glaser 1978). The process of writing memos, as data is collected and analysed, helps to clarify what is actually happening in the field (Charmaz 2006). They are essentially a way of capturing evolving concepts and ideas throughout the research process in an orderly fashion (Goulding 2002). For instance, as stated earlier, before each interview, a short memo was written to record any thoughts or issues relevant to an up coming interview (see Appendix 5). In addition, after each interview another memo was written to record the researcher's initial thoughts on that interview. These types of early descriptive memos, as well as helping to bring together the researcher's initial thoughts on the interviews, also helped to raise any potential issues of researcher bias that may have arisen during the interview (Gasson 2004). This can be seen from the example in Appendix 6.

In addition, throughout the data collection and analysis process more focused memos were also written to support the development of ideas and the generation of further questions or interesting lines of inquiry to support theoretical sampling efforts, to further the development of theory (Glaser 1978). Appendix 11 shows such a memo associated with the developing category of "Handling Celebrity CIOs". It can be seen from this memo that, as the category began to emerge, further questions relating specifically to such things as the impact these celebrity CIOs could have on the workings of the external peer networks, and also in relation to the attitude of other senior CIOs to them, were identified.

However, as the categories evolved, and the researcher looked to reduce the number of categories by the creation of higher order categories (Glaser 1978), more and more memos were developed by way of diagrams, rather than just written text. Such an approach allows the researcher to create "concrete images of our ideas" (Charmaz 2006, p. 117). In addition, diagramming can also "enable you to see the relative power, scope and direction of the categories in your analysis, as well as the connections between them" (Charmaz 2006, p. 118).

Appendix 12 shows an example of such a memo produced in diagrammatic form. As it is these memos that hold the information regarding the state of the emerging theory, it is these that are used, in conjunction with the chosen theoretical model, to sort the emerging categories and their relationships into an "integrated model by which to write the theory" (Glaser 1978, p. 117). In practice, in this process of Theoretical Sorting the numerous memos were physically sorted and grouped together on the basis of how they related to each other and the emerging six "Ideal Types" of CIO network activity (Charmaz 2006; Noble 2002).

5.5 Evaluating Grounded Theory Research

It has been suggested that interpretive based Grounded Theory research cannot be properly evaluated on the positivistic basis of validity, but instead should be judged on the basis of "trustworthiness" (Lincoln et al. 2000). The reason put forward for this is that since the two worldviews of positivism and interpretivism are incommensurable, different sets of criteria need to be developed for addressing issues of rigour and quality (Gasson 2004). Gasson, for instance, (based on the work of Miles and Huberman (1994) and Lincoln and Guba (2000)) has suggested the following four criteria for rigour and quality which should be applied to interpretive based Grounded Theory research:

- Confirmability
- Dependability/Auditability
- Internal Consistency
- Transferability

5.5.1 Confirmability

The findings made by any Grounded Theory based research study should represent the situation being researched, rather than the beliefs, pet theories or biases of the researcher (Glaser 1978). In terms of this research study, the researcher at all times attempted to minimise the potential for his own views, experiences, assumptions and personal interests to impact on his interpretations of the data and consequent construction of the emergent theory. Indeed, it has been suggested that the best way to deal with this is for the researcher to undertake a constant, explicit process of

reflexivity, where all key assumptions, biases and concepts adopted are written down, by way of memos, so that their implications on the generation of theory can be seen (Gasson 2004).

A good example of where the researcher attempted to capture such personal feelings and assumptions is shown in Appendix 6. This appendix shows a memo that was written directly following an interview with one of the CIOs where both the approach of the CIO and the reaction of the researcher are noted and questioned. This approach of attempting to reflect on assumptions and understandings, as well as on the emerging theory helped me, as the researcher, to keep focused on the primacy of the stories of the interviewees themselves.

5.5.2 Dependability/Auditability

This suggests that the way a study is conducted should be consistent across time, researchers and analysis techniques, such that another researcher, if they were to undertake a similar research study, within the same substantive area, using the same approach and procedures would potentially see the emergence of a theory that, whilst not necessarily exactly the same, would similarly reflect the underlying data. The constructivist approach to Grounded Theory, advocated by the likes of Charmaz (2006), suggests that "we *construct* [author's emphasis] our grounded theories through our past and present involvements and interactions with people, perspectives, and research practices" (Charmaz 2006, p. 10) and therefore the theory that emerges from any specific research study will reflect these experiences and dispositions.

However, Gasson (2004) suggests that a useful way of ensuring dependability is by making explicit the processes through which the theory is derived throughout the research process. With this in mind, the researcher has, at all times throughout this research study, attempted to make explicit the approach and processes adopted by him, so as to provide a clear and concise audit trail. Specifically, the following issues are highlighted:

- Researcher identifies his previous background as the CIO of an Irish multinational organisation;
- The logic for the identification of the CIO interview candidates is highlighted (see Chapter 6);
- The approach and principles behind the three phased approach to data collection are defined;
- The structure adopted for the collection of data, including the use of an Interview Guide are outlined;
- The process of data analysis through open, selective and theoretical coding is explained, with accompanying examples from the underlying data;
- Developing concepts, assumptions and questions were, as part of the process of theory development, documented via the use of memos and diagrams; and
- Successful sign off on the emerging theory was received, following the re-interviewing of four of the original CIO candidates.

Overall therefore, every effort has been made to explain and expose the approach adopted by the researcher in this study.

5.5.3 Internal Consistency

To achieve internal consistency, it is suggested that the researcher must explain how and from what data the theoretical constructs are derived, and also whose perspectives these constructs reflect. This involves communicating with other researchers, on an ongoing basis throughout the research study, the evolving Grounded Theory process of theory development. In the case of the current study, the researcher was conscious of his "novice" status in terms of Grounded Theory and his lack of practical experience in the field with Grounded Theory. However, his research efforts, during this process, were actively supported by two key factors, namely: one, that his supervisor had already overseen the production of a number of successful Grounded Theory based dissertations; and two, there existed a wider IS Research Group, within the School of Business, which involved, amongst others, a number of other Grounded Theory researchers. The resulting "support mechanism", he believes, helped him to ensure that his research efforts maintained internal consistency and enabled the successful development of an emergent theory, within an existing body of Grounded Theory experience.

5.5.4 Transferability

This refers to how far the researcher can make claims for the general application of the theory. It is suggested that the researcher must make explicit the extent to which the theory generated is specific to the unique area of study. The emergent theory developed within this research study is substantive rather than formal in nature, that is, it is "grounded in research on one particular substantive area" (Glaser et al. 1967, p. 79) and therefore might only apply to that particular area of inquiry. However, that is not to say that the emergent theory cannot have "important general implications

and relevance" for a wider area of inquiry (Glaser et al. 1967, p. 79). Indeed, feedback received from the re-interviewing process would suggest that, at the very least, certain aspects of these roles, whilst focused on interactions with external peer networks, could have more general applicability within other situations (see Appendix 2b). As an example, for instance, the role of the *Schmoozer* was seen to be also relevant to internal networking within organisations, as suggested by: "*it is certainly applicable internally as it is externally...and it is certainly applicable to not just CIOs*" IP04.

5.6 Conclusion

This study set out to investigate how CIOs interact with external peer networks. To do this, the researcher adopted the methodology of Grounded Theory, within an interpretivist research paradigm. This process has proved fruitful in that it has enabled the researcher to develop a substantive theory relating to how CIOs interact with external peer networks, in terms of the development of six roles that they undertake. The next chapter, Chapter 6, will now go on to outline the rationale for the research setting chosen, as well as describing, in detail, the emergent theory of the six roles undertaken by CIOs as they interact with external peer networks. In addition, it will outline the implications for both theory and practice of this emergent theory.

Chapter 6 Theory of CIO Peer Interaction

"We now come to the crux of our study, the theory of what managers do."

(Mintzberg 1973, p. 54)

6.1 Introduction

Theory has been described by Morse (1994, p. 32-33) as providing "the best comprehensive, coherent and simplest model for linking diverse and unrelated facts in a useful, pragmatic way. It is a way of revealing the obvious, the implicit, the unrecognised, and the unknown..... Theorising is the 'process' of constructing alternative explanations and of holding these against the data until a best fit that explains the data most simply is obtained".

The purpose of this chapter is to describe, in detail, the theory relating to the six roles that have emerged from the current research, relating to how CIOs interact with external peer networks, and also to discuss their implications. These emergent roles are not so much based on the objective descriptions of what actually occurs within these external peer networks, but are based on the shared perceptions of the CIOs, relating to the activities which are enacted by them within these environments. Each of these roles is described in detail, in conjunction with examples of data from the field. This is then followed by the comparison of these new emergent roles with aspects of relevant extant theory (Goulding 2002).

However, before this, the chapter will begin by briefly outlining the rationale for the context of this research, that being CIOs operating in the financial, hi-tech, telecommunications and airline industries in Ireland. In addition, it will also provide an overview of the key external peer networks, dedicated to the needs of CIOs, currently operating in Ireland.

This chapter is organised as follows: Section 6.2 will describe the research setting in which this study is based; Section 6.3 will describe in detail the six emergent roles for CIO interaction with external peer networks; Section 6.4 will then outline the implications of these six emergent roles for theory, whilst Section 6.5 will discuss their implications for practice, and finally, Section 6.6 will act as the chapter conclusion.

6.2 Research Setting for Study

6.2.1 Irish Private Sector

This short section will first outline the nature of the Irish Private Sector and the rationale behind the focus on particular industry segments within this sector for the current research study. It will then provide a brief overview of the three key external peer networks operating in Ireland, focused on the needs of CIOs.

The Private Sector has been defined as that part of the economy controlled or owned by private individuals through stock ownership (Drislane et al. 2008). At the heart of such a definition are seen to be the concepts of ownership, funding and control which helps to contrast the Private Sector with the Public Sector (Boyne 2002). Boyne (2002) suggests that whereas Public Sector agencies are owned collectively by their

communities, Private Sector organisations tend to be owned by their shareholders. In addition, he suggests that whereas Public Sector agencies are funded, by and large, by the taxpayers, Private Sector organisations are funded normally through the fees paid for services by the customers. Equally, he states that control in the Public Sector is exercised by political means, whereas in the Private Sector, such control tends to come via market forces (Boyne 2002).

In addition to these differences, another key distinguishing factor that separates the Private Sector from the Public Sector is the often frequent "absence of competitive pressure" (Boyne 2002, p.100) on Public Sector agencies. This is often due to the lack of any direct rivals in the marketplace for Public Sector agencies for the provision of their services (Bozeman et al. 1986). Therefore, it has been suggested that these issues of ownership, funding, control and competition can lead to significant differences in how Public and Private Sector organisations operate in the marketplace and, therefore, how they view the role of IS (Rocheleau et al. 2002).

In the case of this research, the choice of the Irish Private Sector as the research setting was driven by the following factors: first, the Irish Private Sector is of a significant size relative to the Irish Public Sector. In 2006, the Private Sector[13] in Ireland accounted for 97% of GDP (CSO 2008) and 74% of all those in work in Ireland (CSO 2007). Second, it has been argued that the nature of the Private Sector, with its clear emphasis on market forces and competition "makes it more likely that private organisations will consider IT to be crucial to their survival" (Rocheleau et al. 2002, p. 384) and, therefore, value more highly the role played by IS and the CIO in their organisations.

[13] The Central Statistics Office (CSO) values for the Irish Private Sector include the commercial semi-state organisations which are open to market competition and are run on a "for profit" basis.

Third, it was decided to confine this study to the Private Sector in Ireland, as it has been suggested that widening the research beyond a single country, such as Ireland, might only bring into play other issues relating to different cultural norms and backgrounds (Preston et al. 2006).

Finally, it has been suggested that the personal experience and preferences of the researcher can and should be allowed to influence the selection of a suitable research setting (Creswell 1994). The background of the researcher as a former CIO himself, with nearly thirty years experience in the Irish Private Sector, affords him unique insights into the role of the CIO and their interactions within this specific industry context. Such background experience can often assist the researcher in his/her understanding of meanings and actions of the individuals involved, by providing a rich source of contextualisation for the interpretation of the data (Klein et al. 1999).

6.2.2 Irish Private Sector Selected Industries

The focus of this research study is on CIOs, rather than on IS managers, therefore, it was important to identify individuals who were senior corporate IS executives in their own organisations, where they were likely to play the role of CIO as it is commonly understood. Consequently, the definition used in this study to highlight potential candidate CIOs, was based on Brumm's (1988) definition of the CIO[14]:

[14] Brumm's definition of the CIO has formed the basis of the definition of the CIO used in a number of key empirical research studies specifically relating to the role of the CIO, including Brumm (1988), Stephens (1991), Grover (1993) and Gottschalk (2002).

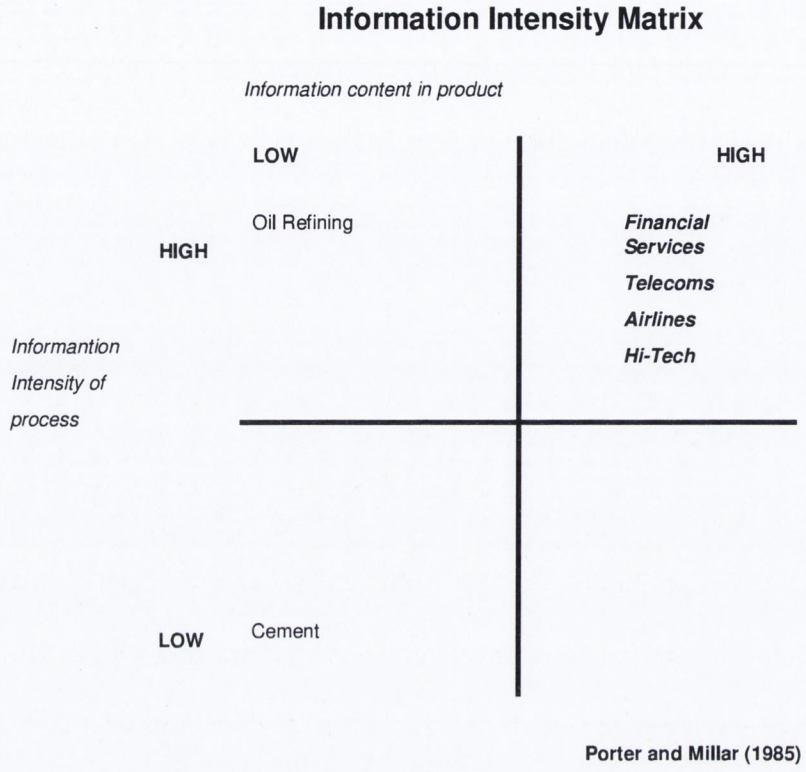
- Be the highest ranking IS executive in the organisation[15];
- Report no more than two levels from the CEO;
- Be responsible for strategic planning of information resources;
- Have overall responsibility for IS, computer operations, telecommunications, office automation, and end user computing/information centre.

When looking at potential industries to focus on, Porter and Millar (1985) had suggested that certain industry segments would have a greater propensity, than others, to regard IS as being of central and strategic value to their organisation. It was, they argued, in those industries where information played the greatest role in both the products they produced and the process by which the products were produced that IS would most likely be regarded as a strategic asset (Porter et al. 1985).

Therefore, using this "Information Intensity Matrix" (Porter et al. 1985), shown below in Figure 12, as a guide to the selection of potential industry segments for a research setting from within the Irish Private Sector, it became clear that organisations in the finance, hi-tech, telecommunications and airline industries would have the greatest likelihood of having senior corporate IS executives who could fit the profile of the CIO, as outlined above. Indeed, Grover et al. (1993) had suggested that it was in larger and more progressive firms, such as those found in these industries, that they would "tend to have IS executives with job attributes consistent" with the concept and definition of the CIO (Grover et al. 1993, p. 117).

[15] In the case of three of the CIOs interviewed, who were based in large multinational organisations, they were, in fact, "the highest ranking IS executive in their organisational unit".

Figure 12: Information Intensity Matrix (Porter et al. 1985)



6.2.3 Irish CIO External Peer Networks

The focus of this research study was not on any individual external peer network, per se. The reason for this was the fact that this research study is focused on "how CIOs interact with external peer networks", rather than "how CIOs interact with any particular network". In addition, whilst CIOs have numerous opportunities to network with other CIOs, via connections with vendors, management consultants and general IS industry forums, in reality, there are only a small number of external peer network organisations that "serve to socialise the participants" (Mitchell et al. 1980, cited in Rose 1985, p. 534), are based on relationships of mutual engagement (Wenger 1998b) and are exclusively dedicated to senior IS executives. In particular, there are three

specific external peer network organisations, dedicated to the needs of senior IS executives, operating in the Irish marketplace:

- Gartner's Executive CIO programme;
- CIO-Connect; and
- AIMI.

6.2.3.1 Gartner Executive CIO Programme

Gartner Group is regarded, by many, as the leading IS research and advisory organisation in the world (Seddon et al. 2008). Originally founded in 1979, they have offices in 75 countries worldwide and are headquartered in Stamford, CT, U.S.A. Their primary focus is on providing independent IS research and advice to assist their clients in making technology choices. Their services can be divided into:

- Research services;
- Technology consulting;
- Event management; and
- Gartner Executive CIO Programme.

The Gartner Executive CIO Programme is focused exclusively on CIOs and provides them with customised advice, based on the extensive research capabilities of Gartner Group, as well as regular opportunities for networking with other peer CIOs via monthly meetings. This service is seen as an "additional extra" over and above the research and advisory services they offer organisations, in general. Worldwide, Gartner suggest that they have in excess of 3,000 Executive CIO Programme members within

this peer network (Gartner 2009). However, whilst, individual memberships are not disclosed, on a country by country basis, the past experience of the researcher, operating as a CIO within the Irish marketplace, would suggest that there are, at any time, in the region of twenty active members of the Gartner Executive CIO Programme in Ireland.

6.2.3.2 CIO-Connect

CIO-Connect is an independent organisation with a specific focus on developing external peer networks for CIOs (CIO-Connect 2008). Originally set up as part of the UK's National Computing Centre (NCC), the organisation was sold off in 2008 as part of a management buyout (Ashford 2008). To date, they have set up a number of separate, yet linked, networking groups for CIOs, in a number of European and Asian locations (CIO-Connect 2008). Their key focus is on peer networking, in conjunction with the development of executive leadership programmes to support CIOs (CIO-Connect 2008). Their Irish operation was first set up in 2004, in partnership with iReach, a locally based IS research organisation (Emigrant 2004). As is the case for the Gartner's Executive CIO Programme, exact membership details are not made public by CIO-Connect. However, based on the researcher's own experience within the Irish marketplace, CIO-Connect have in the region of thirty to forty active members in their Irish CIO network.

6.2.3.3 AIM Ireland

The Association of Information Managers of Ireland (AIM Ireland) was founded in 2003 as an organisation dedicated to the needs of senior ICT executives in industry, government and academia (AIMI 2009). At present, it has members in over 100

organisations throughout Ireland and its activities are primarily focused on the following areas (AIMI 2009):

- Promoting the IS interests of all its members;
- Maintaining a forum for the exchange of views by members;
- Providing a medium for the dissemination of information; and
- Promoting social interaction amongst members.

Meetings of AIM Ireland, which are held bi-monthly, are focused on issues directly related to the needs of senior IS executives across the country. In addition, they have in the past made representations, on behalf of their members, to Government on relevant IS related issues such as national R&D priorities, education and training (AIMI 2009).

6.3 Description of the Emergent Theory

6.3.1 Introduction

Chapter 5 described the process of research which led to the emergence of six roles relating to how CIOs interact with external peer networks. These roles have been identified as: the *Seeker,* the *Schmoozer,* the *Builder,* the *Prophet,* the *Coach,* and the *Regulator.* Each of these roles has, in itself, a unique set of properties and dimensions that both describe the role and also, due to their uniqueness, define their differences from the other roles (Kluge 2000). The specific properties defined for each role are: *Direction, Perspective, Target, Mechanism* and *Outcome.* While not all the six roles are carried out by each and every CIO, together they provide a holistic view of the activities CIOs undertake as they interact with external peer networks.

The following section will describe, in detail, each of the six roles or patterns of CIO activity that have emerged from the current study. Each sub-section will describe the emerging theory relevant to the role in question. At the end of each sub-section the emerging theory and examples of data from the field are matched with selected aspects of the extant theory, as outlined in Chapter 2 and 3. Table 10 provides an overall typology or holistic view of these six roles or patterns of CIO activity:

Table 10: Typology of Roles relating to how CIOs interact with External Peer Networks

PROPERTY / ROLE	DIRECTION "Where"	PERSPECTIVE "Why"	TARGET "Who"	MECHANISM "How"	OUTCOME "What"
SEEKER	Information	Evaluation	Experts	Engaging	Awareness
SCHMOOZER	Contacts	Political	Candidates	"Speed Dating"	"In Play"
BUILDER	Relationships	Empathy	"Like Minded"	Connecting	Acquaintances
PROPHET	Ideas	Dissemination	Community	Selling	Challenge
COACH	Development	Philanthropy	Novices	Educating	Understanding
REGULATOR	Organisation	Governance	Leaders	Managing	Collaboration

6.3.2 The Seeker

The *Seeker* sets out to engage with the external peer network with the view to obtaining information regarding the IS technology environment from experts in the field, which can then be assimilated by him/her to provide greater awareness regarding technology options, which could be applicable within their own organisation. They do this by engaging in general discussions, workgroup sessions or directly with specific individuals.

The focus or direction of the *Seeker* is towards the acquisition of *information* which may be of use to his/her organisation. Such information may be of a specific or general nature. For instance, one CIO suggested that he had a specific reason for interacting with an external peer network: *"at the moment we are considering should we do on-line applications and how do we make use of technology"* (IP10). On the other hand, another CIO often found that he attended sessions of external peer networks more just to "keep an eye on things" and see what information of interest came up, as can be seen by *"no, you generally just go along, there might be something of interest, you have to invest the time...you are looking to see if something might grab your attention and might be relevant to you in the future"* (IP16).

Equally, the impetus for attending such networking sessions, whilst still focused on the acquisition of *information*, can be different. Some CIOs like to attend primarily for personal development reasons, such as: *"I think personally the challenge is to remain on top of the business*" (IP05). However, others do so due to such factors as direct requests from their CEO for solutions, as described in: "*about three months ago the CEO said would I look at innovation and how IT could drive innovation in the organisation for competitive advantage, so I went to a number of people for information on that one"* (IP02).

The view or perspective on such information attainment is based on *evaluation* or how the information gleaned could/would be suitable for their own business situations. Information and technology solutions are, of their own right, of limited use unless they are relevant to the needs and context of the CIO's own business. Therefore, CIOs will attempt to evaluate all information attained at such networking sessions based on its relevance to them. This filtering of information from the market is a key expectation of their top management team colleagues, as can be seen from: "*they are looking for me to say that this makes sense from an IT perspective and that I am taking into account the impact of that on our business*" (IP10); or "*you are only going to make noise about things that will actually deliver value....I mean real business value"* (IP08). In addition, such evaluation efforts also need to address how the wider marketplace and their direct competitors also view this information. Therefore, the CIO needs to be able to

contextualise the information received within this wider environment, as can be seen from *"but you can't make choices in isolation, so you need to always have an idea of where the market, whatever the market is doing"* (IP12).

The target of the efforts of CIOs, carrying out the role of *Seeker*, is towards specific *experts* in the relevant area or field. The people within the external peer network that they often regard as experts are those who have actually "done the job", as has been suggested by: *"I suppose learning from the experience of people who have really done it, that's probably the most relevant thing"* (IP11). However, there is often a recognition that such individuals are few and far between, as evidenced by: *"the problem is that it is very difficult to acquire this expertise"* (IP03).

The mechanism or approach they adopt is one of *engaging* with other CIOs who have the relevant expertise. This can be done by engaging in one to one conversations with specific CIOs, such as in: *"if you certainly go and speak to other CIOs you may find out that they use something like that in a much more structured way"* (IP11); or can be based on attending group sessions and presentations given to a wider audience, as part of network plenary sessions, as evidenced by: "s*ometimes they bring in a noted speaker or whatever. But it's about getting some knowledge that you don't currently have, either from the speaker or from some interaction"* (IP05). However, either way, at the heart of this engagement process is a recognition that the CIO needs to "mine" the

relevant information himself/herself from the many conversations and presentations they may partake in within the external peer network environment, as can be seen from: "*basically you have to go and do the digging and bring back up a view on it*" (IP11).

The outcome of the *Seeker's* engagement with the external peer network is often the attainment of an *awareness* of where the market is vis-à-vis a particular technology or management approach, which may be relevant to their organisation. Often the CIO starts off, before he/she interacts with an external peer network, with only a general view of a problem or strategic direction that may or may not require a technology solution. At this point in time, therefore, what is often needed is primarily clarity regarding the options available in the marketplace. This can be seen from the following: "*to be able to decide what's happening out in the big world of telco, what's happening in the world of convergence, where do we need to be taking the company*" (IP04); or equally, from: "*so I feel that I am reasonably well positioned at any point in time in terms of what's happening in the marketplace from a pure application and from a pure technology perspective*" (IP12).

The actual point of acquisition of any particular technology solution may still be a long way off, as the CIO may firstly need sell or "socialise" an awareness of the options available internally within their organisation. However, in the short run, just having clarity regarding the potential options available, can still, in itself, be of great value to

the CIO in his/her deliberations with the top management team, as can be seen by: "*right, so you come back and potentially you're sort of more knowledgeable about a particular area. So from a personal point of view you can get certain kudos for that, so you know, I can stand up in front of the CEO and say, you know"* (IP11).

In addition, the value of the seeker's attendance at the external peer network, in terms of attaining information relating to specific topics of interest to them, may not always match up with their initial expectations. However, that is not to say that they don't often garner some value or benefit from such interactions, as can be seen from:" *That's a good question. Invariably they don't in what they set out to do they don't meet my requirements, but invariably there is some benefit, ancillary benefit that you get, whether that you have found a new network or a new cadre of individuals that you would like to spend time with and talk to and so and so*" (IP11).

A comparison of the emerging theory relating to the role of the *Seeker* with the extant literature is shown in Table 11.

Table 11: Comparison of the emerging theory relating to the role of the SEEKER with extant theory

ROLE	SEEKER		
PROPERTY	**Key aspects of Emerging Theory**	**Examples of data from the Field**	**Selected aspects of related Extant Theory**
Direction – Information	• Specific reason for interaction • Just "keep an eye on things"	• At the moment we are considering should we do on-line applications and how do we make use of the technology. **IP10** • No, you generally just go along, there might be something of interest, you have to invest the time… you are looking to see if something might grab your attention and might be relevant to you in the future. **IP16** • I need to start looking at what opportunities are out there. **IP04** • I think personally the challenge is to remain on top of	• Searching or rational scanning (Aguilar 1967; Watson 1990). • Importance of environmental scanning for CIOs (Stephens 1991). • Viewing or "garbage can model"(Aguilar 1967; Cohen et al. 1972; Watson 1990). • Monitor role (Gottschalk 2002; Grover et al. 1993; Mintzberg 1973; Stephens 1991).

	• Direct CEO/TMT requests	the business. **IP05** • About three months ago the CEO said would I look at innovation and how IT could drive innovation in the organisation for competitive advantage, so I went to a number of people for information on that one. **IP02** • Because in the modern world people are impatient, they just don't want to hang around. They see technology as a differentiator and want it now. **IP01**	• CIO's perception of critical organisational issues and relationship to CEO (Katz et al. 1966; Tallon et al. 2000; Watson 1990).
Perspective – Evaluation	• Expectation of filtering of information	• They are looking for me to say that this makes sense from an IT perspective and that I am taking into account the impact of that on our business. **IP10** • You are only going to make noise about things that will actually deliver value….I mean real business value. **IP08** • There is an expectation that you are thinking about these things…there is also an expectation that you will sift out the rubbish. **IP08**	• Filter, interpret and assess information before introducing it back into organisation (Hambrick et al. 1984; March et al. 1958). • CIO expected to keep abreast of changes in the environment (Maier et al. 1997).

	• Contextual nature of information seeking	• I would have had to develop, over the years, a capacity to be able to translate that technology talk into business talk. **IP10** • You still try to understand how you can impact your business model and add value. **IP06** • But you can't make choices in isolation, so you need to always have an idea of where the market, whatever the market is doing. **IP12**	• Business understanding (Applegate et al. 1992; O'Riordan 1986; Rockart 1982; Stephens et al. 1992). • Interpret the significance of IS opportunities for the business (Earl et al. 1994; Feeny et al. 1992; Smaltz et al. 2006).
Target – Experts	• Few experts available • Target those with real experience	• The problem is that it is very difficult to acquire this expertise. **IP03** • Technology, I suppose if you look, I've even, but I would tend to graduate towards those who, you know, know like trends in say software development. **IP11** • I suppose learning from the experience of people who have really done it, that's probably the most relevant thing. **IP11**	• CIOs heavily influenced by other CIOs (Maier et al. 1997; Watson 1990). • CIOs influenced by the experience and social position of the information sender (Watson 1990).

		• Because it's not a factor, I'm not a, I am not required to be an expert on any technology. OK…I am required to find the experts. **IP08** • The right people…So it actually brings it to the nub of a problem much faster. **IP10**	• Equivocal nature of information requires discussions with experts (Daft et al. 1987).
Mechanism – Engaging	• One-to-one conversations • Wider expert groups • CIO needs to mine the information him/herself	• If you certainly go and speak to other CIOs you may find out that they use that, they use something like that in a much more structured way. **IP11** • You might go and say "here this is what I am struggling with, have you come across it". **IP06** • We said to the guys, we know you pretty well, what other people are doing around town about this. **IP02** • Sometimes they bring in a noted speaker or whatever. But it's about getting some knowledge that you don't currently have, either from the speaker or from some interaction. **IP05** • Basically you have to go and do the digging and bring back up a view on it. **IP11**	• Focus on sources of "high media richness" such as one-to-one conversations (Daft et al. 1987; El Sawy 1985; Mintzberg 1973). • Communities of Practice (Wenger 1998b). • Need for direct engagement due to danger of "uncertainty absorption" (El Sawy 1985;

			March et al. 1958; Mintzberg 1973).
Outcome – Awareness	• Priority on awareness and clarity • Creation of options for discussion	• So I feel that I am reasonably well positioned at any point in time in terms of what's happening in the marketplace from a pure application and from a pure technology perspective. **IP12** • The obvious value of interacting is awareness of what's happening in the marketplace. **IP12** • To be able to decide what's happening out in the big world of telco, what's happening in the world of convergence, where do we need to be taking the company. **IP04** • So I can gain from what others have done or from what they have learned. **IP10**	• CIO to help create awareness and clarity (Armstrong et al. 1995; Chan et al. 2006; Nelson et al. 1996; Preston et al. 2006; Reich et al. 2000). • Proactive change agent (Synnott et al. 1981). • "Bridge the Gap" between TMT and IS (Synnott et al. 1981). • Access to networks enables solution acquisition, meta-knowledge attainment, problem reformulation and perspective validation (Cross et al. 2001).

	• Power value of information	• Right, so you come back and potentially you're sort of more knowledgeable about a particular area. So from a personal point of view you can get certain kudos for that, so you know I can stand up in front of the CEO and say, you know. **IP11**	• Impact of "solution legitimisation" on TMT power and internal deliberations (Cross et al. 2001; Hambrick et al. 1984; Yukl 2006).

6.3.3 The Schmoozer

Putman suggests that the term "*Schmoozer*" originated as an old Yiddish term and related to those within a network or community who "spend many hours in informal conversation and communication" (Putman 2000, p. 93). The role of the *Schmoozer*, he contends is "very important in sustaining social networks" (Putman 2000, p. 95). Therefore, the researcher has chosen to use this term "*Schmoozer*" to describe the role or pattern of activity associated with CIOs connecting with other CIOs, from the point of view of getting known to others and making connections that can potentially be of use to them at some later stage. Much of this work tends to be targeted at individuals who the CIO believes are important either politically or have value in terms of the information and assistance they can potentially provide. The focus, therefore, is on linking up with individuals in the same or different industries, based on the potential utility or usefulness of the contact. Here the desired outcome is not the development of acquaintances per se, as is the case of the role of the *Builder*, but getting oneself "In Play" or known to people who could potentially help, either now or in the future.

The direction of the *Schmoozer* is towards developing *contacts* with other CIOs across the network. An external peer network is seen as being like a "vehicle" or a mechanism to allow the CIO to make these contacts. This can be seen from: "*this network provides me with a vehicle by which I meet other CIOs who are around town*" (IP05). The

emphasis in this role is, therefore, on making contacts rather than seeking out information per se, as is the purpose of the *Seeker* role. This role of the *Schmoozer* is also seen to be ongoing in nature as contacts can easily become stale, as has been suggested by: *"I do but I haven't and a slap on the hand for me. I have stopped going and I notice now when they start to do things....you kind of find that your contacts have moved on"* (IP04). In addition, the CIO needs constantly to reappraise their commitment to the activity of the *Schmoozer*, so as to assess its ongoing value and importance. This can be seen from: *"every now and again I try to check myself and say hold on, turn up to these things, show your face, meet these people, this is important"* (IP08).

The perspective adopted by the *Schmoozer* is *political* in nature. They often feel the need to be at the centre of things, so that they can work out what is happening around their environment. As they are not necessarily close to all the individuals in the network, they often feel the need to remain active and involved so as to remain "connected" to the key players. This can be seen from: *"you know it's much better to have a network where you can figure out what other people are doing"* (IP05). In addition, they often undertake this activity from the perspective of "positioning" themselves within the marketplace, from the point of view of making themselves known in case of future developments, such as career advancement opportunities. Again this can be seen in: *"like you could see him for the previous two years before he*

retired that he was profiling himself. He went along to everything that was going on" (IP08).

The *Schmoozer* maintains a very critical view on which *candidates* they wish to connect with. There is a clear element of selection regarding who the *Schmoozer* decides to develop connections with, as can be seen from: "*I look at everyone and I say 'what can you do for me'*" (IP08). Such a selection process often starts from the minute the *Schmoozer* receives an invitation to attend an external peer network function. Key candidates often need to be either at a similar level, as is shown in: "*the first thing you look at is the peer level of the group*" (IP05); or, within the same industry, as seen by: "*I don't want someone ...it doesn't matter...the bank is a different business*" (IP08).

The mechanism used by the *Schmoozer* has been best described by one of the CIOs as being like "*speed dating*"[16], as can be seen by the following comment: "*it is essentially, you leave behind the opportunity to call you or to contact you in the future, you know, it's probably a little like speed dating*" (IP16). There is often also a proactive "targeting" element to the role of the *Schmoozer*, whereby they will consciously attempt to connect with key individuals at these external peer networks, as

[16] Properties shown in parenthesis refer to "In Vivo" codes which have emerged from within the data. Charmaz has suggested that such "In Vivo" codes refer to special terms that "provide a useful analytic point of departure" and "help to preserve participants' meanings of their views and actions" (2006, p. 55).

can be seen in: *"so I will target guys in five or six other organisations who are similar to us in terms of operation"* (IP12).

In addition, such connections will not necessarily be limited to the CIO's own industry or grouping, as is shown by: *"so I'll have a conversation now with your man in that industry there or that woman over there, you know. I would probably know all the CIOs in this area"* (IP07). They also recognise that the role of the *Schmoozer* can take time and effort, but usually bears fruit, if they are willing to stick at it. This is shown in the following excerpt: *"there's a bit of oiling the wheels, but there is also a bit of working the network. I got a couple of pieces of information from a source today and I said, yea, that's nice to know*" (IP12).

The outcome of this role of the *Schmoozer* is a sense that the CIO is *"In Play"* within the network. This sense of being "In Play" has a number of benefits for a CIO, such as, first, a confidence that you are "in the loop" and that there are important people out in the network that know about you and may be in a position to help you with career development opportunities in the future, as is described in: *"it's the confidence it gives you. The fact that there are some good guys out there and they would know and they would not forget you"* (IP04); second, the fact that such connections can give the CIO access to information regarding what's happening in the wider industry or environment, as stated in: *"you get a 'heads up' on things, if there are any particular issues emerging*

in relation to projects going on or what's happening on the vendor side" (IP05); or third, that access to such contacts can be of benefit to the CIO when it comes to attempting to influence the top management team regarding potential investment opportunities, as has been suggested by: *"yes, it's very powerful: any type of reference, word of mouth, is very strong"* (IP10).

A comparison of the emerging theory relating to the role of the *Schmoozer* with the extant literature is shown in Table 12.

Table 12: Comparison of the emerging theory relating to the role of the SCHMOOZER with extant theory

ROLE	SCHMOOZER	Examples of data from the Field	
PROPERTY	**Key aspects of Emerging Theory**		**Selected aspects of related Extant Theory**
Direction – Contacts	• Network acts as a "vehicle" for contacts	• This network provides me with a vehicle by which I meet other CIOs who are around town…it's about building up your credibility and contacts, and helping them and them helping you. **IP05**	• Networks act as a "vehicle for knowledge creation" (Cross et al. 2001; Granovetter 1973).
	• Role requires ongoing attention, commitment and effort to maintain connections	• Every now and again I try to check myself and say "hold on, turn up to these things, show your face, meet these people, this is important". **IP08** • You never have enough contacts. **IP04** • I do but, no I haven't recently and a slap on the hand for me. I have stopped going and I notice now when	• CIO Liaison role (Gottschalk 2002; Grover et al. 1993; Mintzberg 1973; Stephens 1991).

		they start to do things….you kind of find that your contacts have moved on. **IP04**	
Perspective – Political	• Need to be "at the centre" of things	• You never know what's around the corner and what issues you are going to face and probably issues that are not related at all to technology or business. **IP16**	• Those who spend "many hours in informal conversation" (Putman 2000, p. 93).
	• Use network to find out what others are doing, rather than asking directly	• I like to use contacts with networks to validate my thinking on issues. **IP03** • You know, it's much better to have a network where you can figure out what other people are doing, right. **IP05**	• Value of "weak" social ties (Granovetter 1973). • Unwilling to directly expose their "knowledge deficiencies" and "hesitate to ask structurally equivalents for information (Shah 1998, p. 252).
	• Use network to position themselves	• Like you could see him for the previous two years before he retired that he was profiling himself. He went along to everything that was going on. **IP08**	• Use network to position themselves for potential job opportunities (Mitchell et al. 1980).

Target – Candidates	• Assessment of each individual met	• I look at everyone and I say "what can you do for me". **IP08**	• Inherent rivalry between potentially "structurally equivalent" actors in a network (Shah 1998, p. 251).
	• Level of peer contacts important	• There is no point in me going along to a network which is small, medium enterprise, guarantee you it will have nothing, limited amount in common. **IP07** • The first thing you look at is the peer level of the group. **IP05**	
	• Key contacts must have real value for them	• I don't want someone…I couldn't give a shite…it doesn't matter…the bank is a different business. **IP08** • I found the guys in the public sector, and that doesn't mean that they were doing anything wrong, it just wasn't that relevant to me. **IP02**	• Importance of observations and second-hand information gleaned from structurally equivalent actors (Shah 1998, p. 252).

Mechanism – "Speed Dating"	• "Speed Dating"	• It is essentially, you leave behind the opportunity to call you or to contact you in the future, you know, It's probably a little like speed dating. **IP16** • I meet them for coffee, have a chat, walk up the road, just walk around the block, that's how that works. **IP07**	• Process of "Bridging" (Putman 2000, p. 23). • "Hang out with friends, play cards etc." (Putman 2000, p. 94).
	• Conscious "Targeting" of individuals	• So I will target guys in five or six other organisations who are similar to us in terms of scale of operation. **IP12**	• Informal connections are "very important in sustaining social networks" (Putman 2000, p.95).
	• "Moving and shaking"	• So I'll have a conversation now with your man in that industry there or that woman over there, you know, I would probably know all the CIOs in this area. **IP07** • Just the fact that you are out there talking to people, so you know what's going on. **IP04** • There's a bit of oiling the wheels, but there is also a bit	• Importance in developing instrumental network relationships (Fombrun 1982; Kotter 1982; Tichy et al. 1979). • "like pennies dropped in the

	• Looking for payback from connections	of working the network, I got a couple of pieces of information from a source today and I said, yea, nice to know. **IP12**	cookie jar, each of these encounters is a tiny investment in social capital" (Putman 2000, p. 93).
Outcome – "In Play"	• Confidence about being "in the loop" • Known to significant others in the network • Easy access or "heads up" on what's happening in the network • Value of network of contacts for referencing	• I have a network of people that I know, so depending on what the issue is, I can usually find someone that I know who can get me the "in" to find out. **IP01** • It's the issue of confidence it gives you. The fact that there are some good guys out there and they would know and they would not forget you. **IP04** • You get a "heads up" on things, if there are any particular issues emerging in relation to projects going on or what's happening on the vendor side. **IP05** • Yes, it's very powerful; any type of reference, word of	• Structural Social Capital"(Nahapiet et al. 1998). • Knowledge based Trust (Lewicki et al. 1996). • Supply new and diverse information concerning current developments (Mitchell et al. 1980). • To help establish one's reputation and promote his/her

	purposes	mouth influence is very very strong. **IP10** • So potentially they help with career development opportunities. **IP02**	visibility in the network (Mitchell et al. 1980).

6.3.4 The Builder

The role of the *Builder* focuses on developing relationships with other individual CIOs within the network. Their outlook is based on a sense of empathy and "travelling a common road" together. They target other CIOs who they sense are similar in terms of background, problems or interests. They undertake the role of *Builder* by adopting the mechanism of connecting with other CIOs on a personal level, whilst the outcome of this role is the creation of personal acquaintances which can then exist beyond the boundaries of the external peer network. For them, it is not a case of the number of relationships they can create; it is more a case of the importance and quality of the personal acquaintances they can develop.

The direction of the *Builder* is towards the development or "building" of *relationships* with specific individuals. Often they perceive this need to have such relationships as being important to themselves as individuals and also to their ability to succeed as CIOs today, as can be seen from: *"I think the essence of success is all about relationship building, that's what I'd say and I think that's where a lot of CIOs fail"* (IP01). This approach would make it different from that adopted by the *Schmoozer*, where the emphasis there is on the number and quantity of important connections across the network, rather than on the importance of a small number of close relationships, which are based on common views and interests. This difference has

been expressed as: *"unless you are actually doing something over and above sharing names and telephone numbers around, it's not really contributing a whole lot"* (IP05). That said, whilst many of these relationships are "personal" in nature, they are not necessarily linked to the outside private lives of the individual CIOs, therefore, rather than "friends", the researcher has classified them as "acquaintances". This difference is important and has been expressed in the following terms to the researcher: *"I don't think I have invited anyone from our network, well I know I have not invited anyone from this network, to my house for dinner"* (IP13).

Such relationships tend to exist "in parallel" to the formal external peer network settings and are often described by CIOs as "informal" , as has been described in: *"so him and I, go to lunch every few weeks or every few months and just to share some issues and that's a more informal ...tends to be sort of ...sometimes you actually get more information out of those ones than the more formal ones"* (IP05); or *"and then there is my peer network with people that I know personally...people that I have worked with for years in the business...that I met over the years...that's my peer network and it's all informal"* (IP08).

The perspective driving the role of the *Builder* is often the sense of the need to develop <u>*empathy*</u> with others, as has been stated in: *"I can understand where they are coming from there as we have already travelled that road"* (IP07). This need for building

empathy is often seen as a way to address the issue of isolation that they often feel within their role as CIO, operating as part of the top management team. This sense of isolation has been stated in terms of: *"you know who to pick up the phone to if you have a problem, in any role, leadership can be a lonely spot because, you know, there's only one CIO or CEO in this organisation"* (IP16); or equally as in: *"from the perspective of knowing that you are not on your own and together we have the collective power to deal with it"* (IP10).

The *Builder* tends to target, what they describe as "*Like Minded*" individuals, that is, individuals who, whilst not necessarily from the same industry, are individuals who they perceive maintain a similar view or outlook on issues, as has been suggested by: *"so you have a common cause even though you might be from very diverse backgrounds, and that just opens it up a lot more"* (IP07); or *"you can establish good friendships with like minded people"* (IP13). In addition, there is a need for those targeted to be willing and able to share and help each other, as can be seen from: *"if a group of people can be identified who are willing to share, who are really capable and really willing to share"* (IP10). The benefit of such sharing can often be based on a sense of past difficulties that would benefit from mutual interaction, as is suggested by: *"we all have to some degree been in some sort of trouble at any point in time and there are lots of issues to discuss"* (IP05).

The mechanism the *Builder* adopts to enable the building of relationships can best be described as *connecting*. This mechanism is focused on developing a personal sense or connection with like minded CIOs and often appears to require a period of time to develop, as can be seen from "*you build, you build over time, you get to know like minded colleagues, you know. So in that respect you get a personal sort of connection*" (IP16). In addition, such a process of connecting involves an element of exposure by the individual CIOs and therefore, is surrounded by a sense of caution in how it is approached. This has been described in terms of: "*you will be careful; you are not going to open the Kimono too much if you are not sure*" (IP05). In addition, such connecting is also often associated with an element of informality or socialisation as is seen in: "*there are a few guys around that you can have a pint with and chew the fat about things in the business*" (IP16); or "*I would ring somebody and meet them for coffee or you would be going down the road and you would bump into them*" (IP04).

The outcome of this role of the *Builder* is the development of important personal *acquaintances* amongst a small and tight group of like minded CIOs, as has been expressed in: "*that tends to be a smaller group that you really relate to and can kind of trust*" (IP05). This sense of trust is not based on any network rules or norms, such as "cabinet confidentiality" which is part of the governance perspective adopted by the *Regulator* role, but is based on the creation of a sense of personal trust between the individual CIOs themselves, as described in:" *it's down to individuals, it's down to*

trust, it's down to the rapport you build up with people and their willingness to share" (IP16). A benefit of the development of such acquaintances is often a sense of belonging and personal comfort as has been suggested by: *"I suppose you are looking at; there is a personal satisfaction around just meeting someone that you used to work with or that you know. It's nice to keep in touch, that's a huge...what is it Maslow, you know that kind of, theirs is a huge, I can't think of the word....that sense of belonging is nice"* (IP04); or equally: *"so there's a warm fuzzy feeling that you get"* (IP07).

However, such relationships, by their very nature, can, in a negative way, often exclude others, who in themselves might have real value to offer from their interactions and therefore they can act to limit the focus and ultimate value of such relationships to the individual CIOs undertaking this role of the *Builder.* This can be seen from the following comment: *"only having people in similar type roles in the first instance, you know, not IT managers of a junior level, you know...I know that might sound a little condescending*" (IP16).

A comparison of the emerging theory relating to the role of the *Builder* with the extant literature is shown in Table 13.

Table 13: Comparison of the emerging theory relating to the role of the BUILDER with extant theory

ROLE	BUILDER		
PROPERTY	**Key aspects of Emerging Theory**	**Examples of data from the Field**	**Selected aspects of related Extant Theory**
Direction – Relationships	• Need to have meaningful relationships to support CIOs	• I think the essence of success is all about relationship building, that's what I'd say and I think that's where a lot of CIOs fail. **IP01** • Unless it's actually doing something over and above sharing names and telephone numbers around, it's not really contributing a whole lot. **IP05**	• Importance of CIO maintaining relationships with key individuals (Armstrong et al. 1995; Earl et al. 1994; Enns et al. 2000; Feeny et al. 1992; Hambrick et al. 1984; Luftman et al. 1999; Stephens 1994).
	• Focus on professional connections rather than personal friendship	• I don't think I have invited anyone from our network, well I know I have not invited anyone from this network to my house for dinner. **IP13** • You know, they are two different ….. environments around the same thing. I am trying to think of an analogy	

	• Parallel nature of such relationships within the network	but …… it's almost like the different sets of friends, those you have yourself and your work colleagues. **IP14** • And then there is my peer network with people that I know personally…people that I have worked with for years in the business…that I have met over the years…that's my peer network and it's all informal. **IP08** • I also maintain a personal relationship with the CIO operating in Organisation "B" and how appropriate because I knew the guy in a previous life. **IP12**	• "Many groups simultaneously bond across some social dimensions and bridge across others" (Putman 2000, p. 23).
Perspective – Empathy	• Develop empathy between the individuals	• You know over time you will build up a rapport with the people in the group, so it's beyond information sharing.**IP16** • They kind of get what you do, these guys and gals, they get what you do. **IP07** • I can understand where they are coming from there as we have already travelled that road. **IP12** • Empathy that really works and drives. So people have been there done that and really understand. **IP07**	• Cohesive actors (Shah 1998). • Importance of strong ties (Granovetter 1973).

	• Address issue of isolation	• You know who to pick up the phone to if you have a problem, in any role, leadership can be a lonely spot because you know, there's only one CIO or CEO in this organisation. **IP16** • They are absolutely invaluable, they're essential. Otherwise you are too insular and you can go off into your own little world. **IP04**	• Sense of isolation (Gibson et al. 1973; Niederman et al. 1993; Schein 1996). • Support groups acting as a substitute for other significant ties serving people "who are disconnected" from other social networks (Putman 2000, p. 151).
Target – "Like Minded"	• Target "like minded" individuals • Common background	• You can establish good friendships with like minded people. **IP13** • So you have a common cause even though you might be	• Concept of "homophily" (Ibarra 1993b; Lincoln et al. 1979).

	and interests • People who are willing to share and help each other	from very diverse backgrounds, and that just opens it up a lot more. **IP07** • I have a number of different types of relationships; I would have one-to-one relationships with some individuals in similar roles. **IP10** • If a group of people can be identified who are willing to share, who are really capable and really willing to share. **IP10** • We all have to some degree been in some sort of trouble at any point in time and there are lots of issues to discuss. **IP05**	• Willingness to share with those of a similar background (Galaskiewicz et al. 1981; Granovetter 1973; Ibarra et al. 1993). • Importance of backgrounds (Applegate et al. 1992; Hambrick et al. 1984; Ravarini et al. 2001; Wynekoop et al. 1999). • Relationships of mutual engagement (Wenger 1998b).
Mechanism – Connecting	• Connecting with others	• To me it's a couple of things, it's hearing the words, but it is almost like filling in the gaps, because what you have to be able to say is "I hear what you are saying but I think there's something else that's going on here".**IP07**	• Process of "Bonding" (Campbell 2003; Enns et al. 2003b; Putman 2000, p. 23).

	• Such relationships need to be built up over time	• They will give you a little bit and if you make a return on that they may give you a little bit more and it's really a process whereby at the level of one to one interaction, it has to be worked on. **IP10** • You build it up over time, you know, you'll know quickly, you will talk to somebody, you will know quickly if it is their ego at play or their experience. If it is their ego, you won't bother. **IP16** • You build, you build over time, you get to know likeminded colleagues, you know. So in that respect you get a personal sort of connection. **IP11** • Building trust….you can and that's important. But it's something you got to work at; it's not something that just happens. **IP05** • I would ring somebody and meet them for coffee or you would be going down the road and you would bump into them. **IP04** • There are a few guys around that you can have a pint with	• Importance of frequency of contact (Shah 1998).

	• Connecting requires self exposure	and chew the fat about things in the business. **IP16** • You will be careful; you are not going to open the Kimono too much if you are not sure. **IP05**	• "Expose their knowledge deficiencies" (Shah 1998, p. 252).
Outcome - Acquaintances	• Only possible to maintain a small number of close acquaintances • Important personal acquaintances • Sense of trust based on level of personal trust that has developed	• That tends to be a smaller group that you really relate to and can kind of trust. **IP05** • They are friends anyway …but I have not chosen to do that because they're professional acquaintances rather than personal friends and I think there is a difference.**IP13** • Its down to individuals, it's down to trust, it's down to the rapport you build up with people and their willingness	• Practical limit on number of close relationships (Ibarra 1993a). • Cross-cutting relationships (Jacobs 1965). • Sense of evolving trust (Campbell 2003; Earl et al.

	• Creation of a sense of understanding, belonging and personal comfort within the individuals	to share. **IP16** • How do you decide who to let into your inner circle? probably on a personal relationship basis. **IP12** • There is personal satisfaction in just meeting up with people you know. **IP04** • I suppose you are looking at, there is a personal satisfaction around just meeting someone that you used to work with or that you know. It's nice to keep in touch, that's a huge, what is it that Maslow, you know that kind of, theirs is a huge, I can't think of the word …. That sense of belonging is nice. **IP04** • So there's a warm fuzzy feeling that you get. **IP07**	1994; Feeny et al. 1992). • "Identification based trust" (Lewicki et al. 1996). • "Relationship Social Capital" (Nahapiet et al. 1998).

6.3.5 The Prophet

The role of the *Prophet* is adopted by CIOs where they focus on the dissemination of ideas regarding technology, often those of their own, or based on their organisation's experiences, which they feel may be helpful to others or important from an industry perspective to annunciate. The choice of the name *Prophet* suggests that whilst they may be visionary in nature, their opinions may often challenge those of other CIOs. Their target is often a wide audience of the CIO community, with no specific attempt to focus on any particular individuals. They sometimes go about selling their ideas or successes to the other CIOs, without the downside being fully explored.

The direction of the efforts of the *Prophet* is often towards specific *ideas* regarding aspects of the evolving IS industry, be that specific technology advancements or management processes surrounding IS. In some cases, this can be due to a wish to promote the IS industry per se, as described in: *"I would have been always very keen for this idea to promote technology, I really am a believer in that because Ireland jumped out of the agrarian, over the industrial and into the technological age, so we are at a great advantage"* (IP07); or for that matter, due to a belief that CIOs need always to stay up to date with new ideas in the industry, as suggested by: *"researching new stuff, working with them, being ahead of the curve"* (IP03). Equally, the *Prophet* can appear driven by their own experiences and belief in the need to challenge other

CIOs, as in: *"the ability to be able to bring 'thought leadership' regarding how better to exploit the use of IT"* (IP05).

The perspective of the *Prophet* is one of a need for *dissemination* of these agendas within the CIO community. For instance, it has been suggested that the role of the *Prophet* can be driven by a belief in the need for CIOs to have external peer networks in which to discuss key industry issues, as described by: *"I wanted CIOs to be able to engage about things that were strategically important, so I started a network myself"* (IP07). Another element of this perspective of dissemination is a sense regarding the need to help other CIOs develop their own performance and effectiveness within their organisations, as suggested in: *"we went out and put up our Balanced Scorecard, showing how we, how we measure what goes on in our organisation and we put the thing up and put the whole thing up on the screen and said here guys, here's how we built it"* (IP02). Behind this perspective of the need for dissemination of specific agendas, within the IS industry, there can often be a genuine sense of generosity and willingness to share on the part of the *Prophet*. This is described well in: *"but the big thing, the big trick, is to learn from your mistakes, not dive like an ostrich back into the sand and if you are really generous about that, you have to tell others so that we all don't fall into the same pit."*(IP07).

The target of the efforts of the *Prophet* tends to be quite widespread, be that towards the whole CIO *community*, as described in: *"I think it was a subject of mutual interest within the IT industry"* (IP01); or focused on specific industries, as suggested by: *"I think you know, because of the industry I am in, it has to be along similar lines, so it has to be financial services"* (IP07). Equally, the target can be a group with a specific interest or agenda, such as all those using the same vendor's software, as outlined in: *"why should we give this advantage to our suppliers, and I think that is what crystallised it for me"* (IP01). The emphasis, therefore, is not on helping a specific individual, as would be the case for the *Coach*, but on assisting a larger community who share a common cause.

The mechanism adopted by the *Prophet* for the dissemination of their agendas is often based on them taking the opportunity to *sell* their ideas by way of presentations to the other CIOs in plenary sessions of the external peer network. These sessions can often be formal and structured in nature, as described by: *"during the course of the session there are agreed topics that are presented"* (IP12); or *"so I would have given a presentation to the last meeting, probably an hour's presentation on our IT architecture and that is all up on the site and available to others"* (IP05). In addition, the potential for success of such selling efforts is often as much based on the credibility of the individual CIO, as on the ideas being put forward, as can be seen from: *"then there's the influence of being successful, you know, they're worth listening to, you*

know, so much noise goes on all the time, but if IP07 comes to talk, well we will certainly listen" (IP07).

The outcome of the activity of the *Prophet* is often a sense of <u>*challenge*</u> felt by the other CIOs. They may, for the first time, get a sense of the rationale behind why other companies or industries are adopting different strategies, as is suggested in: *"you get an insight into why other companies have gone a certain route"* (IP04). Equally, the role of the *Prophet* can force them to look, for the first time, at new avenues to explore, as has been described by: *"and you are left thinking, wow!, you know sort of, it's a while since I've seen this sort of innovation"* (IP11). Whilst at times the efforts of the *Prophet* can be seen to be less than fully balanced, in terms of exploring all sides of the issues, as seen in *"you will get some guys that operate at these things and it's apple polishing"* (IP05), overall however, there appears to be general support for the benefits of this role, as described by: *"I think it was to everyone's advantage, we met someone else who helped us with our thinking"* (IP04).

A comparison of the emerging theory relating to the role of the *Prophet* with the extant literature is shown in Table 14.

Table 14: Comparison of the emerging theory relating to the role of the PROPHET with extant theory

ROLE	PROPHET		
PROPERTY	**Key aspects of Emerging Theory**	**Examples of data from the Field**	**Selected aspects of related Extant Theory**
Direction – Ideas	• Promote technology	• I would have been always very keen for this idea to promote technology, I really am a believer in that because Ireland jumped out of the agrarian, over the industrial and into the technological age, so we are at a great advantage. **IP07**	• CIO as Visionary (Armstrong et al. 1995; Galliers 2007; Preston et al. 2006; Smaltz et al. 2006).
	• Being ahead of the curve	• Researching new stuff, working with them, being ahead of the curve all the time. **IP03** • The CIO needs to keep their market intelligence up. **IP03**	• Strategic IS Knowledge as a key factor in CIO effectiveness (Smaltz et al. 2006).
	• Bring thought Leadership	• The ability to be able to bring "thought leadership" regarding how better to exploit the use of IT. **IP05**	• Proactive Change Agent (Synnott et al. 1981).

Perspective – Dissemination	• Need external networks to discuss IS issues	• I wanted CIOs to be able to engage about the things that were strategically important, so I started a network. **IP07**	• Importance of external contacts to top management in developing their understanding and perceptions (Clark et al. 2002; Geletkanycz et al. 1997; Maier et al. 1997; Watson 1990).
	• Need to develop their own performance and capabilities	• My experience is as valid as anybody else's experience, so I contribute to other people's issues; I tell them about buying something or doing something. **IP10** • We went out and put up our Balanced Scorecard, showing how we, how we measure what goes on in our organisation and we put the thing up and put the whole thing up on the screen and said here guys here's how we built it. **IP02**	• Disseminator role (Gottschalk 2002; Grover et al. 1993; Mintzberg 1973; Stephens 1991).

	• Sense of generosity to share with others	• But the big thing, the big trick, is to learn from your mistakes, not dive like an ostrich back into the sand and if you are really generous about that, you have to tell others so that we all don't fall into the same pit. **IP07** • I think the networking thing is, you've really got to, I suppose be able to bring something to the party. **IP01** • You have an opportunity to educate them in some way around the technology. **IP16**	• Concept of "generalised reciprocity" (Putman 2000).
Target – Community	• Focus on "mutual interest" of group • Target those with specific needs	• I think, you know, because of the industry I am in, it has to be along similar lines, so it has to be financial services. **IP07** • I think it was a subject of mutual interest within the IT industry. **IP01** • The same sort of regulatory environment, prevailing market, the pushes and pulls are going to be very analogous. **IP07** • Why should we give this advantage to our suppliers and I think that is what crystallised it for me. **IP01**	• "Collectively owned capital" (Bourdieu 1986). • More varied and valuable nature of connections with structurally equivalent actors (Shah 1998).

Mechanism – Selling	• Formal or structured sessions	• During the course of the session there are agreed topics that are presented on. **IP12** • So then it was a case then of proselytising and setting up events. **IP07** • If you can say "I saw that somewhere, maybe I can bring you and show you". **IP03** • I had guys in here wanting me to do a presentation in Croke Park about our IT story and stuff like that. **IP08** • So I would have given a presentation to the last meeting, probably an hour's presentation on our IT architecture and that is all up on the site and available to others. **IP05**	• Approaches in influencing (Enns et al. 2001). • Information dissemination amongst groups involving structurally equivalent actors (Ibarra 1993a; Ibarra et al. 2005; Shah 1998).
	• Selling success based on credibility of individual	• Then there's the influence of being successful, you know, they're worth listening to, you know, so much noise goes on all the time, but if IP07 comes to talk well we will certainly listen. **IP07** • And you get people presenting really good case studies and it's always "these are the lessons learned; I would have done it totally different". **IP10**	• Structure in which the CIO operates (Karimi et al. 1996a; Raghunathan et al. 1989).

Outcome – Challenge	• Challenge to existing ideas	• And you are left thinking, wow!; you know sort of, it's a while since I've seen this sort of innovation. **IP11** • I think it was to everyone's advantage, we met someone else who helped us with our thinking. **IP04** • This approach tends to open up new thought avenues or areas that you might not have thought of. **IP11** • You will get some guys that operate at these things and it's apple polishing. **IP05**	• Entrepreneur role (Gottschalk 2002; Grover et al. 1993; Mintzberg 1973; Stephens 1991). • Problem reformulation (Cross et al. 2001).
	• Opportunity to explore new avenues	• Opening up of thoughts in terms of other things that might be happening that we haven't considered. **IP12** • You get an insight into why other companies have gone a certain route. **IP04**	• New and diverse sources of information (Mitchell et al. 1980).

6.3.6 The Coach

The role of the *Coach* sets out to assist in the development and success of other, often more junior, CIOs by helping to educate them regarding aspects of the business with which they may not be familiar. The underlying perspective of the *Coach* tends to be quietly philanthropic in nature. This distinguishes it from the previously described role of the *Prophet* which, while often also well intended, tends to be agenda driven and undertaken on an "open stage". This role however, tends to be undertaken quietly, often over a period of time and focuses on developing tacit understanding of the issues and problems relating to a particular situation. Another interesting feature of this role is that it appears, from the data collected by the researcher in the current study, to be more prevalent amongst the more senior CIOs in the marketplace.

Development of others is the direction taken by the efforts of the CIO in the role of *Coach.* This focus on development can be based on their own sense of the value of continuous personal and professional development, as expressed by: *"yes, I know, I have always subscribed to the notion that there is nobody who you meet who can't teach you something"* (IP14). In addition, this focus on development can be based on a belief that their own experiences, to date, would be valuable for the development of others, as seen in: *"I think I can bring, certainly locally in the Irish market, I think I can bring a lot from my personal experience"* (IP01).

The underlying perspective driving the *Coach* is one of quiet *philanthropy*. He/she is often driven by a personal sense of wishing to "give back" to the industry, thus enabling others to learn from their successful careers, as is described in: " *ah well, you would try to make yourself available to others around town"* (IP05); or for that matter by a sense of corporate responsibility due to the size and importance of their role in the Irish marketplace, as seen by: *"I think that we have got a corporate responsibility, you know, and I know the CEO would support that as well"* (IP01). In addition, they would prefer to help others without any attempt overtly to "sell" their views or opinions, as is suggested by: *"I would hope that some of the people would have learned something from what I tell them, that they may either use or discard or pass on as they see fit".* (IP11).

The role of *Coach* tends to be targeted at *novice* or less experienced CIOs. This can be seen from excerpts such as *"there's a guy who I have recently been helping, probably in an organisation of about one hundred that started in the last eighteen months, right"* (IP05); or : *"different CIOs, maybe different levels of maturity, with some of us being slightly ahead on the curve"* (IP05). In addition, such a focus on novice CIOs can be seen to have much wider benefits for the industry as a whole, than just helping the individual CIOs with their own specific problems. Such coaching activities can, it has been suggested, help to "raise all the boats" in terms of the general levels of expertise

in the industry. This is described well by a CIO as: *"if we can help foster small local companies, then that's going to be a win, win situation"* (IP01).

The mechanism used by the *Coach* to implement the development of novice CIOs is one of *education*. Such coaching tends to be done on a "one to one" basis with the *Coach* and the "student" meeting a number of times on an issue, as seen in: *"I have set up three sessions and have gone down to him, told him about the way we are approaching release management because he was thinking of doing something like that"* (IP05). In addition, those undertaking the role of *Coach* will often, where they themselves don't have specific aspects of the experience required, attempt to link the novice CIO up with the relevant expert in that field, as seen in: *"we would try to tee you up with somebody who had done that successfully, someone with experience"* (IP04).

The outcome of the role of the *Coach* tends to be a deeper and more considered *understanding* of a problem or issue than can be gained from the outcomes of other roles such as the *Seeker* or the *Prophet*. The emphasis of the *Coach* on educating the novice CIOs may help him/her gain a more comprehensive appreciation of the context in which the problem or issue occurred. This deeper or tacit sense of understanding can be gained from both the ongoing nature of the coaching involvement and also from an emphasis on explaining how the issue or experience itself developed for the *Coach*, over time. This can be seen in quotes such as: *"listening to other people's experiences,*

even as to how they grew into the role can be very beneficial to anybody who is kind of moving that way" (IP14); and also in the following comment: *"knowing IT is not useful, what is really useful is knowing the relationship between using IT and exploiting the right business opportunities"* (IP03).

A comparison of the emerging theory relating to the role of the *Coach* with the extant literature is shown in Table 15.

Table 15: Comparison of the emerging theory relating to the role of the COACH with extant theory

ROLE	COACH		
PROPERTY	**Key aspects of Emerging Theory**	**Examples of data from the Field**	**Selected aspects of related Extant Theory**
Direction - Development	• Value of continuous personal development	• Yea, I know, I have always subscribed to the notion that there is nobody who you meet who can't teach you something. **IP14** • I think that we can exploit the knowledge, share the knowledge of these guys at a peer level. **IP03** • So the first thing, in terms of awareness is to understand that you are not going to solve all the problems by looking inward.**IP05**	• Need for CIO to keep skills up-to-date (Rockart 1982; Smaltz et al. 2006; Synnott et al. 1981).
	• Value of own experiences	• I suppose that I have been involved in a lot of business change programmes and projects, so there is a lot that others could learn from. **IP03** • I think I can bring, certainly locally in the Irish market, I	• Sources of information, expertise, professional advice, political access and material resources (Fombrun

		think I can bring a lot from my personal experience. **IP01**	1982; Kotter 1982; Tichy et al. 1979).
Perspective – Philanthropy	• Wishing to "give back" individually • Corporate responsibility	• Because I have had such a great career I felt that I have always wanted to give something back. **IP07** • I would hope that some of the people would have learned something from what I tell them, that they may either use or discard or pass on as they see fit. **IP11** • I think that we have got a corporate responsibility, you know, and I know the CEO would support that as well. **IP01** • If anyone in Dublin wants to talk to me about it I will talk to them about it and I have done so in the past with a number of people. **IP12** • Ah well, you would try to make yourself available to others around town. **IP05**	• Social networks provide the channels through which we recruit one another for good deeds (Putman 2000, p. 116). • Organised altruism (Putman 2000, p. 117).

Target – Novices	• Focus on novice CIOs • Raise " all boats"	• There's a guy who I have recently been helping, probably in an organisation of about one hundred that started in the last eighteen months, right. **IP05** • In fact, they were delighted because we were showing interest in what they were doing. **IP01** • If we can help to foster small local companies, then that's going to be a win, win situation. **IP01** • Different CIOs, maybe different levels of maturity with some of us being slightly ahead on the curve **IP05**	• Networks serve to socialise the members (Mitchell et al. 1980). • Individuals can use the close nature of relationships to reduce their levels of uncertainty (Ibarra 1993a). • Networks can often be seen as acting both as a support mechanism, and as a sounding board and barometer for gauging success (Cross et al. 2001; Ibarra et al. 2007; Wenger et al. 2000).
Mechanism – Educating	• One-to-one sessions	• I have set up three sessions and have gone down to him, told him about the way we are approaching release management because he was thinking of doing something	• CIO to act as educator to those less knowledgeable about IS (Chan et al. 2006;

	• Link to others	like that. **IP05** • We can share the slings and arrows, the war wounds of having been through technology successfully or failed, you know. **IP07** • And build on that, build on that slowly and give them enough time to come along with you. **IP10** • Now they can learn a lot from what I do. **IP07** • We would try to tee you up with somebody who had done that successfully, someone with experience. **IP04**	Earl 1996a; Reich et al. 2000; Smaltz et al. 2006). • CIO influencing mechanisms (Enns et al. 2003a; Enns et al. 2005). • Networks provide members with a range of contacts (Mitchell et al. 1980).
Outcome – Understanding	• Deeper and more considered understanding	• Knowing IT is not useful, what is really useful is knowing the relationship between using IT and exploiting the right business opportunities. **IP03** • Well if you are able to say, well this is what Organisation "A" are doing and this is what Organisation "B" are doing, the nature of the discussion is completely different. **IP05**	• Relationships with cohesive actors can "directly influence technology adoption decisions" (Rice et al. 1990; Shah 1998). • Creation of shared understanding (Armstrong et

		• Yea, you've got the scars probably, but you have come out the other side and delivered, that's what they want to hear. **IP07** • Listening to other people's experiences, even as to how they grew into the role can be very beneficial to anybody who is kind of moving that way. IP14	al. 1995; Campbell 2003; Karahanna et al. 2006; Nelson et al. 1996; Preston et al. 2006).

6.3.7 The Regulator

The direction or focus on the role of *Regulator* is on the organisational aspects of the external peer networks. This role often runs in parallel with the efforts of the facilitators of the network. The data would suggest that this role of *Regulator* is often carried out by the more senior CIOs in the network, in an attempt to create a sense of purposefulness and collaboration amongst the CIOs regarding their interactions. Their perspective is governance and their targets tend to be the "significant players" or other senior leaders within the network. They achieve a sense of agreement and collaboration by maintaining a sense of commitment to common approaches and norms.

The direction of the attention of the *Regulator* is on the *organisation* of the external peer network. Key amongst these issues appears to be concerns about the structure or format of the sessions held, as can be seen from: "*sometimes we can get together a number of CIOs for a lunch or a dinner and generally they happen to be on a particular topic*" (IP02); or the location of proposed meetings, for instance: "*one of them I got invited to was on a cruise and basically I said no thanks*" (IP02); or for that matter, whether the topic has any relevance for the CIO, as described in: "*so it comes back to is the topic relevant to me and that will kind of allow me to justify the time out of the office*" (IP01).

As stated above, this role of *Regulator* is often carried out by the more senior CIOs in the external peer network. There is a sense that they often believe that their own opinions on how the network is organised can have a real impact on the success of the network and indeed on the role played by network facilitators. This can be seen in the following excerpt: "*so the suggestion I had, and which was well taken up by the network facilitators, was instead of doing that, would you not say, we'll meet at 6:30 pm, there'll be a formal presentation on something and then we will go into dinner.... Now it sounds like I was running this, and I wasn't*" (IP02).

The perspective taken by the *Regulator* is one of *governance* and reflects a wish to have agreed, up front, the norms and expectations by which the external peer network will be run. These can relate to such issues as the expected behaviour of anyone who attends such sessions, as describe in: "*so for me it's about ensuring that the behaviour of everybody is at the required level*" (IP05); or the general level of confidentiality relating to the issues discussed at meetings, as seen in: "*be prepared to interact on the basis of 'cabinet confidentiality'*" (IP04); or equally it can even be down to the norms relating to what individuals would or would not be willing to discuss with other CIOs, as described in: "*there's a certain amount of sharing, there's a certain amount of, get lost, we're not telling you what we are doing because it's competitive*" (IP07).

The target of the *Regulator* tends to be other senior CIOs or *leaders* who, by coming together, can then influence the structure, norms and directions of the external peer network. The importance of engaging with the key leaders in the marketplace can be seen in excerpts such as: "*you need to anchor it in four or five of the big guys. You've got to get the big guys obviously, if IP15 walks out of that, and I walk out of that and IP06 walk out of that, EPN01 won't work, it just will not work.*" (IP02); or similarly: "*there were probably about six in the end, but they were all very high powered individuals*" (IP01). The resulting benefit to the other CIOs of knowing that the role of the *Regulator* has successfully targeted key leaders in the marketplace for inclusion in the external peer network can be seen in: "*they tend to be more successful, I think because they tend to, they have developed a critical mass or a critical presence in the marketplace*" (IP11).

The mechanism adopted by the *Regulator* to ensure success, is *managing* the ongoing effort needed to ensure the success of the external peer network. This can be in terms of ensuring that they themselves show leadership by turning up and getting directly involved, as has been stated in: "*well yes it can be a bit of an effort and work and sometimes not many people turn up, it's like anything. Like the residents association. It's easy not to do it, so it takes a little bit of effort and discipline to actually ensure that it works*" (IP10). It can also be by ensuring that people actually share their experiences at these sessions, as shown in: "*eventually, then at the end of the session*

all of us said, hold on a second here, you know, sort of. We're all showing our, you know, exposing our scars and stuff like that and you're giving us nothing. That's not on" (IP11). Another way it can be achieved is by setting the boundaries on who can be involved in the network or who can have access to the membership database. This is described in the following manner: *"we don't want vendor solicitation, which was prohibited; we never gave...even the sponsors never saw a members list"* (IP07).

The outcome of the activity of the *Regulator* is the creation of a sense of mutual *collaboration* amongst the members of the external peer network. Such a sense of collaboration can be built up by the *Regulator,* working with the other leaders within the marketplace, by setting down the structures and norms by which they wish to operate. This sense of collaboration can lead to CIOs being openly willing to come and work together on issues of mutual interest, as suggested in: *"so there was a golden opportunity created by this group, so I said 'I'll play, I'll offer a contribution, I will work on it, and that gets you into a sphere of influence"* (IP07). This can then lead to the development of initiatives that may be of major value and mutual interest to all the members, such as described in: *"you know if the suppliers knew what we had written on the board it would be worth a fortune because in this room there is such buying power"* (IP01).

In addition, whilst not directly within the focus of this research study, it could be suggested that the role of the *Regulator*, as shown above, could lead to a negative impact on the role and outlook of the network facilitators of such external peer networks, as CIOs attempt to "stamp their authority", via this role, on the running of such organisations.

A comparison of the emerging theory relating to the role of the *Regulator* with the extant literature is shown in Table 16.

Table 16: Comparison of the emerging theory relating to the role of the REGULATOR with extant theory

ROLE	REGULATOR		
PROPERTY	**Key aspects of Emerging Theory**	**Examples of data from the Field**	**Selected aspects of related Extant Theory**
Direction - Organisation	• Structure, format and location	• So it comes back to is the topic relevant to me and that will kind of allow me to justify the time out of the office. **IP01** • Sometimes they get organised to be off-site for two or three days. **IP11** • One of them I got invited to was on a cruise and basically I said no thanks. **IP16**	• Those decisions regarding the establishment of organisational structures and processes (Miles et al. 1974).
	• Activity of senior CIOs	• So the suggestion I had, and which was well taken up by the network facilitators, was instead of doing that, would you not say, we'll meet at 6:30 pm, there'll be a formal	• Senior executives and strategic decision making (Hambrick et al. 1977).

		presentation on something and then we will go into dinner. Now it sounds like I was running this, and I wasn't. **IP02**	
Perspective – Governance	• Behaviours of individuals • Norms of group	• So for me it's about ensuring that the behaviour of everybody is at the required level. **IP05** • Ah yea, I mean I think there's a set of, if there's not expressed rules, implied rules and methods of behaviour, right, so and some groups set them out at the start. **IP04** • Be prepared to interact on the basis of "Cabinet confidentiality". **IP02** • There's a certain amount of sharing, there's a certain amount of, get lost, we're not telling you what we are doing because it's competitive. **IP07**	• Reduce the likelihood of opportunistic behaviour (Putman 1993). • Communicate expectations regarding norms, protocols, ethics and ideals of the group (Mitchell et al. 1980). • Development of social trust (Putman 2000).

Target – Leaders	• Key individuals • Impact of key "celebrities"	• You get that kind of guy in there, that's a good buy for me. **IP02** • Well, I think where I wasn't so good at that session, I was too conscious of the fact that we were only a small player and what was I doing there. **IP01** • There were probably about six in the end, but they were all very high powered individuals. **IP01** • The fact that he'll come along means that I'll go along. **IP02** • If somebody says the CIO of HP was going to be there. You might say that's interesting… so there might be little bit of that celebrity factor" **IP11**. • You need to anchor it in four or five of the big guys. You've got to get the big guys obviously, if IP15 walks out of that, and I walk out of that and IP06 walk out of that, network "A" won't work, it just will not work. **IP02**	• Dominant Coalition of key individuals (Carpenter et al. 2004; Eisenhardt et al. 1988; Hambrick et al. 1984; Miles et al. 1974).

Mechanism – Managing	• Managing the effort involved	• You need to understand that networking is a discipline or a function or whatever way you want to describe it, but it is not something that happens naturally by itself. So you need to make the effort. **IP05** • I think it is very important that you make time for networking. **IP01**	• Self organising nature of communities of practice (Wenger 1998b).
	• Ensuring sharing by all	• You need to bring something to the table, so you often wonder what we can bring to the table....an openness and a frankness and a willingness to engage. **IP12**	• Frequency of communication (Daft et al. 1984; Johnson et al. 2005).
	• Setting boundaries of inclusion	• Eventually then at the end of the session all of us said, hold on a second here, you know, sort of. We're all showing our, you know, exposing our scars and stuff like that and you're giving us nothing. That's not on. **IP11** • We don't want vendor solicitation, which was prohibited, we never gave.... even the sponsors never saw a members list. **IP07**	• Power in social groups (Eisenhardt et al. 1988; Ibarra et al. 1993; Yukl 2006).

Outcome – Collaboration	• Openness to collaborate	• In the afternoon we drifted into a bit of sport around how we rate different suppliers….we were all singing from the same hymn sheet. **IP01**	• Identification based trust (Lewicki et al. 1996).
		• A coordinated approach is so important; nobody wants to feel that they are going to be left behind, particularly if there is a change coming, like the advent of e-commerce. **IP07**	• Communities of practice develop around things that matter (Wenger 1998b).
		• So there was a golden opportunity created by this group, so I said "I'll play", I'll offer a contribution, I will work on it and that gets you into the sphere of influence. **IP07**	
	• Common initiatives	• The meetings made sense for the very simple reason that we face exactly the same issues. **IP05**	• Collectively owner capital (Bourdieu 1986).
		• You know if the suppliers knew what we had written on the board it would be worth a fortune because in this room there is such buying power. **IP01**	

6.4 Implications of the Emergent Theory

The outcome of this research study has been the emergence of a grounded theory (Glaser et al. 1967). This theory has been described in terms of six roles, or patterns of activity, that are enacted by CIOs, whilst interacting with external peer networks. This emergent theory significantly advances our current knowledge of how CIOs interact with external peer networks, as they undertake their roles today as external boundary spanners. Specifically, it has implications for theory in the following ways:

- Deepens and extends our understanding of the activities of the CIO;
- Challenges key aspects of existing theory relating to the CIO;
- Creates a "gestalt" or holistic view of such activities;
- Provides potential support and challenge to the wider theoretical base; and
- Enables the "weaving together" of aspects of other theories.

6.4.1 Deepens and extends our understanding of the activities of the CIO

Despite calls, from within the extant literature for more insight into the processes by which the CIO becomes aware of changes in the external IS strategic environment (Maier et al. 1997; Pawlowski et al. 2004), little was known, prior to this research, regarding how CIOs actually interacted with external peer networks, as part of their external boundary spanning roles. Indeed, existing CIO activity related research, much of it based on Mintzberg's managerial role types (Mintzberg 1973), had identified the importance of roles such as the *Liaison, Monitor* and *Entrepreneur,* which are all associated with external boundary spanning activities (Gottschalk 2002; Grover et al. 1993). In addition, authors such as Stephens have suggested that "CIOs were involved in longer term considerations, including environmental scanning"

(1991, p. 372) or Smaltz et al. who had noted the importance of CIOs gaining "an awareness and understanding about current and emerging information technologies" (2006, p. 211). However, the existing body of theory, relating to the role of the CIO, failed to explain exactly how such externally focused activities were actually carried out by CIOs in practice.

Therefore, this emergent theory of the six roles undertaken by CIOs now serves to deepen and extend our understanding of this important yet heretofore neglected area of CIO activity. These roles provide a systematic, context based view of the social processes CIOs adopt while interacting within external peer networks, which are based on the personal insights, actions and experiences of the practitioners involved. Therefore, such a resultant theory, as well as being detailed in nature, is also clearly grounded in the data within the substantive area of the research study.

6.4.2 Challenges key aspects of existing theory relating to the CIO

Existing theory relating to the CIO suggest that, in many organisations, he/she is the most senior IS executive within that organisation (Preston et al. 2008; Smaltz et al. 2006; Stephens 1994). Equally, such theories often talk in terms of the CIO acting as a key member of the top management team of the organisation (Earl et al. 1994; Enns et al. 2003b; Feeny et al. 1992; Smaltz et al. 2006), or for that matter, describe the CIO in terms of acting as a "visionary" leader (Earl 2000; Karahanna et al. 2006; Karimi et al. 2001) or executive "knowledge broker" (Galliers 2007). However, in reality, such theoretical descriptions often ignore, or underplay, the inherent sense of isolation felt by many CIOs today in their leadership role within the organisation's hierarchy. Much has been made over the years regarding the impact of how others

perceive the CIO and their role within the organisation on their success (Earl et al. 1994; Emery 1991; Feeny et al. 1992; Karahanna et al. 2006; Preston et al. 2008; Rothfeder 1990). However, this emerging theory challenges this and suggests that, in addition, the CIO's ability to handle their own sense of isolation, both from those within the IS function and also from the other top management members, can also be a significant factor in the overall success of the CIO today. This sense of isolation can be seen in comments such as: *"you know who to pick up the phone to if you have a problem, in any role, leadership can be a lonely spot because, you know, there's only one CIO or CEO in this organisation"* (IP16).

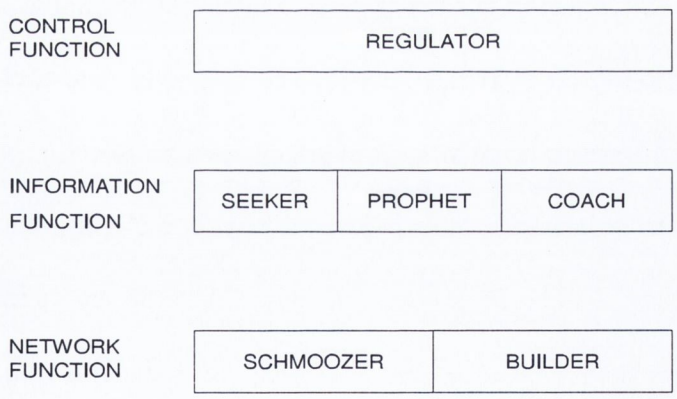
6.4.3 Creates a "gestalt" or holistic view of such activities

Mintzberg had suggested, when discussing the ten managerial roles that emerged from his own research work, that those roles were "not easily separable. In the terminology of the psychologist, they form a gestalt, an integrated whole" (Mintzberg 1975, p. 58). However, whilst suggesting this, he added that "to say that the ten roles form a gestalt is not to say that all managers give equal attention to each role" (Mintzberg 1973, p. 58). This observation would be supported by the findings of the current research study, where roles, such as the *Regulator* and the *Coach*, tend to be associated more with the most senior CIOs operating within the external peer networks. However, that said, when viewed together as whole, these six emergent roles do appear to form a "gestalt" or holistic view, which is a product of the CIOs interactions within these external peer networks. Such a "gestalt" view can serve to "synthesise and explain" (Charmaz 2006, p. 57) "most of the variation in a pattern of behaviour" (Glaser 1978, p. 93) that is occurring within this substantive area of

research. In addition, it is suggested that the value of the emergent theory can be enhanced by understanding the implication of the theory as a whole or "gestalt".

"Gestalt" in German translates as "shape" or "form" (Collins 1990) and the psychological theory of gestalt suggests that the brain, in perceiving inputs from sources, acts in a holistic and self-organising manner, such that it does not "respond after the manner of a mirror or photographic apparatus receiving individual stimuli" (Wertheimer 1923, cited in Ellis 1938, p. 88). Such a "gestalt" view of the six emergent roles, when synthesised, provides a new conceptual lens through which to view the potential value of external peer interactions to CIOs. This synthesis of the six emergent roles can be described in terms of Figure 13 below:

Figure 13: "Gestalt" perspective on the six emergent roles for the CIO



This conceptual lens pulls together and recognises the importance of the three underlying functions of these roles to this process of CIO interactions with external peer networks, namely: controlling the network organisation; enabling the flow of

information; and developing and maintaining the underlying relationships. This approach suggests that all six emergent roles, when viewed as a "gestalt", work together as a form of "scaffold" (Clark 1998; Orlikowski 2006) and, therefore, have an impact on how the CIO actually perceives the information he/she receives as a result of their interactions within an external peer network (Ibarra et al. 2005). It has been suggested that executives, such as the CIO "act on the basis of their personalised interpretations of the strategic situation they face and these personalised construals are a function of the executive's experiences, values and personalities" (Hambrick 2007, p. 334).

Such a "gestalt" view can be synthesised as a channel of "managerial perception" (Hambrick et al. 1984, p. 195), rather than just as a series of separate "stimuli" (Wertheimer 1923, cited in Ellis 1938, p. 88). Therefore, their interactions within these external peer networks can have a significant and co-ordinated impact on their perception and understanding of key issues within the IS technological environment.

6.4.4 Provides potential support and challenge to the wider theoretical base

Whilst the emergent theory developed within this research study is recognised as being substantive rather than formal in nature, that is not to say that the emergent theory cannot have "important general implications and relevance" for a wider area of inquiry (Glaser et al. 1967, p. 79). For instance, six examples have been highlighted of where this emergent theory could be used to assist in extending our understanding of specific aspects of extant theory, from the wider body of management theory:

- Interactions between Top Management and External Peer Networks;
- Defining the Characteristics of Bonding and Bridging Social Capital;
- Lessons to be learned from taking a "Practice Theory" perspective;
- Support for Mintzberg's Managerial Role of Entrepreneur;
- Perceptions driving the Priorities of Top Team Members; and
- Friendships versus Acquaintances.

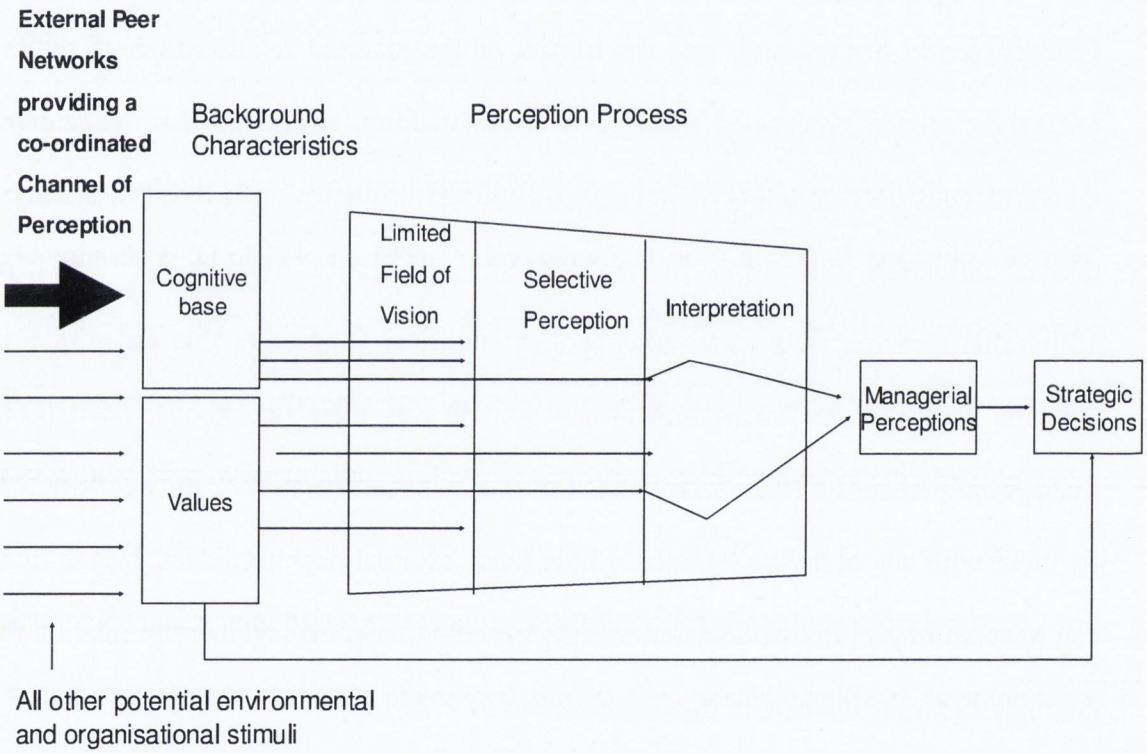
6.4.4.1 Interactions between Top Management and External Peer Networks

Geletkanycz in her research into the impact of the external relationships of senior executives on the process of strategic decision making, suggested that "executive networks constitute conduits of inter-organisational influence" and that "externally-derived influences extend into the realm of strategic choice" (Geletkanycz 1994, p 136). This research study now adds further empirical support to this assertion by showing that, via the functioning of the six roles as identified above, the CIO's managerial perception (Hambrick et al. 1984) can indeed be significantly influenced by those with whom he/she interacts within these external peer networks. This in turn can have an impact on the decision making process of top management in relation to strategic IS issues relevant to the organisation.

Specifically, this can be seen, for example, in the case of the *Prophet* where existing perceptions can be successfully challenged by others: "*and you are left thinking, wow!, you know sort of, it's a while since I've seen this sort of innovation*" (IP11); or again in the role of the *Seeker*, where an awareness of market options can be developed following interaction within the external peer network, as suggested in: "*the obvious value of interacting is awareness of what's happening in the*

marketplace" (IP12). In addition, as stated above, the synthesis of the six emergent roles as a "gestalt" can act as a co-ordinated channel of managerial perception. Such a view of the emergent theory could therefore suggest an opportunity to update the representation of Hambrick and Mason's Upper Echelon Theory as a model of managerial decision making, as described in Figure 14:

Figure 14 Amended Upper Echelons Theory model – Process of Strategic Decision Making (adapted from Hambrick et al. 1984)



In this case, instead of a wide range of individual and different stimuli all reaching senior executives such as the CIO, access to external peer networks can, in fact, provide a coordinated and comprehensive channel of managerial perception to support their input into the strategic decision making processes of the top management team. Such a synthesis of the six roles emergent from the current

research study, therefore, adds further significant empirical and conceptual strength to the view that external peer networks can indeed have a major impact on the strategic decision making processes of organisations (Clark et al. 2002; Geletkanycz 1994; Geletkanycz et al. 1997).

6.4.4.2 Defining the Characteristics of Bonding and Bridging Social Capital

Social capital has been described by Burt (2005, p. 148) as being "a metaphor for advantage". It is the advantage that one gets when operating within a community, such as an external peer network, based on access and connections to other individuals and groups (Burt 2005). Putman (2000, p.22) suggests that there are two types of social capital, "Bridging" and "Bonding" social capital and that the "distinction between bridging (or inclusive) and bonding (or exclusive) is perhaps the most important". Bonding social capital is seen to be essential to developing a close and exclusive sense of social solidarity amongst individuals within such networks and therefore helps to build a willingness to reciprocate and support each other, based on their common or shared interests and needs. On the other hand, bridging social capital is seen to be based on the identification of broader identities and mutual interests, well beyond the "narrower selves" which can prove of advantage to individuals operating in such networks (Putman 2000, p.23).

Nevertheless, Putman also suggests that there is, in fact, a lack of empirical support and evidence that can be used to define the nature of the underlying characteristic differences between bridging and bonding social capital. Specifically, he suggests that "I have found no reliable, comprehensive, nationwide measures of social capital that neatly distinguish 'bridgingness' and 'bondingness'" (Putman 2000, p.23-24).

However, the current emerging theory, which has been developed as a series of "Ideal Types" (Weber 1962) can, in the view of the researcher, now be used as a "lens" go some way towards assisting in describing and defining these underlying characteristics. Specifically, the two roles of the *Schmoozer* (Bridging) and *Builder* (Bonding) can be compared on the basis of their unique properties and dimensions (Kluge 2000) to contrast these varying forms of social capital. This is shown below in Table 17:

Table 17: Comparison of the Characteristics of Schmoozer and Builder roles

	SCHMOOZER ***"Bridging"***	***BUILDER*** ***"Bonding"***
Direction ***"where"***	*Contacts*	*Relationships*
Perspective ***"why"***	*Political*	*Empathy*
Target ***"who"***	*Candidates*	*"Like Minded"*
Mechanism ***"how"***	*"Speed Dating"*	*Connecting*
Outcome ***"what"***	*"In Play"*	*Acquaintances*

This perspective shows that the concepts of bridging and bonding social capital can now be differentiated, not just as Putman (2000) suggests, in terms of the nature of

their connections (i.e. their "exclusiveness" or" inclusiveness"), but also in terms of a wider set of characteristics that address the key issues of "where", "why", "who", "how" and "what". These characteristics are central to gaining an understanding of the sequence of individual and collective actions that are at the core of the process of developing "bridging" and "bonding" social capital (Pettigrew 1997).

6.4.4.3 Lessons to be learned from taking a "Practice Theory" perspective

Central to the role of the modern day CIO is seen to be the expectation that he/she will act as a "boundary spanner" between top management and IS (Earl et al. 2000; Preston et al. 2008; Smaltz et al. 2006; Synnott et al. 1981). Indeed, these two groups of top management and IS can, in themselves, be seen as being separate fields of practice (Bourdieu 1977) with their own activities, norms, socio-structural properties and knowledge bases which have developed as a result of the "micro social interactions of people within the context of their everyday practices" (Levina et al. 2008, p. 309). "Practice Theory" (Bourdieu 1986) suggests that individuals operating within such fields can accumulate different levels of capital, depending on the roles they play. This in turn can have implications for their status within these fields of practice (Bourdieu 1977; Levina et al. 2008) and ultimately, therefore, on their overall role impact and effectiveness (Smaltz et al. 2006).

Capital accumulated within such fields of practice is commonly defined in terms of three types of capital, namely, economic capital (such as access to money, time and technology); intellectual capital (relevant professional expertise, education and ownership of information); and social capital (access to networks of interpersonal relationships upon which the person can draw). However, Bourdieu (1977) has

suggested that it is an additional form of capital, "Symbolic Capital" that can have the most significant impact on the success of the roles of individuals within such fields of practice. Symbolic Capital refers to the ability of an individual to identify or define any other form of capital as being important and relevant to that field of practice (Bourdieu 1977).

To date, much of the research carried out into the role of the CIO has emphasised the value and importance of developing economic, intellectual, and to a lesser extent social capital, to their success in operating within the top management team (Armstrong et al. 1999; Campbell 2003; Chan et al. 2006; Enns et al. 2007; Reich et al. 2000; Smaltz et al. 2006). However, when seen from the perspective of Practice Theory (Bourdieu 1977), it is Symbolic Capital that is seen to be key to the success of individuals operating within such fields of practice. This suggests that future research would be well advised to address this heretofore underdeveloped avenue of research, if a greater understanding of how the role of the CIO, within the top management team, is to be developed.

6.4.4.4 Support for Mintzberg's Managerial Role of Entrepreneur

The review of the IS management literature, carried out in Chapter 2, suggested that CIOs in the Web Era are now seen to play a key role in the strategic decision making process in many organisations, and that, one of the key measures of their success today is the CIO's ability to work effectively within the top management team to develop a shared understanding regarding the specific opportunities and impact IS could have on their organisation (Armstrong et al. 1999; Chan et al. 2006; Cooprider et al. 1993; Earl et al. 1994; Nelson et al. 1996; Preston et al. 2004; Reich et al.

2000). To do this he/she would need to act as a technology visionary or "knowledge broker" (Galliers 2007, p. 10), so as to able to advise and educate the top management team in terms of the developments and future directions for IS (Chatterjee et al. 2001; Preston et al. 2006).

At the core of this requirement to be a "technology visionary" is seen to be Mintzberg's (1973) managerial role of "entrepreneur" as suggested by Gottschalk (2002) and Smaltz et al. (2006). In the role of the "entrepreneur" Mintzberg (1973, p. 78) suggests that the CIO will act as "initiator and designer of much of the controlled change in his organisation", as well as undertaking "scanning activity". The emergent theory now supports this growing focus on the managerial role "entrepreneur" by the modern day CIO. Specifically, it suggests that such "entrepreneurial" activities are at the core of the CIOs interactions with external peer networks. Here, for instance, as well as the scanning activities carried out via roles such as the Seeker, specific entrepreneurial activities relating to the initiation and design of technology change can be seen to be undertaken via roles such as the *Prophet, Coach* or *Regulator.* This can be seen from comments such as "*I would have been always very keen for this idea to promote technology*" (IP07), or for that matter by "*the ability to be able to bring 'thought leadership' regarding how better to exploit the use of IT*" (IP05). Therefore, the emergent theory is now seen to add further empirical support to the albeit small number of activity based studies (Gottschalk 2002; Grover et al. 1993; Ives et al. 1981; Smaltz et al. 2006; Stephens 1991) which have attempted to trace the evolving focus of the CIO by building a "cumulative tradition" (Adam et al. 2000, p. 4), based on Mintzberg's managerial roles concept (1973).

6.4.4.5 Perceptions driving the Priorities of Top Team Members

Existing theory suggests that senior executives, such as the CIO, are heavily influenced in their perceptions of the priorities facing their organisation by the views of the CEO and the other top management team members (Earl et al. 1994; Feeny et al. 1992; Katz et al. 1966; Maier et al. 1997; Tallon et al. 2000; Watson 1990). However, this research study suggests that such influence extends beyond that to their willingness to act in philanthropic ways towards others in the marketplace.

This sense of corporate responsibility, which it could be suggested, is developed within the culture of the top management team, is seen to be in addition to their own personal perceptions of the value of such interactions, as described in "*ah well, you would try to make yourself available to others around town*" IP12. This can be seen, for example, from the following excerpt: "*I think that we have got a corporate responsibility, you know, and I know the CEO would support that as well*" IP01.

6.4.4.6 Friendships versus Acquaintances

Ibarra suggests that personal networks are often regarded in terms of "friendships" or networks "between linked friends" (Ibarra 1993b, p. 59). However, this research study suggests that such links are more appropriately defined as "acquaintances" than personal friends. This view concurs with Putman who has suggested that "co-workers account for less than 10% of our friends" (Putman 2000, p. 87). Such a difference between personal friends and close business acquaintances can be seen, for example, in the following excerpt: "*I don't think I have invited anyone from our network, well I know I have not invited anyone from this network to my house for dinner*" IP13; or again in the following comment: "*You know, they are two different ..... environments*

around the same thing. I am trying to think of an analogy but ..... it's almost like the different sets of friends, those you have yourself and your work colleagues" IP14.

6.4.5 Enables the "weaving together" of aspects of other theories

The emergent roles of the *Seeker,* the *Schmoozer*, the *Builder*, the *Prophet*, the *Coach* and the *Regulator* have been compared against the extant literature, both within IS management research, and also within the wider field of management, to show how they do in fact complement and support significant aspects of these underlying theories. In addition, these emergent roles can also be used to "weave" together (Glaser 1978, p. 72) aspects of extant theory into theoretical descriptions that are parsimonious in nature (Glaser 1978, p.61), albeit based on Irish Private Sector CIOs interacting with external peer networks. Such theoretical descriptions, based on each of the emergent roles, are outlined below:

- **The Seeker**

  The Seeker scans for information within an external peer network (Aguilar 1967) is influenced by a need to keep up to date with changing aspects of the IS marketplace (Maier et al. 1997) and also influenced by their sense of the specific priorities of their own organisation (Katz et al. 1966; Tallon et al. 2000; Watson 1990). They undertake this scanning activity against the backdrop of the expectation of the other members of the top management team that they will filter, interpret and assess the suitability of the information they acquire before introducing it back into the organisation (Earl et al. 1994; Feeny et al. 1992; Hambrick et al. 1984; March et al. 1958; Smaltz et al. 2006). Such an ability to assess the acquired information is also based on their understanding of the

business needs of their own organisation (Applegate et al. 1992; Rockart et al. 1982; Stephens et al. 1992).

In this scanning role they are heavily influenced by other well positioned and knowledgeable CIOs (Maier et al. 1997; Watson 1990), due to the often complex and equivocal nature of their information needs (Daft et al. 1987). They also tend to focus on direct interactions with other CIOs (Daft et al. 1987; El Sawy 1985; Mintzberg 1973), where possible, due to the dangers of uncertainty absorption (El Sawy 1985; March et al. 1958; Mintzberg 1973). The outcome of their efforts is the creation of awareness around potential technology opportunities (Armstrong et al. 1995; Preston et al. 2006; Reich et al. 2000) that may be of interest to their organisations (Synnott et al. 1981). The creation of such awareness can, in addition, have major political value for the CIO within the top management team (Cross et al. 2001; Enns et al. 2003b; Hambrick et al. 1984; Synnott et al. 1981; Yukl 2006).

- **The Schmoozer**

The Schmoozer uses the network as a "vehicle" (Cross et al. 2001; Granovetter 1973) to develop numerous "weak ties" (Granovetter 1973) with structurally equivalent actors (Shah 1998). They can spend many hours in informal conversation with other CIOs (Putman 2000), making use of such informal connections (Putman 2000) to develop instrumental relationships (Fombrun 1982; Kotter 1982; Tichy et al. 1979) which enable them to access a wide range of information often via observation and second-hand sources of information, without necessarily exposing their "knowledge deficiencies" (Shah 1998, p. 252).

They recognise the importance of informal connections in sustaining social networks (Putman 2000) and developing structural social capital (Nahapiet et al. 1998) which, in itself, relies heavily on knowledge based trust (Lewicki et al. 1996). The outcome of their activities is often a supply of new and diverse information concerning developments within the IS marketplace (Mitchell et al. 1980), as well as the establishment of their reputation and visibility within the network (Mitchell et al. 1980).

- **The Builder**

  The Builder appreciates the importance of maintaining relationships with key individuals (Armstrong et al. 1995; Earl et al. 1994; Enns et al. 2000; Feeny et al. 1992; Mintzberg 1973; Stephens 1993). They recognise that individuals within networks can have numerous different connections, some closer than others (Putman 2000). They also recognise the value of maintaining strong ties (Granovetter 1973), based on frequent contact (Shah 1998) with cohesive actors in the network (Shah 1998), often in order to act as a substitute for the lack of connection with other top management team members (Armstrong et al. 1995; King et al. 1994; Luftman et al. 1999; Putman 2000; Stephens et al. 1992; Tallon et al. 2000) and their consequential sense of isolation (Gibson et al. 1973; Niederman et al. 1993; Schein 1996).

  Such close relationships are often based on a sense of mutual engagement and a willingness to share with those of similar outlook and background, which in many cases allows them to expose their knowledge deficiencies (Galaskiewicz et al.

1981; Hambrick et al. 1984; Ibarra 1993b; Wenger 1998b). However, there is always the danger of homophily developing amongst such closely knit groups that can lead, amongst other things, to a measure of groupthink (Ibarra 1993a; Ibarra et al. 1993; Janus 1972; Lincoln et al. 1979). The outcome of this process is often the creation of relational social capital within the group, based on the developing personal relationships formed as a result of a history of interactions (Nahapiet et al. 1998), as well as a sense of evolving identification based trust amongst the members (Campbell 2003; Earl et al. 1994; Feeny et al. 1992; Lewicki et al. 1996).

- **The Prophet**

The Prophet recognises the critical need for CIOs to obtain strategic IS knowledge from interactions with external peer networks (Smaltz et al. 2006) to support their role within the top management team as proactive change agents (Synnott et al. 1981) and IS visionaries (Armstrong et al. 1995; Galliers 2007; Preston et al. 2006). Equally, they recognise the mutual value of engaging with other CIOs (Clark et al. 2002; Geletkanycz et al. 1997; Maier et al. 1997; Watson 1990), in the exchange and dissemination of information relating to developments within the IS marketplace (Gottschalk 2002; Mintzberg 1973; Stephens 1991).

Such discussions are based on a sense of generalised reciprocity (Putman 2000) and are focused on the influencing of other CIOs in relation to issues of potential interest relating to the IS marketplace (Enns et al. 2001). Target CIOs are regarded, in the main, as structurally equivalent actors to the Prophet (Ibarra 1993b; Shah 1998). The activity undertaken by the Prophet often leads to the

exposure of new and diverse sources of information (Mitchell et al. 1980), problem reformulation (Cross et al. 2001), and ultimately a sense of shared understanding amongst the participating CIOs (Armstrong et al. 1995; Nelson et al. 1996; Preston et al. 2006).

- **The Coach**

The Coach recognises the need for all CIOs to keep their skills and knowledge of the IS marketplace up to date (Rockart et al. 1982; Smaltz et al. 2006; Synnott et al. 1981). Equally, they recognise that they themselves can often have experience and knowledge that can act as sources of assistance for others within the network (Fombrun 1982; Kotter 1982; Tichy et al. 1979). Their willingness to help with the development of other CIOs is often based on a personal wish to "give back" or a sense of corporate responsibility to other smaller or less advanced organisations within the network (Putman 2000).

In such cases, the Coach often acts as an IS educator (Earl 1996a; Reich et al. 2000; Smaltz et al. 2006) and influencer to other CIOs in the network (Enns et al. 2001), such that they develop one-to-one cohesive relationships over time with other CIOs (Rice et al. 1990; Shah 1998). These interactions often result in the opportunity for learning and development (Cross et al. 2001; Ibarra et al. 2007; Wenger et al. 2000), as well as the creation of a common and shared understanding of specific issues and problems between the interacting CIOs (Armstrong et al. 1995; Campbell 2003; Nelson et al. 1996; Preston et al. 2006).

- **The Regulator**

  The Regulator decides (Hambrick et al. 1977) to establish organisational structures and processes (Miles et al. 1974) within the external peer networks to reduce the likelihood of opportunistic behaviour (Putman 1993), and to communicate norms, protocols, ethics and ideals of the group (Mitchell et al. 1980), thus leading to the development of social trust (Putman 2000). In doing this, they target other senior CIOs, so that they create a dominant coalition of key CIOs (Eisenhardt et al. 1988; Hambrick et al. 1984; Miles et al. 1974) who can affect changes (Wenger 1998b) by the force of their status within the external peer network (Eisenhardt et al. 1988; Ibarra et al. 1993; Yukl 2006). The outcome of this action is the development of identification based trust (Lewicki et al. 1996) within a community of practice based around those things that really matter to the CIOs (Wenger 1998b), leading ultimately to the development of collectively owned social capital (Bourdieu 1986).

6.5 Implications for Practice

Glaser has suggested that emergent theory needs to have "grab" if it is to be useful to practitioners (Glaser 1978, p. 4). This means, in essence, that they have to be useful, relevant and meaningful (Glaser 1978). At the centre of this concept of "grab" are the two criteria of "fit" and "relevance" (Glaser 1978). By "fit" he suggests that the emergent theory must closely fit the underlying data, rather than be forced into some pre-conceived structures or *a priori* theories (Glaser 1978). The approach adopted by this research study has attempted, at all times, to operate within the guiding principles and structures of the methodology, as outlined for Grounded Theory by Glaser and Strauss, such that the emergent theory does indeed emerge faithfully from the underlying data (Glaser 1978; Glaser 1992; Glaser 2001; Glaser 2002; Glaser et al. 1967).

In terms of "relevance", the theory developed must have practical relevance for those practitioners involved in the substantive area under research. Therefore, it is important that the theory developed is presented back to the practitioners as a way of testing its accuracy and relevance. In the case of the theory emergent from this research study, this is what happened as part of the close off process to this research study. The final emergent theory of the six roles of the *Seeker,* the *Schmoozer,* the *Builder,* the *Prophet,* the *Coach* and the *Regulator,* along with an overview of the overall "gestalt" perspective on these roles, was presented back to four out of the original sixteen CIOs interviewed. The results of this process were very positive, both in terms of the emergent theory appearing recognisable to the participants and also in terms of the theory being seen as relevant to their roles as CIOs within Irish Private

Sector organisations. In particular, the following issues of practical relevance to CIOs interacting with external peer networks were identified:

- Information Value;
- Importance of being "In Play";
- Political Value;
- Social Value; and
- Ability to influence the direction of the External Peer network.

6.5.1 Information Value

The six emergent roles have identified the fact that the information value of interacting with external peer networks can be quite varied. It can stretch from providing awareness regarding potential solutions available, via the *Seeker*; to creating a deeper understanding of specific issues, via the *Coach;* or to the direct challenging of existing attitudes towards issues within the marketplace, as can be found via the role of the *Prophet*. A knowledge and understanding of these different information types, and how best they can be attained, can both help to manage the CIO's expectations regarding the value of the external peer networks, and also provide practical assistance to CIOs regarding how best to interact with them.

The management of CIO expectations is important, as it has been shown from the data, that the prior expectations CIOs have of interacting with external peer networks, may not be met in these initial interactions; however, that is not to say that such interactions do not have other benefits or value, as can be seen in the following

statement: "*That's a good question. Invariably they don't in what they set out to do they don't meet my requirements, but invariably there is some benefit, ancillary benefit that you get, whether that you have found a new network or a new cadre of individuals that you would like to spend time with and talk to and so and so*" (IP11).

6.5.2 Importance of being "In Play"

As well as enabling the CIO to get a "heads up" from other connected CIOs regarding what may be happening in the marketplace, being "in play" also has the important practical value of placing the CIO "in the shop window", in terms of any possible market interest in him/her, for career change or advancements, at a later date. Therefore, being "in play" can act as a form of "insurance policy", that can be acted upon at a later stage. Consequently, even if CIOs don't appear to be gaining greatly from their current interactions within the external peer network, being aware of this longer term potential is important.

6.5.3 Political Value

Beyond the value of being "in play" within the network, access to multiple sources and opinions on IS related market issues can also have a real and practical political value for CIOs in terms of their own deliberations within their top management teams. Being knowledgeable and being able to reference other peers can greatly assist the CIO in influencing the other members of the top management team (Enns et al. 2003b). Such an ability to be able to "contextualise" the information that they bring back into their organisations, for internal deliberations, is vital, as in many cases the CEO and other members of the top management team may be relying as much on the known endorsement of other organisations regarding such IS strategic options, as

they are on the options put forward by their CIO. Indeed, as stated by Feeny et al. (1992, p. 445) " the average CEO feels more personally exposed in this area (i.e. IT) than any other area".

6.5.4 Social Value

The value of social interactions within external peer networks can evolve far beyond just the creation of relationships or being "in play". Such interactions can also help to act as a learning environment and support for CIOs, especially those who may be new to either the role or to their organisations. This sense of social support within the external peer network appears to be extremely important, as a number of the CIOs made reference to their sense of isolation, within their own top management teams.

However, CIOs also need to be cognisant of the potential negative social value and dangers which can result from the creation of relationships within these external peer networks (Ibarra 1993b; Janus 1972; Lincoln et al. 1979). Such relationships, by their very nature can, in a negative way, often exclude others who in themselves might have real value to offer and in turn could learn and benefit from such interactions. Therefore this can act to limit the focus and ultimate value of such relationships to the individual CIOs.

6.5.5 Ability to influence the direction of the External Peer Network

The *Regulator* role, which is currently carried out mainly by some of the more senior CIOs, shows the importance and value of direct involvement by CIOs in organising the operations of the external peer network. Such a role can be undertaken over and above the efforts of any external facilitator and suggests that

the CIOs have the capability to shape the structures, format and content of such networks themselves. However, such a role can highlight potential practical difficulties that may arise between the CIOs themselves and the network facilitators which can lead to problems in the operation of the external peer network.

6.6 Conclusion

This Chapter set out to present the theory emergent from the current research study. This study, which was based on the Grounded Theory approach and focused on how Irish Private Sector CIOs interacted with external peer networks, suggested the emergence of six "ideal types" or roles to explain the pattern of activities undertaken by the CIOs. Individual properties for these roles were developed to enable each role to be uniquely distinguishable from the other emergent roles within the theory. These emergent roles were identified as the *Seeker*, the *Schmoozer*, the *Builder*, the *Prophet*, the *Coach* and the *Regulator*.

Each of these roles was described in detail, in conjunction with examples of data from the field. This process was then followed by the comparison of these new emergent roles with aspects of relevant extant theory. Finally, the chapter went on to address the implications of these six emergent roles for both theory and practice. The next and final chapter will now discuss the conclusions that can be drawn from this research study.

Chapter 7 Conclusions

"Happiness lies in the joy of achievement and the thrill of creative effort."

Franklin D. Roosevelt, 1882-1945

32nd President of the Unites States of America.

7.1 Introduction

The previous chapter described in detail the emergent theory relating to how CIOs interact with external peer networks. It discussed the emergence of six roles or patterns of activity that are undertaken by CIOs when they interact with external peer networks. It also drew comparisons between aspects of the emergent theory and the extant literature, in both the areas of IS management research and also in the wider fields of executive boundary spanning activities and interactions with peers in external networks. It then outlined the implications of the emergent six roles for both theory and practice.

This final chapter will now act as the conclusion for this thesis. Firstly, Section 7.2 will briefly review the completed research study. Then Section 7.3 will revisit the original research aim and assess whether or not that research aim has been met. Next, in the spirit of reflective research, Sections 7.5, 7.6 and 7.7 will describe the limitations to the current research, make observations on the use of the methodology of Grounded Theory and identify potential avenues for further inquiry. Finally, in Section 7.7, the researcher will bring the thesis to a close by reflecting on some of his

own personal thoughts regarding the research process as a whole and what it has meant to him.

7.2 Brief Review of Research Study

The aim of this research study was to explore and develop new theory relating to how CIOs interact with external peer networks. The research setting chosen for this inquiry is the Irish Private Sector, and specifically the focus is on CIOs in the financial services, hi-tech, telecommunications and airline industries. The role of the CIO has emerged, over the last thirty years or so, to become the highest-ranking IS executive in many organisations (Preston et al. 2008; Smaltz et al. 2006). However, this new role of CIO, as well as acting as the most senior IS executive in the organisation, was also expected to operate within the top management team in a boundary spanning capacity, to "bridge the gap" (Synnott et al. 1981, p. vii) between the IS function and the wider business, in order to ensure the ongoing successful exploitation of IS across the organisation (Synnott et al. 1981).

A review of the IS management literature, since the role was first envisaged, suggests that whilst still the most senior IS executive in many organisations, the focus of the role of the CIO has now widened to cover the requirement to be able to also "bridge the gap" between the organisation itself and its external technological marketplace (Earl et al. 2000; Galliers 2007; Preston et al. 2008; Smaltz et al. 2006). This widening of the role of the CIO has been due to the increasing role IS now plays in many organisations today and the growing expectation of top management regarding the strategic impact of IS on their marketplace and their own competitive position

(Sambamurthy et al. 2003; Venkatraman 2000). To do this, the CIO must now act as an external boundary spanner and interact with the external IS technological environment in order to remain up-to-date with strategic IS developments that may be relevant to their organisations (Gottschalk 2002; Smaltz et al. 2006).

However, the IS management literature fails to elaborate on why such external peer contacts, in particular, are so important to CIOs, or indeed on how CIOs actually interact with such external peers. A review of the wider literature relating to executive boundary spanning and interactions with peers in social networks, suggests that, for top management executives, such as the CIO, external interactions with peers are indeed by far the most important due to a number of key factors such as the often equivocal or ambiguous nature of many of the strategic issues facing top management (Daft et al. 1987; Geletkanycz et al. 1997; Hambrick et al. 1984) and therefore the need to create a shared understanding with other peers regarding the problems and issues facting them (Carlile 2004; Daft et al. 1987; Krauss et al. 1990; Malhotra et al. 2004; Wenger 1998b); the dangers of delegating such sensitive inquiries to subordinates (Daft et al. 1987) and the perceived value of face-to-face and ongoing interactions with peers in external network situations (Mintzberg 1973).

In addition, this literature also suggests that external peers networks can often act as a support mechanism, sounding board and a barometer for gauging success (Cross et al. 2001; Ibarra et al. 2007; Wenger et al. 2000). However, again this body of literature fails to clarify exactly how top management executives, such as CIOs, actually interact with such peers via contacts in external peer networks. Consequently, this leads to a clear gap in our knowledge and understanding relating to one of the key

activities of the modern day CIO. For that reason, this research study set out to explore "how CIOs interact with external peer networks".

As CIO involvement with external peer networks tends, by its very nature, to be based on a series of complex social interactions and relationships between the parties (Brown et al. 1991; Ibarra 1993b; Ibarra et al. 2007; Wenger 1998a), the researcher chose to adopt an interpretivist research paradigm to underlie the conduct of this research study. Interpretivism seeks to make sense of such interactions and relationships, by fitting them into a "purposeful set of individual aims and a social structure of meanings" (Chua 1986, p. 614). In addition, an interpretivist research paradigm is a more suitable approach to take in cases where the aim of the study is the inductive development of new theory, rather than the testing of existing theories or hypotheses (Sarantakos 2005; Saunders et al. 2003).

In support of this interpretivist research paradigm, Grounded Theory was chosen as the preferred methodology for a number of reasons. These included, the nature of the research inquiry, which would suggest the use of a research methodology associated with symbolic interactionism, such as Grounded Theory, and also the fact that Grounded Theory is often seen as being an appropriate approach to adopt in areas of research that have been relatively ignored in the literature, to date, or have only received superficial attention (Goulding 2002; Orlikowski et al. 1991).

The outcome of this research study was the development of an emergent theory which has been defined in terms of six patterns of activity or roles which are undertaken by CIOs as they interact with external peer networks. The individual roles

have been identified as the *Seeker,* the *Schmoozer,* the *Builder,* the *Prophet,* the *Coach* and the *Regulator.* These roles are not necessarily carried out either all the time or by each and every CIO; however together they provide a holistic picture of the activity patterns undertaken by CIOs, as they interact with external peer networks.

7.3 Achievement of Aims

In terms of the specific aims for this study, identified in Chapter 1, this new emergent theory, developed as the outcome of this research study, has specifically increased our knowledge and understanding, in the following ways:

As outlined in Chapter 6, it has:

- From a *theoretical perspective*, developed a new grounded theory relating to how CIOs interact with external peer networks. This emergent theory has deepened, extended and challenged existing theoretical descriptions regarding the role of the CIO within the IS management literature. In addition, this research has also developed a "gestalt" or holistic perspective on the interactions of CIOs within these external peer networks, as well as adding significant support to other extant theories within the wider management literature.

- From a *practitioner perspective,* exposed in detail and provided clarity regarding the actual processes by which CIOs within the Irish Private Sector interact within external peer networks. This emergent theory of the six roles has been shown to be recognisable to the participant CIOs and has also been

confirmed by them to be relevant to them in the practice of their actual roles as CIOs operating within the Irish Private Sector marketplace;

In addition, it has also:

- From an *empirical perspective,* added to the cumulative body of empirically based data regarding the activities of the CIO, by focusing on the activities of Irish based CIOs, as well as more specifically adding significantly to our knowledge base regarding the CIO's external boundary spanning activities; and

- From a *methodological perspective,* it has added to the growing number of studies, such as those identified in Chapter 4, which have now been successfully carried out using the methodology of Grounded Theory, within the field of IS. Specifically, the research has added further knowledge, understanding and support to the use of Grounded Theory from an interpretivist and constructivist perspective (Bryant 2003; Charmaz 2006).

Therefore, it can be stated that the aim of exploring "how CIOs interact with external peer networks" and developing new and valuable substantive theory in this area of research, has been met by this study.

7.4 Limitations of the current Study

Any research study will have limitations, no matter how successful. Therefore, in the spirit of reflective research, it is important to now outline the key limitations of this study:

- Limitations of the Emergent Theory;
- Limitations of the Research Setting;
- Limitations of the Constructivist Perspective; and
- Limitations of Grounded Theory as a Research Methodology.

7.4.1 Limitations of the Emergent Theory

The emergent theory developed within this research study is substantive rather than formal in nature, that is, it is "grounded in research on one particular substantive area" (Glaser et al. 1967, p. 79) and therefore might only apply to that particular area of inquiry. In the case of this research study, the substantive area of inquiry is external peer networks engaged in by CIOs in the Irish Private Sector. However, that is not to say that the emergent theory cannot have "important general implications and relevance" for a wider area of inquiry or that it cannot be "used as a springboard or stepping stone to the development of a grounded formal theory" (Glaser et al. 1967, p. 79). Indeed, the development of the six roles of the CIO, operating within the external peer networks, and the resultant "gestalt" based view, may have real and worthwhile implications on a more formal level both within IS management research and further a field. However, as it stands, it is important to recognise that this

emergent theory has been developed based on the narrow area of the current research focus.

7.4.2 Limitations of the Research Setting

In practical terms, difficulties did arise in relation to the researcher's ability to easily access a wide enough range of CIOs within this research setting from the start. Whilst this did not in any way impact on the eventual choice of CIOs, or for that matter on the ability of the researcher to reach "theoretical saturation" of the emerging concepts, it did put practical constraints on the researcher in terms of his ability to be able to make contact easily and get ready access to them. CIOs, as senior organisational executives, tend to have very busy schedules and therefore gaining time in their diaries can prove difficult. This problem of gaining easy assess is captured in the following comment made by one of the CIOs to the researcher "*I suppose the other point is, look you get a lot of calls from people who want to get time in your diary and you just say no because you just can't do them all*" IP16.

7.4.3 Limitations of the Constructivist Perspective

The constructivist perspective assumes that, unlike the original views of Glaser and Strauss, theory is not "discovered" from the data, (i.e. it is not there waiting to be found). Researchers, such as Charmaz (2006) would suggest that "we are part of the world we study and the data we collect. We *construct* [author's emphasis] our grounded theories through our past and present involvements and interactions" (Charmaz 2006, p. 10). Equally, she suggests that "just as the methods we choose influence what we see, what we bring to the study also influences what we *can* [author's emphasis] see" (Charmaz 2006, p. 15).

Therefore, within the constructivist perspective, what we can see and reveal as emergent theories very much depends on what we as researchers have the openness, experience and capacity to see, interpret and conceptualise (Charmaz 2006). For that reason, it must be understood that any theory emerging from a constructivist Grounded Theory study is indeed "personalised", in terms of the constructions of the individual researcher.

7.4.4 Limitations of Grounded Theory as a Research Methodology

In addition, to the ongoing differences between the two "schools" of Grounded Theory, outlined in Chapter 4, another limiting factor, in relation to Grounded Theory is the lack of clarity surrounding its use from an interpretive or constructivist perspective (Annells 1996; Mills et al. 2006). Indeed, it has been suggested that even though Grounded Theory may have a background in symbolic interactionism, it is inherently located within a positivist or post-positivist research paradigm (Annells 1996; Charmaz 2006). However, other academics have suggested that this does not necessarily have to be the case and that Grounded Theory can be adopted in a more constructivist and interpretivist manner (Bryant 2002; Charmaz 2006).

Equally, there appears to have been some variation in the way in which Grounded Theory has actually been implemented, to date, within IS research (Hughes et al. 2003). For instance, it has been suggested that some studies have adopted Grounded Theory in a "contingent" way, whilst other researchers have commenced their data collection and analysis processes with pre-defined "seed-categories" (Fitzgerald 1997; Hughes et al. 1999). Therefore, there appears to be a lack of "cumulative

clarity" and no single "correct way of using Grounded Theory" (Hughes et al. 2003, p. 6) which has been adopted uniformly by researchers in interpretive based IS research.

7.5 Observations on the use of Grounded Theory

In addition to the specific limitations outlined for the current study above, there are a number of observations which the researcher feels might be of value to other researchers embarking on a research study based on the methodology of Grounded Theory:

- Impact of Grounded Theory on the novice researcher;
- Reaching Theoretical Saturation;
- Choosing the "right" theoretical coding family;
- Time consuming nature of the Grounded Theory process; and
- Handling potential researcher bias and professional experience.

7.5.1 Impact of Grounded Theory on the novice researcher

It has been suggested that Grounded Theory is well suited to use by a novice researcher (Strauss et al. 1990) as the systematic procedures for the collection, analysis and coding of data, as defined within Grounded Theory, can provide great assistance in coping with the often unstructured and complex nature of social reality (Bryman 1992). However, it has been recognised that Grounded Theory has not, to date, been widely adopted in the IS research community (Fernandez 2004).

Therefore, many novice researchers in the field of IS can have the added difficulty of operating in environments where there is often only limited experience, regarding Grounded Theory, in their wider academic support structures. This often leads them to rely overly heavily on the underlying texts for guidance and assistance. Such a situation, referred to as "minus-mentoring" (Stern 1994), can, it has been suggested, result in unsound studies which reflect a lack of practical experience with Grounded Theory (Glaser 1998). Therefore, every effort must be made by the novice researcher to expose their emerging theories throughout the process, where possible, to others who have had prior experience with Grounded Theory based research.

7.5.2 Reaching Theoretical Saturation

Theoretical saturation has been described as the point at which "gathering fresh data no longer sparks new theoretical insights, nor reveals new properties" of the emerging categories (Charmaz 2006, p. 113). However, in reality this is not always that easy to determine and can therefore often "pose certain problems for the novice researcher" (Locke 2001, p. 53), as doubts can remain regarding whether all the relevant data relating to the categories and properties have been identified (Dey 1999). Indeed, Day suggests that the term "theoretical saturation" may, in fact, be "unfortunate" (Dey 1999, p. 117) in that it can easily be misunderstood to imply that data sources have been systematically exhausted. Instead, Dey suggests that theoretical saturation refers to the "stage at which categories seem to cope adequately with new data without requiring continual extensions and modifications" (1999, p. 117).

Consequently, the ability to know when to stop looking for more data is, to a great extent, driven by the researcher's own levels of experience (Locke 2001) and his/her sense of "theoretical sensitivity" (Glaser et al. 1967, p. 46). Therefore, as well as discussing the emerging theory on an ongoing basis with colleagues, another strategy that a researcher can adopt to attempt to limit the danger of "premature closure" (Glaser 1978), is to revert back to interviewees and discuss with them the emerging theory. This additional step was adopted by this researcher in an effort to reduce the potential of this risk, during the latter parts of the research study.

7.5.3 Choosing the "right" coding family

Whilst Glaser has implored researchers to "learn as many as possible" of the coding families (Glaser 2005, p. 7), the reality is that the researcher needs, at some stage in the study, to make a call on what appears to be the most suitable coding family to "act as a lens" to help explain what is happening in the data and therefore develop a theoretical account that is parsimonious in nature (Goulding 2002). In the case of this research study, the researcher finally chose to adopt Weber's (1962) "Ideal Types" to drive his theory development efforts. However, the choice of another coding family, such as the "Process" family could have led to a different outcome in terms of the shape of the emergent theory.

7.5.4 Time consuming nature of Grounded Theory process

Grounded Theory based research is time consuming, especially in relation to the collection and analysis of data. This is due to the need constantly to go back and look at the data, as part of the *constant comparison* process, as new data is garnered from the field. Equally, if the researcher decides to hand code his/her data, rather than to

use a software tool, this can also add significantly to the effort involved. However, the researcher would state, in defence of Grounded Theory, following the completion of this study, that the Grounded Theory process actually forces the researcher to get intimately involved with his/her data and this, in his opinion, can only strengthen the research process and ultimate outcome.

7.5.5 Handling researcher bias and professional experience

The process within Grounded Theory whereby the researcher records, by way of memo, his/her observations and insights can help to at least identify potential issues of bias. Such memos enable beliefs and feelings regarding situations to be "put out there" for analysis. Equally, these memos can enable the recording, at critical points in the study, of ideas which evolve from the researcher's own experience. This additional data can help in developing the theoretical sensitivity of the researcher (Glaser 1978). Therefore, overall the researcher would suggest that whilst Grounded Theory cannot fully guard against researcher bias or always integrate the researcher's experiences, it does provide a clear and comprehensive mechanism, within the research methodology, to at least capture these issues.

7.6 Avenues for Further Inquiry

The emergent theory, whilst important and worthwhile, is as already stated above, limited in its focus to the substantive area of the current research setting. However, the researcher believes that there are a number of further avenues of inquiry that can help to significantly develop and extent the current substantive theory:

- Extend the study to other Comparative Groups
- Develop a Quantitative Analysis of Roles
- Develop a Temporal Process Perspective
- Review the Basic Social Process avenue
- Develop Articles for Publication

7.6.1 Extend the study to other Comparative Groups

Extending the current study to investigate other comparative groups will help to "maximise the possibilities" (Glaser 1978, p. 45) for obtaining similarities and differences between such comparative groups, thus deepening our understanding of how individuals interact with such external peer networks and thus enabling the theory to be further developed in a more formal manner. Specifically, two key areas of potential comparative groups could help to significantly extent the potential value of the extant theory:

- CIOs operating in other countries
- Other senior officers operating at top management levels

7.6.1.1 CIOs operating in other countries

The current study was confined to CIOs operating within Ireland, as it had been suggested that widening the research beyond a single country might only bring into play issues relating to different cultural norms and backgrounds (Preston et al. 2006). Indeed, feedback received from the CIOs interviewed as part of Phase III of the research did suggest that the incidence of specific roles, such as the Builder, might differ if the study were to be carried out in a country other that Ireland. For example,

it was suggested that whilst there might be much in common between the approaches, issues and experiences of both Irish and UK based CIOs, their willingness to build close relationships, as defined by the Builder, amongst other CIOs may differ.

Indeed, Hofstede (2001) has suggested that cultural influences, such as the strength of the "power distance indicator" (PDI) for any nationality, can have a significant impact on how individuals perceive each other and on their relative openness to work together and build relationships. Hofstede (2001) suggests that Ireland has a PDI value of only 22, whilst the PDI value for the UK is higher at 30. Therefore, a replication of the current research study with a similar group of CIOs and external peer networks, in a location such as the UK, may prove useful in further developing the extant theory in a way that clearly addresses potential cultural differences between nationalities.

7.6.1.2 Other senior officers operating at top management levels

As identified in Chapter 3, external boundary spanning activities and interactions with peer networks are common across a wide range of senior officers (Geletkanycz et al. 1997; McDonald et al. 2003; Miles et al. 1974). However, again as identified in Chapter 3, little is known about how, in fact, such groups actually interact with external peer networks. The current research has focused only on CIOs and therefore does not directly address the specific issues surrounding such other senior officers, for example, CEOs, COOs and CFO's.

The undertaking of further analysis focused on such groups of senior officers may or may not lead to a different set of roles being adopted in such external network

situations. Therefore, in order to develop and extend the emergent theory beyond the bounds of the current substantive area, in a way that would make it more useful to a wider audience, it would be both beneficial and important that such a research study be replicated, in the first instance within Ireland, on groups of other senior officers, so as to provide a direct comparison with the activities of CIOs.

7.6.2 Develop a Quantitative Analysis of Roles

The current study is focused on the development of a substantive theory relating to how CIOs interact with external peer networks. As identified in the discussion on limitations earlier in this Chapter, this theory has been developed within the narrow area of the current research focus, that being CIOs operating within the Irish Private Sector. Equally, the emergent theory, as currently developed, does not suggest to what extent any or all of the six roles are undertaken by CIOs. These two factors, the narrow area of the current research focus and the lack of knowledge available, to date, on any preferences between the roles, would suggest the opportunity to undertake a wider scale quantitative based study to research these issues. Such a large scale quantitative approach could help to identify differences in preferences for the roles amongst different specific groups of CIOs across different organisational types. This analysis would serve to significantly deepen our understanding of how CIOs, across a wider range of industries, actually interact with external peer networks.

7.6.3 Develop a Temporal Process Perspective

The current study did not adopt a temporal process perspective. Instead, as outlined in Chapter 4, it adopted a cross-sectional view of the processes as currently undertaken

by the CIOs operating within these external peer networks (Saunders et al. 2003). However, some researchers have suggested that without adopting such an orientation, there is always the danger that the researcher may have missed some of the rich historical and processual issues involved in the area of study, which have developed over time (Pettigrew 1990). The key assumption behind a temporal process perspective is that social reality is not a steady state, but is dynamic and evolves over time. Therefore, it is only by studying process evolution over time that one can fully understand the true nature of such processes (Pettigrew 1997). Such a temporal process perspective can help to identify and explain how contexts, incidents, activities and actions of individuals can impact on the development of specific roles over time (Pettigrew 1990). Specifically, this temporal process perspective could be adopted in the following ways:

- Focus on the interactions of CIOs over a period of time
- Focus on the evolution of a specific peer network

7.6.3.1 Focus on the interactions of CIOs over a period of time

A temporal process perspective could be adopted to study how and why the interactions of CIOs, within such external peer network settings, can and do change over time. It has already been observed that it is mainly the more senior CIOs who undertake the *Regulator* and *Coach* roles. However, it is not clear from the current research, which is only focused on the activities of the CIOs, as at one point in time, whether there are triggers related to their longevity or accumulated experience within these networks that impact on their undertaking of these roles, or for that matter, if changes in their activity patterns are a result of specific incidents and interactions.

Therefore, a logical next step to developing the emergent theory, would be to look to re-engage with one or more of the CIOs who took part in this research, over an extended period of time, in order trace their evolving interactions within such external peer networks.

In addition, such a temporal process perspective may also help, when viewed from a Practice Theory perspective (Bourdieu 1977), to develop a clearer understanding of how individual CIOs negotiate their specific positions within such networks. As outlined in Chapter 6, individuals within such fields of practice develop, over time, their positions within such networks via the accumulation of various forms of capital. However, it is the accumulation of Symbolic Capital (Bourdieu 1977), which is often based on their growing power and influence, that is seen to be central to the development of their positions within such networks. In addition, such Symbolic Capital can also be seen to be central to how others perceive individuals and can ultimately lead to certain individuals gaining "celebrity status" (IP11) within such networks.

7.6.3.2 Focus on the evolution of a specific peer network

Equally, it may now be possible to focus the temporal process perspective on the evolution of the specific networks themselves; as the nature and structure of such networks are not seen to be static over time. Indeed Wenger (1998b, p.2) has suggested that such networks constantly negotiate and re-negotiate:

- Their purpose and sense of joint enterprise;
- Their processes of interaction;

- The nature of their relationships; and
- The knowledge and resources they employ and produce.

Therefore, the study of the development of specific networks in themselves, over an extended period of time, should help to develop a clearer picture of both their nature and activities, and how these evolve over time. In addition to the theoretical benefit of understanding the evolution of these networks, such an approach could also have a major practical benefit for not only to the CIOs involved, but also for the network organisations themselves. This approach may help to manage the expectations of both these parties in relation to the experiences they have with these external peer networks.

7.6.4 Review the Basic Social Process avenue

As stated in Chapter 5, the initial theoretical coding efforts within this research study were directed by the researcher towards the "process" family of theoretical codes in order to describe the underlying basic social process that was being enacted by the CIOs, whilst interacting with external peer networks. However, after much work and reflection, this approach was discontinued. At this point in time, there may indeed be additional value to be gained in revisiting the data from the viewpoint of a basic social process, in order to see if there are distinguishable stages to the interaction of CIOs with external peer networks (Glaser 1978). Glaser describes this process of reviewing other avenues within the data as "comebacks" (1998, p. 200) which, of their own, may provide an interesting and rewarding avenue for further research.

7.6.5 Develop Articles for Publication

Orlikowiski (1993, p. 315) has suggested that "no claims can be made that the concepts and interactions presented (in a grounded theory such as this) are exhaustive", as she believes that further research studies should add to or modify the ideas presented by any one researcher, as this is how "we build on each other's work". With this in mind, the researcher will move to develop a number of articles for publication, based on this work. This step will have the benefit of not only annunciating the results of this research, but will also enable a wider field of researchers to have access to this emergent theory and its potential implications for research in IS and further a field.

7.7 Some Final Thoughts

It is important for the researcher to conclude his/her thesis with some sense of personal reflection on the research process just completed. That is indeed what I would like to do in this short section. This reflection, I would like to carry out in terms of two separate, yet linked headings, namely: the process and the impact on me as the researcher.

- The Process of Research; and
- The Impact on me as the Researcher.

7.7.1 The Process of Research

It must be stated that the process of academic research can often appear to be a daunting and overwhelming prospect for many a novice researcher. Key issues like

choosing your research question, clarifying your position regarding assumptions and methodologies, and identifying a suitable and accessible research setting can appear significant in themselves to those starting out on the road to research. In addition, the extensive nature of the field work and data analysis process, inherent in the methodology of Grounded Theory, can result in long hours, a lot of soul searching, and the sense of much time spent apparently going around in circles.

However, that said, I found that my own extensive professional knowledge and experience in IS management was of great help to me in the research process. Specifically, it helped me to understand better the attitudes and perspectives of the participant CIOs. Indeed, on reflection, it must be very difficult for someone not versed in the culture and nuances of the role, to be able to really understand and appreciate all the varying actions and opinions of the individuals involved. For instance, it must seem strange and hard to appreciate, for someone outside the "industry" how very senior, experienced and apparently important executives, such as CIOs, can often possess such a sense of isolation within their own organisations. However, without understanding this, it is impossible to fully appreciate how interactions with external peer networks can provide such a significant support to the role of the CIO.

7.7.2 Impact on me as the Researcher

Probably the greatest impact for me, as the researcher, has been on my own belief in my ability, at this stage of my career, to take on a totally new field of activity and specifically, to plan and execute such a detailed and involved body of academic research work. This may sound difficult to comprehend coming from someone who

has had nearly thirty years experience in IS management, with the last eight as a successful CIO of a large Irish multinational organisation. However, the nature of the work of a senior organisational executive is not necessarily suited to long periods of focus and concentration on particular activities, as is required by the process of academic research.

Indeed, Mintzberg (1973, p. 31) had suggested that the role of a senior organisational executive is more reflected in "brevity, variety and fragmentation". Therefore, taking on such a large and concentrated body of work meant that I needed to go back and revisit, within myself, my abilities to plan, organise and execute a body of work as one consistent and long term undertaking. This, I must add, was no easy task as one gets used to, within organisational settings, having others to help and assist your efforts. However, such "re-learning" can be both humbling and rewarding at the same time and indeed is an essential pre-requisite or "right of passage" that any aspiring academic researcher must negotiate.

7.7.3 And Finally.....

When looking back over the process, I might indeed have approached certain aspects of the process differently, gone up fewer blind alleys or taken on the advice of others more readily; however, at all times, one needs to remember that in a lengthy process such as this, as stated by Franklin D. Roosevelt, "happiness lies in the joy of achievement and the thrill of creative effort". Therefore, the real value of the Ph.D. process is not so much in the result, no matter how good or important the emergent theory may appear to be, but in the effort undertaken which can, in turn, lead to the successful development of the individual as a competent, reflective and informed academic researcher.

APPENDICES

1. List of CIOs Interviewed as part of this Research Study

2a. Sample of follow up contact e-mail with CIOs

2b. Sample of CIO Sign Off e-mail

3a. Interview Guide developed for Phase I and Phase II

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4. Sample of initial contact e-mail with prospective CIOs

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6. Sample of Memo following meeting with CIO

7. Key Secondary Data Sources

8. Example of an Initial Concept Card

9. Example of Concept Card for developing Category of "Developing Personal Trust"

10. Relationship of Ideal Types to High Level and Basic Categories

11. Memo relating to Category of "Handling Celebrity CIOs"

12. Memo relating to Category of "Developing Personal Trust"

Appendix 1: List of CIOs Interviewed as part of this Research Study

PHASE	NAME	TITLE	ORGANISATION	DATE	TIME	INDUSTRY
I	Selwyn Akontola	Professional Services Manager	Siemens Ireland	04/07/07	1 Hour	Hi-Tech
	Dennis Kelly	Head of IT, Power Generation Division	ESB	14/07/07	1 ½ Hours	Hi-Tech/Utility
	Niall McKiernan	CIO, Capital Markets Division	Bank of Ireland	4/10/07	1 Hour	Finance
	Brendan Healy	Group CIO	Irish Life and Permanent Group	10/10/07	1 ½ Hours	Finance
	Eugene Hughes	CIO	O2 Ireland	01/11/07	1 Hour	Telecoms
	Gerry Quinn	IT Director	Eircom	05/11/07	1 ½ Hours	Telecoms
	Michael Martin	Head of IT	KBC Bank Ireland	05/11/07	1 ½ Hours	Finance
	Tom Doherty	Head of IT	EBS Building Society	07/11/07	1 ½ Hours	Finance
	Padraig Hamrock	Head of IT, Capital Markets Division	AIB Group	08/11/07	2 Hours	Finance
II	Anne Weatherston	Group CIO	Bank of Ireland	21/11/07	2 Hours	Finance
	Karen Forte	CIO	Allianz Ireland	22/11/07	1 ½ Hours	Finance
	Steve Meadows	Director Operations & Technology	AIB Group	23/11/07	2 Hours	Finance
	Michael Denihan	Head of IT	Aer Lingus	28/11/07	1 ½ Hours	Airline
	Kevin Cooney	Group CIO	Xilinx Corporation	04/01/08	1 ½ Hours	Hi-Tech
	Michael Furlong	Director IT	VHI Group	09/01/08	1/2 Hour	Finance
	Rob Pike	Director Operations & IT	Ulster Bank	17/01/08	1 ½ Hours	Finance
III	E Hughes	CIO	O2	05/03/09	1 Hour	Telecoms
	D Kelly	Head of IT, Power Generation Division	ESB	09/03/09	1 Hour	Hi-Tech/Utility
	Brendan Healy	Group CIO	Irish Life and Permanent Group	11/03/09	1 ¼ Hours	Finance
	Anne Weatherston	Group CIO	Bank of Ireland Group	23/03/09	1 ½ Hours	Finance

Note: Please note that in order to maintain confidentiality; the coding structure used by the researcher to identify each CIO (i.e. IPXX format) is not reflected in the order in which the above list of CIOs is presented.

Appendix 2a: Sample of follow up contact e-mail with CIOs

From	:	Brian Davis <bdavis@tcd.ie>
To	:	Eugene Hughes <eugene.hughes@o2.com>
Date	:	6th March 2009 14:10
Subject	:	Business School – Trinity College Research Study
Mailed-by	:	tcd.ie

Eugene,

Many thanks for taking the time to meet with me yesterday. I found the conversation helpful and I believe that your insights into the role of the CIO and how they interact with external peer networks will be of great value to my research. Specifically, we addressed the evolving theory in relation to the six roles that CIOs adopt whilst interacting with external peer networks, namely:

The Seeker
The Schmoozer
The Builder
The Prophet
The Coach
The Regulator

As an aid to me in signing off on this process I would be obliged if you could outline some of your key thoughts relating to these emerging roles and their value and significance to you as a CIO.

Regards,

Brian Davis,
School of Business,
Trinity College.

Appendix 2b: Sample of CIO Sign Off e-mail

From	:	Eugene Hughes <Eugene.hughes@o2.ie>
To	:	Brian Davis <bdavis@tcd.ie>
Date	:	6th March 2009 15:48
Subject	:	Business School – Trinity College Research Study

Hi Brian

I was delighted to get the opportunity to meet with you yesterday.

I found your findings to be extremely valuable and very informative

As I mentioned when we met, your research and findings, I believe, could be applied at senior manager levels in any organisation.

I can most definitely relate to the 6 roles and believe they are roles we all play, to varying extents given the circumstances.

On a very minor note, you may give some consideration to the use of 'Schmoozer' as one of your role 'labels' - although it may be a recognised term in business literature, I believe it may have 'slippery person' type connotations.

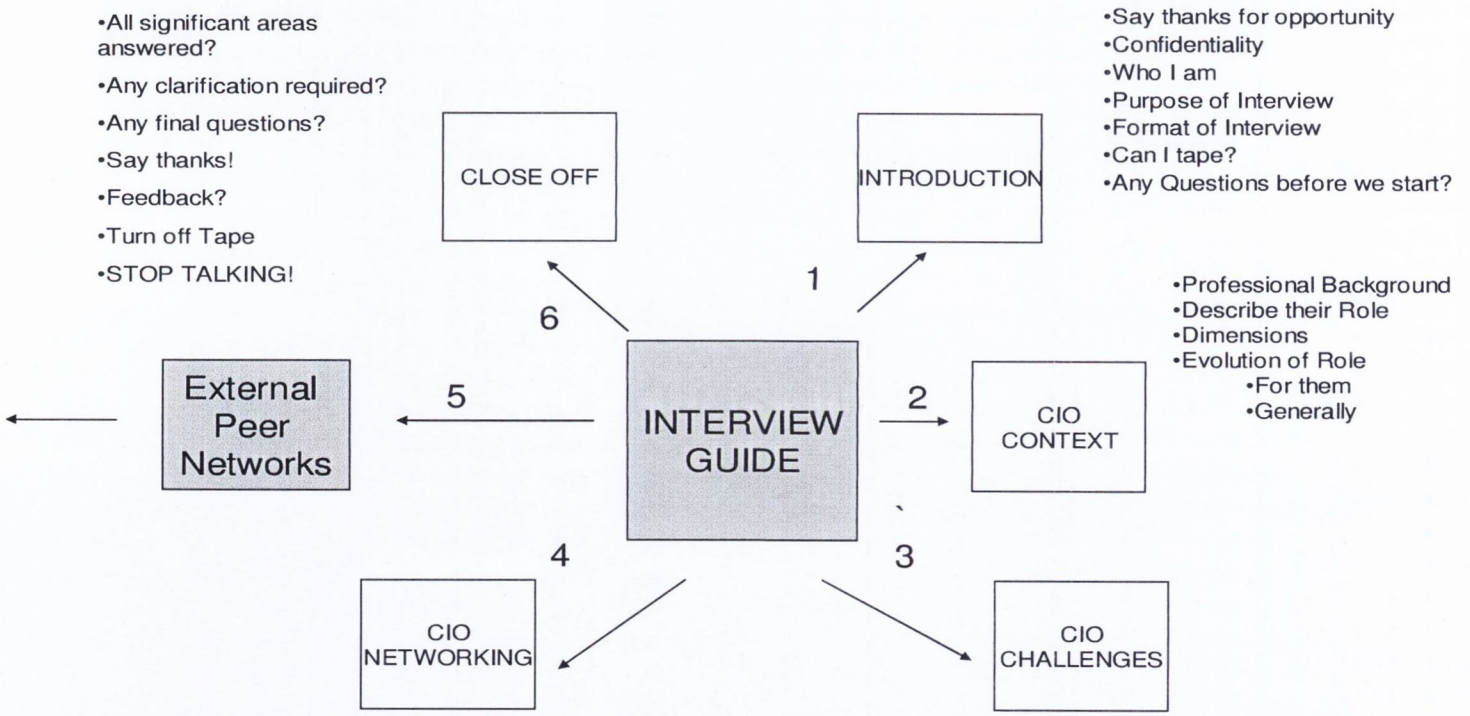
Regards and best of luck - I wish you every success for the PhD ... Eugene

Eugene Hughes

Head of HR Programmes
Telefonica O2 Ireland
mobile: +353 86 8145364
fax: +353 86 58145364
www.o2.ie

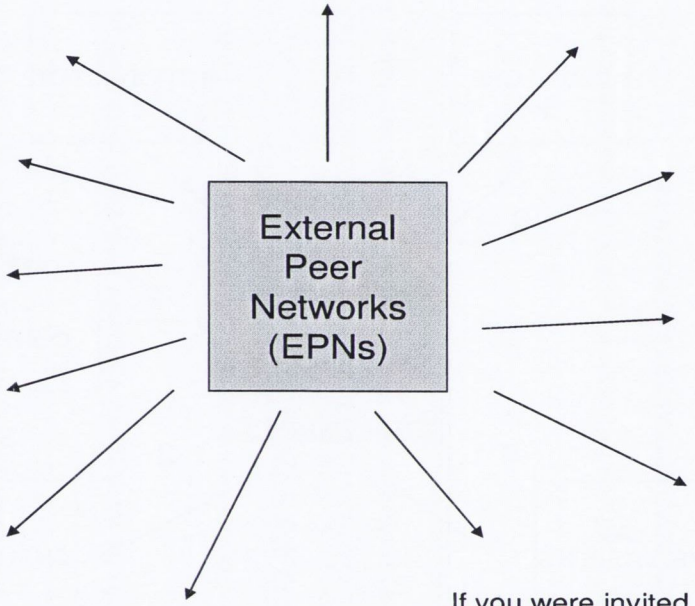
Appendix 3a: Interview Guide developed for Phase I and Phase II

INTERVIEW GUIDE



PAGE 1

INTERVIEW GUIDE – PAGE 2



Could you recommend other CIOs who I could also talk to about EPNs

How would you characterise EPNs

From your experience…how do EPNs work

Is there an "art" to networking and operating within these EPNs

What types of relationships do you have within these networks

What do you expect to get from your involvement with an EPN

If you were invited to attend an EPN…what criteria would you use to decide

What are the essential qualities of a successful EPN

Specifically, what value do you and/or your organisation get from involvement with an EPN

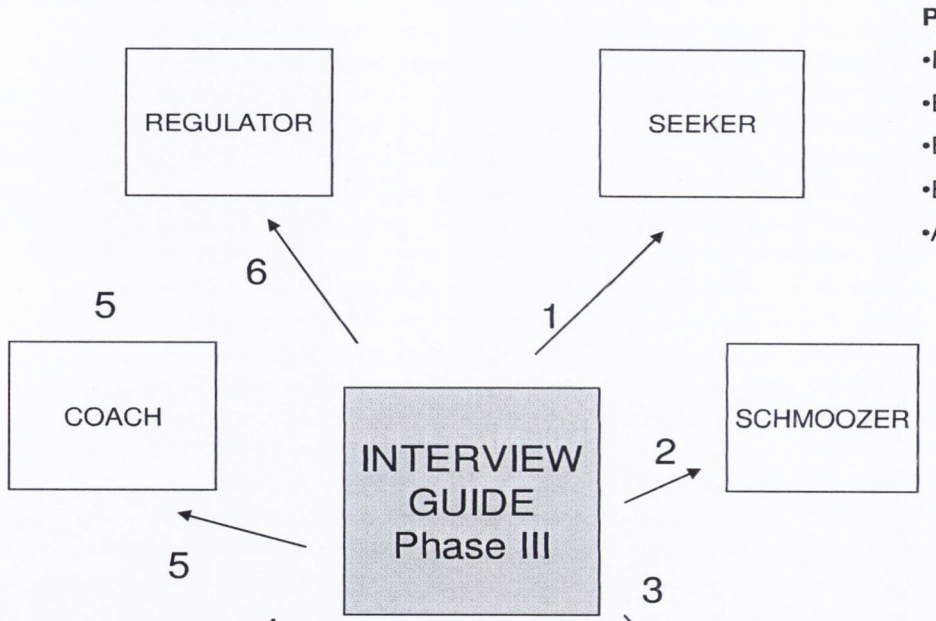
What impact can your involvement within an EPN have for other CIOs

What expectations do you have of the other CIOs in these EPNs

How is membership of EPNs viewed internally

PAGE 2

Appendix 3b: Interview Guide used for Phase III



Properties:
- Organisation
- Governance
- Leaders
- Managing
- Collaboration

Properties:
- Information
- Evaluation
- Experts
- Engaging
- Awareness

Properties:
- Development
- Philanthropy
- Novices
- Educating
- Understanding

Properties:
- Contacts
- Political
- Candidates
- "Speed Dating"
- "In Play"

Properties:
- Ideas
- Dissemination
- Community
- Selling
- Challenge

Properties:
- Relationships
- Empathy
- "Like Minded"
- Connecting
- Acquaintances

For each role check:
- How does the role concept/title sit with them?
- How do the "properties" defined reflect their understanding of the activity?
- Any further observations/ corrections/ suggestions regarding the roles?

Appendix 4: Sample of initial contact e-mail with prospective CIOs

From : Brian Davis <bdavis@tcd.ie>

To : Michael Martin <Michael.martin@kbcbank.ie>

Date : 19 October 2007 15:53

Subject : Business School – Trinity College Research Study

Mailed-by : tcd.ie

Michael,

I am undertaking a Ph.D. here in the Business School, Trinity College and am currently interviewing a number of Irish based CIOs. The focus of my research is on the role of the CIO and how external peer networks assist that role. The approach to my research is qualitative rather than quantitative in nature, so therefore I am interested in the views, perceptions and experiences of CIOs in relation to peer networks.

The format of this process is an interview of approximately 40-60 minutes duration and I would be delighted if you could facilitate me, if that was convenient.

Regards,

Brian Davis

Business School

Trinity College

Dublin 2

Appendix 5: Sample of Memo constructed prior to CIO interview

Memo Dated : 21st November 2007.

Note regarding: IP01

Official Title : Head of Enterprise Solutions and Services (CIO?)

Reports to : Director Group Manufacturing

Initial Issues:

- IP01 previously worked in Student Loans Company (UK) – what is this?
- IP01 also worked in Abbey National up to 2005.
- Is referred to as Group CIO of Organisation "A" by IP11.
- Need to check her understanding of Group CIO role as well as her understanding of the role of the Business Unit CIOs.
- Other specific areas of interest worth following up:
    - As a female does she have any different views on EPNs; male vs female attitudes to networking and its role and importance.
    - Having just arrived from the UK how does she find the situation in Ireland for CIOs.
    - What experience of EPN's did she have in the UK.
    - How have her experiences with EPNs differed from those in the UK.
    - Specifically what has been the same/different.

Appendix 6: Sample of Memo following meeting with CIO

Memo

Date : **9th January 2008**

Subject: **Initial thoughts following interview with CIO IP09.**

Came out of the meeting very disappointed. Had been told that I would find IP09 a very interesting person with a wide range of experience, both within his organisation and prior to that in other senior IT roles.

I did not introduce myself as a former CIO, not for any other reason than to be able to have a mix in relation to the "background picture" I portray to prospective interviewees, so that knowledge of my background does not appear to "colour" every interview. Just introduced myself as a researcher from TCD doing research into the role of the CIO.

I found him, from the start, to be very defensive. I started as normal, like all previous interviews with an overview of the qualitative process and an outline of the confidentiality aspects. This appeared to go straightforwardly; however, I did notice a certain "holding back" by the interviewee from the very beginning. First question on his background went OK as it was just an opening conversation on his own professional background, however I did sense a "playing up" of his previous roles as he was quick to emphasise, for instance, the large size and nature of the outsourcing contracts he had worked on for Management Consultancy "X" in the UK. I felt that he

was trying, not so much to impress me, but to put down some markers about his level of experience.

The second question I asked him was the standard one about "tell me about your current role" and his instant and immediate reply was "what do you mean by that", which I found extremely defensive, and not a reply I had received from any previous interviewee to this question. All this question is attempting to do is paint the context within which the interviewee operates. It is not attempting to find fault with the role of the individual.

I then progressed through the standard format of my question set in the hope that he would "open up", however at no stage did I get a feeling that I was getting other than stock answers to my questions. I didn't get any reflection, personal experiences or beliefs expressed by the interviewee. After about twenty minutes I came to the conclusion that there was little point in attempting to develop the interview further, as I had found myself starting to suggest words for the interviewee, which I knew was a result of my growing disappointment and frustration with the interviewee. So I decided to look at closing out the interview within the next 5 minutes.

At the end of the interview I again asked my standard "last question" regarding if he could suggest any other CIOs I could talk to and again I was surprised at his answer. He suggested that he possibly could but would not be in a position to give out any names until he had cleared it with these people. This is a response I have not received from any of the previous interviewees! He took my mobile number but I don't expect

him to reply to me. Was this a response to secrecy that he had learned in Management Consultancy "X"?

Initial Thoughts

He did not engage, was for some reason not interested and treated the process as more of an adversarial interrogation than an open interview.

- So does it suggest that there are some CIOs who feel threatened by people like me and this insecurity can impact on how open they are with others?
- It's as if not knowing that I had also been a CIO in some way caused him to hold back. So is there something in creating a "brotherly bond" between CIOs that helps to open up and bring people together?

Appendix 7: KEY SECONDARY DATA SOURCES

CIO ORGANISATION	CORPORATE WEB SITE	ADDITIONAL DATA SOURCE
Siemens Ireland	www.siemens.ie	Siemens Annual Report 2007 http://w1.siemens.com/annual/07/en/index.htm
Electricity Supply Board	www.esb.ie	Annual Report 2006 http://www.esb.ie/main/about_esb/annual_report_2006.jsp Annual Report 2007 http://www.esb.ie/main/about_esb/annual_report_2007.jsp
Bank of Ireland	www.bankofireland.ie	Annual Report 2006 http://miranda.hemscott.com/ir/bir/ar_2007/ar.jsp Annual Report 2007 http://online.hemscottir.com/ir/bir/ar_2008/ar.jsp
Irish Life and Permanent	www.irishlifepermanent.ie	Annual Report 2006 http://www.investis.com/reports/ilp_ar_2006_en/report.php?type=1 Annual report 2007 http://www.investis.com/reports/ilp_ar_2007_en/report.php?type=1

O2 Ireland	www.o2online.ie	O2 Ireland Key Performance Indicators 2006 http://www.o2online.ie/wps/wcm/connect/O2/About+O2/Press/2007/March/O2+Ireland+%E2%80%93+Q4+Key+Performance+Indicators+to+31+December+2006 O2 Ireland Key Performance Indicators 2007 http://www.o2online.ie/wps/wcm/connect/O2/About+O2/Press/2008/February/O2+Ireland+%E2%80%93+Q4+Key+Performance+Indicators+to+31+December+2007
EIRCOM	www.eircom.ie	Eircom Group Results to June 2007 http://www.investorrelations.eircom.net Eircom Group Results to June 2008 http://investorrelations.eircom.net/pdf/BCMIF_quarter_and_twelve_mths_to_JUN_08.pdf
KBC Bank Ireland	www.kbc.ie	Annual Accounts 2006 http://www.kbc.ie/pdflibrary/FINAL%202006%20Annual%20Report.pdf Annual Accounts 2007 http://www.kbc.ie/pdflibrary/FINAL%202007%20Annual%20Report.pdf

EBS Building Society	www.ebs.ie	EBS Building Society Annual Accounts 2006 http://online.ebs.ie/internet/pdffiles/public/ebsannualreport2006.pdf EBS Building Society Annual Accounts 2007 http://online.ebs.ie/internet/pdffiles/public/ebsannualreport2007.pdf
AIB Group	www.aibgroup.com	AIB Group Annual Accounts 2006 http://www.aib.ie/servlet/ContentServer?pagename=AIB_Investor_Relations/Miscellaneous/ir_article_printer&c=AIB_Article&cid=1096576948103&channel=IRFP# AIB Group Annual Accounts 2007 http://www.aib.ie/servlet/ContentServer?pagename=AIB_Investor_Relations/Miscellaneous/ir_article_printer&c=AIB_Article&cid=1096576948103&channel=IRFP#
Allianz Ireland	www.allianz.ie	Allianz Ireland fact Sheet http://www.hoovers.com/allianz-ireland/--ID__138874--/free-co-factsheet.xhtml
Aer Lingus	www.aerlingus.com	Aer Lingus Annual Accounts 2006 http://www.aerlingus.com/Corporate/Current_Report/AL_AnnualReport2006.pdf

		Aer Lingus Annual Accounts 2007 http://www.aerlingus.com/Corporate/Current_Report/ AL_AnnualReport2007.pdf
Xilinx Corporation	www.xilinx.com	Annual Report 2006 http://media.corporate- ir.net/media_files/irol/75/75919/ar2006/ar2006/XILINX_AR_06/index.htm Annual Report 2007 http://media.corporate- ir.net/media_files/irol/75/75919/XLNX_AR_07/index.htm
VHI Group	www.vhi.ie	VHI Annual Report 2006 http://www.vhi.ie/pdf/about/annual_report_06.pdf VHI Annual Report 2007 http://www.vhi.ie/pdf/about/annual_report_07.pdf

EXTERNAL PEER NETWORK ORGANISATIONS	CORPORATE WEB SITE	ADDITIONAL DATA SOURCE
Gartner Group	www.gartner.com	http://www.gartner.com/it/products/ep/executive_programs.jsp http://www.gartner.com/pages/docs/exp/images/marketing/CIO_brochure.pdf
CIO Connect	https://member.cio-connect.com/MainWebSite/	http://www2.cio-connect.com/downloads/Sales%20Presenter%20v3_sep08.pdf
AIM Ireland	www.aimi.ie	

IRISH IS TRADE PUBLICATIONS	CORPORATE WEB SITE
Silicon Republic	www.siliconrepublic.com
Tech Central	www.techcentral.ie
Irish Computer	Paper Publication
ComputerScope	Paper Publication

Appendix 8: Example of an Initial Concept Card

Concept Card

IP0537 Trust in Groups

No, I think you got to judge each one on its merits **holding back and assessing** ….. it depends on the speaker, it depends on the other people around the table, it depends on the discussion you are getting into **evaluating situation based on context**, right, but the vendor ones tend to be at the level that you're not going in expecting to get deep insight **having low expectations** into someone's IT organisation, right, because the people that are there you don't necessarily know them **lack of trust** or haven't built up a relationship with them **lack of close relationships**. If you take something like EPN01[17], as an example that I have been in for four or five years, you know over a period of time it's the same people that are turning up **same consistent core group,** right, so it's the same dozen or so that are there, you do build up a relationship **time required for trusting relationships**, you do know that, while that's facilitated by EPN01, right, we're there to learn from each other **mutual expectations of learning**, right, in terms of helping one another, right, and we are also there to learn in terms of some of the key research stuff that is coming through **informational learning**. So they tend to be quite productive and quite open **openness based on trust and expected value**. The EPN02 one is operating at a similar level ….. in terms of trying to connect people up over a period of time **create a working/trusting environment**. So that operates at a somewhat similar level to EPN01 although cheaper **cost V value relationship**.

(Open codes are shown above underlined in bold)

[17] EPN01 and EPN02 are codes assigned to external peer networks operating in Ireland.

Appendix 9: Example of Concept Card for developing Category of "Developing Personal Trust"

Concept Card

Category: Developing Personal Trust

The development of trust can have an impact on the behaviour of CIO's

- It can lead to a change in attitude towards other CIO's
- It can create a willingness to share information and experiences
- It can lead to the creation of a sense of togetherness
- It needs to be built up over time based on knowledge on individuals and experience of dealing with them
- It can take some time and personal effort to establish and maintain
- Trust is based on the development of individual professional relationships
- CIO's can be naturally wary of other CIO's from competitive organisations
- Creation of trust can be good for the CIO influencing process
- Other CIOs can bring different perspectives and experiences
- Only following the creation of trust will individual CIO's be willing to share both the good and bad elements of their professional and organisational successes

Appendix 10: Relationship of Ideal Types to High Level and Basic Categories

IDEAL TYPE	HIGH LEVEL CATEGORY	BASIC CATEGORY
Seeker	Assessing Information Needs	Needing Connection Defining Information Needs Recognising Opportunities
	Assessing Appropriateness	Handholding TMT Assessing Organisational Value Deciding what's Appropriate
	Mining for Information	Focusing on Value Impacting of Others Difficulties in Searching Maintaining Context
	Developing Awareness	Being Competitively Aware Defining Areas of Interest Gaining Intelligence Confirming beliefs
	Referencing	Acting as Internal Consultant Making Industry Comparisons Providing Agile Responses
Schmoozer	Making Contacts	Contacting Others Identifying New Prospects Working on Recommendations Managing Expectations Loosing Contact
	Positioning Oneself	Personal Profiling Positioning Doing your Homework
	Focus of CIO	Dealing at Same level Focusing on Same Industry Interest in Related Areas
	Speed Dating	Speed Dating Art of Networking
	Personal Comparison	Seeing we're all the same Making Personal Comparisons Evaluating Contacts
	Oiling the Wheels	Oiling the Wheels Working the Network

	Being "In Play"	Playing the Field Creating an Insurance Policy
	Staying Ahead	Staying Ahead Extending Peer Access
Builder	Valuing Relationships	Identifying Connections Recognising Potential Assessing Relationship
	Identifying with Others	Developing Empathy Seeing Others Enabling Openness
	Sense of Isolation	Feeling Isolated Loneliness
	Like Minded people	Similar people Friends of Friends Layered Networks When in Trouble
	Bonding	Mixing and Bonding Opening the Kimono Meeting and Greeting
	Building Personal Trust	Developing Personal Trust Developing Rapport
	Sense of Belonging	Believing in Oneself Belonging Finding a Safe Place Confidence
	Personal Acquaintances	Focusing on Friendship Maintaining Relationships Bringing Home
Prophet	Developing Ideas	Developing Thought Leadership CIO Personal Interests CIO Background
	Spreading the Word	Networking with Others Developing the Network
	Similar problems	Recognising Similar Problems Nature of Networks
	Influencing	Influencing Credibility Sharing Experiences

	Internalising	Challenging Thinking Opening Up Internalising
Coach	Making a Difference	Making a Difference Continuous Learning
	Philanthropy	Philanthropy Leaving Behind Giving Back
	Size Differences	Impact of Size Differences Melting Pot Mismatch of Needs
	Helping others	Helping Others Committing to Others Getting Involved
	Tacit knowledge	Sharing Experiences Creating Understanding
Regulator	Organising the Meet	Assessing Suitability Working with Busy People Being There Managing Vendor Role
	Setting the Rules	Agreeing the Rules Defining Rules of Engagement Cabinet Confidentiality Managing Trade Secrets
	Anchor Tenants	Handling Celebrity CIOs Recognising Powerful People
	Dealing with Issues	Maintaining Enthusiasm Handling Personalities Managing Other's Agendas
	Working Together	Collaborating Developing Group Value

Appendix 11: Memo relating to Category of "Handling Celebrity CIOs"

MEMO

The presence of "celebrity CIOs" at meetings of external peer networks can have a significant impact on whether other CIOs attend.

- Sense that such celebrities are a "necessary evil" to get others to come along.
- CIOs appear to recognise that there are different levels of CIOs in the marketplace and that some are indeed celebrities themselves.
- "Pecking order" appears to be important to some CIOs, i.e. who is going to be there, will they be more or less senior than them etc.
- CIOs appear to look up to such celebrities in the hope that they could provide "senior insights" on market developments.

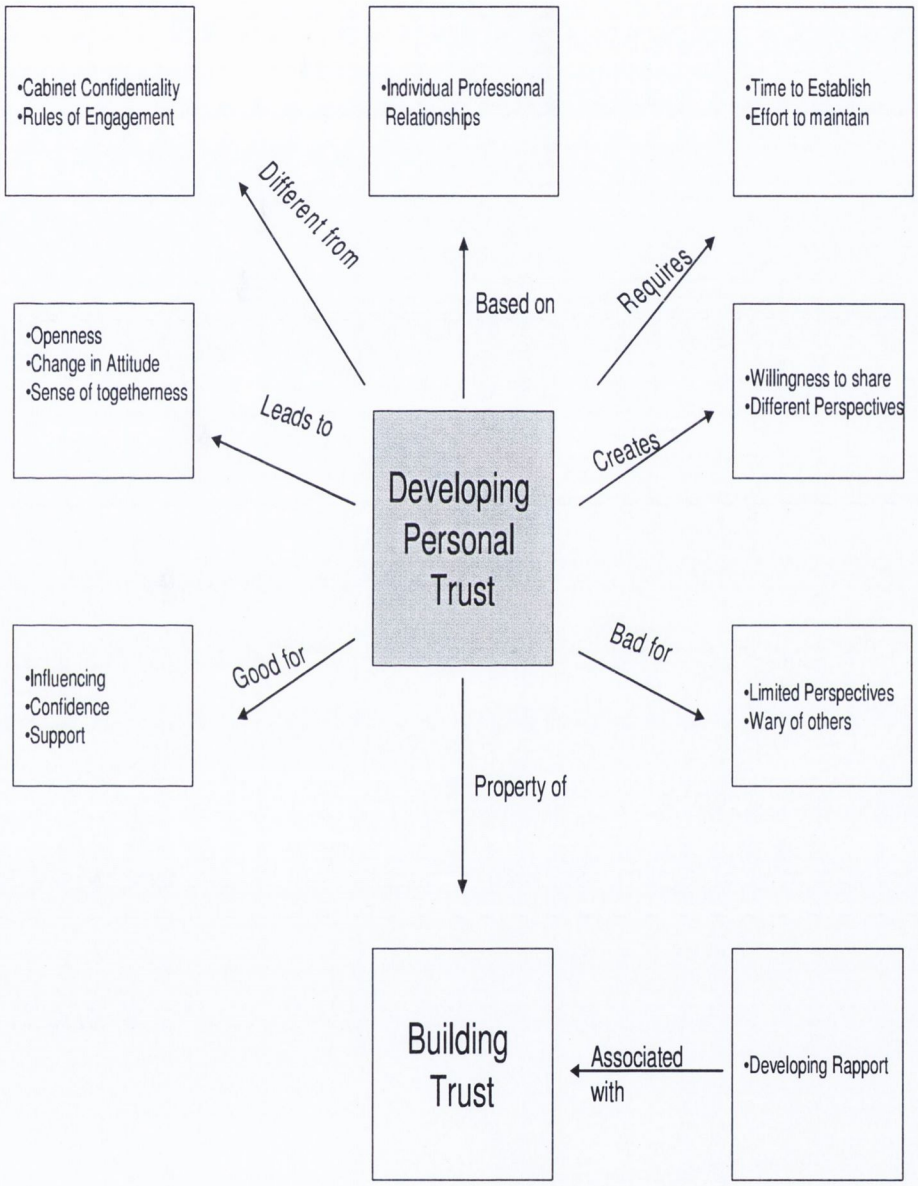
Further questions posed:

- Does the availability of celebrities mean that this network is more/less important than others, will it work without them?
- What impact, good and bad, do such celebrities have on the actual running of the networks?
- How do the other senior CIOs view such celebrities?
- Why would they be more interested in "rubbing shoulders" with such people, what real difference does it make?
- Is there a potential link between connections with such celebrities and their own ability to influence internally? Do they look for approval/referencing?

Appendix 12: Memo relating to Category of Developing Personal Trust

MEMO

Developing Personal Trust



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